STATE OF MAINE
DEPARTMENT OF AGRICULTURE, CONSERVATION AND FORESTRY
BOARD OF PESTICIDES CONTROL
28 STATE HOUSE STATION
AUGUSTA, MAINE 04333

JANET T. MILLS
GOVERNOR

AMANDA E. BEAL
COMMISSIONER

BOARD OF PESTICIDES CONTROL

September 6, 2024

9:00 AM Board Meeting

MINUTES

1. Introductions of Board and Staff

   - Adams, Carlton, LaJoie, Neavyn
   - Assistant Attorney General, Carey Gustanski
   - Boyd, Couture, Nelson, Peacock, Vacchiano

2. Minutes of the July 19, 2024 Board Meeting

   Presentation By: Alex Peacock, Director

   Action Needed: Amend and/or Approve

   - **Neavyn/Carlton: Moved and seconded to approve the July 19, 2024 minutes**
   - **In Favor: Unanimous**

3. Report on Annual Funding to Maine CDC for Mosquito Monitoring

   The Maine Center for Disease Control and Prevention (Maine CDC) coordinates state activities around preventing vector-borne diseases. As part of its responsibilities, the CDC coordinates mosquito and disease monitoring in Maine. The presence of mosquito-borne diseases and the species of vector mosquitoes present in Maine have been on the rise in recent years. Maine CDC and BPC entered into a Memorandum of Understanding in 2013 to establish cooperation to conduct surveillance for mosquito-borne diseases to protect public health. At the June 17, 2022 meeting Sara Robinson of the Maine CDC provided an overview of the trends and the state's monitoring program. At the April 5, 2022 meeting, the Board voted to approve funding in the amount of $25,000 for Maine CDC's mosquito monitoring efforts.

   Presentation By: Sara Robinson, Infectious Disease Epidemiology Program Director

Action Needed: Approve/Disapprove transfer of funds to Maine CDC

- Sara Robinson, Maine CDC Epidemiology Program Director and Chair of the Vectorborne Disease workgroup, updated the Board on where the Maine CDC currently stands and what they were requesting for mosquito monitoring funding. She gave an overview of viral detections from 2014-2023 and relayed that 2024 had been very busy with early virus detections and serious discussions about recommending a declaration of a public health threat or emergency. Robinson stated that one of the biggest information gaps was mosquito surveillance. Due to limited funding, widespread surveillance could not be conducted, which left them uncertain as to where the risk was highest. Robinson said that mosquito monitoring efforts were largely funded by the U.S. CDC through a grant from the Epidemiology and Laboratory Capacity (ELC) Program, whose purpose was to grant funding to health programs to detect, prevent, and respond to infectious disease outbreaks. This year Robinson's program requested $175,000 and received $37,500. She said that the estimate to double the mosquito surveillance site for 2025 was $270,000. Robinson stated that the base amount required to maintain sustained and consistent monitoring was approximately $175,000. She added that costs had increased for multiple reasons. One was because the months requiring monitoring had expanded and testing now began in May and went through until the end of October, whereas it used to be completed from July through September.
- Adams asked if the funding the Board approved would go to this year's mosquito monitoring or next year's.
- Robinson replied that any funding granted would be for both, but mostly for next year.
- There was discussion about rapid response testing, regarding its adequacy, if there was a need for more of it and the cost.
- Neavyn stated that the Maine Health Research Institute (MHRI) was his employer, and his comments may be a conflict of interest. He asked if his employment with MHRI affected his discussion on this topic.
- Gustanski responded that Board members should only talk if they did not have a financial interest in the agenda item being discussed.
- Neavyn stated that he would abstain from the vote.
- Robinson said that they had petitioned the legislature for several years, but the monitoring had never been funded. She added that the program did not generate any fees that could contribute to funding, so they had to rely on only the state and federal funding that was granted. Robinson stated that as of last month, they had tested 10,000 mosquito pools.
- Adams stated that he felt this was a real human health risk and the Board should spend funds available on helping protect human health. He suggested the Board consider increasing the level of funding. Other Board members agreed.
- Peacock let the Board know that they had not distributed funds previously granted.

    - **Carlton/Lajoie: Moved and seconded to approve dispersal of the original $25,000 granted to Maine CDC**
    - **In Favor: Unanimous**

- Adams asked if that would help solve the funding problem.
- Robinson responded that the money promised from last year was already encumbered.

4. Review Responsibilities of the BPC for the Protection of the Public Health from Mosquito-borne Disease

A five-year MOU between Maine CDC and the BPC expires on December 31, 2024. Overview of MOU and discussion and highlights of the Report and Plan to the Joint Standing Committee on Agriculture, Conservation and Forestry Pursuant to Resolve 2013, Chapter 13: Directing the Department of Agriculture, Conservation and Forestry to Develop a Plan for the Protection of the Public Health from Mosquito-borne Disease. Discussion of BPC policy regarding the establishment of exclusions zones in the event of large-scale aerial mosquito control operations.

Presentation By: Alex Peacock, Director

Action Needed: Discussion

- Peacock stated that there were monies available to disperse an additional $100,000 and mentioned that the Memorandum of Understanding (MOU) expired this year. He had begun a draft for a new MOU, with the same minimal dispersal level of $25,000. There was anticipation that the arboviral threat would continue to increase yearly. Peacock reviewed with the Board the BPC's responsibilities if a public health threat were declared, including mapping exclusion zones such as organic farms and fish hatcheries as well as allowing the option for all agricultural producers to opt out of treatment. Staff were also working with the Department GIS coordinator to provide a survey for all agricultural producers.
    - **Lajoie/Carlton: Moved and seconded to approve additional funding to the Maine CDC in the amount of $100,000**
    - **In Favor: Adams, Carlton, Lajoie**
    - **Abstained: Neavyn**

5. Workshop Session to Review the Rulemaking Record on the Comments Received Related to Chapter 60

(Note: No additional public comments may be accepted at this time.)

A public hearing was held on July 19, 2024 via a hybrid meeting in Deering Building 101 at 90 Blossom Lane, Augusta and on the Microsoft Teams platform. The written comment period closed on July 29, 2024 at 11:59 PM. Three people spoke at the public hearing and two written comments were received by the close of the comment period. The Board will now review the rulemaking comments and determine how it wishes to proceed with the rulemaking proposals.

Presentation By: Karla Boyd, Policy & Regulations Specialist

Action Needed: Approve/Disapprove Continuation of Rulemaking

- Boyd reviewed the rulemaking process and let the Board know that this was the point for them to review the public comments received.

- Adams stated he was challenged by this petition to designate Eagle Lake Water District wellheads as a Critical Pesticide Control Area, especially based on its origin. He added that the only previous petition for this designation that had come before the Board was brought forth to protect someone with a known health issue. Adams said that the Board had not heard or been presented with evidence like a water quality sample showing that there were pesticides in the well or that pesticides had left the property where they were sprayed.
- Peacock mentioned that currently, public wells and areas around public drinking water were deemed sensitive areas, and applicators were required to make applications in accordance with the label to protect those locations. He explained the two types of notification and clarified that with direct notification, the water district could send a letter to anyone with 500' of the area. Those individuals would then have to comply with notifying the water district when applications were planned, and if there were still issues, the Board would intervene and try to solve them.
- John Martin responded that he would argue that homeowners would require education to know which items were pesticides
- Peacock suggested that BPC staff could provide them with a copy of Chapter 28, Section 1.
- Martin asked if Peacock would be willing to review the water district's draft letter.
- Peacock said he would do that.
- Martin stated that they had spent a lot of money to find this water source and did not want to have to look for another one. He added that he was more worried about misapplication by a homeowner that could contaminate the water source rather than by a licensed applicator. Martin said he would draft a letter and send it via certified mail to all those who abutted the area.

6. Update on EPA's Endangered Species Act Compliance Strategies

Highlights and discussion of the EPA's Final Herbicide Strategy and draft insecticide strategy. Brief overview of EPA's Bulletins Live Two! And Erosion and Run-off Mitigation websites.

Presentation By: Alex Peacock, Director

Action Needed: Discussion

- Peacock stated that BPC planned to offer presentations for recertification credits at the Agricultural Trades Show (ATS) to educate applicators that these mitigations would start showing up on labels.
- Adams asked about the timeline for implementation.
- Vacchiano stated that the language was already on some labels but she had only seen one so far.
- Adams asked if staff anticipated this would be an extraordinary cost, beyond the norm, for just the time spent on education. He added that it was BPC's responsibility to make sure the public was aware and compliant.
- Peacock said significant time would be spent on education and outreach.
- There was discussion about Bulletins Live2 and how to make sure all were aware and checking it.
- Peacock noted that additional EPA strategies would be coming in the near future.

7. Request that the Board consider making pesticides with the active ingredient Tebuthiuron, a State Restricted Use Pesticide

   In 2023, the Board accepted a consent agreement with Arthur and Amelia Bond for the unauthorized use, off-label application and negligent use of the pesticide tebuthiuron. The herbicide was used to kill mature oak trees at a neighboring property to the Bond's property in Camden, presumably to enhance their views of Camden Harbor. The destruction of these trees and use of this product by the Bond's has been widely reported in the media. Due to this reporting, there is concern that other homeowners may make copycat applications and cause more destruction of vegetation in the shoreland zone. Designating tebuthiuron as restricted use will only allow licensed pesticide applicators access to this product.

   Presentation By: Alex Peacock, Director

   Action Needed: Discussion to determine next steps

   - Peacock explained that this request stemmed from the tebuthiuron incident that occurred in Camden Harbor which culminated in a consent agreement after inspections and sampling by BPC staff. He asked if the Board would like staff to move forward with research on the consideration of defining tebuthiuron as a restricted-use pesticide in Maine and/or also considering other products for status and policy. Peacock said that this would be somewhat difficult to undertake until a toxicologist was hired, particularly regarding assessing the risk to human and environmental health.
   - Adams said he was absolutely in favor of making it more difficult for anyone to obtain this product.
   - Carlton suggested the Board consider if there were other active ingredients that should be evaluated for change in Maine registration status.

8. BPC Field Trip

   Historically Board members and BPC staff have taken an annual field trip to visit and learn about emerging technologies and practices within the regulated community. The last trip was forestry related in Greenville in 2019. The COVID-19 pandemic halted future field trips. This a short discussion to determine if the Board would like to reinstate annual field trips and discuss possible ideas and locations.

   Presentation By: Alex Peacock, Director

   Action Needed: Discussion

   - Peacock told the Board that the last field trip was in 2019 when the Board and staff met with Weyerhaeuser and visited some conifer release sites. He asked if there was interest in planning a field trip for 2025 and if the Board had any suggestions.
   - Carlton said he thought that was an excellent idea. He added that there was so much going on in Maine agriculture, and it would be beneficial to learn more about what was going on with potato and blueberry growers because he was always ensconced in the forestry world.
   - Adams requested that staff email all Board members and ask them to submit their ideas.

9. Other Old and New Business

a. Variance Permit for CMR01-026 Chapter 29, Green Thumb Lawn Service, Eddington
b. Variance Permit for CMR01-026 Chapter 29, Green Thumb Lawn Service, Hudson
c. Variance Permit for CMR01-026 Chapter 29, Bartlett Tree Expert Co., Portland
d. Variance Permit for CMR01-026 Chapter 29, Basswood Environmental, LLC, Brooksville
e. Variance Permit for CMR01-026 Chapter 29, Northeast Vegetation & Mosquito Control, Lewiston
f. Variance Permit for CMR01-026 Chapter 29, Forest to Shore, Union
g. Obsolete Pesticide Collection Program Flyer
    - Boyd reviewed the details of the Obsolete Pesticides Program with the Board.
    - Adams asked if pesticides were required to have been registered at some point in their life to be eligible for the program.
    - Boyd said the product needed to be a pesticide, but prior or current registration was not a requirement for inclusion in the collection. She added that items other than pesticides, such as paints, paint thinners, and regular cleaners were not accepted.
    - Adams said he inquired because to dispose of products safely, one needed to know what they were, and there were a lot of products out there, especially surfactants, that would be hard to identify.
    - Peacock stated that staff attempted to identify each product.
h. Town of Athens Herbicide Notification Ordinance
i. Report: Forever Pesticides: A Growing Source of PFAS Contamination in the Environment
j. EPA Issues Emergency Order to Stop Use of Pesticide Dacthal
k. Hiring of Manager of Compliance, Allison Smith
l. Retirement of Peggy Lamb after more than 25 years of service to the State of Maine
    - Peacock informed the Board of Peggy Lamb's retirement and said her institutional knowledge would be greatly missed and thanked her for her years of service.
    - The Board also thanked her for her years of service.

10. Schedule of Future Meetings

The next scheduled Board meeting dates are October 25 and December 6. The Board will decide whether to change and/or add dates. The Bord will also hold a meeting, as usual, on Wednesday, January 15, 2025, of the Agricultural Trades Show. The Board will decide whether to hold the meeting at the Deering building or at the Augusta Civic Center.

Adjustments and/or Additional Dates?

10. Adjourn

- **Carlton/Lajoie: Moved and seconded to adjourn at 11:00 AM**
- **In Favor: Unanimous**

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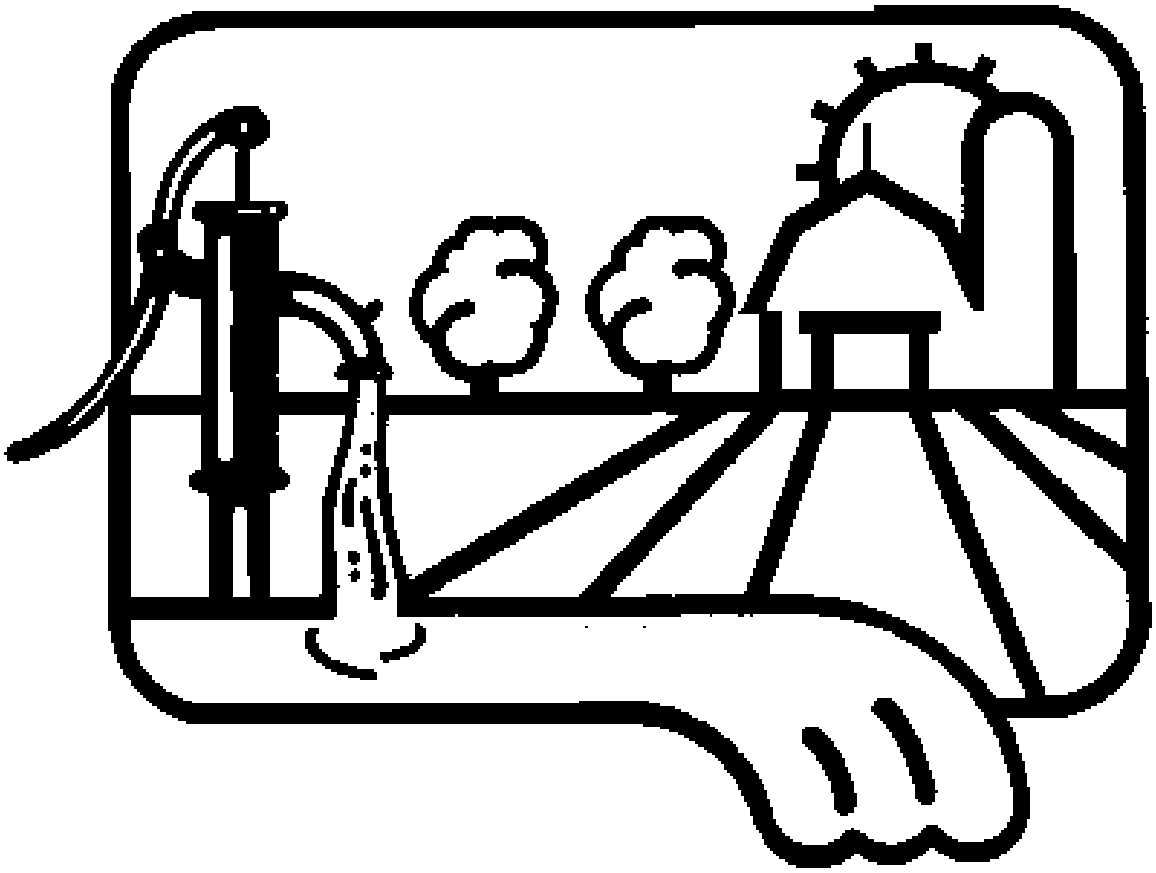

STATE OF MAINE

GENERIC STATE MANAGEMENT PLAN FOR PESTICIDES AND GROUND WATER

1994

Revised
January 1998 and December 2006

STATE OF MAINE

GENERIC STATE MANAGEMENT PLAN FOR PESTICIDES AND GROUND WATER

1994

Revised
January 1998 and December 2006

Prepared by:
Tammy L. Gould, Pesticides Planner
Maine Board of Pesticides Control

Revised in 2006 by:
Heather P. Jackson, Water Quality Specialist
Maine Board of Pesticides Control

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APPENDICES

ACKNOWLEDGMENTS

The Maine Board of Pesticides Control and its staff thank the following individuals for offering their assistance, expertise, and patience in completing and revising this plan.

2006 Revisions

Rodney McCormick, Maine Department of Agriculture, Marketing
David Rocque, Maine Department of Agriculture

Ground Water Planning Committee (1997 Revisions)

David Bell, Maine Blueberry Commission
David Braley, Maine Department of Human Services, Drinking Water Control Program
Michael Corey, Maine Potato Board
James Corliss, Maine Christmas Tree Association
Neil Crane, Maine Association of Conservation Districts and Maine Farm Bureau
Wes Davis, Central Maine Power Co.
James Dill, University of Maine Cooperative Extension
Rick Eastman, Maine Landscape and Nursery Association
Steve Goodwin, Maine Vegetable-Small Fruit Growers Association
Tom Gyger, Maine Pomological Society
Carl Haag, S.D. Warren Co.
John Hopeck, Maine Department of Environmental Protection
Chris Jones, Natural Resources Conservation Service
Robert LaRoche, Maine Department of Transportation
Peter Mosher, Maine Department of Agriculture, Food, and Rural Resources
Craig Neil, Maine Geological Survey
Charles Ravis, MGCSA
Eric Sideman, Maine Organic Farmers and Growers Association
Debra Vanderbeek, New England Council for Plant Protection

Ground Water Planning Committee (1992-94)

David Braley, Maine Department of Human Services, Drinking Water Control Program
Charles Collins, Maine Dry Bean Growers Association
James Corliss, Maine Christmas Tree Association
Neil Crane, Maine Association of Conservation Districts and Maine Farm Bureau
Wes Davis, Central Maine Power Co.
Jeff Dearborn, New England Council for Plant Protection
James Dill, University of Maine Cooperative Extension
Ron Dyer, Maine Department of Environmental Protection
Rick Eastman, Maine Landscape and Nursery Association
John Fogler, Dairy Farmer
Steve Goodwin, Maine Vegetable-Small Fruit Growers Association
Carl Haag, S.D. Warren Co.

William Johnson, Maine Pomological Society
Chris Jones, Soil Conservation Service
David Lavway, Maine Potato Board
Dr. Jeff McBurnie, University of Maine, College of Applied Science and Agriculture
Ed McLaughlin, Maine Blueberry Commission
Peter Mosher, Maine Department of Agriculture, Food, and Rural Resources
Craig Neil, Maine Geological Survey
Charles Ravis, Augusta Country Club, MGCSA
Nancy Ross, Maine Organic Farmers and Growers Association
Tim Zorach, Maine Audubon Society

Others who have contributed to this plan or previous drafts

Paul Dutram, Maine Department of Environmental Protection
Bill Ferdinand, Maine State Planning Office
John Harker, Maine Department of Agriculture, Food, and Rural Resources
Thom Harnett, Office of the Attorney General
Stephen H. Howell, Soil Solutions, Core Member of Pesticide SMP Advisory Committee
John Jemison, University of Maine Cooperative Extension, Core Member of the Pesticide SMP Advisory Committee
Jeff Jenks, Maine Department of Human Services, Drinking Water Control Program
Rick Kersbergen, University of Maine Cooperative Extension
Rob Koethe, U.S. EPA, Region I
Esther Lacognata, Maine Department of Agriculture, Food, and Rural Resources
Edward Lavery, U.S. EPA Region I
Russell Libby, Maine Department of Agriculture, Food, and Rural Resources and Maine Organic Farmers and Gardeners Association
Terry Mingo, Maine Department of Human Services, Drinking Water Control Program
Michele Notarianni, U.S. EPA, Region I
Steve Pinette, Maine Department of Environmental Protection
Tony Pisanelli, U.S. EPA, Region I
David Poe, Soil Conservation Service
David Rocque, Soil and Water Conservation Commission
Andrews Tolman, Robert G. Gerber, Inc., Core Member of the Pesticide SMP Advisory Committee
Andrew Triolo, U.S. EPA, Region I
Tom Weddle, Maine Geological Survey

CONCURRENCE SIGNATURES

The following agency representatives have read the *Maine Generic State Management Plan for Pesticides and Ground Water* and concur with their agency's responsibilities as stated in the plan.

_____	_____
Maine Dept. of Agriculture	Maine Dept. of Environmental Protection
_____	_____
Maine Dept. of Human Services	University of Maine Cooperative Extension
_____	
U.S. Environmental Protection Agency	

STATE LIAISON

The purpose of a state liaison is to have a single contact point responsible for the transmittal and receipt of official correspondence and information. The single contact point for all formal communications concerning the State Management Plan process between the U.S. Environmental Protection Agency and the State of Maine shall be:

Henry Jennings, Acting Director
Maine Board of Pesticides Control
State House Station #28
333 Deering Building, AMHI Complex
Augusta, Maine 04333-0028
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INTRODUCTION

Ground water is an essential resource to Maine's citizens. Over half of the U. S. population relies on ground water for drinking water, and in rural Maine, ground water is the dominant source of drinking water. Because pesticides and other agricultural chemicals have been found in wells in many states, including Maine, the U.S. Environmental Protection Agency (EPA) developed a *Pesticides And Ground-Water Strategy* to prevent unacceptable contamination of ground water resources from the normal, registered use of pesticides. Part of this strategy includes the recommendation that states develop state management plans (SMPs). The *Maine Generic State Management Plan (SMP) for Pesticides and Ground Water* is the foundation on which pesticide-specific state management plans (Pesticide SMPs) are built.

The Maine Board of Pesticides Control (BPC) collaborated with other state agencies to develop a strategy for preventing ground water contamination by pesticides. The first Generic SMP was completed in July 1994. Following the adoption of the *Hexazinone State Management Plan for the Protection of Ground Water* (July 1996), the Board noted a number of deficiencies in the original Generic Plan. The original committee which worked on the Generic SMP was re-formed in January 1997 and the revised *Maine Generic State Management Plan for Pesticides and Ground Water* was adopted by the Board on January 30, 1998. This plan was revised again in 2006.

Plan in Brief

The *Generic State Management Plan for Pesticides and Ground Water* outlines the government agencies involved with ground water resource protection, describes their roles within the planning process, and describes how overlapping authorities will be coordinated. To ensure compliance with Pesticide SMPs, agency enforcement roles are set forth.

The basis for ground water assessment and protection planning is formed through the characterization of Maine's ground water resources and the description of pesticide use patterns. Emphasis is placed on contamination prevention measures, such as best management practices, user education and technical assistance. If these measures are not successful, the BPC may consider other means to control pesticide use. To help determine what controls are needed and to allow for public participation, the BPC will create a unique Pesticide SMP Advisory Committee for each Pesticide SMP it chooses to write. This committee will respond to EPA or BPC mandates by developing pesticide-specific management plans. The response and regulatory framework shows how the BPC will define and respond to contamination situations based both upon a contaminant's percent of an established health standard and upon the percentage of sites sampled with the presence of a contaminant.

A two-phase ground water monitoring program is described in this plan; the program goal being assessment of potential contamination problems and once a pesticide is detected, assessment of the extent of the problems. Pesticide management practices are then implemented in response to identified contamination trends.

SECTION I
BACKGROUND

Ground water is an important national resource which provides about one-fourth of all water used in the United States. Nearly half of the U.S. population relies on ground water for drinking water, and in rural areas, ground water may be the only, or at least the dominant, source of drinking water.[1] In Maine, approximately 90% of public water suppliers obtain some or all of their supply from ground water.[2]

In the past, most people believed that ground water was protected from contamination by soil and rock formations.[3] This belief changed in the 1970s when agricultural chemicals were found in wells in several states. Monitoring surveys flourished throughout the 1980s and demonstrated the impact of pesticides on ground water quality. Since the 1970's, public agencies have been attempting to devise a comprehensive and rational strategy which both serves the needs of pesticide users while addressing environmental concerns. In December 1987, the U.S. Environmental Protection Agency (EPA) proposed such a strategy in *"Agricultural Chemicals in Ground-Water: Proposed Pesticide Strategy."*

Agricultural Chemicals in Ground-Water: Proposed Pesticide Strategy

The strategy initially proposed by EPA consisted primarily of an environmental goal, a contamination prevention policy and program, and a response policy and program. While EPA asserted that it would continue to take uniform action nationwide on pesticide use and disposal practices, the Agency encouraged the development of strong state roles in the local management of pesticide use to protect ground water. State Management Plans (SMPs) were identified as the preferred vehicle by EPA because states, which are closer to local conditions, could better evaluate and respond to local variations in use and vulnerability. The EPA believed that SMPs would be an effective way to provide adequate protection of ground water resources without restricting pesticide use unnecessarily.

The incentive for states to prepare these plans came from the federal pesticide registration process. The future use of registered pesticides, identified by EPA as a threat to ground water, would depend on the presence and adequacy of a state's management plan. In some situations, EPA would require a state-specific label or supplemental labeling with SMP-prescribed, pesticide management measures. In other cases, EPA would take steps, including statewide

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1 [1]U.S. Environmental Protection Agency, "Agricultural Chemicals in Ground Water: Proposed Pesticide Strategy", December 1987, pp. 13.

2 [2]Personal conversation with Jeff Folger, Maine Department of Human Services, Drinking Water Control Program, January 3, 1997.

3 [3]U.S. Environmental Protection Agency, op.cit., pp. 21.

cancellation, to control the use of a pesticide that poses a significant ground water threat if there was no adequate SMP that could reasonably be expected to prevent or reduce the threat of unacceptable contamination.[4] The possibility of special state management measures in lieu of EPA cancellation has been the driving force behind SMP development nationwide.

Pesticides And Ground-Water Strategy

After nearly four years, EPA published the final *Pesticides And Ground-Water Strategy* in October 1991. The final strategy reflected many of the comments received from the industry, environmental groups, and the states and incorporated EPA's new statement of principles for programs dealing with ground water. Increased emphasis on prevention of ground water contamination is at the heart of these new principles. That commitment is demonstrated in the stated goal of the *Pesticides And Ground-Water Strategy*, which is "to prevent contamination of ground water resources that presents an unreasonable risk of adverse effects to human health and the environment resulting from the normal, registered use of pesticides."[5]

As in the proposed strategy, the centerpiece of the final strategy is the development and implementation of SMPs for specific pesticides of concern. EPA would now apply Pesticide SMPs as a label requirement so that a product can be legally used only in states with an approved plan. And, unlike the proposed strategy, the final *Pesticides And Ground-Water Strategy* encompassed not only agricultural pesticides, but all pesticide products which may pose a threat to ground water from outdoor uses.

EPA also went on to define two types of state management plans: Generic SMPs and Pesticide SMPs. Generic SMPs provide basic information in twelve identified areas regardless of a specific pesticide. Pesticide SMPs contain all the information appropriate to a Generic SMP plus all the information specific to an identified pesticide. A Generic SMP is used to put in place the resources and coordinating mechanisms that will be required to develop and implement a Pesticide SMP. By designing a voluntary Generic SMP, the State can facilitate the timely and cost-effective developments of Pesticide SMPs as the need arises.

Subsequent national and regional guidance documents looked to these state management plans to complement and enhance other state ground water protection programs, such as the comprehensive state ground water protection program, the nonpoint source pollution strategy, coastal zone pollution management program, and wellhead protection program. In all, keys to the success of any state management plan will be 1) the authority and ability to implement ground water contamination prevention measures, 2) the authority to implement some type of remediation in the event of contamination, and 3) the authority and resources to conduct a monitoring program to evaluate the effectiveness of both prevention and restoration measures.

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4 [4]Ibid., pp. 108.

5 [5]U.S. Environmental Protection Agency, *Pesticides and Ground-Water Strategy,* October 1991, pp. 11.

History of the Maine Generic State Management Plan for Pesticides and Ground Water

Maine has long taken the initiative and addressed the problems of pesticide use and ground water contamination before they threatened the livelihood and lifestyle of Maine, its citizens, and its environment. Since 1988, the Board of Pesticides Control (BPC) has collaborated with representatives of the Department of Agriculture, Maine Geological Survey, Department of Environmental Protection, and Department of Human Services to develop the state's strategy for preventing ground water contamination by pesticides. In 1990, the BPC hired a full-time planner to coordinate the elements of the strategy and to write the plan.

Two draft plans were completed by the spring of 1991. The second draft plan (April 1991) received wide public comment. Several public meetings were held in agricultural areas in the state to gather input. The BPC, reacting to the comments received, authorized the formation of a planning committee that would better represent the diverse interests of the agricultural community. With the publication of the final strategy, that group was expanded to include non-agricultural pesticide users as well. Building upon the existing drafts, a proposed plan was released in August of 1993 and subjected to another round of hearings and comments. The first *Maine Generic State Management Plan for Pesticides and Ground Water* was formally adopted by the BPC at their regular monthly meeting in June 1994.

Immediately following its adoption, Maine's Generic SMP was put to the test with a pesticide of local concern: hexazinone. Following detections of this herbicide in ground water samples, including wells serving two elementary schools, the blueberry industry, sole users of hexazinone-products in Maine, met with the BPC in early 1994 to discuss an action plan. Simultaneously, a citizen-initiated petition drive was underway to ban the use of all formulations of the herbicide. Hearings on the petition were held by the BPC in July 1994. After considering all the testimony, the BPC decided to retain use of hexazinone in Maine but, following the process outlined in the Generic SMP, directed the formation of a Pesticide SMP Advisory Committee to develop management options for hexazinone.

The process of creating the *Hexazinone State Management Plan for the Protection of Ground Water* (July 1996) gave the BPC first-hand experience in developing a Pesticide SMP and brought to light some inadequacies and obstacles not foreseen when the Generic SMP was written. Also, the BPC was committed to a biennial review of the Generic SMP in the 1994 document. In January 1997, the original Ground Water Planning Committee, the group of agricultural and nonagricultural pesticide users in Maine, was invited to participate in a revision of the Generic SMP. The 1997 revisions reflected what was learned about pesticides and ground water planning during previous years. This plan was again updated in 2006, as seen here.

SECTION II
STATE PHILOSOPHY AND APPROACH TO PESTICIDE MANAGEMENT FOR GROUND WATER PROTECTION

Maine's approach to pesticide management for ground water protection is one which emphasizes prevention of ground water contamination, defined in relation to 1) health-based reference points or 2) other EPA established water quality standards and aquatic life criteria, particularly where ground water is closely connected to surface water ecological systems. The Maine Ground Water Management Strategy recognizes that cleanup of contaminated ground water may be impractical for both technical and financial reasons, so prevention is the only practical course.

All ground water in Maine is currently classified as a present or future source of public drinking water. While this classification system necessitates equal protection of all ground water resources statewide, additional protection effort will be given to priority waters identified by the Maine Department of Environmental Protection, currently identified as wellhead protection areas and ground water supplying base-flow to Class AA and Class A watersheds. However, the BPC, lead agency for the development and implementation of this plan and Pesticide SMPs, wishes to remain flexible in its allocation of prevention, monitoring, and response resources in order to fulfill its more specific mandate for protection of public health and the environment from the adverse effects of pesticide use.

This Generic SMP is both a planning tool in Pesticide SMP development and a guidance document for the BPC when dealing with other pesticide-in-ground-water issues. This dual use allows for a uniform approach to pesticide and ground water management regardless of pesticide or current management strategy.

The BPC remains committed to maintaining registration of vital pesticide products. Pesticides which are identified by EPA as worthy of a Pesticide SMP will be considered for plan development on a case-by-case basis in Maine. The value to their user communities and evident or potential environmental and public health impacts will be considered when prevention and response mechanisms are tailored to the identified pesticides. For pesticides where cost, pest control or environmental benefits may not be realized by developing a Pesticide SMP, the BPC retains the option of not developing one. Instead, the BPC may prohibit future sale and use of that pesticide in Maine. Conversely, beyond what pesticide-specific plans are encouraged by EPA, the state may chose to address pesticides of local concern in a manner similar to that established in this plan.

SECTION III
COOPERATING AGENCIES

States, not the federal or local governments, have the central role in developing and implementing state management plans. This requires states to have the requisite legal authorities and to coordinate existing programs. Cooperation must be developed among a variety of federal, state, county, and local agencies to achieve effective implementation.

Listed below are the government agencies involved with pesticides, ground water, and implementation of Generic and Pesticide SMPs. A review of applicable statutory authorities is included as well as a description of their existing ground water protection or pesticide control programs. The agencies are divided into three groups: (1) agencies with Pesticide SMP implementation roles; (2) agencies with technical assistance roles; and (3) agencies with ground water protection programs, but no direct implementation or technical assistance roles.

Agencies with Pesticide SMP Implementation Roles

U.S. Environmental Protection Agency (EPA)

The EPA is responsible for regulating pesticide use, for protecting the quality of the nation's ground and surface water, and for regulating the storage, disposal, and response to releases of pesticides. EPA used the legal authorities and mandates of several federal acts in creating 1991's *Pesticides And Ground-Water Strategy* and developing 1996's proposed State Management Plan rule.

A. Legal Authorities Necessary to Implement SMPs

7 U.S.C. §136 et seq.
The Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA)
FIFRA regulates the registration and use of pesticides. FIFRA allows EPA to address ground water concerns about pesticides on a national level and through cooperative agreements with the states.

33 U.S.C. §466 et seq.
Clean Water Act (CWA)
The CWA was established to protect the integrity of this nation's surface and ground waters. Grants to protect ground water are awarded to states for development and implementation of state wellhead protection programs, for development of statewide ground water protection strategies, and for nonpoint source pollution programs.

42 U.S.C. §300f et seq.
The Safe Drinking Water Act (SDWA)
The SDWA is designed to ensure the safety of public drinking water supplies. The Act requires EPA to establish both national drinking water quality standards (MCLs) and monitoring requirements for suppliers of public water. 1986 Amendments to the SDWA authorize states to establish Wellhead Protection Programs for the protection of public drinking water wells and to authorize the designation of sole source aquifers by EPA. 1996 Amendments introduce source water protection as a goal. This plan incorporates drinking water standards in its policy for responding to contamination (See Section VIII, "Response Framework".)

42 U.S.C. §6901 et seq.
The Resource Conservation and Recovery Act (RCRA)
RCRA regulates the disposal of hazardous wastes which include pesticides or pesticide-contaminated material deemed no longer useful.

42 U.S.C. §9601 et seq.
The Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA)
CERCLA established a trust fund to finance responses to non-routine releases of hazardous substances. CERCLA also allows for assessment and recovery of damages from liable parties. For pesticide spills or illegal applications which may cause ground water contamination, this statute is important. CERCLA is also the only law which provides for the "temporary provision of an alternate water supply" under such circumstances.

B. Existing Programs

There are several offices in EPA Headquarters which oversee the above programs. The Office of Pesticide Programs (OPP) administers FIFRA, while the Office of Water (OW) administers the SDWA. Other divisions of EPA are also responsible for administration of other ground water protection strategies and pollution prevention programs. The *Pesticides and Ground-Water Strategy* (October 1991) and proposed State Management Plan rule (June 1996) draw from these regulatory authorities and lay the foundation for this management plan.

C. Role in this Plan

1. EPA may finalize the proposed State Management Plan rule and identify those pesticides whose future use will be subject to the requirements of an SMP.

2. EPA will review this Generic SMP and approve Pesticide SMPs, when submitted.

2. EPA should continue to provide technical support and guidance documents to the states on implementation of the state management plans.

3. EPA should continue to provide assistance to states to establish Comprehensive State Ground Water Protection Programs consistent with the State Management Plan approach and implement multi-year program plans which build upon and further integrate state ground water protection strategies, wellhead protection programs, nonpoint source programs, and other ground water related programs.

4. EPA should continue to evaluate the environmental fate of pesticides and to regulate products, via the registration process, which pose a ground water threat, on a national basis.

5. EPA should continue to provide financial assistance to develop or maintain state management plans and pesticide specific plans.

6. Quality assurance/ Quality control (QA/QC) document approval.

<u>Maine Department of Agriculture, Food, and Rural Resources, Board of Pesticides Control</u>

The Board of Pesticides Control (BPC) was established to protect the public health and safety of Maine's citizens and to protect the public interest in the soils, water, forests, wildlife, agriculture, and other resources of the state by assuring scientific and proper use of pesticides. The Board and its staff are charged with registration of pesticide products, licensing of applicators, and enforcement to ensure that pesticides are properly used.

A. Legal Authorities Necessary to Implement SMPs

7 M.R.S.A. §606(2)(F)
Prohibited Acts; Unlawful alteration, misuse, divulging of formulae, transportation, disposal and noncompliance
Section (F) is the basis for enforcement by the Board in that it prohibits any person from applying pesticides in a manner inconsistent with pesticide rules and regulations.

7 M.R.S.A. §607-A(2)(C)&(3)
Review or reregistration; Review process and Effect of review on reregistration
Section (2)(C) states that the BPC, in conjunction with the Department of Environmental Protection, Department of Inland Fisheries and Wildlife, Department of Human Services, and the Department of Conservation, shall review registration of pesticides by conducting a water residue survey, inclusive of wells and surface water, to determine the kinds and amount of pesticides present. If the review indicates a negative environmental impact, then the BPC shall "require implementation of...safeguards prior to reregistration."

7 M.R.S.A. §609
Refusal to register, cancellation, suspension, legal recourse
This section gives the Board the power to change or cancel the registration of a pesticide via the rulemaking process when the Board determines that a pesticide or its labeling does not comply with the rules or regulations of this chapter.

7 M.R.S.A. §610(2)
Determination; rules and regulations; restricted use pesticides; uniformity
Section (2) gives the BPC broad authority to promulgate rules in conformance with their statutory authority.
7 M.R.S.A. §611(3)
Enforcement; Repeated violations
Section (3) allows the Board to identify persons who repeatedly violate pesticide use laws and recommend them to the Maine Attorney General for action. This section also discusses enforcement procedures.

7 M.R.S.A. §616-A
Penalties
This section provides for penalties for civil violations of not more than $1,500 for the first violation and $4,000 for each subsequent violation within a four-year period. For private applicators, penalties may not exceed $500 for a first violation or $1,000 for any subsequent violation within a four-year period for violations of record keeping or the return and disposal of pesticide containers.

7 M.R.S.A. §620
Cooperation
This section is Maine's planning authority for this state management plan. It allows for grants, cooperative agreements, and the preparation and submittal of plans to EPA under state statute and FIFRA.

22 M.R.S.A. §1471-D(8)(A)-(I)
Certification and licenses; revocation
This section provides the conditions under which a pesticide applicator may be found in violation or license may be revoked. They include having used a pesticide "in a careless, negligent or faulty manner or in a manner which is potentially harmful to the public health, safety or welfare of the environment."

22 M.R.S.A. §1471-H
Inspection
This section is the basis for this strategy's ground water monitoring program. It provides for inspection of "any public or private premises" for the purpose of inspecting equipment, storage areas, and "sampling pesticide residues on crops, foliage, soil, water or elsewhere in the environment."

22 M.R.S.A. §1471-M(4)
Designation of critical areas
Section (4) allows the Board to designate critical areas "where pesticide use ... present[s] an unreasonable threat to [the] quality of the water supply."

B. Existing Programs

The Board of Pesticides Control has a number of existing programs which protect the integrity of Maine's ground water resources. Among the programs are pesticide registration, applicator certification and licensing, returnable container regulations, and obsolete pesticide disposal.

Registration of Pesticides

The BPC has formal authority to regulate pesticide use through the state registration process. All pesticides sold or used in the state of Maine must be registered by both the EPA and the BPC and carry one of three use classifications: general use, restricted use, or state limited use. General use pesticides are commonly found in hardware, department, and farm stores. They may be bought and used by the general public on their own property without training or certification. Restricted use pesticides may be sold only by licensed pesticide dealers and may be purchased and used only by licensed pesticide applicators. State limited use pesticides may be used only under a special permit granted by the BPC. Tied to permission to use such limited use pesticides may be reasonable terms and conditions, otherwise known as "management practices," which are designed to protect the health, safety, and general welfare of the environment and public health above and beyond the label guidelines. This management plan

addresses the importance of restricted use and limited use classifications as part of the overall prevention strategy in subsequent chapters.

Applicator Certification and Licensing

To ensure that pesticides are used properly, the BPC has adopted rules related to the certification and licensing of pesticide applicators. Persons must be licensed to (1) use or supervise the use of any restricted or limited use pesticide or (2) make custom applications of general use pesticides, or (3) apply a pesticide in connection with their duties as an official or employee of federal, state, or local government. To become licensed in Maine, individuals must first earn *certification*, a credential which shows proficiency in pest management, pesticide use, and safety. Questions concerning ground water vulnerability and pesticide leaching potential were added in 1990 to the core exam for certification. Once certified, an applicator applies for a license appropriate to his/her intentions and is required to attend recertification programs to maintain licensure. For more on certification, see Section VI, "Prevention Strategies."

Returnable Pesticide Container Regulations

In response to environmental concerns about the proliferation of empty pesticide container dumps on the edges of fields and to prevent the possibility of point source pollution of ground and surface waters from the improper disposal of these containers, the BPC has been charged with regulating the return and disposal of limited and restricted use pesticide containers. In 1984, the BPC adopted regulations which (1) established a deposit collected pending the return of all glass, metal, or plastic restricted and limited use pesticide containers over one-half pint in size, (2) required stickers to be affixed on all such containers at the time of sale, (3) required triple rinsing or the equivalent of containers prior to their return, and (4) specified places where rinsed containers may be returned for refund of deposit in addition to the dealer location. These regulations cover both instate and out-of-state purchases to ensure that waste rinsate concentrations are minimized and that containers are disposed of in an environmentally sound manner.

Obsolete Pesticide Disposal Program

Disposal of banned and unusable pesticides has been a problem in Maine and throughout the country since EPA began to take certain pesticides off the market in the early 1970s. The BPC has endeavored to assist conscientious citizens in disposing of unusable pesticides at no charge to them. This activity began in 1972 when a convoy of DOT trucks was organized to haul the remains of a pesticide manufacturing plant to Massachusetts for safe storage in a naval center and later disposal.

In the early years, the BPC had a five ton truck and its employees went to farms and homes to collect pesticides whenever a citizen called. The chemicals were then stored until funds were available to hire a contractor to dispose of them at licensed out-of-state facilities. The largest effort occurred in 1989 when there was a one-time

legislative appropriation of $100,000 that resulted in the disposal of 22 tons of primarily agricultural products.

Since 1996, the BPC has used special general fund appropriations and federal grants to conduct programs to collect and properly dispose of obsolete pesticides. Each year a hazardous materials contractor is hired to be present for one day at each of four regional sites. Homeowners, non-corporate farmers and greenhouse operators can participate free of charge and must submit an inventory form in advance to the BPC. When the week of collections is scheduled, shipping papers are mailed to each participant listing the pesticides they may bring in on the specified date. The program is limited to obsolete pesticides, defined as banned pesticides, and products that have become caked, frozen or are liquids more than 10 years old. Pesticides that can be used legally are generally not accepted although chlorpyrifos products with residential uses were accepted starting in the year 2000.

A total of 143,990 pounds of chemicals, from more than 866 individuals, have been delivered to a local hazardous waste contractor through these efforts, the latest in 2004. Another two collections are planned for 2007. In addition, two special projects have been conducted to transport 2,4,5-T and dinoseb to out-of-state facilities under federal disposal programs required by EPA suspension orders.

C. Role in this Plan

1. The BPC will be the lead agency for developing, enforcing, and implementing state management plans, acting as the liaison between EPA and state agencies for this program.

2. The BPC will continue to regulate pesticides to minimize the potential for ground water contamination.

3. The BPC will continue to provide ground water education for pesticide applicators through its certification programs and to work cooperatively with other state agencies in educating licensed and non-licensed applicators.

4. The BPC will oversee the development and implementation of a ground water monitoring program for pesticides, as specified in this plan and in Pesticide SMPs.

5. The BPC will assist pesticide users, to the best of its ability, to properly dispose of contaminated material resulting from pesticide spills and obsolete, canceled and unusable pesticides.

6. The BPC will respond to contamination problems and will assist in identifying and enforcing means to mitigate the problem.

Maine Department of Agriculture, Food and Rural Resources, Division of Animal Health and Industry

The Division of Animal Health and Industry is responsible for responding to complaints or problems involving agriculture, including those of surface and ground water pollution.

A. Legal Authorities Necessary to Implement SMPs

17 M.R.S.A. §2805
Farms or farm operations not a nuisance
An updated version of the "Right-to-Farm" Law, this statute authorizes the commissioner of Department of Agriculture, Food and Rural Resources to investigate all complaints involving a farm or farm operations, including complaints involving ground and surface water pollution. If the commissioner believes the subsequent problem to be a nuisance, there are a number of steps, including finally referral of the matter to the Office of the Attorney General, to assure that the farm or farm operation adopts best management practices. This section also establishes an Agricultural Complaint Response Fund to investigate complaints and to abate conditions potentially resulting from farms or farm operations.

B. Existing Programs

When a ground water problem from agriculture arises, the Division of Animal Health and Industry, working with other appropriate state and federal agencies, makes site-specific recommendations that should be adopted by the farmer to solve the problem. If formal enforcement is necessary to achieve adoption of the solution, the Division of Animal Health and Industry refers the matter to the appropriate agency, including the Maine Department of Environmental Protection or the Office of the Attorney General.

The Division of Animal Health and Industry is currently working with other state and federal agencies in implementing the Agricultural Nonpoint Source Strategy, the Department of Agriculture's contribution to the state's overall NPS strategy. Included are Best Management Practices (BMPs) to control sediment, nutrient, manure, and pesticide nonpoint source pollution. The strategy has both regulatory and non-regulatory components, with emphasis on voluntary programs such as research, targeted educational programs, technical assistance, and financial incentives.

C. Role in this Plan

1. The Division of Animal Health and Industry will coordinate development of crop- and/or pesticide-specific Best Management Practices with other state and federal agencies.

2. The Division of Animal Health and Industry and the BPC will coordinate resource grants and educational programs to maximize outreach efforts.
3. The Division of Animal Health and Industry will notify the BPC of all complaints involving pesticides and ground water.

4. The Division of Animal Health and Industry and the BPC will coordinate on-site investigation of pesticide complaints.

5. The Division of Animal Health and Industry and the BPC will coordinate enforcement for adoption of BMPs according to the scenarios outlined in Section VIII of this strategy.

Maine Department of Environmental Protection (DEP)

The Maine Department of Environmental Protection is responsible for protecting the state's natural resources. In particular, two of the Department's three bureaus, the Bureau of Land and Water Quality (BLWQ) and the Bureau of Remediation and Waste Management (BRWM), have responsibilities related to this plan. The BLWQ has the responsibility of maintaining standards for the protection of Maine's surface and ground waters. The BRWM oversees hazardous material and waste regulations in the state.

A. Legal Authorities Necessary to Implement SMPs

38 M.R.S.A. §410-H through §410-K
Nonpoint Source Pollution Program
These sections establish the state's nonpoint source pollution program by defining what nonpoint source pollution is, by defining best management practice guidelines, and by designating lead agencies for implementation of components of the state program. The Department of Agriculture, Food and Rural Resources is designated the lead agency to implement the *Strategy For Managing Nonpoint Source Pollution from Agricultural Sources and Best Management Systems Guidelines,* (October 1991), a plan to reduce and prevent nonpoint source pollution from agricultural activities.

38 M.R.S.A. §413
Waste discharge licenses
This section prohibits the direct or indirect discharge of any pollutant to water without first obtaining a discharge license. Two types of aquatic pesticide permits are exempted, including application of aquatic pesticides by the Department of Inland Fisheries and Wildlife and the treatment of public water supplies with copper sulfate or its compounds where swimming and fishing are not allowed.

38 M.R.S.A. §465-C
Standards of classification of ground water
Maine has adopted two standards for classification of ground water. The first, Class GW-A, is of the quality that it can be used for public drinking water supplies. The second, Class GW-B, is for all other supplies not suitable for public drinking water.

38 M.R.S.A. §470
Classification of ground water
This section classifies all ground water in Maine as Class GW-A. Also, this section gives the Maine Legislature the final authority on ground water classification.

38 M.R.S.A. §571
Corrupting Waters Forbidden
This section makes it a Class A, Criminal offense to intentionally corrupt a private or public water supply. (Note: The word ground water is not used; "well" and "spring" are used.)

38 M.R.S.A., Chapter 13
Hazardous Matter, Substance, and Waste Statutes
This chapter contains all the state statutes related to the proper transportation, storage, and disposal of material deemed hazardous matter, hazardous substances, and hazardous wastes. The section also discusses emergency response to spills, the identification of responsible parties, and remedial actions. Chapter 13, in essence, is the state's companion statute to CERCLA and RCRA and will guide response actions to pesticide disposal and spill cleanup.

B. Existing Programs

Critical to the process of controlling ground water contamination by pesticides is the development of nonpoint source (NPS) pollution control measures. In November 1989, Maine DEP finalized the state's *Nonpoint Source Pollution Management Plan*. The NPS Plan recognizes that land users can control nonpoint source pollution by the development and implementation of Best Management Practices (BMPs). Several task forces developed BMPs, including an agricultural task force (see "Department of Agriculture, Food, and Rural Resources, Office of Agricultural, Natural and Rural Resources" above).

C. Role in this Plan

1. Maine DEP will continue to provide expertise in the development and implementation of state management plans to ensure that they remain consistent with current ground water regulations and Comprehensive State Ground Water Protection Planning.

2. Maine DEP will be the lead agency in pesticide spill response and ground water remediation as a result of such spills.

3. Maine DEP will evaluate ground water resources for classification purposes and ensure that pesticide use does not violate the existing ground water classification and protections for that water body and/or watershed.

Maine Department of Human Services, Bureau of Health

The Bureau of Health, Drinking Water Program is responsible for maintaining the integrity of public water systems and protecting them from contaminants which may adversely affect human health. The Maine Health and Environmental Testing Laboratory, one of the laboratories used for ground water sample analyses, is a division of the Bureau of Health.

A. Legal Authorities Necessary to Implement SMPs

22 M.R.S.A. §2608
Information on private water supply contamination; interagency cooperation
The Department of Human Services will provide information and consultation to private citizens who report contaminated wells or request information on potential contamination of a site. They are to work with the Maine Department of Environmental Protection to determine an appropriate response to the contamination, including investigation of the site and ground water remediation.

22 M.R.S.A. §2611, et seq.
Safe Drinking Water Act
This act is the state companion to the Federal Safe Drinking Water Act. It protects all types of public water supplies in the state as well as authorizes the Department of Human Services to promulgate and enforce primary and secondary drinking water standards. Selected sections are listed below.

22 M.R.S.A. §2611
Drinking water regulations
This section gives the Department of Human Services authority to promulgate and enforce primary and secondary drinking water standards. Their scope of authority includes identification of contaminants and establishment of maximum contaminant levels.

22 M.R.S.A. §2612
Approval of construction or alteration, training, inspection, regulations and records; Operation and maintenance of public water systems
This section gives the Department of Human Services the authority to review and approve all new sources of public drinking water as well as require public drinking water systems to submit samples for water quality monitoring. Frequency of sampling has been subsequently established by rule.

22 M.R.S.A. §2614
Imminent hazards to public health
When an imminent hazard exists, the Commissioner of Human Services may issue an emergency order to the supplier of public drinking water to take action in one or more areas: 1) prohibit distribution and supply, 2) repair/install purification equipment, 3) notify users of the imminent hazard, or 4) analyze the water further to discover the extent of the hazard. This section provides the only well-closing authority available to the Generic SMP and applies only to public drinking water supplies.

B. Existing Programs

The Bureau of Health is mandated to promulgate and enforce primary and secondary drinking water standards for public water supplies. These standards may be no less stringent than the most recent National Primary Drinking Water Regulations. The Bureau of Health has also established non-enforceable guidelines, known as Maximum Exposure Guidelines (MEGs), for a variety of drinking water contaminants (See Section VIII, "Response Framework").

Since 1977, the Bureau of Health has been required to review and approve all new sources of public drinking water. The Bureau of Health, Drinking Water Program is the lead agency for the Wellhead Protection Program and will continue to work with municipalities in the identification and protection of wellhead protection zones and public drinking water supplies. The Drinking Water Program will also be the lead agency for the Source Water Assessment Program as required by 1996 amendments to the federal Safe Drinking Water Act.

Wellhead Protection Program

Public water supplies have been identified as an important municipal and state resource. The 1986 amendments to the Safe Drinking Water Act recognized the need to provide extra protection to these important resources and mandated the establishment of Wellhead Protection Programs (WHPPs) to provide guidance to municipalities, water utilities, and districts to prevent contamination of public drinking water wells and their ground water recharge areas. At its simplest, a wellhead protection plan consists of an inventory of potential sources of ground water contaminants and a point-and-circle delineation of wellhead protection areas. Wellhead protection planning is voluntary in Maine, but it has been used as an incentive for waivers from the Phase II and Phase V monitoring requirements.

C. Role in this Plan

1. The Bureau of Health will notify the BPC of pesticide residues detected in public water supplies and the location of the affected wells.

2. The Bureau of Health will notify the BPC of pesticide residue detections in private wells and the location of the affected wells.

3. The Bureau of Health will work with the BPC Toxicologist in the development of MEGs and health advisory levels for those pesticides for which no MCL or MEG has been established.

4. The Bureau of Health and the BPC will continue to work together in the issuance of waivers from Phase II and Phase V monitoring requirements.

University of Maine Cooperative Extension (UMCE)

The University of Maine Cooperative Extension, a division of the U.S. Department of Agriculture, has sixteen regional offices in Maine organized roughly along county lines.

A. Legal Authorities Necessary to Implement SMPs

None.

B. Existing Programs

The UMCE offers a variety of educational and training programs designed to safeguard surface and ground water quality from pesticides and nutrients. The Pesticide Applicator Training (PAT) Program run by the UMCE is a key element of Maine's applicator certification and licensing program. New pesticide applicator training materials, as well as drift management materials, have been developed which include modules on ground water protection, nonpoint source pollution, and water quality. Working in conjunction with other state and federal agencies, the UMCE published *"Best Management Practices for Agricultural Producers: Protecting Ground Water From Nutrients and Pesticides"* in 1989. UMCE Crop and Water Quality Specialists also research pesticides and their movement to ground and surface waters. This new information is being incorporated into training and recertification programs.

C. Role in this Plan

1. The UMCE will utilize its existing educational and outreach programs to inform growers and applicators about water quality protection and the requirements of state management plans.

2. The UMCE will continue outreach programs which inform growers about BMPs and other ground water protection measures.

3. As new materials are developed by the UMCE, information on water quality protection and the intent and requirements of state management plans will be incorporated.

Agencies with Technical Assistance Roles

U.S. Department of Agriculture (USDA)

The USDA, through its various divisions, provides both technical assistance to individual landowners and a range of incentives that can affect the way landowners choose to manage their land and water resources. USDA divisions in Maine include the University of Maine Cooperative Extension (UMCE), Natural Resources Conservation Service (NRCS), Farm Services Agency (FSA), and Agricultural Research Service (ARS).

The NRCS and UMCE offer education and technical assistance to private landowners to solve natural resource management problems. (For a further discussion UMCE's of implementation role, see "University of Maine Cooperative Extension" earlier in this section.) NRCS provides free services, including assistance with planning, preserving, and improving water quality. ASCS provides cost-share programs for landowners to implement soil and water conservation plans. USDA has also funded a nonpoint source, hydrologic unit program in Maine.

U.S. Department of the Interior (DOI)

The U.S. Geological Survey (USGS), a division of the DOI, has the principal role for gathering hydrogeologic information on, and assessing the quality of, the nation's aquifers. Through cooperative programs with states, the USGS compiles information for planning, developing, and managing the nation's water resources. USGS topographic maps are used in the design of Maine's ground water monitoring program (See Section VII, "Ground Water Monitoring).

Maine Department of Conservation, Maine Geological Survey (MGS)

Maine Geological Survey undertook the three-year program, *"Pilot Study: Pesticides in Ground Water*," in the 1980's. MGS is tasked with the collection and analysis of information relating to the nature, extent, and quality of aquifers and aquifer recharge areas in Maine . MGS serves as a primary source of information and expertise on ground water resources and monitoring. Data concerning water resources are mapped and made available to requesting agencies.

University of Maine, Maine Agricultural Experiment Station (MAES)

The Maine Agricultural Experiment Station is charged with serving the land grant research mission of the University of Maine.[6] Through basic and applied research programs, MAES scientists work to provide solutions to problems being encountered by the State's agriculture, forestry and aquaculture enterprises, as well as rural communities in general. MAES' research mission is clearly stated in its motto: RESEARCH FOR MAINE AND ITS PEOPLE.

MAES has several ongoing research projects which study fate and transport of pollutants such as agricultural chemicals and waste materials through soil and water systems, investigate means of reducing the need for chemical applications, and refine methods of analyzing contaminant concentrations in water, soil, and food. MAES researchers also serve the public interest through involvement as technical consultants. Although MAES has no direct role in the

[6] MAES Faculty Handbook, 1988.

implementation of this plan, it will continue to conduct research which may facilitate implementation and management of this plan.

Maine Soil and Water Conservation Districts

Maine's sixteen Soil and Water Conservation Districts (SWCDs) provide technical assistance along with educational programs, focusing on such topics as soil erosion prevention, flood control, water quality, and water conservation. The Districts provide further technical assistance under the guidance of NRCS to individual citizens in planning and installing conservation practices. The Districts also initiate and conduct demonstration projects which encourage the adoption of conservation plans. The SWCDs maintain a variety of databases, including soil surveys, hydrologic data, and commodity information, all of which are important in evaluating the pesticide leaching potential within a given geographic area.

Regional Planning Councils

Maine's eleven Regional Planning Councils provide technical assistance to municipalities in implementing state and federal comprehensive planning requirements and in preparing municipal plans. Recent planning efforts of the councils have included programs on ground water management, with assistance projects ranging from ground water hazard identification maps to draft ordinances for the control of nonpoint source pollution. The councils will continue to be an important source of information to municipalities as ground water management and wellhead protection become integrated into municipal comprehensive planning efforts.

Other Agencies with Ground Water Programs

Executive Department, Maine State Planning Office

In 1985, the Maine Ground Water Standing Committee was created to coordinate the state's diverse ground water interests. The Committee, staffed by the Maine State Planning Office, was charged with assessing priorities and ensuring the implementation of the state's ground water management and protection programs. In June of 1989, the Maine Ground Water Standing Committee published the "Maine Ground Water Management Strategy," a comprehensive look at the threats to Maine ground water with a multi-point policy statement on how ground water could best be protected. The Strategy states as its Primary Goal:

> "....to protect, conserve, and manage Maine's ground water re- sources to protect the public health, safety, and general welfare; to meet future water supply needs; and to sustain economic growth."[7]

To achieve this goal, seven broad-based policies, listed in Figure III-A, were established to guide state, regional, and local planners in the protection of ground water. These policies have served as the foundation of many of the premises and guidelines used in this plan. Today, these policies are coordinated and integrated under the larger umbrella of the state's CSGWPP. The Ground Water Standing Committee was dissolved in 1991 and the responsibilities of the committee were transferred to the Land and Water Resource Council, Water Resources Committee, which now oversees ground water policy development and provides a common contact point for the various agencies involved with ground water matters.

In 1992, the State Planning Office once again became involved with ground water protection when it was designated as the lead coordinating agency for preparing the Maine Coastal Nonpoint Source Program. The Coastal Zone Amendments and Reauthorization Act of 1990[8] required all coastal states to prepare a Coastal Nonpoint Pollution Control Program which is submitted to both EPA and the National Oceanic and Atmospheric Administration (NOAA). Each state Coastal Nonpoint Pollution Control Program must, as a minimum, provide for the implementation of enforceable management measures to control identified sources of nonpoint pollution in conformity with guidance issued by EPA and NOAA. The Coastal Nonpoint Pollution Control Plan was submitted to EPA and NOAA in 1995. This program is integrated with both the statewide Nonpoint Source Management Plan and the various reports prepared under the Clean Water Act, at least as far as they relate to coastal waters.

Since 1996, the State Planning Office has also provided assistance to individual communities in Maine with the development of comprehensive management plans that address, among other things, the protection of existing and future drinking water resources. These water resources may include ground water and/or recharge areas.

Under the guidelines developed to implement Maine's Comprehensive Planning Program, communities may designate ground water resources *significant* to the community. Significant ground water resources may be those under a densely developed section of the community utilizing private wells or ground water selected for a future public water supply. The comprehensive management plan should then identify whether the significant ground water resource will be protected by exclusionary methods or through strict control of potential sources of contamination.

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2 [7] Dutram, Paul W., et al., "Maine Groundwater Management Strategy," Maine Groundwater Standing Committee, June 1989, pp. 6.

3 [8] 16 USC 1455(b).

MAINE GROUND WATER POLICIES

Policy 1 *There shall be no discharges of pollutants to ground water unless land use activities which have the potential to discharge pollutants to the soil conform to state and local regulations which address the attenuative capacity of local geological deposits to provide protection for ground water quality.*

Policy 2 *When ground water is polluted, sources of pollution shall be removed or contained so that the restoration of ground water quality to drinking water standards or better may proceed by natural processes, or by the application of technology when physically and economically feasible.*

Policy 3 *No development or use of land shall unreasonably cause or exacerbate salt water intrusion, or changes in historic ground water flow patterns and water table height.*

Policy 4 *The State Ground Water Classification System, with assessments of current and future ground water use, should be used by State agencies, municipalities, and water districts in protecting ground water systems.*

Policy 5 *It is the responsibility of municipalities to require the appropriate siting of new facilities and activities and performance standards for all facilities and activities not regulated by the State that may pose a threat to local ground waters in order to minimize damage.*

Policy 6 *Ground water and surface water are components of a single hydrologic system. Neither one should degrade the quality classification of the other.*

Policy 7 *Public water supplies, because they serve many people and businesses from single sources, are important municipal and State resources. Municipalities and water utilities should cooperate in the identification and protection of existing and future well head and recharge areas.*

Figure III-A: Maine Ground Water Policies[9]

4[9] Dutram, Paul W., et al., op. cit., pp. 6-7.

Municipalities

Under the constitution of the state of Maine, municipalities have broad "home-rule" powers to enact ordinances, including police power and land use ordinances. Under FIFRA, the authority to regulate pesticides is specifically delegated to the states, but not to local governments. The right of municipalities to regulate pesticides and application practices has been a controversial issue, being settled finally by both state and federal supreme court decisions.

In 1983, the town of Lebanon, Maine passed an ordinance prohibiting any commercial, non-agricultural use of herbicides in its town unless approved by a town meeting vote. In 1986, Lebanon denied Central Maine Power's request to spray its electrical rights-of-way and the case was brought to court. In 1990, the Maine Supreme Court finally upheld the town ordinance and firmly established the right of municipalities in Maine to regulate pesticides.[10] It was not until June 1991, that the U.S. Supreme Court also upheld a municipality's right to regulate pesticides beyond FIFRA.[11]

Meanwhile, in 1988, the Maine Legislature had passed a law requiring municipalities in Maine with pesticide ordinances to file them with the BPC in order for them to be deemed valid. Thirteen municipalities have filed copies of their ordinances with the BPC. The ordinances vary from bans on herbicide use on road sides to comprehensive pesticide prohibitions, including one which protects aquifers within two municipal-designated districts. The latter also requires an applicator to notify the code enforcement officer 60 days in advance of any plan to apply a restricted use pesticide within one of the districts. Although municipalities have no direct responsibilities under this plan, municipal comprehensive planning efforts, combined with ordinance powers, will play an important role in future land use patterns and pesticide regulation in Maine.

(See Section IIIA from Tammys stuff to compare to section III above)

SECTION IV
NATURAL RESOURCE CHARACTERIZATION AND BASIS FOR ASSESSMENT AND PLANNING

This section of the plan describes, in brief, Maine's ground water resources and soil characteristics and describes the BPC's basis for assessment and planning as it relates to pesticides and ground water management.

5[10] Central Maine Power v. The Town of Lebanon, 571 A.2d 1199 (Me. 1990)
6[11] Wisconsin Public Intervenor v. Ralph Mortimer, 115L Ed. 2d. 253, 111 S Ct. 2476.

Natural Resource Characterization: Ground Water

General Geology of Maine's Ground Water Sources

Maine obtains useful supplies of ground water from two sources of very different geologic origin: unconsolidated surface sediments deposited by glaciers over the last 25,000 years and underlying consolidated bedrock formations that began forming hundreds of millions of years ago.

The bedrock that forms the foundation of Maine was created by the same geologic processes active in the world today, including sedimentation, volcanic activity, intrusion of molten rock, metamorphism, and weathering and erosion. Regardless of their diverse origins, these bedrock formations have very similar ground water-bearing characteristics because crustal deformation has left them brittle and fractured.

Unconsolidated sediments that overlie the bedrock formations are largely products of continental glaciers that once spread across Maine and New England as far south as Long Island, New York. Much of what is seen today was deposited during the last 25,000 years by the most recent period of glaciation that ended in Maine around 10,000 years ago. Advance of the mile thick ice across the land left widespread deposits of mixed clay, silt, sand, cobbles, and boulders called till. The ice sheet's melting left more restricted deposits of sand and gravel, found primarily in valleys and low-lying areas, which are important sources of ground water today.

As the climate warmed and the ice sheet melted away, the weight of the ice had so depressed the Earth's crust in Maine's coastal region that the ocean flooded the area. Eventually, the land surface rebounded faster than the ocean flooding, and the sea level retreated back to a level approximately 180 feet below present sea level. Subsequently, sea level rose towards its present day shoreline. Throughout this area of temporary marine transgression, glacio-marine silt and clay deposits now cover the glacial till as well as sand and gravel deposits. Although clay and silt are not a source of abundant ground water in Maine, they are important because their low permeability has a strong influence on the occurrence and quality of ground water in the underlying sand and gravel and bedrock aquifers.

Geologic Maps

USGS topographic, 7.5 minute maps, available through the Maine Geological Survey (MGS), show elevation, culture, and drainage. These maps are used as the base maps for various studies, including the development of the BPC's assessment monitoring program as described in Section VII. MGS also has available reconnaissance and detailed surficial and bedrock geologic maps. These maps show sand, gravel, and other unconsolidated materials which overlie the bedrock in Maine and the nature of the underlying bedrock, respectively. They can be used for detailed geologic studies and planning for siting studies.

Ground Water Maps

Significant sand and gravel aquifer maps and reports are currently available from the Maine Geological Survey. These maps show the locations of sand and gravel aquifers which provide a yield of greater than 10-gallons per minute to a properly installed well. They can be used as a basis for detailed hydrogeological siting studies and planning and for providing information on aquifer favorability.

Ground Water Classification in Maine

Ground water in Maine is divided into two classification categories: GW-A, ground water of a quality that can be used for public water supplies, and GW-B, all other supplies not suitable for public drinking water. Maine's legislature, which has the role of formally classifying ground water, has classified all ground water in the state of Maine as GW-A. While this classification system does not recognize that all ground water is not of equal value and that it is not desirable to restrict land use activities equally throughout the state, GW-A, expressed as a goal for all ground water, prevents the further degradation of waters by prohibiting discharges which would cause ground water to violate established standards.

The Maine Department of Environmental Protection has attempted to identify ground waters which have higher value based in part on their current or future use. These waters are known as "priority waters" and fall into two broad categories: (1) wellhead protection areas and (2) ground water which is hydrologically connected to surface water in Class AA and Class A watersheds. Where these areas overlap pesticide use sites, the BPC will consider if additional protections are needed when writing a Pesticide SMP.

Natural Resource Characterization: Soils

Formation of Maine Soils

As mentioned previously, Maine soils began to form when the last glacier deposited its rock and soil materials either as glacial till or as water-sorted sediments along glacial streams, rivers, lakes, or the ocean. During the period of temporary marine transgression, higher ridges protruded above the ocean surface as islands, while the areas covered by sea water received a blanket of fine ground water-deposited sediments. The result of this inundation is a complex pattern of soils, derived from glacial till, fine sediments, sands and gravels, along the Maine coast and inland to the elevation of the limit of the marine transgression.

Soils currently recognized in Maine formed as a result of various weathering processes which are an interaction of climate, time, topography, and vegetation on parent material. The diversity of Maine soils reflects not only the various parent materials but also the weathering of the parent material and their position in the landscape.

Relevance of Soils to Pesticide Application

The ability of the soil to treat or attenuate potential contaminants associated with pesticides or any other chemical depends on many factors, including its texture, structure,

consistency, drainage class, organic matter content, and depth to bedrock or hardpan. In general, the soils best suited to protect ground water from contamination are those which have these features:

- fine texture,
- good soil structure,
- friable,
- well drained,
- relatively high organic matter contents, and
- relatively greater depth to bedrock or hardpans.

It is important to understand soil characteristics and their limitations. It may be possible to modify some characteristics so that the soils offer a better buffer for ground water, such as altering the drainage by diverting surface water away from a field or altering organic content by adding organic matter to coarse textured soils.

Soil Maps

The easiest way to learn about the soil characteristics of a given site is to refer to soil maps prepared by the Natural Resources Conservation Service (NRCS). These maps are published in books, or online at http://www.soils.usda.gov/survey/, and include a detailed description of the soil and soil characteristics. These books, called Soil Surveys, are completed for many counties in Maine and include most of the organized areas. If a soil survey is not published for a county, contact the local Soil and Water Conservation District office for soils information. The NRCS, housed in District offices, may be in the process of preparing soil maps for that area.

It is important to keep in mind that NRCS soils maps are sometimes useful for large-scale pesticide users, but for smaller farmers or homeowners, these maps are not site specific enough. For instance, many areas soil mapped by NRCS use map units of 15 - 40 acres in size. Any soil area smaller than that minimum size is lumped into the larger map unit and considered an inclusion. Even the higher detail NRCS soil maps have minimum map unit sizes of about 3 acres. That means a 2-acre garden, lawn, etc. may be on completely different soils than the soil map indicates. Even for the bigger user, the map unit may be an association with 3 named soils. One needs to be able to determine the soil where a pesticide use is to occur. Ideally, a pesticide user should have a high intensity soil survey made by a Maine Certified Soil Scientist to provide site specific information, especially for sensitive areas such as over potential aquifers.

Basis for Assessment and Planning

Because all ground water in Maine is classified as suitable for public drinking water, theoretically, all ground water should receive equal protection. The designation of priority waters provides a basis for resource prioritization, however, the majority of Maine agriculture lies outside these areas. Rather than prioritizing protection efforts on the ground water resource, the BPC has instead formed its basis for assessment and planning on vulnerability by focusing on

(1) ground water monitoring data and (2) commodities or pesticide use sites where pesticides with a high potential to leach are used.

Ground water monitoring projects by the BPC have provided a wealth of information about ground water quality and site characteristics which may lead to contamination. The BPC, utilizing small, well-designed studies, has been able to identify locations in the state where ground water quality has been impaired through use of a specific pesticide. However, ground water monitoring is expensive and ongoing projects are difficult to maintain. Also, because of the limited scope of many of these studies, statewide generalizations can seldom be made. See Section VII, "Ground Water Monitoring," for a further discussion of the role of monitoring.

Computer models have also been tried in Maine with varying success. In 1989, the MGS, U.S. EPA, Region I, and the BPC initiated the *Maine Agricultural Chemical - Ground Water Mapping Pilot Project.* The primary objective of this project was to test vulnerability systems, in this case Agricultural DRASTIC, for predicting ground water contamination in an intensely farmed region in northeastern Aroostook County. A secondary objective was to assess the usefulness of geographic information systems (GIS) in pesticides-in-ground-water studies.

In conclusion, the study provided no support for using the Agricultural DRASTIC methodology in developing a county-wide or regional pesticide/ground water quality management plan on the computed relative vulnerability of ground water. GIS proved to be an extremely useful tool for the organization and integration of mapped and tabular data. However, the effectiveness of GIS was limited due to the long time period necessary to gather and enter map data into the system. Once more map data are available, using GIS for sensitivity and vulnerability assessments will be more cost- and time-effective.[12]

The most useful computer model available for assessing vulnerability is the National Pesticide/Soil Database and User Decision Support System for Risk Assessment of Ground and Surface Water Contamination, better known as NPURG. NPURG gives the user the opportunity to quickly evaluate the relative leaching and surface loss potentials for multiple pesticides on one or more specific soil types.

NPURG has been made available free of charge to landowners through county Cooperative Extension and Soil and Water Conservation District offices in Maine. The DHS, Drinking Water Program is currently using NPURG to identify those pesticides with a low leaching potential in order to provide waivers to public water systems for Phase II and Phase V monitoring requirements. Until better models or more cost effective means are identified, the BPC will continue using NPURG as a planning tool in vulnerability assessments. For a further description of NPURG, selected sections of the users manual and sample data sheets can be found in Appendix B.

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1 [12] Williams, John S., Nancy A. Beardsley, et al., "Assessment of Ground Water Contamination Vulnerability from Agricultural Chemical Use in Northern Maine: The Maine Agricultural Chemical - Ground Water Mapping Pilot Project" (Final Draft Report), January 1992, pp. 1-2, 6.

SECTION V
PESTICIDE USE IN MAINE

Maine Agriculture and Land Use

The story of Maine agriculture in the past, the present, and the future is one of adaptation to the changing world around us. Maine has changed from a state where more than half the households were farm-based, to one where about 7,200 farms in Maine produce more food than the state consumes in total. Unlike the isolated conditions of a hundred years ago, Maine products now compete in markets around the world.

Since 1840, the U.S. Department of Commerce, Bureau of the Census, has been conducting a national agricultural census. The census now is conducted on a 5-year cycle, collecting data for years ending in 2 and 7. The agricultural census is the leading source of consistent, comparable, statistical information about the nation's agricultural production at the county, state, and national levels.

According to the last available census (2002), farms control approximately 1.3 million acres of land in Maine. The average farm in Maine is approximately 190 acres. About 94% of the farms in Maine are owned by individuals or families, but only slightly less than half of the operators describe their principal occupation as farming. Clearly, the Maine farm today represents a unique scenario, blending the tradition of the family farm with contemporary rural economic conditions.

Farm acres in Maine are divided primarily among woodland (51.2%) and cropland (39.1%), with the remaining acres divided between pastureland, rangeland, and other land. Although not the leading money crop, hay, including alfalfa and grass silage, dominates Maine cropland with over 209,955 acres. Potatoes follow second with over 64,000 acres concentrated primarily in Maine's northern Aroostook County. Wild blueberries continue to be eastern Maine's primary commodity with approximately 86.8% of Maine's bearing acres in Washington and Hancock counties. Figure V-A lists some of those crops in Maine grown on over 1,000 acres and the counties with significant acreage.

In additional to the traditional farm settings, Maine has approximately seventeen million acres of commercial forest lands. Approximately half of these lands are owned by the state's seventeen industrial timber/paper companies. Herbicides are used in management practices designed to control competition and increase yields of desired species. Such practices include initial site preparation, softwood release, and precommercial thinning, with a majority of the herbicide use for softwood release. In 1996, approximately 47,500 acres of forest land were treated with herbicides, less than one percent of total commercial forest land.[13]

1[13]Compilation of 1996 Notices of Aerial Pesticide Application, Board of Pesticides Control

CROPLAND AND COMMODITY ACREAGE

Item		2002 acres
Land in farms		1,369,768
Total woodland		702,555
Total cropland		536,839
Hay-alfalfa, other tame, small grain, wild, grass, silage, green chop, etc.	(Maine)	209,955
	(Arrostook County)	33,073
	(Kennebec County)	27,980
	(Somerset County)	23,152
	(Penobscot County)	24,130
Fall potatoes	(Maine)	64,474
	(Aroostook County)	59,418
	(Penobscot County)	3,011
	(Oxford County)	1,384
Corn for silage or green chop	(Maine)	24,351
	(Androscoggin County)	2,759
	(Kennebec County)	4,044
	(Penobscot County)	6,811
	(Somerset County)	4,029
	(Waldo County)	3,314
	(York County)	6,759
Wild blueberries*		
	(Maine)	23,000
	(Washington County)	16,844
	(Hancock County)	3,126
	(Waldo County)	1,494
Apples	(Maine)	3,891
	(Androscoggin County)	955
	(York County)	414
	(Oxford County)	657
Sweet corn	(Maine)	1,970
	(Androscoggin County)	254
	(York County)	(D)
	(Cumberland County)	240
Dry Beans	(Maine)	367

* Maine has between 50,000 to 60,000 acres of wild blueberries with approximately half of the acres bearing fruit on any given year.

(D) Withheld to avoid disclosure of data for individual farms.

Figure V-A: Cropland and Commodity Acreage

Agricultural Chemical Use In Maine

There are a number of reporting and survey mechanisms in existence which contribute to understanding the sales and use of Maine's approximately 6500 registered pesticide products. Sales data combined with spray and crop recommendations begin to create general geographic patterns. This section of the management plan describes the reporting and survey methods currently being utilized in Maine, summarizing the most recently available data.

U.S. Department of Commerce, Census of Agriculture

Although the Census of Agriculture primarily deals with livestock and crop production data, it also yields statistics related to agricultural chemical use. Figure V-B summarizes the data gathered on agricultural chemical use from the 1992 Census of Agriculture. Specific county breakdowns are given in the census, but not by pesticide.

Pesticide Sales Database

Since 1977, annual restricted and limited use sales reports have been required as part of the licensing procedure in Maine for restricted use pesticide dealers. Unfortunately, resources have not always been available to provide proper maintenance and management of the data, and early efforts at compiling the sales data were sporadic at best.

In 1990, this data compilation process was further complicated by the addition of general use pesticide sales data. Responding to concerns about lawn care and structural pesticides and their use, the Maine legislature instituted general use pesticide dealer licenses in 1989. Annually, these dealers must report on the sales of general use pesticides sold in packages of one quart or greater or five pounds or greater. There are over 600 licensed general use pesticide dealers in Maine, and the data which they generate are voluminous.

The most recently available compilation effort was undertaken with the 1995 sales data. The list of products reported was screened and narrowed for those products used in agriculture. A preliminary tabulation of active ingredients and their percentages within the formulations were researched and added to the database. The results for those active ingredients sold in amounts over 1,000 pounds are in Appendix C, "1995 Agricultural Pesticide Sales Data."

AGRICULTURAL CHEMICALS USED, INCLUDING FERTILIZER AND LIME IN 1992[14]

2[14]Ibid., pp. 21.

Item	1992
Total farms in Maine (number)	5,776
Land in farms (acres)	1,258,297
Any chemicals, fertilizer, or lime used (farms)	3,631
Commercial fertilizer (farms)	3,181
(acres on which used)	257,402
Sprays, dusts, granules, fumigants, etc., to control	
Insects on hay and other crops (farms)	1,692
(acres on which used)	133,702
Nematodes in crops (farms)	143
(acres on which used)	13,401
Diseases in crops and orchards (farms)	885
(acres on which used)	87,945
Weeds, grass, or brush in crops and pasture (farms)	1,482
(acres on which used)	146,504
Chemicals used for defoliation or for growth control of crops or thinning of fruit (farms)	560
(acres on which used)	61,640

Figure V-B: Agricultural Chemicals Used, Including Fertilizer and Lime

In 1997 the Maine Legislature enacted two laws which will significantly change how sales data is both collected and tabulated. The first requires the BPC to begin annual tabulations of both the pesticide sales data and commercial applicator annual summary reports. This bill, originally intending to establish specific pesticide use reduction goals for the State, was modified in workshop sessions to require the compilation of this baseline data. However, unlike recent tabulations, the sales data will be tabulated only according to trade name and EPA Registration number, not active ingredient.

The second law enacted shifted the burden of general use pesticide sales reporting from individual licensed dealers to wholesalers. With 600 licensed general use pesticide dealers in Maine, both the number of reports and the variation within those reports made compilation difficult. The BPC estimates that there may be as few as 50 wholesalers who distribute general use pesticides in Maine. This smaller number will eventually lead to a better trained, reporting group and eliminate many data errors up front. In the near future, however, the BPC anticipates a small decline in data quality while wholesalers are being identified and informed of their new reporting requirements. Sales reports from restricted use pesticide dealers remained unchanged.

Applicator Record Keeping and the 1990 Farm Bill

In Maine, nearly all certified applicators are required to keep and to maintain application records, although only commercial applicators are required to report on pesticide use to the BPC (See below -- Commercial Applicator Annual Summary Reports). Certified private applicators, until 1993, were required to keep records only for outdoor applications with powered equipment. These records are not submitted to the BPC, although they are available for inspection by the BPC staff.

The 1990 Farm Bill included a provision requiring that all agricultural users of restricted use pesticides maintain records of their use. A Federal Register notice, published May 12, 1992, listed the proposed elements for each record. They include:

- The brand name or product name, formulation, and the EPA registration number of the product applied;
- The total amount and rate of application;
- The address or location, the size of area treated, the target pest, and the crop, commodity, or stored product to which the restricted use pesticide was applied;
- The month, day, and year on which the application occurred; and
- The name, address, and certification number of the certified applicator who applied or who supervised the application.

The record keeping provision includes a requirement that USDA and EPA survey restricted use pesticide records annually to develop a comprehensive report on pesticide use to Congress. While this will allow the Federal government a better opportunity to estimate pesticide use regionally and nationally, the 1990 Farm Bill, as with Maine law, does not provide for the gathering of statewide, site-specific data, a key piece of information in ground water vulnerability assessments.

Non-agricultural Pesticide Use

Agriculture, although the largest sector of pesticide use in the state, is by no means the only contributor to outdoor pesticide use. Outdoor applications of pesticides occur to:

- Lawns and golf courses,
- Ornamental trees and shrubs,
- Utility and railroad rights-of-way,
- Roadsides, and
- Homes and industrial buildings.

The following sections characterize several nonagricultural sites of primary importance in Maine.

Roadsides and Rights-of-way

Roadside vegetation management is conducted primarily by the Maine Department of Transportation (MDOT) and the Maine Turnpike Authority, although some cities and towns also undertake limited projects. In 1996, MDOT used herbicide applications on slightly over 9,100 miles of roadside to control vegetation under guardrails and larger species which could interfere with highway safety.[15]

Vegetation control is also conducted along utility, railroad, and timberland access rights-of way. Most utility companies combine handcutting and backpack herbicide applications on a three- to four-year rotation to control tree growth.[16] Larger trees, over eight to ten feet tall, are mechanically cut. The stumps of those species capable of resprouting are treated with a herbicide. Central Maine Power, Maine's largest electric utility, uses these practices to control vegetation along it's 2,200 miles of transmission lines.[17] Herbicides are also used along Maine's railroads. In 1995, over 5,400 acres adjacent to railroad tracks were sprayed to control vegetation.[18]

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3 [15]Maine Department of Transportation 1996 Commercial Applicator Annual Summary Report, Board of Pesticides Control.

4 [16]Cline, Michael L., et. at., "Pesticide Reduction: A Blueprint for Action," Maine Audubon Society, June 1990, pp. 23-25.

5[17]Commission to Study the Use of Herbicides, op. cit., pp. 31.

6 [18]RWC, Inc. 1995 Commercial Applicator Annual Summary Report and Variance Request Permit, Board of Pesticides Control.

Lawns and Golf Courses

According to 1988 EPA estimates, products used to control turf pests in lawns, parks, gardens, and golf courses constitute a large and growing market. Generally known as lawn care pesticides, their sales nationally have increased to over $700 million annually and result in sixty-seven million pounds of active ingredient being applied. EPA estimates that professional lawn care companies, treating mostly residential lawns, do a $1.5 billion annual business.[19]

In Maine, there are over 750 individuals licensed to control turf pests, including commercial lawn care applicators and golf course superintendents. In 1989, licensed pesticide dealers sold approximately 450,000 pounds of granular lawn care formulation for use by commercial applicators and homeowners on residential and commercial sites in Maine. By 1995, total pounds of granular formulations sold had risen to over 750,000 pounds.

Commercial Applicator Annual Summary Reports

The best means available to estimate non-agricultural pesticide use are commercial applicator summary reports. Annually, companies must file a report summarizing their pesticide applications. For a number of years, the University of Maine Cooperative Extension assumed management responsibilities for these data which they used in preparing pesticide recommendations. Beginning in 1998, the BPC will be responsible for compiling these data and reporting annually to the Maine Legislature.

Household Pesticide Use

Very little is known about homeowner pesticide use in Maine or nationwide. Maine's pesticides sales database is limited because only products in packages greater than one quart or five pounds need be reported. This leaves many household pesticides unreported.

In March 1988, EPA contracted Research Triangle Institute to design and conduct the National Home and Garden Pesticide Use Survey (NHGPUS). The NHGPUS was a one-time, cross-sectional survey of the use of pesticides in and around homes in the United States. Data were collected on a list of items, including which pesticides were used and what they were used for. The NHGPUS found an average of 3.84 (+/- 0.5) pesticide products per household, estimating the total number of pesticide products in storage at residences nationwide at nearly 325,000,000.[20]

In 1993 the BPC surveyed more than 1,000 people attending two of Maine's largest garden shows about their pesticide-use habits. Three hundred revealed they were either certified applicators or persons who refrain from pesticide use. Of the remaining 724 participants (considered *at-home applicators*), 85 percent acknowledged they use pesticides around the home

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7 [19]U.S. General Accounting Office. "Lawn Care pesticides: Risks Remain Uncertain While Prohibited Safety Claims Continue," (GAO/RCED-90-134), March 1990, pp.8.

8 [20]U.S. Environmental Protection Agency, "National Home and Garden Pesticide use Survey," April 1992, pp. 1-2, 6.

and garden. An astounding 15 percent of these at-home applicators, after reporting they do not use any pesticides, proceeded to supply information on the frequency and types of pesticides they regularly applied. Further, less than half of the at-home applicators surveyed, whether aware or oblivious of their use of pesticides, acknowledged they wear personal protective equipment (gloves, goggles, mask) when making an application.[21]

Based on surveys such as those described, the potential impact of homeowner pesticide use on ground water quality cannot be overlooked. Pesticide use and disposal practices by homeowners remains relatively unchecked by regulatory officials until a complaint is received or a problem investigated, and quantitatively determining their impact on ground water quality is nearly impossible. Section VI, "Prevention Strategies and Information Dissemination," discusses avenues available to educate homeowners about proper pesticide use and ground water protection.

SECTION VI
PREVENTION STRATEGIES AND INFORMATION DISSEMINATION

As stated in Section II, Maine's management plan for pesticides in ground water emphasizes prevention over post-contamination remediation. This section of the plan describes the education and pesticide control strategies that will be used to prevent contamination and the means which will be used to inform pesticide users about the requirements of Pesticide SMPs.

Best Management Practices

Regardless of how a pesticide is regulated or managed, the user will continue to be in the unique position of directly controlling the use of pesticides in the field. Thus, the user has the responsibility to seek better understanding of ground water concerns. At a minimum, as required by federal and state law, a user must follow the instructions found on the label of each pesticide product and, when required, be trained and certified in the proper use of the pesticide.[22] In addition to what is required by law, there may be certain methods, measures or practices that the user can perform to help prevent, reduce, or correct ground water contamination. These methods or measures are known as Best Management Practices (BMPs).

Rarely will the use of a single pesticide BMP be sufficient to adequately address a particular ground water concern. More frequently, a number of BMPs, individually selected to

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9 [21]Maine Board of Pesticides Control, “BPC Widens Focus on At-Home Applicators; Homeowners are Maine’s Largest and Least Accountable Users of Pesticides,” *BPC Communicator*, Vol. 8, No. 1, April 22, 1997, pp. 1.

1 [22]U.S. Environmental Protection Agency, op. cit., pp. 109.

fit the unique characteristics of each site and operation, will be required. These groups of BMPs are referred to as a Best Management System (BMS).[23]

The *Maine Nonpoint Source Pollution Management Plan* (Maine Dept. of Environmental Protection, November 1989) identified several major source categories in which strategies could be developed to control nonpoint source (NPS) pollution. These included agriculture, silviculture, and transportation facilities and support. Several task forces were formed to develop and, subsequently, implement the BMPs identified for each source category. In October 1991, the Maine Agriculture Nonpoint Source (NPS) Task Force completed worked on *Strategy for Managing Nonpoint Source Pollution from Agricultural Sources.* This document described, in general terms, pesticide BMPs and encouraged their adoption.

A 1996 study conducted by the University of Maine evaluated grower adoption rates for these pesticide BMPs. In the study potato producers' use of BMPs in four areas -- sediment, pesticides, nutrients and manure -- was evaluated. The overall adoption rates for most of the pesticide BMPs were extremely positive. Four of the 13 possible BMPs -- becoming a certified applicator, safely disposing of extra spray, reading and following label directions, and avoiding drift -- had a 100% adoption rate. The study also found that if growers were familiar with the term BMP, they were more likely to select a less leachable pesticide.[24]

Since 1991, specific BMPs for the use of the herbicides atrazine and hexazinone have been developed by subcommittees of the Maine Agriculture NPS Task Force. The BPC will continue to work with these groups to develop pesticide-specific BMPs and to educate users about them.

Education of Users

Pesticides user education remains at the forefront of any ground water protection strategy. There are numerous avenues available to educate the wide variety of pesticide users in the State -- from utilization of radio, television, and newspapers to educate the public about its role in groundwater protection to site-specific technical assistance programs for farmers that directly address pesticide use patterns in relation to soil and cropping practices. The first part of this section addresses some of the education tools currently available and some which, hopefully, will be available in the future. Any of these education means can be tailored to a specific pesticide. Their unique role in Pesticide SMPs will be detailed when these plans are developed.

Certification and Training

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2 [23]Maine Agriculture NPS Task Force, "Strategy for Managing Nonpoint Source Pollution from Agricultural Sources," October 1991, pp. 9.

3 [24]Jemison, Jr., J.M., M.H. Wiedenhoeft, and E.B.Mallory, "Best Management Practices Evaluation Project: Potato Industry, " Proceedings of Water Pollution/Agriculture Conference: What Farmers Need to Know About Water Pollution, Augusta, Maine, April 2, 1997. A copy of the report is attached in Appendix I.

The cornerstone of educational efforts in ground water protection is applicator recognition of the contributing factors to contamination. The primary avenue in achieving this is through certification of applicators (see Section III, "Cooperating Agencies" for a description of certification and licensing). Since the Fall of 1989, a section called "Pesticides and the Environment" has been included in the core *Pesticide Education Manual*, developed by Pennsylvania State University and adapted for use in Maine by the University of Maine Cooperative Extension and the Maine Board of Pesticides Control. "Pesticides and the Environment" covers topics such as pesticide fate in the environment, and reducing hazards to ground water. Ground water-related questions are included in the core exam as well.

Ground water protection is a regular component of recertification efforts in Maine. There have been numerous presentations on the protection of ground water including presentations given at the annual Agricultural Trades Show and potato and blueberry seminars. As Pesticide SMPs are implemented, additional training classes on the requirements of such state management plans have been and will continue to be offered to assist applicators in meeting the mandates. The BPC will work with affected commodity groups and trade associations to ensure that Pesticide SMP training is offered to their memberships.

Outreach Efforts

However, not every pesticide user in Maine uses restricted or limited use pesticides. Hundreds of thousands of pounds of general use pesticides are used each year in Maine, therefore efforts to reach general use consumers and applicators are an important intervention step. Listed below are some of the avenues available to inform licensed applicators and other pesticide users about the Generic SMP, Pesticide SMPs and ground water protection measures.

Newsletters and Mailings

The Board of Pesticides Control periodically produces a newsletter, *The BPC Buzz*, for the regulated pesticide community, media, environmental groups, and other interested parties. *The BPC Buzz* can service outreach efforts on a regular, per- issue basis, apprising its readership, primarily applicators, with the general goals of the Generic SMP, as well as with specific announcements of federal regulations and product reregistrations. The newsletter is especially useful for explaining the rationale behind pesticide regulations.

Commodity-specific newsletters are also published and distributed by UMCE. The potato newsletter, *Spudlines*, is published three to four times a year and has a circulation of 700-800. *Pest Alert* is published weekly during the summer for commercial potato growers, and also has a circulation of 700-800. UMCE also publishes *The Orchard Newsletter, Vegetable and Berry News,* and *Wild Blueberry News.* The now defunct *Cows and Crops,* the newsletter for dairy, had addressed BMPs, atrazine use, and ground water protection on several occasions. Cooperative Extension regional offices also publish monthly newsletters that address specific regional concerns and keep their readers informed about changes in state and federal regulations. Beyond newsletters,

UMCE continually reaches users by providing updates to their brochures and conducts specific mailings on items of urgency and importance to applicators and users in Maine.

In addition to newsletters published by the BPC and UMCE, many of the agricultural and pesticide user associations in Maine publish newsletters for their constituents. The Pomological Society, Maine Potato Board, Northeast Weed Science Society, and Forest Products Council are just some in Maine and New England that have their own newsletters. The BPC has the capability to use these additional trade-specific publications to inform their readers about regulatory changes in their field, although direct mailings have proven to be more effective in reaching individual members. As Pesticide SMPs are implemented, if warrented, the BPC will be able to address specific commodity concerns through these association's newsletters and direct mail pieces.

Talks to Civic and Growers Groups

Other avenues of public education are talks to civic and growers groups. The BPC Director addresses regulators, environmental groups, and growers on a host of topics. BPC's water quality specialist gives presentations to growers and watershed management groups, and BPC's pesticide toxicologist gives presentations before growers groups, agriculture educators and university-level students. Any of these avenues may afford an entree to the discussion of state management plans.

UMCE Specialists are available to speak to interested groups on a variety of either crop-specific or pest-specific problems. Pesticide dealers in Maine often host growers' meetings, inviting a member of the BPC or UMCE staff to address the group about a particular topic. Also, ten Cooperative Extension regional offices in Maine offer Master Gardener Programs for homeowners and small commercial growers. Even though these classes are not part of the certification program, pesticide use is discussed with participants and applicable state and federal laws are explained. The BPC certification specialist does a pesticide awareness program for master gardeners that includes a section on ground water protection.

Public Service Announcements (PSAs)

Public service announcements (PSAs) can be used to educate the general public about proper pesticide use and ground water protection. In 1992, UMCE sponsored a series of drinking water protection PSAs on television stations in Maine. These focused primarily on identification of sources of contamination. The BPC has developed a pesticide label comprehension PSA with the Maine Broadcasting System which ran as part of their "Color Me Green" campaign during the summer of 1993.

Informational Brochures

The BPC and UMCE currently publish a variety of brochures that address crop, pest, ground water, and safety-related topics. Aside from being available through the mail from any of their offices, UMCE field representatives and BPC pesticide inspectors

carry this literature with them for distribution and discuss these issues with applicators, dealers, and growers during visitations and inspections. This one-to-one contact is important; the opportunity to explain recommendations and to leave instructions in the hands of the farmer, applicator, or dealer is often more effective than other training or education methods. For single copies of any of the materials listed below, readers are encouraged to contact the BPC at (207)287-2731 or the UMCE at (800)287-0279 or, outside Maine, at (207)581-3880.

Cooperative Extension Weed and Pest Control Guides

UMCE, in cooperation with extension offices in other New England states, has published a variety of commodity-specific weed and pest control guides. These guides serve as an invaluable source of information to farmers and applicators on their choice of an appropriate pesticide. The characteristics of specific pesticides are discussed and recommendations for their use to control certain commodity problems are given. In the early 1990's guides began to address ground water protection and the factors which contribute to leaching: soil, pesticide, and water table characteristics. NPURG ratings on the leachability of pesticides are now common place in most guides. Guides for potatoes, corn and forage crops, commercial vegetable production, small fruit, nursery crops, turf, problem weeds and brush, and Christmas trees are currently available. The BPC anticipates working with UMCE to develop editions which highlight the requirements of Pesticide SMPs and remind users of any special use restrictions in Maine.

"Best Management Practices for Maine Agricultural Producers"

An early and substantial effort to produce ground water protection publications lead in 1989 to UMCE's *"Best Management Practices for Maine Agricultural Producers: Protecting Ground Water from Nutrients and Pesticides"* (not to be confused with BMPs as described earlier in this section). Its readable text, timely recommendations and easy-to-understand worksheets have been valuable in the initial training of farmers and applicators about the factors involved in pesticide contamination of ground water. It has been distributed widely and over 400 individuals are on UMCE's mailing list for updates to the manual.

In addition to the above publications, a Drift Management Resource Notebook and Pesticide Applicator Log Book have also been developed and distributed by UMCE. Numerous state training programs have been held for producers to assist them in complying with drift management and record keeping regulations.

"Before You Use Pesticides"

Homeowners have historically been the most difficult group to reach with educational materials about pesticides and ground water. In 1991, the BPC published *"Before You Use Pesticides,"* which features a signature character who sets a lighter tone for discussing concerns about homeowner use of pesticides. Topics include subjects viewed by EPA and BPC surveys as least understood by the home users of pesticides.

Label comprehension, the difference between a pest and pest infestation, risks and benefits to pesticide use, storage and disposal, spill control, and proper disposal of obsolete pesticides are just some of the topics discussed.

"Ground-Water Facts for Maine Residents"

The Maine Department of Environmental Protection, Bureau of Land and Water Quality has produced a brochure for the general public which describes what ground water is, threats to ground water, and steps the average citizen can take to protect it. This brochure is distributed by the BPC at its informational booths and to callers with pesticides and ground water questions. A companion brochure, *"Ground-Water Facts for Municipal Officials"* is also available and distributed to community planners with wellhead protection issues.

Farm*A*Syst

The Farmstead Assessment System, better known as Farm*A*Syst, is a series of twelve worksheets that help farm owners assess how effectively farmstead practices protect their drinking water. The worksheets provide farm owners with a numerical score on different farmstead practices which might be affecting their well water. The numerical score then allows farm owners to look at each potential source of contamination in light of particular site conditions, to compare potential sources to see where improvements are needed most, and to determine where to spend time and money most effectively to protect the ground water that supplies drinking water wells. With each worksheet is a fact sheet that contains suggestions about things which can be done to modify farmstead practices and places to go for additional information and help. While field practices also have the potential to contaminate ground water, the Farm*A*Syst series is not designed to address this concern. The specific focus of Farm*A*Syst is the potential impact of farmstead practices and structures on drinking water supplies.

Farm*A*Syst was developed by the University of Wisconsin, Cooperative Extension; Minnesota Extension Service; and the U.S. Environmental Protection Agency, Region V. Because of differences in Maine geology and farming practices, the University of Maine Cooperative Extension assembled a work group, consisting of representatives from DAFRR, BPC, NRCS, MGS, and DEP, to review the worksheets and fact sheets and to make them applicable to Maine conditions and regulations. The Maine edition was completed in 1994 and is being used by Cooperative Extension in one-on-one grower education efforts.

Technical Assistance and Research

Technical Assistance

A variety of technical assistance programs and specialists are available to pesticide applicators and landowners who wish to minimize pesticide use and protect their ground water resources. Long before this plan was conceived, many efforts were being made in instructing farmers and applicators in their role in preserving natural resources for future agricultural and nonagricultural uses.

University of Maine Cooperative Extension

The UMCE provides technical assistance and educational programs to growers in the areas of crop production, pest control, and water quality. Extension specialists are available for a variety of commodities, including potatoes, tree and small fruit, horticulture, forestry, and agricultural engineering. The UMCE Pest Management Office is staffed by an Insect Diagnostician, a Plant Disease Diagnostician, and a Pest Management Specialist; all of whom help growers to identify and treat pest problems. In 1991, the UMCE added a Water Quality Specialist to their staff to educate landowners and the general public on surface and ground water protection. A substantial number of educators have also been trained in WIN-PST, the Windows Pesticide Screening Tool developed and supported by the USDA-NRCS National Water and Climate Center. WIN-PST is one of the few vulnerability assessment programs available and assists land users in choosing the pesticide, based on their soil type, which will be least likely to leach. (For more information about WIN-PST, see Appendix B.)

USDA Natural Resources Conservation Service (NRCS)

In addition to WIN-PST, the Natural Resources Conservation Service provides technical assistance to land users in the areas of erosion control, water quality, crop management, soil management, environmental assessments, and other special programs. In Maine, NRCS is staffed with an Agronomist, a Biologist, an Economist, a Water Resources Specialist, a Forester, a Plant Materials Specialist, a Geologist, and other soil and engineering specialists. Additional technical specialists at the regional and national NRCS offices are also available to Maine upon request. NRCS assists land users in developing site-specific plans and carries out soil surveys, national resource inventories, and river basin and watershed programs. Its Resource Conservation and Development program is focused on solving community or group problems. NRCS maintains a detailed set of standards and specifications in each of the sixteen field offices called, *"Field Office Technical Guide."* These guides describe how agricultural, erosion, and water quality practices should be installed and how these practices should fit together into systems for solving total-farm problems.

Soil and Water Conservation Districts

Maine's sixteen Soil and Water Conservation Districts (SWCDs) are subdivisions of state government, created to provide for the conservation of our state's soil and water resources. Governed by a five-member board of supervisors, elected or appointed from constituents living within each district's boundary, SWCDs utilize a unique combination of federal, state, and local resources to carry out their mission.

It is through district offices that NRCS technical staff assist land occupiers, a cooperative effort to solve local soil and water conservation problems. SWCDs can also employ their own technical and/or administrative staff to work in concert with NRCS staff, when necessary, to meet local needs. Federal and state research funds are often funneled to SWCDs because of their strategic locations, technical capability, and close working relationships with cooperating agencies and land occupiers within district boundaries. Examples include Washington County's Integrated Crop Management (ICM) Program, designed to minimize the use of pesticides on blueberries. Another county office, Hancock County, has conducted a study of Velpar (hexazinone) transport in blueberry field soils.

UMCE Research and Assistance Projects

Numerous research projects currently are being conducted in Maine by the UMCE. A Hydrologic Unit Project at the Fish River Lakes in Aroostook County, Maine, is providing detailed technical assistance to farmers in pest and soil management. Other projects include a hydrologic unit project in the Meduxnekeag River/Houlton, Maine, area and a demonstration project for the use of organic wastes in Androscoggin County, Maine.

The UMCE is also conducting a number of integrated pest management (IPM) programs for Maine crops such as potatoes, broccoli, sweet corn, blueberries, apples, and small fruit. Integrated crop management (ICM) projects are also being conducted on many farms in Maine. ICM is a cost-share program through FSA with the goal of obtaining a 20% reduction in pesticide and nutrient application over three years.

Pesticide Control Measures

Many of the prevention measures mentioned in the previous sections are ongoing programs. In some instances, current efforts and programs may not be sufficient to prevent ground water contamination and more stringent measures may be needed as part of a Pesticide SMP. The regulatory alternative to best management practices, education, and technical assistance is a multi-tier approach to pesticide control measures. Which measures are chosen as part of a Pesticide SMP will depend, in large part, on the decisions made by the Pesticide SMP Advisory Committee.

Pesticide SMP Advisory Committee

The Pesticide SMP Advisory Committee will assist and advise the BPC on technical decisions related to the development of Pesticide SMPs. The committee will be composed of permanent members (known as "Core" members) and individuals with knowledge specific to the Pesticide SMP under development. A policy statement describing the membership and duties of the Pesticide SMP Advisory Committee can be found in Appendix D.

When considering appropriate prevention measures, a Pesticide SMP Advisory Committee will consider the following information:

- the scope of crop and non-crop uses in Maine,
- current application practices in Maine,
- chemical characteristics of the pesticide,
- economic impact on user community(ies),
- available sales and use data in Maine,
- availability of efficacious chemical and non-chemical alternatives,
- environmental impact on Maine's ecosystem,
- practicality of changes in application practices,
- potential health impacts and the product's toxicity,
- geographic specificity of use which may yield identifiable geologic characteristics, and
- past ground water monitoring data or the practicality of monitoring when no data exist.

Pesticide Control Measures

Below is a description of all available pesticide control measures. These options may be used individually or under the larger umbrella of a Pesticide SMP as depicted in Figure VI-A. All options, except adoption of a Pesticide SMP (which is considered a policy adoption by the Board), require rulemaking under the Maine Administrative Procedures Act; therefore, there will be an opportunity for public input at all of these levels.

Pesticide State Management Plan (SMP)

Although required for continued use of pesticides identified by EPA, the state may choose to write a Pesticide SMP for products which present a threat to ground water in Maine. A Pesticide SMP details how the resources, prevention and response measures, as generally described in this Generic SMP, would be utilized to protect ground water from a specific pesticide. A Pesticide SMP may or may not be regulatory in nature; it may simply be used as the coordinating mechanism for resources and programs. Maine's experience with hexazinone, however, showed that a Pesticide SMP may have both regulatory and non-regulatory components which work together to protect ground waters. The regulatory components of a Pesticide SMP are described in detail below.

Restricted Use Classification

One of the first regulatory avenues the BPC can utilize in the control of pesticides of state concern is reclassification onto Maine's Restricted Use List. When a pesticide is registered as restricted use in Maine, it can be sold only by appropriately licensed dealers and be bought only by applicators licensed to apply restricted use products. In this way, the BPC can be assured that users of such pesticides have been trained in proper application techniques and that applicators have an understanding of the factors that contribute to ground water contamination.

Pesticides which are identified by EPA as requiring a Pesticide SMP will be classified as Federally Restricted Use, therefore these products will be automatically added to the Maine's State Restricted Use list. The Ground Water Planning Committee, the group responsible for this Generic SMP, continues to work on criteria to classify a pesticide as restricted use based on ground water concerns in Maine.

Special Restriction of Pesticide Use

The BPC may also promulgate rules to impose special restrictions on pesticide use. These "special restrictions" would prescribe management practices, such as mandatory setback areas from wells or surface waters, without site-specific considerations. In 1981, the BPC set a precedent for such actions by adopting 01-026 CMR Chapter 41, "Special Restrictions on Pesticide Use - Captan," which required prior notification of application. In 1984, another Special Restriction was promulgated requiring setbacks from potable water sources for aldicarb (Temik). The benefits of this action were twofold: 1) it went beyond the label requirements in providing protection of wellheads and sources of drinking water, yet 2) it allowed continued use by applicators with minimal regulation or change in application practices. In 1996, special restrictions designed to protection ground water were adopted for the herbicide, hexazinone. Today, three special restrictions on pesticide use are found in 01-026 CMR Chapter 41 of the BPC's rules (Appendix J).

State Limited Use Classification

A more site-specific means available to the BPC is the control of highly leachable pesticides through classification as Maine Limited Use pesticides. Once reclassified as a limited use pesticide, the product may then be sold to and used by only licensed persons holding a use permit granted by the Board of Pesticides Control. Permit forms and additional information requirements would be determined by the Board of Pesticides Control.

To expedite the permit process, the Board of Pesticides Control may delegate to the BPC staff their authority for granting limited use permits. The staff of the BPC, with the assistance of other state agencies or a preexisting Pesticide SMP Advisory Committee would review all permits and assess their potential impact upon ground water in the use area. Where there is an indication that the combination of site, soil, use pattern, and pesticide characteristics may create a high potential for pesticide leaching, certain management practices may be attached to the permit before issuance or the permit may be denied. For an applicator to purchase and use the pesticide, the measures detailed in the permit would have to be followed. Failure to follow them could result in revocation of the permit and possible enforcement action.

Should a pesticide present a clear and present threat to the ground water supply, the staff of the BPC may refer those applications to the Board for additional review. If the Board decides that any use of the pesticide in that given area is a significant threat to the

ground water, then the Board may reject the permit application, thus creating a localized moratorium. The petitioner may ask the Board to reconsider its decision at the next regular meeting. Further appeals must be made in accordance with Title 22, M.R.S.A. §1471-K, "Appeals."

Critical Areas

In 1975, the BPC was empowered by statutory authority to designate critical areas. These critical areas are to include, but not be limited to:

> "....areas where pesticide use would jeopardize endangered species or critical wildlife habitat, present an unreasonable threat to [the] quality of the water supply, be contrary to a master plan for the area where such area is held or managed by an agency of the State or Federal Government, or would otherwise result in unreasonable adverse effects on the public health, welfare or the environment of the area."[25]

In April of 1989, rules were adopted which established the criteria and procedures for designating critical areas. Section 3(D) of the rule allows for the designation of critical areas where, "without additional restrictions, [pesticide use] is likely to significantly risk the quality of surface and ground water supplies used for human consumption."[26] These additional restrictions are decided upon by the Board and may include prohibition of pesticide use. To date, two locations in Maine, the Deblois Fish Hatchery Critical Pesticide Control Area and the Dennys River Critical Pesticide Control Area, have been designated; neither case was designated because of an imminent threat to the ground water.

State Cancellation of Registration

The most restrictive action the BPC can take with respect to a pesticide is the cancellation or suspension of registration in Maine. This action has the equivalent result as the state refusing to develop a Pesticide SMP. For products which contribute to widespread contamination and with only few, if any, important uses in Maine, this may be considered a viable option. Certainly, it is to be considered in only a very few and very extreme cases.

Title 7, M.R.S.A., §609(2) generally describes the situations in which the state may refuse, cancel, or suspend registration. It says:

> "If the board determined that any federally registered pesticide...might cause unreasonable adverse effects on the environment, it may refuse to register the pesticide as required in

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4[25]Title 22, M.R.S.A., '1471-M(4).

5[26]01-026CMR Chapter 60, Sec. 3(D).

> section 607, or if the pesticide is registered under section 607, the registration may be canceled or suspended as provided in Section 1."[27]

Any cancellation or suspension is considered rulemaking and must be done in accordance with the Maine Administrative Procedures Act.

Pesticide SMP Information Dissemination

Because the user is ultimately responsible for management of pesticides, measures prescribed in a Pesticide SMP must be communicated to pesticides users as well as appropriate industry groups and regulatory officials. Because information dissemination is so closely related to education about prevention measures, it has been included as part of this section.

Workshops

Prior to the development of any Pesticide SMP, one or more workshops will be held (1) to make growers and users aware of the change in regulatory status of the product and (2) to gather grower and user input on issues affecting plan development. These workshops will be held in areas of the State where the pesticide in question is used and will be heavily publicized.

Recertification Meetings

As mentioned previously, recertification meetings will be used to convey ground water protection information to licensed applicators. Recertification meetings will be the primary means used to inform users about the requirements of Pesticide SMPs.

Mailings to Commodity Groups

Copies of Pesticide SMPs may be mailed to affected commodity organizations and user groups. Commodity publications will be used as an additional means of making users aware of their obligations under pesticide-specific management plans. The BPC currently maintains a database of commodity and user organizations and will update it on a regular basis.

Direct Mailing to Applicators

When the number of applicators affected by a Pesticide SMP is limited or the requirements of a Pesticide SMP are highly technical, the BPC will consider direct mailing of information to applicators in the affected user groups. In addition, *The BPC Communicator*, which is mailed to each applicator four times a year, will be used to inform them about the existence and requirements of state management plans.

Role of Other Groups in Informing Users

6[27]Title 7, M.R.S.A., '609, ''2.

The educational roles of the University of Maine Cooperative Extension, Natural Resources Conservation Service, and Soil and Water Conservation Districts have previously been outlined in this section and Sections III, "Cooperating Agencies." In addition to those groups, the BPC will work closely with commodity organizations and pesticide dealers.

Commodity Groups

The BPC encourages commodity and trade organizations to take the initiative in educating their members about the requirements of Pesticide SMPs. The BPC will work with these organizations and tailor recertification meetings to specific crop/use concerns. As mentioned previously throughout this plan, commodity and trade organizations will play a major role in Pesticide SMP development.

Pesticide Dealers

Pesticide dealers are in a unique position to provide one-on-one assistance to growers and users. In Maine, all persons who sell restricted or limited use pesticides must be licensed, therefore the BPC will educate dealers about the requirements of Pesticide SMPs and encourage them to then educate their patrons.

SECTION VII
GROUND WATER MONITORING

Ground water monitoring is defined as "the set of activities that provide chemical, physical, geological, biological, and other environmental data needed by environmental managers/decision-makers to assist in developing and implementing ground water protection policies and programs."[28] Maine's ground water monitoring program, subject to the limitations of the BPC's finite resources, consists of a baseline assessment component for determining the existence of contamination and a pesticide-specific component, within Pesticide SMPs, to define the extent of contamination and to measure the success or failure of prevention and response programs. In addition to data gathered by the BPC, this program attempts to incorporate data currently being gathered by other state agencies.

Assessment Monitoring

The last statewide assessment of pesticides in ground water occurred in 1994 with the BPC's *1994 Pesticides in Ground Water Monitoring Program*. It was designed to assess the occurrence of pesticides in private domestic wells which were within ¼ mile down gradient of active pesticide use sites. A description of the program and results are found in Appendix E.

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1 [28]U.S. Environmental Protection Agency, "Pesticide State Management Plan Guidance for Ground Water Protection" (Review Draft), July 1992, pp. 3-10 - 3-11.

In conclusion, the BPC learned that pesticide contamination of ground water occurs areas near active use sites, however at levels which do not currently present a health threat to the citizens of Maine when compared to health-based standards established by the U.S. Environmental Protection Agency and the Maine Department of Human Services. Nearly 25% of wells within ¼ mile, downgradient of a pesticide use site may have detectable amounts of one or more pesticides present. The likelihood of contamination varies across commodities, with wells near blueberry, corn and potato growing areas at higher risk. And, although rights-of-way were the only non-agricultural use sites included in the study, agricultural sites present the greatest probability of pesticide contamination of ground water because of both the nature and the quantity of pesticides used in crop production.[29]

The BPC plans, subject to funding, to replicate the 1994 study methodology on five- to seven-year intervals to determine ground water quality trends.

Pesticide-Specific Monitoring

Pesticide-specific monitoring has several uses. First, this monitoring can be used to assess whether specific contaminants detected in the Assessment Monitoring phase or during other routine ground water monitoring show widespread trends of concern. For example, follow-up monitoring was conducted for two pesticides, hexazinone and metalaxyl, after numerous detections during the 1994 study. A triple-data point sampling principle was used whereby positives of concern are evaluated by sampling two other sites in the same watershed with similar geological and pesticide use characteristics of the first site. If either of these additional sample points confirms the original concern, then the sampling effort may continue to expand using the same triple-data point sampling principle until the scope of the problem in adequately evaluated.

Second, pesticide-specific monitoring can be used to evaluate the effectiveness of pesticide management changes implemented in response to contamination trends already identified. This type of monitoring will most often be conducted under a Pesticide SMP and described in detail within one. The BPC may also initiate pesticide-specific monitoring without a Pesticide SMP as it gathers data on pesticides of state concern or prior to development of a pesticide-specific plan.

Incorporation of Other Monitoring Efforts

While the BPC will continue to recommend response actions based upon data collected only by the agency, many more ground water monitoring programs exist in the state, each providing a unique perspective on ground water quality. The BPC believes that all ground water

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2 [29]Maine Board of Pesticides Control, "1994 Pesticides in Ground Water Monitoring Program: Final Report," September 1995, pp.10.

monitoring data are useful. The BPC will solicit monitoring data from other sources and evaluate the usefulness of the data based upon the source, collection and analytical protocols.

Department of Human Services, Health and Environmental Testing Laboratory

Public Water Systems

Public water systems are required to regularly monitor their water for contaminants, including pesticides, under the Phase II and Phase V Safe Drinking Water Act monitoring requirements. Efforts will be made to ensure that pesticides detected in such routine monitoring activities will be reported to the BPC for follow-up investigation and determination of the source.

Private Wells

Water samples from private wells are occasionally sent to the Health and Environmental Testing Laboratory for analysis when the owner believes there is a possibility of pesticide contamination. Efforts also will be made to see that the location of samples showing contamination are reported to the BPC for further investigation and inclusion into the monitoring database. (See Section III, "Cooperating Agencies," Department of Human Services, Bureau of Health.)

Sample Analyses, QA/QC and Data Collection

The University of Maine Department of Food Science Laboratory will be the primary lab for sample analyses. As part of the Cooperative Agreement with EPA, the BPC maintains and regularly updates a quality assurance/quality control program with the Food Science Laboratory for the collection of samples related to pesticide enforcement activities. The current QA/QC program will be followed for the collection of all samples related to both Generic and Pesticide SMPs.

Where technologically possible, monitoring will be conducted using *immunoassay tests* to detect initial contamination. Until recently, full-scale monitoring programs would have been cost prohibitive, but the recent introduction of immunoassay tests for pesticides allows broad screening at 10-20 times less cost than conventional chromatography techniques, and they can be processed in as little as 90 minutes. Currently, immunoassay tests are available for such known contaminants as aldicarb, the triazines, carbofuran, hexazinone and alachlor, with many others under development. Gas chromatography/atomic emissions detection (GC/AED) analysis will continue to be conducted as a screen for other chemicals and as a confirmation of the reliability and accuracy of the immunoassay method.

EPA has encouraged states to adopt their Minimum Set of Data Elements for Ground Water Quality (MSDE). Although the BPC does not utilize monitoring wells, some construction and location data has been collected for all private domestic wells from which samples have been taken since 1994. In 1996, the BPC purchased hand-held, global positioning system (GPS) units

for field staff collecting samples. The BPC now maintains longitude, latitude, altitude and position accuracy data for all sites from which it collects samples.

SECTION VIII
RESPONSE FRAMEWORK

This section of the Generic SMP describes the response framework through which pesticide-specific response actions will occur. The need to prescribe response actions, implement prevention measures, and coordinate monitoring data requires a policy which simultaneously addresses many different fronts in the state's ground water protection strategy. This section outlines such policy and provides guidance for BPC decisions and recommendations in the development of Pesticide SMPs.

Reference Points

The U.S. EPA has adopted the use of Maximum Contaminant Levels (MCLs) as defined under the Safe Drinking Water Act as standards for determining unacceptable contamination of ground water. Where no MCL exists, EPA will use interim drinking water protection criteria as its reference point.[30]

In Maine, the Department of Human Services, Bureau of Health (BOH), has developed a series of Maximum Exposure Guidelines (MEG) which complement EPA's effort. For non-carcinogenic products, the MEG is based on the No Observable Effects Level (NOEL) for adverse effects in laboratory animals divided by appropriate safety factors. For carcinogens, the MEG is equivalent to the dose at which one would predict one additional cancer death per 100,000 individuals. Where no MCL exists or has yet to be adopted, the MEG will be used as the reference point for determining an appropriate response. If neither the MCL nor the MEG has been established, the BPC and BOH will work together to prepare an appropriate response to the contamination problem. Appendix F, "Pesticide Drinking Water Guidelines," lists those pesticides for which MCLs and/or MEGs have been established.

Very few currently registered pesticides have EPA-established aquatic life criteria, therefore it is not practical to routinely use these criteria as reference points. In areas where the ground water is hydrologically connected to Class AA and Class A surface waters and pesticides with established aquatic life criteria are used, these criteria may be used in determining appropriate response actions. Appendix G, "Maine Water Quality Criteria for Pesticides," lists those for which aquatic life criteria have been established.

1[30]U.S. Environmental Protection Agency, loc. cit.

Detection Level Action Guidelines

Detection level action guidelines are divided into two groups: (1) for individual wells/sites, the detection level action guidelines are based upon a percentage of the MCL or MEG; or (2) for multiple wells/sites, the detection level action guidelines are based upon the percent of sampled wells/sites with confirmed pesticide detections. Figure VIII-A outlines the detection levels and recommended response actions which will be evaluated for applicability and implemented when an action level is reached based on the average percent MCL or MEG. For situations where ground water monitoring in proximity to application sites results in multiple detections below 50 percent of the MCL or MEG, Figure VIII-B will be evaluated for applicability and actions implemented.

Action Level	Contaminant Concentration	Recommended Response
A	At or above the detection limit yet below 50% of the MCL or MEG	◆ Follow-up by BPC inspector (see following text after table) ◆ Review of use and application practices by Department of Agriculture, UMCE
B	Between 50% and 100% of the MCL or MEG	◆ Site investigation by NPS-Pesticide Response Team ◆ Additional monitoring within local area (see Section VII, “Ground Water Monitoring, Pesticide-Specific Monitoring.”) ◆ Mitigation of site-specific problem -or- modification in site-specific pesticide use practices through referral to Ag NPS Program, temporary pesticide control measure through emergency rulemaking or change in an existing limited use permit and/or Pesticide SMP
C	At or above 100% of	◆ Site investigation by

	the MCL or MEG	expanded NPS-Pesticide Response Team ◆ Expanded monitoring effort within local area (see Section VII, "Ground Water Monitoring, Pesticide-Specific Monitoring.") ◆ Mitigation of site-specific problem -or- further modification in site-specific pesticide use practices (as described above)

Figure VIII-A: Detection Level Action Guidelines for Single Well/Site

Action Level	Percent of Sampled Wells/Sites with Confirmed Detections[31]	Recommended Response
A	At or below 10% of sampled wells/sites	◆ Additional monitoring within local area (see Section VII, "Ground Water Monitoring, Pesticide-Specific Monitoring.") ◆ Review use, application practices and other available monitoring data by Department of Agriculture, UMCE, pesticide user groups ◆ Investigate and define geology/hydrology of sites with confirmed detections
B	Between 11% and 25% of sampled wells/sites	◆ BPC may request user group intervention ◆ Modification of pesticide use practices through review and/or revision of IPM strategies for pesticide's target pests (UMCE); review, revise and/or develop BMPs for specific pesticide (Agriculture NPS Task Force subcommittee); review

2 [31]Samples collected and analyses performed pursuant to BPC monitoring plan and established EPA protocols.

		and/or revise existing Pesticide SMP (BPC) ◆ Assess IPM and BMP education needs and implement (See Section VI, "Prevention Strategies and Information Dissemination.")
C	At or above 25% of sampled wells/sites	◆ BPC forms Pesticide State Management Plan (SMP) Advisory Committee to review and/or develop Pesticide SMP

Figure VIII-B: Detection Level Action Guidelines for Multiple Wells/Sites

Two situations present unique challenges when determining appropriate response actions are:

- pesticides which have a MCL or MEG below 10 parts per billion (ppb), and

- multiple detections of a material at concentrations below 50% of the MCL or MEG.

Pesticides which have a MCL or MEG below 10 part per billion (ppb) present a challenge because the statistically sound detection limit of laboratory analysis for many of these materials is often near or above the established MCL or MEG. Since a small change in the detected concentration, such as 1 ppb, could mean the difference between confirmed detection and detection above the MCL, it may be prudent to take preventative action sooner than in other cases. For pesticides with an MCL or MEG below 10 ppb, response action may be accelerated to compensate for the potential threat to human health.

Also, situations where pesticides are detected in multiple wells/sites at concentrations below 50% of their MCL or MEG should not be overlooked. Low level detections in multiple wells/sites are an opportunity to determine and implement appropriate actions to protect ground water resources in a given area.

Since recommended responses contained in Figure VIII-B require actions to be taken at low percentages of wells/sites detections, valid data must be gathered to define multiple detection situations. A statistically sound sampling method for sampling in proximity to use sites must be employed. For the

purposes of defining situations of multiple detections of a specific material, data from BPC monitoring programs will be used. BPC data is preferred because the EPA requires a Quality Assurance Project Plan (QAPP) for data collected under state management plans and few, if any, agencies beyond the BPC collect data using a QAPP. In cases where data is obtained by monitoring conducted by other entities, the integrity of the data will be evaluated and the Board may recommend the user groups lead response actions.

Response to Contamination

Once pesticides are detected in ground water at a concentration corresponding to or exceeding the action levels shown in Figure VIII-A and Figure VIII-B, an appropriate response should be made to prevent further degradation of the ground water. The general descriptions below provide a probable course of action. Each of the elements described in Figure VIII-A and Figure VIII-B will need to be expanded upon and tailored to the products identified for Pesticide SMPs.

Notification of Well Owners/Users

All private domestic well owners/users who submit to water sampling during the course of an investigation or routine monitoring program will receive notification of results in writing from the BPC. For wells with detectable concentrations of pesticides, this notification will include summary of the health effects associated with the contaminant prepared by the BPC Toxicologist. The BPC Toxicologist will also be available to answer questions from the public regarding the health effects of pesticides in drinking water. Notification of public well users is handled by the Department of Human Services, Drinking Water Control Program by the protocol described in the Safe Drinking Water Act .

Follow-up by the BPC

For site-specific issues, an initial response may include a visit to the land user by a BPC inspector for an evaluation of the pesticide application and storage practices. The BPC inspector may be able to identify a point-source pollution problem or identify some particular use practice which may be the contributing factor. Appropriate educational materials may be sent to the land user or distributed at the time of the inspection to encourage further protection and to prevent further degradation.

Site Investigation

For single-site or multiple-site contamination, the investigation may be turned over to the state's Agricultural Nonpoint Source Pollution (Ag NPS) Program and their NPS-Pesticides Response Team. Investigation would involve an on-site visit by the team, incorporating, at minimum, persons with knowledge of pesticides and expertise in ground water. Agencies involved with the NPS-Pesticides Response Team include, among others, Cooperative Extension, Natural Resources Conservation Service, the Department of Agriculture, the Department of Environmental Protection, and the Board of Pesticides Control. Site-specific situations determine the appropriate persons to be included on the Response Team.

The NPS-Pesticides Response Team would review use and application practices and attempt to further isolate the source of contamination. If the land user has a Best Management System, the team would attempt to determine which of the individual BMPs are being utilized. If no BMPs are being utilized, then some may be recommended to the land user. The team will report their findings and site recommendations to the BPC.

Presently, there is no corresponding non-agricultural response unit. In cases where contamination is detected at non-agricultural sites, the BPC and staff will work closely with the landowner and trade association to find a resolution to the situation.

Mitigation of Site-specific Problem

Site investigation may reveal that the pollutants are coming from a point source, such as a pesticide spill in a storage area. The BPC will work with the land user to eliminate and/or reduce the flow of pollutants from the point source and ensure that the proper authorities are notified. The site will be referred to the Maine DEP for remediation and clean-up, if necessary.

Modification of Current Prevention Strategy

The BPC will meet to review available monitoring data and the findings and recommendations of the BPC inspector and/or the NPS-Pesticides Response Team (or similar group). When applicable, the BPC may seek some type of pesticide use modification. The BPC has several avenues available to affect use modification.

Referral to the Agriculture NPS Task Force

It has been recognized that the BPC has little site-specific control over general and restricted use pesticides beyond what ground water protection measures may be on the pesticide label. The adoption of BMPs by the land user is essentially the only means available (without additional regulation) for protecting ground water in areas where restricted and general use pesticides are used.

To affect use modification of a general or restricted use pesticide, the BPC will rely on the Agriculture NPS Task Force and its subcommittees for two items: (1) the development and/or review BMPs for individual pesticides and (2) on a case-by-case basis, the voluntary adoption of site-specific BMPs. Voluntary adoption of site-specific BMPs is sought, but an avenue of legal enforcement, thought the Agriculture NPS Strategy, is available should BMPs not be adopted. Land users and applicators will receive regular inspections by the BPC and/or NPS inspection staff to provide assistance and to ensure compliance. Continued ground water monitoring until resolution of the problem will evaluate the effectiveness of the BMPs.

This program does not expressly cover non-agricultural uses of pesticides. Where non-agricultural uses are involved, the BPC will work with affected landowners in the state to adopt management practices which may mitigate ground water contamination. Most likely, though, some type of special restriction on pesticide use may have to be adopted for particular non-agricultural use(s).

Temporary Pesticide Control Measures

Should voluntary cooperation be ineffective or the degree of contamination, single or multiple sites, be such that immediate action is needed in cases of contamination through legal use, then the BPC may initiate emergency rulemaking to reclassify the pesticide as State Limited Use or to impose special restrictions for a maximum of ninety (90) days. At the end of ninety (90) days, pending no further rulemaking, the pesticide reverts back to its original classification without special restrictions.

Revision of Existing Limited Use Permits or Pesticide SMP

If the pesticide is currently managed in a Pesticide SMP or a State Limited Use Pesticide, then the BPC, with the assistance of the Pesticide SMP Advisory Committee, may revise the prescribed management practices stipulated in the Pesticide SMP or on the permit. Additional restrictions as part of a Pesticide SMP may require rule making under the Maine Administrative Procedures Act (MAPA). For holders of limited use permits, restrictions may be imposed without the process of the MAPA. In this situation, the land user may appeal the additional requirements at the next regular meeting of the BPC. Further appeals may be made in accordance with Title 22, MRSA, §1471-K, "Appeals."

Development or Revision of Pesticide SMP

While other actions in this section may have a more immediate impact, the long-term solution to ground water protection for some chemicals involves the development and/or revisions to a Pesticide SMP. A Pesticide SMP Advisory Committee may recommend permanent changes to the existing Pesticide SMP when it has been shown to be inadequate to protect ground water. In the absence of a Pesticide SMP, the BPC may call for a Committee and charge them with considering the development of one so as to put into place a statewide prevention strategy to prevent further contamination.

Alternative Drinking Water for Private Domestic Well Users

The BPC has been relatively successful at working with registrants to provide alternative water supplies and/or filters when contamination above health-based standards has been detected. The BPC hopes to continue to work with registrants in this stewardship capacity, however, the BPC recognizes that this may not always be possible.

The BPC has discussed in detail options which would provide affected homeowners with safe drinking water. One such option includes the establishment of an alternative drinking water fund. Under it, owners of private domestic wells which have been contaminated due to proximity to a pesticide use area would petition the BPC for funding to supply alternative drinking water or to remedy wells with filtration systems. Because of the necessity to provide potable water in an expeditious manner, the Director of the BPC would be able to authorize allocations in a set limited amount. Long-term remediation would be taken up by the BPC. Unfortunately, this program may require a substantial amount of funding, the source of which has not been identified.

Impact on Land Users

It may be determined that ground water contamination can only be prevented by an outright moratorium on pesticide use within a specific area. Alternatives to using a given pesticide, although some may be more costly or less effective, will have to be developed. In some cases, no alternatives may be found, and the land user may be restricted to non-chemical pest control means.

The Agricultural NPS Strategy recognizes the financial impact the BMP implementation could have on farmers. In the strategy, two types of financial assistance are recommended: 1) cost sharing, to lessen the financial burdens of some mechanical or labor intensive BMPs, and 2) direct compensation for lost production and decreased land values when farm land is removed from production. However, the Board has already determined that the availability of compensation programs will not be a pre-condition for declaring a use moratorium, and a lack of money for such programs will not impede the implementation of this plan.

SECTION IX

ENFORCEMENT

Agency Roles in Enforcement

To ensure that requirements of Pesticide SMPs are followed, enforcement action may be necessary to achieve compliance. The BPC is the lead agency for label and Pesticide SMP requirement enforcement.

The BPC will monitor compliance with and enforce ground water protection labeling as part of its use, marketplace, and dealer inspections. The BPC will focus use inspections on those commodities and growers who use pesticides which require a state management plan. Marketplace and dealer inspections will focus on products which require a Pesticide SMP as part of the labeling. Applicators who violate the label or other State or Federal statutes related to this plan will be subject to enforcement action as outlined in the BPC's enforcement protocol (attached in Appendix H).

The BPC has considered enforcement authorities available under other State and Federal statutes and will attempt to coordinate enforcement activities with EPA and other State agencies, as appropriate, to make full use of those statutes. The Department of Environmental Protection, the state's lead agency for ground water protection, will be notified of all action taken by the BPC. Enforcement for nonpoint source pollution violations may be referred to either the Department of Agriculture, Food, and Rural Resources or the Department of Environmental Protection. Legal authorities necessary for proper enforcement have been outlined in Section III, "Cooperating Agencies."

Penalties

In 1990, the legislature increased penalties for violating BPC regulations. For any person who commits a civil violation, the maximum fine is $1,500 for the first violation and $4,000 for each subsequent violation within a four-year period. For private applicators, the penalty may not exceed $500 for a first violation or $1,000 for any subsequent violation within a four-year period related only to violations of record keeping or the return and disposal of pesticide containers. For the first time in 1990, a criminal violation section was added to the BPC penalty regulations. It provides for a "fine not to exceed $7,500 and...imprisonment not to exceed 30 days, or both, for each violation" for an applicator who "intentionally or knowingly violates" pesticide laws.[32]

1 [32]Title 7, M.R.S.A., '616-A.

SECTION X
PUBLIC PARTICIPATION

One of the EPA requirements for this plan is that the public be given ample opportunity to provide input and comment on the methods chosen to prevent contamination and the proposed regulatory framework. This section describes the provisions being made to involve the public in Generic and Pesticide SMP development.

Generic SMP Development

On September 14, 1993, the Board of Pesticides Control (BPC) mailed 148 copies of the *Maine Generic State Management Plan for Pesticides and Ground Water - Proposed Plan* to Ground Water Planning Committee members and others who, during the previous three years, had expressed an interest in the development of the plan. This began a three-month, public comment period that invited review and critique of the plan. Following a news brief in the October 1993 *BPC Communicator*, fifteen additional copies were mailed out upon request while numerous individuals stopped by to pick up a copy at the BPC Augusta office. In all, a total of 240 copies of the plan were distributed.

Three public informational gathering meetings were then scheduled at locations around the state. A press release advising of the availability of the plan and public meeting schedule was mailed to all the major newspapers. Public meetings were held in Machias on November 4, 1993 (one in attendance), in Presque Isle on November 9 (fourteen in attendance) and Lewiston on November 16 (two in attendance). In general, those present at the meetings asked questions about the proposed plan and other topics while only one individual offered a couple of minor comments. Two articles concerning the meetings and the plan appeared in the *Bangor Daily News* in late October and early November.

Following this and future revisions of the Generic SMP, the BPC is planning to hold one, public informational gathering meeting (location to be determined) and accept comments on the revised plan for 60 days. Again, the availability of a revised plan will be heavily publicized and single copies will be free of charge to interested individuals.

Pesticide SMP Development

The route for public participation following Pesticide SMP development depends primarily on the proposed requirements. If proposals in the plan require the BPC to seek additional legal authorities, then the BPC will provide for public comment through rulemaking, following the guidelines in the Maine Administrative Procedures Act (MAPA).[33] The MAPA provides for ample public comment, including input from both public hearings and written comments. If the Pesticide SMP proposals do not require the BPC to seek additional authorities,

[33] 5 M.R.S.A., Chapter 375, Subchapter II.

then a public participation program, similar to that conducted for Generic SMPs, will be followed.

SECTION XI
RECORD KEEPING, REVIEW, AND REPORTING

The best test of a plan is its day-to-day use. Documenting the plan's progress not only provides a source of data to share with EPA and other cooperating agencies, but also provides a basis with which to assess implementation and effectiveness. Incorporating what is learned back into the plan makes it a living document, not an inanimate object carved in stone. This section of the plan outlines the BPC's commitment to keep records, report results to the EPA or appropriate agencies, and to use that information in the review of Generic and Pesticide SMPs.

Records and Reporting

The BPC will maintain all records relating to the development and implementation of either a Generic or a Pesticide SMP for a minimum of four years. The information maintained will include:

- results from ground water sampling and monitoring;
- the number of persons reached by outreach and education efforts;
- the number of, and a summary of, inspections performed to determine compliance with ground water labeling or Pesticide SMP provisions, including a determination of whether provisions were being followed;
- the number of, and a narrative summary of, completed enforcement actions related to non-compliance with ground water labeling or Pesticide SMP provisions;
- a summary of significant findings;
- an assessment of whether use of specific pesticide(s) has substantially changed over a given period;
- identification of any special issues within the state regarding either the Generic or any Pesticide SMPs;
- identification of needed modifications to either the Generic or Pesticide SMPs;
- a description of available projected resources for the next year;
- a description of any response actions taken for detections of specific pesticides.

The BPC will make available to EPA and others, upon request and appropriate allowance of time, any and all records related to the development and implementation of state management plans.

Plan Review and Update

Every four years, the BPC will give thorough reconsideration to the strategies and implementation items listed in the Generic SMP. In its review of the Generic SMP, the BPC will consider, in addition to many of the items listed above, the following items:

- Does the plan still reflect the current state philosophy on ground water management?
- Are the roles of the Cooperating Agencies still the same?
- Are there new or modified Prevention Strategies that need to be incorporated?

The BPC will also consider comments from the public on the future direction of the Generic SMP and incorporate comments on its performance into a quadrennial republication.

Each Pesticide SMP Advisory Committee will biannually review its respective plan. This will include an assessment of the adequacy of the plan and a discussion as to whether the plan is actually serving to protect the ground water resources. Considering many of the points listed above, each committee may then recommend changes for the BPC to consider. Biannual updates will also be published for inclusion.

APPENDIX A
ACRONYMS

Below is a list of acronyms found within this management strategy. Bureaus, divisions, and agencies include their respective departments in parentheses.

ARS	Agricultural Research Service (USDA)
BOH	Bureau of Health (DHS)
BLWQ	Bureau of Water Quality Control (DEP)
BMP	Best Management Practice
BMS	Best Management System
BPC	Board of Pesticides Control (DAFRR)
BRWM	Bureau of Remediation and Waste Management (DEP)
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CES	Cooperative Extension Service (USDA)
CFR	Code of Federal Regulations
CMR	Code of Maine Regulations
CPP	Comprehensive Planning Program
CWA	Clean Water Act

DAFRR	Maine Department of Agriculture, Food, and Rural Resources
DECD	Maine Department of Economic and Community Development
DEP	Maine Department of Environmental Protection
DHE	Division of Health Engineering (DHS)
DHS	Maine Department of Human Services
DOC	Maine Department of Conservation
DOI	U.S. Department of the Interior
DOT	Maine Department of Transportation
DRASTIC	Depth of water, recharge, aquifer media, soil media, topography, impact of unsaturated zone, conductivity of the aquifer Computer Modeling Program
DWC	Drinking Water Control (DHS)
EPA	U.S. Environmental Protection Agency
FIFRA	Federal Insecticide, Fungicide, and Rodenticide Act
FSA	Farm Services Agency (USDA)
Generic SMP	Generic State Management Plan
GIS	Geographic Information System
H&ETL	Health & Environmental Testing Laboratory (DHS)
ICM	Integrated Crop Management
IPM	Integrated Pest Management
MAES	Maine Agricultural Experiment Station
MAPA	Maine Administrative Procedures Act
MCL	EPA Established Maximum Contaminant Level
MEG	Maine Exposure Guideline
MGS	Maine Geological Survey (DOC)
MRSA	Maine Revised Statutes Annotated
MSDE	Minimum Set of Data Elements for Ground Water Quality
NOEL	No Observable Effects Level
NPS	Nonpoint Source
NRCS	Natural Resources Conservation Service (USDA)
OCP	Office of Comprehensive Planning (DECD)
ODW	Office of Drinking Water (EPA)
OPP	Office of Pesticide Programs (EPA)
Pesticide SMP	Pesticide-specific State Management Plan
QAPP	Quality Assurance Project Plan
RCRA	Resource Conservation and Recovery Act

RPC	Regional Planning Council
SDWA	Safe Drinking Water Act
SMP	State Management Plan
SPO	Maine State Planning Office
SWCD	Soil and Water Conservation District
UM	University of Maine
UMCE	University of Maine Cooperative Extension
USDA	U.S. Department of Agriculture
USGS	U.S. Geological Survey (DOI)
WHPA	Wellhead Protection Area
WHPP	Wellhead Protection Program
WIN-PST	Windows pesticide screening tool for protection of GW (USDA)

APPENDIX B
WIN.PST

USDA-NRCS National Water and Climate Center's Windows Pesticide Screening Tool (WIN-PST), formerly called The National Pesticides/Soils Database and User Support System for Risk Assessment of Ground and Surface Water Contamination (NPURG) – provides leachability ratings of active ingredients as "high", "intermediate", "low" or "very low."

APPENDIX C
MAINE AGRICULTURAL PESTICIDE SALES DATA

1995 AGRICULTURAL PESTICIDE SALES DATA
(active ingredients with sales over 1,000 pounds)

Active Ingredients	Total Sales (pounds, active ingredient)
Chlorothalonil	374,190
Mancozeb	289,661
Maneb	229,344
Sulfuric Acid[34]	139,907
Glyphosate	112,334
Atrazine	76,223
Aliphatic Petroleum	63,729

1 [34]Sulfuric acid is reported as gallons sold in Maine. No calculation based on pounds of active ingredient was performed.

Captan	50,782
Maleic Hydrazide	44,898
Metribuzin	42,890
Metolachlor	41, 459
Diquat	41, 174
Methamidophos	33,832
Phosmet	33,636
Hexazinone	28,779
Disulfoton	27,719
Copper	26,912
Copper Hydroxide	23,623
Napropamide	23,438
Pendimethalin	23,282
Chlorpyrifos	22,150
Linuron	17,587
Azinphos-Methyl	16,831
EPTC	16,295
Endosulfan	15,443
Carbaryl	12,539
Metiram	12,328
2,4-D	12,257
MCPA	11,114
Chlorpropham	11,018
Metalaxyl	10,936
Imidacloprid	10,422
Bacillus Thuringiensis[35]	9,232
Simazine	8,664
Ethoprop	8,370
Cyanazine	7,862
Parathion	7,800
Paraquat	6,418
Propargite	5,901
Alachlor	5,895
Triclopyr	5,212
Piperonyl Butoxide (PBO)	4,720
Benomyl	4,669
Thiophanate-Methyl	4,661
Copper Oxychloride	4,440
Triforine	4,248
Dicamba	3,905
Formentanate Hydrochloride	3,478
Methoxychlor	3,463
Methyomyl	3,422
Malathion	2,893

2[35]Bacillus Thuringiensis, or *Bt*, is reported as gallons sold in Maine.

Triphenyltin Hydroxide	2,832
Dimethenamid	2,700
Metam-Sodium	2,639
Cryolite	2,602
Sulfur	2,532
Permethrin	2,515
Diazinon	2,362
Fonofos	2,240
DCPA	2,133
Dodine	2,061
Propamocarb	1,961
Oxamyl	1,904
Bentazon	1,715
Trifluralin	1,710
Acetochlor	1,520
Isofenphos	1,453
Triadimefon	1,445
Endothall	1,432
Sethoxydim	1,432
Thiocarb	1,416
PCNB	1,281
Ziram	1,125
Fenvalerate	1,046

2003 AGRICULTURAL PESTICIDE SALES DATA (active ingredients with sales over 1,000 pounds)	pounds of AI sold	Rounded pounds of AI sold
MANCOZEB	431611.66	431611.66
SULFURIC ACID	293752.08	293752.08
CHLOROTHALONIL	185996.1575	185996.16
PETROLEUM OIL	61308.5	61308.50
MALEIC HYDRAZIDE	44995	44995.00
DIQUAT	34655	34655.00
ATRAZINE	32853.325	32853.33
METIRAM	30532.8	30532.80
CAPTAN	24989.5	24989.50
GLYPHOSATE	23975.7	23975.70
METRIBUZIN	23939.7	23939.70
SULFUR	23922	23922.00
PHOSMET	17063.45	17063.45
PENDIMETHALIN	16295.4	16295.40
HEXAZINONE	14740	14740.00
2,4-D	14450.787	14450.79
METHAMIDOPHOS	14280	14280.00
MCPA	12340.5	12340.50

2003 AGRICULTURAL PESTICIDE SALES DATA (active ingredients with sales over 1,000 pounds)	pounds of AI sold	Rounded pounds of AI sold
S-METOLACHLOR	12125.79	12125.79
COPPER HYDROXIDE	10977.312	10977.31
NAPROPAMIDE	10770	10770.00
CHLORPYRIFOS	9787.25	9787.25
MEFENOXAM	9294.57	9294.57
IMIDACLOPRID	9195.93	9195.93
ETHOPROP	8946.5	8946.50
LINURON	8866.25	8866.25
KAOLIN	7101.25	7101.25
PENTACHLORONITROBENZENE	7060	7060.00
CHLORPROPHAM	7048.49622	7048.50
THIOPHANATE-METHYL	6541.07	6541.07
PARAQUAT	6517.5	6517.50
METAM-SODIUM	6326.1	6326.10
TRIPHENYLTIN	5142.048	5142.05
CYFLUTHRIN	4341.78	4341.78
CYMOXANIL	3818.4	3818.40
PROPICONAZOLE	3360.5568	3360.56
THIABENDAZOLE	3329.2	3329.20
DIURON	3236.4	3236.40
CARBARYL	2974	2974.00
METHOMYL	2742.675	2742.68
SIMAZINE	2519.91	2519.91
DIAZINON	2400.26	2400.26
DISULFOTON	2201	2201.00
TETRACHLOROISOPTHALONITRILE	2002.5	2002.50
GLUFOSINATE-AMMONIUM	1967	1967.00
AZOXYSTROBIN	1917.48	1917.48
AZINPHOS-METHYL	1815	1815.00
MCPP	1728.6122	1728.61
ESFENVALERATE	1689.41	1689.41
BUTANOIC ACID	1685	1685.00
COPPER OXYCHLORIDE	1630.64	1630.64
FENVALERATE	1590.6	1590.60
PCNB	1585	1585.00
FLUTOLANIL	1557.75	1557.75
FOSETYL-AL	1520.8	1520.80
TERBACIL	1512	1512.00
SETHOXYDIM	1482.25	1482.25
CARBOFURAN	1360	1360.00
ENDOSULFAN	1295	1295.00

2003 AGRICULTURAL PESTICIDE SALES DATA (active ingredients with sales over 1,000 pounds)	pounds of AI sold	Rounded pounds of AI sold
BT	1186.74	1186.74
ENDOTHALL	1036.75	1036.75
VINCLOZOLIN	1012	1012.00
LAMBDA-CYHALOTHRIN	984.85	984.85

APPENDIX D
PESTICIDE STATE MANAGEMENT PLAN (PESTICIDE SMP) ADVISORY COMMITTEE

Background

The *Pesticides and Ground-Water Strategy* (October 1991) states that EPA may choose to require pesticide-specific state management plans (Pesticide SMPs) for pesticides of national ground water concern. Furthermore, the Board of Pesticides Control may choose to plan for pesticides not recognized by EPA which present unique groundwater concerns for the State of Maine. For these reasons, the Board recognizes its need for experts who can assist and advise them on technical decisions related to the development of Pesticide SMPs, and therefore, establishes a volunteer Pesticide SMP Advisory Committee.

Membership

A Pesticide SMP Advisory Committee will be composed of both Core and Pesticide-specific members. A member of the Board, in most cases a member which represents the public, will also chair the committee. The BPC Toxicologist and other necessary staff will serve in an advisory capacity. Other Core members will be persons from the following technical fields with prior knowledge or experience with pesticide issues:

- a hydrogeologist[36],
- a soil scientist[37], and
- a water quality scientist.

The Board will solicit and review resumes for Core membership and will formally appoint these members at their regular public meetings.

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[36] A hydrogeologist is defined as a specialist in the occurrence and movement of ground water.

[37] A soil scientist is defined as a person certified as a soil scientist by the Maine Board of Certification for Geologists and Soil Scientists who has expertise in soil taxonomy, morphology, and mapping.

Pesticide-specific members will provide expertise in evaluation of pesticide use practices on the environment, production, and pest management. These members will be representatives of commodity and user groups in Maine related to the pesticide in question and additional technical experts, such as, but not limited to, a wildlife biologist, an ecologist, experts provided by the registrant, or an economist. In addition, citizens or representatives of citizens whose drinking water supply may have been affected by the pesticide or who live in areas where the pesticide is used will be asked to join the committee. Pesticide-specific members will vary depending on the pesticide in question, making each Pesticide SMP Advisory Committee a unique collection of individuals.

When agricultural issues are involved, a member of the Department of Agriculture will be called upon to assist with the coordination of issues related to Best Management Practices. In addition, commodity specialists with IPM or pest management experience for each potentially affected commodity will also be included. Other pesticide-specific members with needed expertise will be invited to participate either by the BPC or by a Pesticide SMP Advisory Committee.

Duties

A Pesticide SMP Advisory Committee's primary duty is to respond to a mandate from either EPA or the BPC to develop a pesticide-specific state management plan. A Pesticide SMP Advisory Committee's first duty is to determine whether the value of a pesticide product to Maine users warrants development of a Pesticide SMP. Should a product warrant development of a Pesticide SMP, the Committee will develop the plan and submit it to the BPC. The Committee may not be able to reach a full consensus on all issues involved with a Pesticide SMP. Therefore, a plan may be presented to the Board with options where the opinions vary, and it will remain the responsibility of the BPC to select the option which is feels is most suitable. The Committee will assist the BPC with the public comment and/or hearing process as necessitated by the Pesticide SMP. Should the Committee decide not to develop a Pesticide SMP, they will then prepare their reasons for such a decision and submit them to the BPC for opportunity for public input. A graphical depiction of this process is located in Figure D-1.

When considering appropriate prevention and response measures, a Pesticide SMP Advisory Committee will consider the following information:

- the scope of crop and non-crop uses in Maine,
- current application practices in Maine,
- chemical characteristics of the pesticide,
- economic impact on user community(ies),
- available sales and use data in Maine,
- availability of efficacious chemical and non-chemical alternatives,
- environmental impact on Maine's ecosystem,
- practicality of changes in application practices,
- potential health impacts and the product's toxicity,

- geographic specificity of use which may yield identifiable geologic characteristics, and
- past groundwater monitoring data or the practicality of monitoring when no data exist.

Each Pesticide SMP Advisory Committee will biannually review its respective Pesticide SMP, as new information necessitates a re-evaluation of the prevention and response strategies adopted in the Pesticide SMP. Each Committee may then recommend changes to the BPC.

Term

Core members of the Pesticide SMP Advisory Committee will be appointed by the BPC for three (3) years of service. Pesticide-specific members will not be members in standing and will be called upon, as needed, in the development of Pesticide SMPs.

Meetings

An entire Pesticide SMP Advisory Committee, both Core and Pesticide-specific members, will meet as EPA requires Pesticide SMPs or at the specific request of the BPC.

Compensation

The Pesticide SMP Advisory Committee is voluntary and no compensation for services is available. However, all reasonable travel expenses will be reimbursed, subject to the approval of the staff director, in a manner consistent with State travel.

[Editor's Note: Complete copies of this report may be obtained from the Board of Pesticides Control offices. No appendices are attached here.]

APPENDIX E. 2005 PESTICIDES AND GROUND WATER MONITORING PROGRAM

TABLE OF CONTENTS

1. SUMMARY

The results of Maine's statewide pesticides and ground water monitoring program indicate that pesticide contamination of drinking water in private wells sometimes occurs at levels below established health advisory levels in areas near active pesticide use sites. However, the frequency of positive detections is low.

This monitoring program is repeated every five to seven years by the Maine Board of Pesticides Control (BPC) during the winter when the ground water table is lowest. The first monitoring survey was conducted in 1994 and the percentage of private drinking water wells with detections of a pesticide was 24% (31 of 129). The percentage of positive detections in the second survey, conducted in 1999, dropped to 9% (17 of 194). In addition, samples collected in 1999 from wells located adjacent to cornfields contained no detectable levels of pesticides, as compared to 14% in 1994, and there were fewer samples from wells located adjacent to potato and blueberry fields with detectable levels of pesticides. The number of different pesticides detected also decreased from ten in 1994 to four in 1999.

In 2005, 11% of the sampled wells were found to have low levels of a pesticide or pesticides (14 of 127) or 10% of the samples, since some wells were sampled twice if two different crops were near. Eight different pesticides were detected. As with the 1994 and 1999 surveys, hexazinone continues to be the most commonly found pesticide active ingredient (AI) in sampled drinking water wells.

2. STUDY OBJECTIVE

The objective of these studies is to assess the occurrence of pesticides in private drinking water wells located within ¼ mile down gradient of an active agricultural pesticide use site. Section VII, Ground Water Monitoring, of the January 1998 State of Maine Generic State Management Plan for Pesticides and Ground Water requires that statewide ground water monitoring be conducted every five to seven years to assess ground water quality trends. The 2005 Pesticides and Ground Water Monitoring Program was conducted in accordance with that plan.

3. STUDY DESIGN

3.1 Selection of Pesticides, Crops, and Crop Locations

The following data sources were used to determine what pesticide active ingredients and the associated crops would be targeted for 2005 sampling and the number of samples to collect near each commodity.

- 2003 Pesticide Dealer Reports – provided estimates of pounds of pesticide active ingredients (AIs) sold in Maine for agriculture;
- USDA-NRCS National Water and Climate Center's Windows Pesticide Screening Tool (WIN-PST), formerly called The National Pesticides/Soils Database and User Support System for Risk Assessment of Ground and Surface Water Contamination

(NPURG) – provided leachability ratings of active ingredients as "high", "intermediate", "low" or "very low"; and

- University of Maine Cooperative Extension Crop Specialists – provided expertise in determining what products and what relative amounts are used on particular crops.

Evaluation of the data gathered from the above sources resulted in the following sample allocations among pesticide use sites:

Use Site	Approx. Pounds of Leachable AIs sold in 2003[1]	Percent of Total AI	# of Samples (guide)	# of Samples Actual[2]
Potatoes	119,524	53.70%	78.4	67
Corn (forage and sweet)	49,611	22.30%	32.6	34
Blueberries	20,738	9.30%	13.6	11
Small Grains	25,691	11.50%	16.8	17
Orchard	845	0.38%	0.55	3
Christmas Trees	2,197	0.99%	1.45	2
Strawberries	3,877	1.74%	2.5	3
	Total: 222,483		**146[3]**	**137**

[1] Only "high" and "intermediate" leachers were tallied in this table. Some AIs were also included as part of this study if they had a "low" leachability rating coupled with high quantity sales.

[2] For quality assurance reasons, more than one sample was collected each from the christmas tree and orchard categories.

[3] Total number of samples collected was determined through the use of statistical analysis. The formula used is included in the Appendix as Figure 1.

Individual USGS 7.5-minute topographical maps containing known pesticide use sites previously identified by each of the five BPC field inspectors were randomly selected as areas for sampling. Each topographical map was numbered and entered into a database with the corresponding use site(s) associated with that map. A random number generator was then used to select map numbers containing the individual use sites. For example, the maps that had small grains grown within their boundaries were pooled together, then 17 of those map numbers were randomly chosen, with duplicates allowed.

If more than one field of the target crop existed on the randomly chosen topographical map, a numbered 10x10 grid was placed over the map and a random number list generated for each map directed the sampler to subsections of the map to further randomize the process. If there were no candidate use sites within the subsection, another subsection corresponding to the next number on the random list was searched for a candidate site. If there was more than one candidate use site within the subsection, the sampler assigned a number to each site and selected the sample site using a secondary random number table. A flow chart and accompanying standard operating procedure (SOP) for selecting a sample site are included in the Appendix as Figure 2. Figure 3 in the Appendix shows the sample distribution throughout the state.

3.2 Well Selection, Criteria, and Sampling

3.2.1 Random Selection of Wells

If more than one well was available for sampling, that met the criteria below, the wells were numbered and a random number table was used to select the well. This process prevented the sampler from introducing bias such as choosing the well closest to the field or farthest from the field. In many cases use of the random number table at this point was not necessary as it was difficult to find people home during the day to allow for sampling and that was a limiting factor.

3.2.2 Well Criteria

Once a specific sampling location was selected, the property was assessed to determine if the drinking water supply for that site met the following criteria:

- Private Residence (not a school, hospital, etc.) with people currently living there;
- Within ¼ mile of the target crop site (which must have had the target crop grown on it within the last year);
- Downgradient of or at equal elevation with the crop site;
- No filters or water treatment systems; and
- No water bodies (streams, ponds, rivers, etc.) between the crop site and the residence.

3.2.3 Sampling Methodology

Samples were collected from domestic water supplies (private residences) during the months of January, February and March. Residents were questioned as to any filtration systems on their water system, such as carbon (charcoal) filters, water softeners, reverse-osmosis filters, etc. If there were no filters, samples were collected from any cold-water tap. The cold water was allowed to run for 5 – 10 minutes to ensure that the water was collected from the well and not the pressure tank. If there were filters on the system, the sample was collected from a tap before the filter, such as from an outside tap.

Samples were collected in one-liter amber glass bottles, certified as pre-cleaned for collection of pesticide samples, with Teflon-lined caps. New latex gloves were donned at each sample site and worn during the collection process. Samples were kept under BPC custody in iced coolers or in a refrigerator until delivery to the analytical laboratory. Chain of Custody forms were filled out prior to leaving the sample site. Figure 4 in the Appendix is an example of the form used and shows the data collected at the time of sampling. The standard operating procedure (SOP) used to collect the sample and complete the Chain of Custody is also included as part of Figure 5.

3.3 Analytical Methodology

The University of Maine Food Chemical Safety Laboratory (UMFCSL) analyzed most of the samples collected during this study. The State's Health and Environmental Testing Laboratory (HETL) and APT Laboratory in Pennsylvania were also used. Samples were analyzed for the active ingredients that tend to be used on the crop located within ¼ mile of the sample collection site. The following table provides pertinent information relative to sample analysis.

Crop	Analyte	Leachablity[1]	Method[2]	MDL (ppb)[3]	Trade Name
Potatoes	Chlorothalonil	Low	SPE/GCMS	0.1	Bravo
	Endosulfan	Low	SPE/GCMS	0.1	Thiodan
	Ethoprop	High	SPE/GCMS	0.1	Mocap
	Metalaxyl	High	SPE/HPLC	1.0	Ridomil
	Metribuzin	High	SPE/GCMS	0.05	Sencor, Lexone
	Linuron	Intermediate	SPE/HPLC/PDA	2.0	Lorox
Forage/ Sweet Corn	Acetochlor	Intermediate	SPE/GCMS	0.05	Harness, Surpass
	Alachlor	Intermediate	SPE/GCMS	0.05	Lasso
	Atrazine	High	SPE/GCMS	0.05	AAtrex
	Chlorpyrifos	Low	SPE/GCMS	0.05	Lorsban
	Simazine	High	SPE/GCMS	0.1	Princep
	Dicamba	High	515.2/552	0.5	Banvel
	Methomyl	High	SPE/HPLC-PDA	2.0	Lannate
	Metolachlor	High	SPE/GCMS	0.05	Dual
	Atrazine metabolites	High	SPE/GCMS	2.0	metabolites
	2,4-D	Intermediate	515.2/552	3.0	
	Bentazon	High	515.3	5.0	Basagran
	Pendimethalin	Low	SPE/GCMS	2.0	Prowl
Blueberries	Chlorothalonil	Low	SPE/GCMS	0.1	Bravo
	Hexazinone	High	SPE/GCMS	0.1	Velpar, Pronone
	Hexazinone Metabolite B	N/A	SPE/GCMS	0.2	metabolite
	Fenbuconazole	Low	SPE/GCMS	0.1	Indar
	Phosmet	Low	SPE/GCMS	0.1	Imidan
	Propiconazole	Intermediate	SPE/GCMS	0.1	Orbit
	Captan	Low	SPE/GCMS	0.1	Captan
	Diuron	Intermediate	SPE/HPLC/PDA	1.0	Karmex
	Terbacil	High	SPE/GCMS	0.1	Sinbar
Small Grains	MCPA	High	LLE/GCMS	0.2	Rhomene
	Dicamba	High	LLE/GCMS	2.0	
	2,4-D	Intermediate	LLE/GCMS	0.2	
	Mecoprop	High	LLE/GCMS	0.2	
Orchard	2,4-D	Intermediate	LLE/GCMS	0.2	
	Captan	Low	SPE/GCMS	0.1	Captan
	Phosmet	Low	SPE/GCMS	0.1	Imidan
	Simazine	High	SPE/GCMS	0.1	Princep
Christmas Trees	Diazinon	Low	SPE/GCMS	0.05	Diazinon
	Metolachlor	High	SPE/GCMS	0.1	
	Simazine	High	SPE/GCMS	0.1	Princep
Strawberries	Terbacil	High	SPE/GCMS	0.1	Sinbar
	Dacthal	High	515.2	0.1	Dacthal
	Captan	Low	SPE/GCMS	0.1	Captan

	Napropamide	Intermediate	SPE/GCMS	0.1	Devrinol

[1] Leachability based on rating by WIN-PST.

[2] SPE/GCMS = solid phase extraction/gas chromatography with mass spec
SPE/HPLC/PDA = SPE/high performance liquid chromatography with photodiode array detector
LLE/GCMS = Liquid/Liquid extraction (with methylene chloride)/ GCMS

[3] ppb = parts per billion = (ug/L)

3.4 Quality Assurance/Quality Control

Field blanks, split samples, and duplicate samples were analyzed as part of this study for quality control purposes. Sample collectors prepared sample blanks (for a total of six blanks) using distilled water. Six duplicates were collected and three corn samples were split between HETL and UMFCSL. The samples were handled and labeled as if they were private well samples. All quality control samples were mixed in randomly with the private well samples to ensure that the laboratory did not treat QC samples differently. QA/QC results were all acceptable.

In addition to BPC QA/QC, all three laboratories maintain their own quality assurance/quality control (QA/QC) plans.

4. RESULTS

4.1 General

Of the 137 samples collected from 127 private drinking water wells (some wells were sampled for both small grain pesticides and potato pesticides counting as two samples from one well), 13 samples had detectable levels of one pesticide and one sample had a detectable level of two pesticides. At least one pesticide was detected in 14 of 127 wells. **Of all of the wells, 11% had positive detections, and 10% of the samples had positive detections.** There were no detections above any published EPA maximum contaminate levels (MCL), EPA health advisory levels (HAL), or Maine's maximum exposure guidelines (MEG).

There are basically two types of health based acceptable levels for pesticides in drinking water; these are the standards (EPA's MCLs) and the guidelines (EPA's HALs and Maine's MEGs). MEGs are set by the Environmental Toxicology program in the Maine Centers for Disease Control (MeCDC). MCLs are enforceable for public water systems, as defined by the Safe Drinking Water Act, and in setting them, the best available technology to achieve the level has to be considered. The MCLs and the guidelines (HALs and MEGs) are all used for guidance in private well situations.

The following table breaks down positive detections by use group:

Commodity Group	Number of samples collected	Samples with Positive Detections	
		Number	Percent
Potatoes	67	2	3.0%
Corn	34	4	11.8%
Blueberries	11	6	54.5%
Small Grains	17	1	5.9%
Orchards	3	0	0.0%
Christmas Trees	2	0	0.0%
Strawberries	3	1	33.3%
Totals:	**137**	**14**	**10.2%**

A total of eight different pesticide active ingredients were detected. The following table details results by active ingredient:

Use Site	Pesticides Analyzed	Trade Name	Range of Sample Concentrations (ppb)
Potatoes	Chlorothalonil	Bravo	**0.25 (1 sample)**
	Endosulfan	Thiodan	All ND (Non-Detect)
	Ethoprop	Mocap	All ND
	Metalaxyl	Ridomil	**1.61 (1 sample)**
	Metribuzin	Sencor, Lexone	All ND
	Linuron	Lorox	All ND
Corn (forage and sweet)	Acetochlor	Harness, Surpass	**0.10 – 0.12 (2 samples)**
	Alachlor	Lasso	All ND
	Atrazine	AAtrex	**0.24 – 0.42 (2 samples)**
	Bentazon	Basagran	All ND
	Chlorpyrifos	Lorsban	All ND
	Simazine	Princep	All ND
	Dicamba	Banvel	All ND
	Methomyl	Lannate	All ND
	Metolachlor	Dual	**0.07 (1 sample)**
	Atrazine metabolites		All ND
	2,4-D	Weedar64(and others)	All ND
	Pendimethalin	Prowl	All ND
Blueberries	Chlorothalonil	Bravo	All ND
	Hexazinone	Velpar, Pronone	**0.13 – 3.52 (6 samples)**

	Hexazinone Metabolite B	metabolite	**0.94 (1 sample)**
	Fenbuconazole	Indar	All ND
	Phosmet	Imidan	All ND
	Propiconazole	Orbit	All ND
	Captan	Captan	All ND
	Diuron	Karmex	All ND
	Terbacil	Sinbar	All ND
Small Grains	MCPA	Rhomene	All ND
	Dicamba		All ND
	2,4-D	Weedar64(and others)	**0.41 (1 sample)**
	Mecoprop		All ND
Orchard	2,4-D		All ND
	Captan	Captan	All ND
	Phosmet	Imidan	All ND
	Simazine	Princep	All ND
Christmas Trees	Diazinon	Diazinon	All ND
	Metolachlor		All ND
	Simazine	Princep	All ND
Strawberries	Terbacil	Sinbar	All ND
	Dacthal	Dacthal	**3.56 (1 sample)**
	Captan	Captan	All ND
	Napropamide	Devrinol	All ND

4.2 Results by Active Ingredient

4.2.1 Chlorothalonil

All 67 samples from wells near potato fields were analyzed for chlorothalonil, and one sample showed a detectable level (0.25 ppb). EPA's health advisory level (HAL) for chlorothalonil in drinking water is 150 ppb. The two year old, 200 feet deep, drilled well was located approximately 200 feet downgradient of the closest field. In accordance with the recommended response outlined in Section VIII - Response Framework of the BPC's Generic State Management Plan for Pesticides and Ground Water, BPC spoke with the farmer and reviewed his use and application practices. Chlorothalonil was used during the summer of 2005 after our sample was taken, but had not been used for at least seven years previous to our sample collection, and there are no other farmers nearby. This positive detection may have been a lab error.

4.2.2 Metalaxyl

Because metalaxyl analysis requires the laboratory to use a different method from the one for most of the rest of the potato pesticide active ingredients, and therefore charge more money, only five samples were analyzed. One sample from a dug well approximately 140 feet from a potato field contained 1.61 ppb metalaxyl. The depth of the well is unknown. Since the level detected in

this survey was less than Maine's MEG of 420 ppb, and since metalaxyl is seldom used on potatoes due to resistance, a determination was made that no further investigation was necessary.

4.2.3. Acetochlor

All 34 samples from wells near corn fields were analyzed for acetochlor. Two of the samples were found to have positive detections of 0.10 ppb and 0.12 ppb. The MEG for acetochlor in drinking water is 20 ppb. One of the samples was collected from a 55 year old drilled well of unknown depth, approximately 500 feet from the corn field. The farmer has not had a spill, and only used Harness once, following the label. The land has recently been sold for development. The other sample was collected in a different town from a 13 year old, 90 feet deep drilled well. This well was approximately 900 feet from the corn field. It was difficult to track down the various farmers in the area, but it appears that it has been at least a number of years since this product may have been used. One of the farmers is now an organic grower, and another is moving toward selling off land for development.

The manufacturer, Monsanto, paid for these two wells to be resampled the following winter. Their results were non detect.

4.2.4. Atrazine

All 34 samples from wells near corn fields were also analyzed for atrazine. Atrazine was found in two wells at 0.24 ppb and 0.42 ppb. The maximum contaminant level (MCL) is 3 ppb. The first well is a 214 feet deep, 52 year old, drilled well. Metolachlor was also found in this sample (see below). The farmer for this field said he did have a spill of herbicide in the late 70's or early 80's that he thinks was atrazine. Atrazine has been detected at this site in the past. He has used a product called Bicep that contains both atrazine and metolachlor in recent years and that might have been applied heavily at the edges of the field as the sprayer was turning around. The spray was stopped during turnarounds but the boom emptied possibly causing more chemical release than normal in those areas. Roundup, which is not considered to be a leacher, is now being used on this field instead of atrazine and metolachlor. The second well with 0.42 ppb atrazine is located in a different town and is a 20 years old, drilled well approximately 150 feet deep, and approximately 300 feet from the corn field. The farmer has decided that corn will no longer be grown in this location in the future.

4.2.5 Metolachlor

Metolachlor was also assayed in all 34 samples taken near corn and it was found in one well at 0.07 ppb. EPA's HAL is 100 ppb. This was the same well where atrazine was found (see first well in the atrazine section above).

4.2.6 Hexazinone

Hexazinone has been detected in Maine's ground water for over 20 years. The fact that it was detected in 54.5% of the samples collected for blueberry pesticide analysis was not unexpected.

The levels detected were well below the EPA HAL of 400 ppb, and further investigation, related to this study, was not warranted. Refer to other BPC reports on hexazinone for more information.

4.2.7 2,4-D

2,4-D was looked for in all 17 samples collected near small grains. It was detected once at 0.41 ppb. EPA's MCL is 70 ppb. The well is approximately 100 feet downgradient from the field. Other information about the well is unknown. It was discovered that the farmer has not used pesticides in recent years, and the homeowner was questioned about using a pesticide on their lawn or garden.

4.2.8 Dacthal

Samples for Dacthal analysis had to be sent to APT Laboratories in Pennsylvania. Due to the extra cost, only two samples were analyzed and one had a positive detection of 3.56 ppb. The analytical method looked for the sum of parent Dacthal plus metabolites. It is likely that the 3.56 ppb is mostly metabolites that pose little hazard in drinking water at that level. The farmer said Dacthal was used near the tested well in 2004. He said there was no spill. It is assumed that this product was used normally as it is frequently found in ground water in Rhode Island after normal use there.

4.3 Site Factors and Frequency of Detections

Information about well depth and distance to active pesticide use site was collected during this assessment. The following tables summarize that information. Numbers listed in non-bold font indicate all sites sampled. Numbers listed in bold parentheses indicate the number of sites with detectable levels of at least one pesticide active ingredient.

Use Site	**Well Depth (feet)**					
	< 100	100- 199	200 – 299	300 – 399	> 400	Unknown
Potatoes	15	16	5 **(1)**	3	--	28 **(1)**
Sweet/Forage Corn	10 **(1)**	8 **(1)**	4 **(1)**	1	--	11 **(1)**
Blueberries	4 **(2)**	2 **(1)**	1	--	--	4 **(3)**
Small Grains	4	5	--	--	--	8 **(1)**
Orchard	--	1	--	--	--	2
Christmas Trees	2	--	--	--	--	--
Strawberries	--	2 **(1)**	--	--	--	1

Use Site	**Well Construction**				
	Drilled	Dug	Driven Point	Spring	Unknown
Potatoes	57 **(1)**	5 **(1)**	1	2	2
Sweet/Forage Corn	23 **(4)**	3	--	3	5
Blueberries	11 **(6)**	--	--	--	--
Small Grains	13	--	--	--	4 **(1)**

Orchard	3	--	--	--	--
Christmas Trees	2	--	--	--	--
Strawberries	3 **(1)**	--	--	--	--

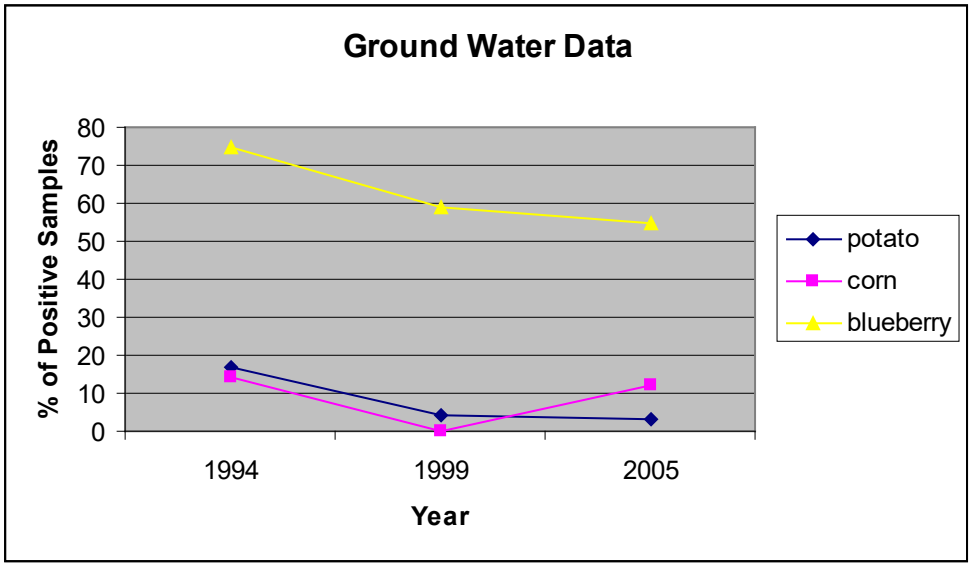
Use Site	Distance from Active Use Site (feet)			
	< 100	100 – 499	500 – 999	1000 – 1500
Potatoes	14	40 **(2)**	8	5
Sweet/Forage Corn	2 **(1)**	16 **(1)**	12 **(2)**	4
Blueberries	3 **(1)**	5 **(4)**	1	2 **(1)**
Small Grains	6	9 **(1)**	--	2
Orchard	1	1	--	1
Christmas Trees	1	1	--	--
Strawberries	1	1 **(1)**	1	--

4.4 Comparison of 1994, 1999 and 2005 Data

The following tables and graph compare the results of the initial ground water study conducted in 1994 to the one in 1999 and this assessment:

Commodity Group	Number of samples collected			Number of Samples with Positive Detections			Percent of Samples with Positive Detections		
	1994	1999	2005	1994	1999	2005	1994	1999	2005
Potatoes	47	102	67	8	4	2	17%	4%	3%
Corn	49	51	34	7	0	4	14%	0%	12%
Blueberries	20	22	11	15	13	6	75%	59%	55%
Small Grains	3	9	17	0	0	1	0%	0%	6%
Orchards	1	5	3	1	0	0	100%	0%	0%
Christmas Trees	5	4	2	0	0	0	0%	0%	0%
Strawberries	0	3	3	--	0	1	--	0%	33%
Rights-of-Way	3	0	0	0	--	--	0%	--	--
Market Garden	1	0	0	0	--	--	0%	--	--
Totals:	**129**	**197**	**137**	**31**	**17**	**14**	**24%**	**9%**	**10%**

No detections were above HAL/MEG/MCL for any of the three years except for diazinon found near an orchard in 1994. Diazinon was not used on the orchard but was applied by the well owner around the well to control ants.


Ground Water Data
% of Positive Samples
80
70
60
50
40
30
20
10
0
1994
1999
2005
Year
potato
corn
blueberry

Use Site	Pesticide AIs Analyzed	Range of Sample Concentrations (ppb)		
		2005	**1999**	**1994**
Potatoes	Atrazine	*--(not sampled)*	--	**0.13**
	Chlorothalonil	**0.25**	All ND	--
	Disulfoton	--	All ND	--
	Endosulfan	All ND	**0.13**	All ND
	EPTC	--	All ND	--
	Ethoprop	All ND	All ND	**0.08**
	Imidacloprid	--	All ND	--
	Linuron	All ND	--	--
	Maleic Hydrazide	--	All ND	--
	Metalaxyl	**1.61**	All ND	**0.63 – 6.51 (6 samples)**
	Metribuzin	All ND	**0.10 - 0.60 (4 samples)**	All ND
	Propamocarb	--	All ND	--
Corn	2,4-D	All ND	--	--
	Acetochlor	**0.10 – 0.12 (2 samples)**	All ND	**--**
	Alachlor	All ND	All ND	**1.70**
	Atrazine	**0.24 – 0.42 (2 samples**	All ND	**0.10 – 1.90 (6 samples)**
	Bentazon	All ND	All ND	--
	Chlorpyrifos	All ND	All ND	--
	Cyanazine	--	All ND	--
	Dicamba	All ND	All ND	--
	Dinoseb	--	*No use on Corn*	**3.50 (point source)**
	Methomyl	All ND	All ND	--
	Metolachlor	**0.07**	All ND	**0.30 – 10.20 (2 samples)**
	Pendamethalin	All ND	All ND	**--**
	Simazine	All ND	--	--
Blueberries	Azinphos-Methyl	--	All ND	--
	Chlorothalonil	All ND	**--**	**--**
	Fenbuconazole	All ND	**--**	**--**
	Total Hexazinone	**0.13 – 4.46 (6 samples)**	**0.22 - 1.97 (13 samples)**	**0.09 – 5.97 (15 samples)**
	Phosmet	All ND	All ND	--
	Propiconizole	All ND	**0.18**	*Not used in 1994*
	Captan	All ND	**--**	--
	Diuron	All ND	**--**	--
	Terbacil	All ND	All ND	--
Small Grains	**2,4-D**	**0.41**	--	--
	Dicamba	All ND	--	--
	MCPA	All ND	All ND	--
	Mecoprop	All ND	--	--

Orchard	2,4-D	All ND	--	**--**
	Captan	All ND	--	**--**
	Diazinon	--	*Not an orchard pesticide*	**7.35 (point source)**
	Fenarimol	--	All ND	--
	Oxamyl	--	All ND	--
	Phosmet	All ND	--	--
	Simazine	All ND	All ND	--
Christmas Trees	Diazinon	All ND	All ND	--
	Metolachlor	All ND	--	--
	Simazine	All ND	All ND	--
Strawberries	Captan	All ND	--	--
	Carbofuran	--	All ND	--
	Dacthal	**3.56**	--	--
	Metalaxyl	--	All ND	--
	Napropamide	All ND	All ND	--
	Terbacil	All ND	--	--

5 CONCLUSIONS

The percentage of samples collected from private drinking water wells with detectable levels of pesticide active ingredients decreased from 24% in 1994 to 9% in 1999. In 2005 10% of the samples collected contained one or more pesticides. The number of different pesticides detected decreased from ten in 1994 to four in 1999, but increased in 2005 to eight pesticides. Slight changes in the laboratory method detection limits over the years influence these numbers, as does varying weather patterns. Hexazinone continues to be the most commonly found active ingredient in Maine drinking water wells.

Overall, the results of this survey show that pesticides continue to be detected in drinking water wells located within ¼ mile of active pesticide use sites. However, the frequency of detections in Maine appears lower than the national average, and positive detections have been below any MCLs, HALs, and MEGs. Developing and using agricultural best management practices will hopefully continue to keep the frequency and levels of detections low.

APPENDIX

Figure 1. Statistical Formula for Sample Size

DETERMINATION OF SAMPLE SIZE

In determining the number of groundwater sample units needed for this monitoring program, the following formula[38] was used:

$$n = \frac{P(1-P)}{\frac{A^2}{Z^2} + \frac{P(1-P)}{N}}$$

Where:

- n = sample size required
- N = size of the population samples are being taken from (i.e., the total number of wells)
- P = estimated percentage of the population possessing the attribute of interest (i.e., percentage of population with detectable levels of pesticides)
- A = Accuracy desired, expressed as a decimal (i.e., ..0.01, 0.03, 0.05, etc.)
- Z = number of standard deviation units corresponding to the desired confidence interval (see table below)

Z values:

Confidence Interval (CI)	**Z**
99%	2.5758
95%	1.9600
90%	1.6449
85%	1.4395
80%	1.2816

According to University of Maine Cooperative Extension crop specialists there are about 2,271 farms growing the crops focused on for this survey in Maine. According to the 2003 NASS, the average size of each farm is 190 acres, which, if the farm were square, would make a 2,880 ft x 2,880 ft farm:

[38] *Air University Sampling and Surveying Handbook,* April 1996 Internet edition, www.au.af.mil/au/hq/selc/smpIntro.htm, downloaded 12/4/98

We then make an assumption that wells on only one side of the farm would be downgradient (one side would be upgradient, and two sides would be at the same elevation). Allowing for four properties along that downgradient side, that would make:

4 “high risk” properties per farm * 2271 farms of interest in Maine = 9,084 “high risk” properties in Maine.

The 1994 Pesticides in Ground Water study determined that 24% of “high risk” wells had detectable levels of pesticides, and the 1999 found 9%. The average of 24% and 9% is 16.5%.

We have decided that our accuracy desired will be ±5%, and our confidence level will be 90%. By plugging in our knowns into our sample size equation, we get:

N = 9,084
P = 0.165
A = 0.05
Z = 90% = 1.6449

So:

n = 145.79 samples

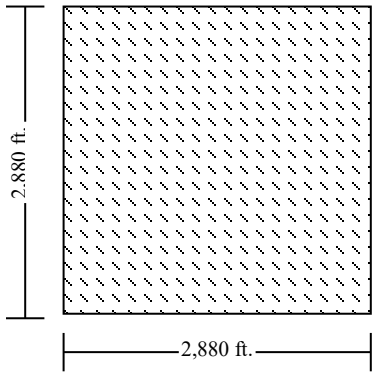


Figure 2. A flow chart and accompanying standard operating procedure (SOP) for selecting a sample site

SOP for Ground Water Sampling Site Selection
Related to Maine's "Generic State Management Plan for Pesticides and Ground Water"

Prepared by: Julie Chizmas

Revised by: _____ Date: _____
Heather Jackson

Reviewed by: _____ Date:_____
Henry Jennings

Approved by: _____ Date:_____
Robert Batteese

STATE OF MAINE
BOARD OF PESTICIDES CONTROL

SOP for Ground Water Sampling Site Selection
Related to Maine's "Generic State Management Plan for Pesticides and Ground Water"

1. Select a Quad/Crop combination from the Sampling Quads list that was prepared in Augusta.

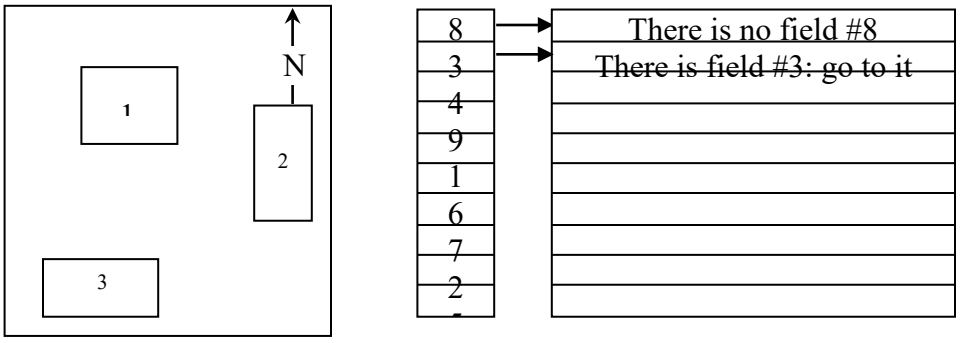
2. Place mylar overlay over quad.

3. Select a new Primary Random Number list (the one with 100 numbers on it).

4. Starting with the first random number (top left hand corner), check the corresponding cell on the quad to see if the crop is potentially present with residences close by.

5. Keep working through the random numbers from top to bottom until you identify a good target cell. At this point you'll need to drive to the target location.

6. If, once you get to the target location, you find that there is more than one field with your target crop in that cell, number the potential fields from north to south and/or east to west. Then go to your secondary random number list and go through the numbers in one column until you select a field:



7. Once at the target location, look for properties meeting the following criteria:

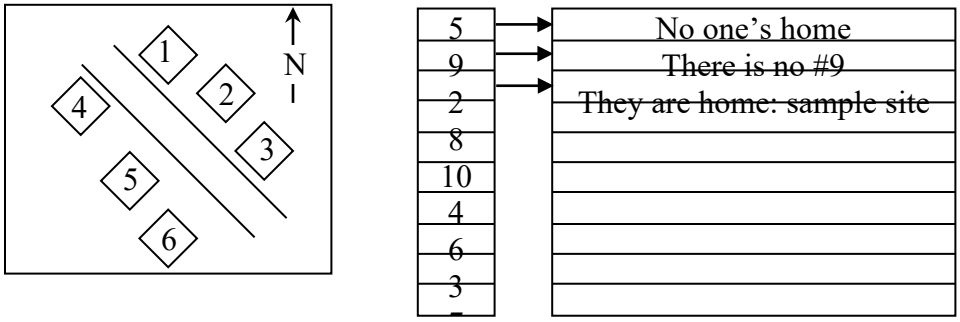
A. Private Residence (not a school, hospital, etc.) with people currently living there;

B. Within ¼ mile of the target crop site (which must have had the target crop grown on it within the last year);

C. Down gradient or level with the crop site; and

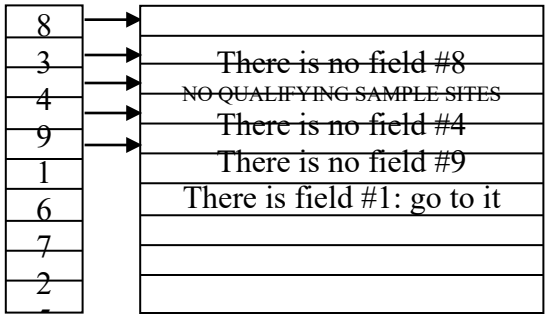
D. No water bodies (streams, ponds, rivers, etc.) between the crop site and the residence.

8. If more than one well meets the ¼ mi. criteria, number the potential houses from north to south and/or east to west (depending on road direction). Then go to your secondary random number list and go through the numbers in one column until you select a sample site:



NOTE: If you used the secondary random number list to choose a field, then use the next column of numbers to choose a sample site; do not use the same list as you used for field selection.

9. If none of the qualified wells work out for sampling, and there was more than one field with the crop of interest in the cell, then go to the next field on the list you used to randomly determine the first field picked and start over with Step 7 to find a qualifying sample site:



10. If none of the qualified wells work out for sampling, and there was only one field with the crop of interest in that cell, then go back to Step 5 to find another promising target cell.

11. After you have collected the sample from the site, CROSS OUT THE PRIMARY RANDOM NUMBER LIST YOU USED TO FIND THE CELL ON THE QUAD. Do not re-use those lists for locating other samples. If you have to collect more than one sample from one quad, you must use a different primary random number list.

Figure 3. Sample Distribution throughout Maine

County	Number of Samples Collected
Androscoggin	6
Aroostook	69
Cumberland	1
Franklin	1
Hancock	0
Kennebec	8
Knox	2
Lincoln	4
Oxford	7
Penobscot	7
Piscataquis	13
Sagadahoc	1
Somerset	3
Waldo	3
Washington	6
York	6

Figure 4. Sample Data Collection Sheet

Well ID: _____
USGS Map #: _____
Grid #: _____

2005 WATER SAMPLE INFORMATION SHEET

Maine Board of Pesticides Control
28 State House Station
Augusta, Maine 04333-0028
(207) 287-2731

SECTION 1: CROP

- ☐ Potatoes
- ☐ Small Grains
- ☐ Forage Corn
- ☐ Orchard
- ☐ Sweet Corn
- ☐ Christmas Trees
- ☐ Blueberries
- ☐ Strawberries

SECTION 2: ANALYSIS

Check more than one box if applicable.

- ☐ Group 1
- ☐ Group 2
- ☐ Group 6
- ☐ Group 8
- ☐ Group 9
- ☐ Group 11
- ☐ HETL

SECTION 3: WELL IDENTIFICATION

Name: _____

Address: _____

_____, ME _____

Phone: _____

Directions to the Residence: _____

_____

_____

Well Location: _____

_____

SECTION 4: WELL USE AND CONSTRUCTION INFORMATION

Well Use: ☐ Private ☐ Other _____ Approximate Age of Well: _____ yrs.

Well Construction: ☐ Dug ☐ Drilled ☐ Spring ☐ Driven ☐ Other _____ ☐ **Unknown**

Well Depth at Completion: *exactly* _____ ft. ☐ **Unknown** Depth of Casing: *exactly* _____ ft. ☐ **Unknown**

Is the Well Screened? ☐ No ☐ Yes -- Screened Intervals: Top: ____ ft. Bottom: ____ ft. ☐ **Unknown**
Top: ____ ft. Bottom: ____ ft.

SECTION 5: SAMPLE INFORMATION

SAMPLE ID: _____ Sample Date: _____ Sample Time: _____ AM PM

SECTION 6: WELL LOCATION

Latitude: N ___ ___ ° ___ ___ . ___ ___ ___ ' Time: ___ ___ : ___ ___ : ___ ___ AM PM

Longitude: W ___ ___ ___ ° ___ ___ . ___ ___ ___ ' EPE: _____ ft.

**Altitude will be determined at BPC office using info above and topographic map.*

Distance from well to crop: _____ ft. Elevation of well with respect to crop: ☐ Downgradient ☐ Equal Elevation

SECTION 7: COMMENTS

SECTION 8: SAMPLE AUTHORIZATION

The undersigned hereby voluntarily consents to the collection of well water samples from the property described in the above Sections for the purpose of gathering information in connection with the statutory responsibilities of the Maine Board of Pesticides Control.

Well Owner/User: _____ Title: _____

Sampled By: _____ Date: _____

Relinquished by:	Date/Time:	Received by:	Date/Time:
Relinquished by:	**Date/Time:**	**Received by:**	**Date/Time:**
Relinquished by:	**Date/Time:**	**Received by:**	**Date/Time:**

White Copy = BPC Office Yellow Copy = Laboratory Pink copy = Well Owner/User or Agent

Figure 5. Ground Water Sampling Standard Operating Procedure (SOP)

1. A site location and a site ID (or well ID) are chosen at the Augusta office after the appropriate planning procedures have been followed (see Experimental Design section in "Quality Assurance Project Plan for Maine Board of Pesticides Control Water Quality Program and Related Laboratory Work"). Samples are to be collected from private domestic water supplies that are within ¼ mile down gradient from, or of equal elevation with, a pesticide use site.
2. Residents must be questioned as to any filtration systems on their water system, such as carbon (charcoal) filters, water softeners, reverse-osmosis filters, etc. If there are no filters, then samples may be collected from any cold-water tap (please remove the aerator, if possible). Cold water must be run for 5 – 10 minutes to ensure that a sample from the well is obtained as opposed to one that's been sitting in the pressure tank. If there are filters on the system, the sample must be collected from a tap before the filter (an outside tap is usually a safe choice); the water should still be run for 5 – 10 minutes prior to collection.
3. Samples are to be collected in 1-Liter amber glass bottles with teflon-lined caps, certified as precleaned for the collection of pesticide samples. Latex or nitrile gloves must be worn when collecting the sample; a fresh pair of gloves is needed at each site. For the best adhesion, labels should be placed on the bottles prior to filling the bottle with water. Fill sample bottles completely. Bottles must be labeled with sample ID, date of collection, sample collector initials, analysis to be performed, and sample location (town). Caps must be also labeled with the sample ID. Keep in mind that the "Site ID" or "Well ID" will be determined later.
4. Samples are placed in a cooler with ice packs or in a refrigerator to ensure that samples are kept in the dark and as close to 4°C as possible.
5. Make sure site information is recorded and signed by the property resident before leaving the site. Site information of interest, also available on a form, includes the following:

Well ID - This is a unique, 8-digit number assigned by the BPC Augusta office for each site that is sampled. Please do not write anything on the Well ID line.

USGS Map #: Please write the number of the 7.5-minute topographic map in which the site is located. The number of each topographic map you are given will be on the back of the map.

Grid Number: The number on the mylar overlay in which the site is located (for stratified random sampling projects).

SECTION 1 and 2: CROP/ANALYSIS

Crop/Analysis: Please check which crop is near the well. If there is more than one commodity within ¼ mile of the well, please list only the primary one, and list others in SECTION 7: COMMENTS. If there is a special pesticide use on a nearby commodity, please make a note of it in the COMMENTS section.

SECTION 3: WELL IDENTIFICATION

Name and Mailing Address: This is for the name and mailing address of the person to whom the analytical results are to be sent (usually the homeowner or renter). If, in the case of a rental situation, the results are to be sent to the landlord/owner, put the landlord/owner's name and mailing address here. Please note in SECTION 7: COMMENTS if the results are being sent to someone other than the well user.

Directions to the residence: Please write the route or road on which the site is located and the municipality in which the site is located, if different from that indicated in the mailing address. Use SECTION 7: COMMENTS if additional space is required.

Well Location: Please write the general location of the well, like in the basement, behind the house, etc.

SECTION 4: WELL USE AND CONSTRUCTION INFORMATION

Well Use: Please check the applicable box. All the wells tested in this survey should be private (used only by the homeowners/renters). If the well is not public, please check "Other", and write what it is used for.

Approximate Age of Well: Please give the age of the well, in years.

Well Construction: Check the applicable box or fill in "Other". If the well user doesn't know, check "Unknown".

Well Depth at Completion: Enter the exact depth in feet of the well only if the exact depth is known; estimates are not allowed. If unknown, please check the "Unknown" box.

Depth of Casing: Enter the exact depth in feet of the casing only if the exact depth is known; estimates are not allowed. If unknown, check the "Unknown" box.

Is the Well Screened? A screened well is one with openings or perforations in the casing at specified depths so that ground water is only drawn only from that depth. Most drinking water wells in Maine are **not** screened. Wells that may be screened are driven point wells through sand and gravel aquifers and drilled wells that are drilled only into the overburden and not to the bedrock. If the well is screened, please try to find out the screening intervals.

SECTION 5: SAMPLE INFORMATION

SAMPLE ID: This is the standard, 11-digit, alphanumeric code used by the inspection staff during sampling events: YYMMDDabcXX.

Sample Date: The date the sample was collected.

Sample Time: The time the sample was collected. If military time is not used, please circle AM or PM.

SECTION 6: WELL LOCATION

Latitude: Write the GPS reading, as it reads on the display.

Longitude: Write the GPS reading, as it reads on the display.

Time: The time displayed on the GPS unit when the latitude and longitude were marked.

EPE: The Estimated Position Error, as it reads on the GPS display.

Note: Due to past issues with the GPS altitude readings, the well altitude will be determined at the BPC office using topographical maps and the given latitude and longitude.

Distance from Well to Crop: Write the estimated distance (in feet) from the crop listed in Section 1 to the well.

Elevation of Well with Respect to the Crop: Please check whether the well is down gradient from the commodity, or at the same elevation as the commodity.

SECTION 7: COMMENTS

In addition to using this space as previously indicated, please record any additional observations or comments, such as the phone number to the residence sampled.

SECTION 8: SAMPLE AUTHORIZATION

Please have the well owner/user read the authorization statement and sign were indicated. A title is not needed unless the person who is signing is an employee or agent, such as a babysitter or farm hand. The sampler should also sign were indicated and date the document.

CHAIN-OF-CUSTODY

Please use the shaded area at the bottom of the Water Sample Information Sheet to track the transfer and receipt of samples.

WATER SAMPLE INFORMATION SHEET DISTRIBUTION

White Copy	=	BPC Office
Yellow Copy	=	Laboratory
Pink Copy	=	Well owner/user or agent

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6. Deliver samples to the University of Maine at Orono Food Chemical Safety Laboratory (or other lab) as soon as possible and no later than three days after collection. Samples can be delivered to the Food Chemical Safety Laboratory on

Monday, Tuesday, Wednesday, and Thursday. If a Friday delivery is required, deliver no later than noon. Do not deliver samples on Saturday or Sunday. Other laboratories may have different schedules.

APPENDIX F
PESTICIDE DRINKING WATER GUIDELINES
(all units are parts per billion)

Common Name	MEG[39]	MCL[40]
Aciflurofen	10	
Alachlor	2	2
Aldicarb	2	7[41]
Aldicarb sulfone		7[3]
Aldicarb sulfoxide		7[3]
Ametryn	60	
Amiben	105	
Ammonium Suflamate	1500	
Atrazine	3	3
Azinphos-Methyl	25	
Baygon	3	
Bentazon	17.5	
Bromacil	25	
Butachlor	20	
Butylate	360	

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1 [39]"Summary of State and Federal Drinking water Guidelines," Maine Department of Human Services, Bureau of Health, Environmental Toxicology Program, revised September 1992.

2 The Maximum Exposure Guidelines (MEGs) are health-based guidelines intended to help risk managers, homeowners, and others make decisions regarding the suitability for human consumption of drinking water contaminated by chemicals.

3 The MEG for a carcinogenic compound in drinking water is the concentration of that compound in drinking water that is expected to result in a mizimum lifetime cancer risk of one additional cancer case per 100,000 individuals. The MEG for a non-carcinogenic compound in drinking water is the concentration of that compound in drinking water below which no adverse health effects are expected to occur over a lifetime of exposure.

4 This MEG list has not been promulgated by rule-making and therefore the MEGs are not legally enforceable drinking water "standards." The MEGs represent the Bureau of Health's most recent recommendations for maximum levels of contaminants in drinking water. (Dr. Robert A. Frakes, State Toxicologist, October 1992.)

5 [40]"Drinking Wate regulations and health Advisories," Office of Water, U.S. Environmental Protection Agency, Washington, D.C., October 1996.

6 [41]MCL is currently in draft status.

Common Name	MEG[39]	MCL[40]
Captan	100	
Carbaryl	164	
Carbofuran	40	40
Carboxin	700	
Chlordane	0.27	2
Chlorothalonil	15	
chlorpyrifos	20	
Cyanazine	1	
2,4-D	70	70
Dacthal	3500	
Dalapon	200	200
DDT	0.83	
Diazinon	0.63	
Dibromochloropropane	0.2	0.2
Dicamba	200	
1,2-Dichloropropane	5	5
1,3-Dichloropropene	2	
Dieldrin	0.02	
Dimethrin	2100	
Dinitrophenol	31	
Dinoseb	2	7
Diphenamid	200	
Diphenylamine	175	
Diquat	20	20
Disulfoton	0.3	
Diuron	14	
Endosulfan	42	
Endothall	140	100
Endrin	2	2
Ethylene dibromide (EDB)	0.005	0.05
Ethylenethiourea (ETU)	3	
Fenamiphos	1.8	
Fluometuron	90	
Folpet	320	
Fonofos	14	
Glyphosate	700	700
Heptachlor	0.08	0.4
Heptachlor epoxide	0.04	0.2
Hexachlorophene	2	
Hexazinone	210	
Lindane (BHC)	0.2	0.2
Malathion	40	
Maleic Hydrazide	3500	
Maneb/Mancozeb/Zineb	10	
MCPA	2.5	

Common Name	MEG[39]	MCL[40]
Methomyl	50	
Methoxychlor	100	40
Methyl parathion	2	
Metolachlor	100	
Metribuzin	175	
Oxamyl	175	200
PCNB	71	
Paraquat	30	
Parathion	8.6	
Pentachlorophenol	1	1
Phorate	0.2	
Picloram	300	500
Prometon	100	
Pronamide	50	
Propachlor	92	
Propanil	40	
Propazine	14	
Propham	120	
Propiconazole	9	
Resorcinol	140	
Rotenone	4	
Simazine	4	4
Tebuthiuron	500	
Terbacil	90	
Terbufos	0.9	
Thiram	10	
Toxaphene	0.3	3
Trifluralin	2	
Ziram/Ferbam	25	

APPENDIX G
MAINE WATER QUALITY CRITERIA FOR PESTICIDES[42]

	Aquatic Life (Fg/l)				Human Health (Fg/l)	
Chemical Name	cmcfresh	cccfresh	cmcsalt	cmcfresh	hh wo	hh o
B-Lindane					0.0137	0.046
Chlorpyrifos	0.083	0.041	0.011	0.0056		
Demeton		0.1		0.1		
Guthion		0.01		0.01		

1 [42]Maine Department of Environmental Protection, "Maine Water Quality Criteria for Toxic Pollutants," 1995.

Malathion		0.1	0.1	
Methoxychlor		0.03	0.03	40
Parathion	0.065	0.013		

cmc = contaminant maximum concentration
ccc = contaminant chronic concentration
hh wo = human health water and organism
hh o = human health organism

APPENDIX H
BOARD OF PESTICIDES CONTROL
ENFORCEMENT PROTOCOL

ADOPTED 9/19/84
AMENDED 9/7/90
AMENDED 6/3/1998

The Board adopts the following enforcement protocol to be utilized in routine enforcement matters arising under the Board's statutes and regulations.[43]

1. Persons wishing to report potential violations should refer such matters, as soon and in as much detail as possible, to the Board's staff. Where such reports are submitted by telephone, the Board requests that confirmation be made in writing. As a general rule, where requested by the individual making the report, the Board shall keep the identity of that person confidential, except as the Attorney General may advise in a particular case that such information is subject to public disclosure under the Maine Freedom of Access Law.

2. As soon as practicable after receipt of a report of a potential violation, the Board's staff shall investigate. The precise method and extent of investigation shall be at the discretion of the staff, considering the potential severity of the violation and its consequences, the potential the violation may have for damage to the environment or human health, and other matters which may place demands upon staff resources at the time.

3. Following staff investigation, if the staff determines that a violation has occurred of sufficient consequence to warrant further action, the Board staff may proceed as follows:

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1 [43]In emergency or other unusual situations, the Board and/or its staff may depart from this protocol, in a manner consistent with State law, when necessary to the handling of particular enforcement actions.

a. In matters not involving substantial threats to the environment or public health, the Board's staff may discuss terms of resolution with the Attorney General's office and then with the violator without first reporting the matter to the Board. This procedure may only be used in cases which there is no dispute of material facts or law, and the violator freely admits the violation(s) of law and acknowledges a willingness to pay a fine and resolve the matter. The terms of any negotiated proposed resolution shall be subject to the Board's subsequent review and approval, as provides in section 6b.
b. In matters involving substantial threats to the environment or the public health or in which there is dispute over the material facts or law, the Board's staff shall bring the matter to the attention of the Board. The staff shall prepare a written report summarizing the details of the matter. Copies of the report shall be mailed to the alleged violator and any complainants so they may make comments. The report and any comments will then be distributed to the Board prior to their next available meeting. The staff will also notify the alleged violator and other involved parties about the date and location of the meeting at which the alleged violation will be considered by the Board.

4. At the Board meeting, the Board shall hear from its staff and, if requested, from the alleged violator(s) and/or their attorneys, as well as from other interested members of the public, to the extent reasonable under the circumstances and in a manner which the Board's chairman shall direct. Ordinarily, such a meeting will not be conducted as a formal adjudicatory hearing. Before making a decision regarding any action(s) which it may wish to take in response to an alleged violation, the Board may choose to go into executive session to discuss with its counsel the various enforcement options available to it and other related matters which are not subject to public disclosure under the Freedom of Access Law. However, all Board decisions shall be made on the public record and not in executive session.

5. Following receipt of the staff report and other information presented to it and completion of whatever further inquiry or deliberations the Board may wish to undertake, the Board shall make a decision regarding which course(s) of action, as described in Section 6, it deems appropriate in response to the alleged violation. Any such decision will ordinarily be based upon the Board's judgment as to whether a violation of its statutes or regulations appears to have occurred which is of sufficient consequence to warrant an enforcement action, but shall not require that the Board be satisfied to a legal certainty that the alleged violator is guilty of a particularly defined violation. In disputed matters, the ultimate decision as to whether a violation is factually and legally proven rests with the courts.

6. If the Board makes the determination that a violation appears to have occurred which warrants an enforcement action, the Board may choose among one or more of the following courses of action:

a. In matters involving substantial violations of law and/or matters resulting in substantial environmental degradation, the Board may refer the matter directly to the Attorney General for the initiation of enforcement proceedings deemed appropriate by the Attorney General. Also, with regard to more routine violations with respect to which the Board finds sufficient legal and/or factual dispute so that it is unlikely that an amicable administrative resolution can be reached, the Board may choose to refer the matter directly to the Attorney General.

b. On matters warranting enforcement action of a relatively routine nature, the Board may authorize and direct its staff to enter into negotiations with the alleged violator(s) with a view to arriving at an administrative consent agreement containing terms (including admissions, fines and/or other remedial actions) which are satisfactory to the Board, to the Attorney General and to the alleged violator(s). The Board will not ordinarily determine in the first instance the precise terms which should be required for settlement but may indicate to the staff its perception of the relative severity of the violation. In formulating a settlement proposal, the staff shall take into consideration all of the surrounding circumstances, including the relative severity of the violation, the violations record and other relevant history of the alleged violator(s), corrective actions volunteered by the alleged violator(s) and the potential impact upon the environment of the violation. The staff shall consult with the Attorney General's office before proposing terms of settlement to the alleged violator(s). Following successful negotiation of an administrative consent agreement with the alleged violator(s), the staff shall report back to the Board the terms of such agreement for the Board's review and, if it concurs, ratification. All administrative consent agreements shall become final only with the Board's and the Attorney General's approval.

c. In the event that an administrative consent agreement cannot be arrived at as provided in paragraph b., the staff shall report the matter back to the Board for further action by it. Such action may include referral to the Attorney General for appropriate action.

d. In addition, in appropriate cases, the Board may act to suspend the license of a certified applicator as provided in its statute, may act to refuse to renew the license of a certified applicator and/or may request that the Attorney General initiate proceedings in the Administrative Court to revoke or suspend the license of any such applicator. Where provided for by its statute, the Board shall give the licensee involved the opportunity for a hearing before the Board in connection with decisions by it to refuse to renew a license or to suspend such license.

7. Whereas the Board is establishing this protocol in order to clarify and facilitate its proceedings for the handling by it and its staff of enforcement matters, the

Board recognizes that the Attorney General, as chief law enforcement officer of the State, may independently initiate or pursue enforcement matters as he deems in the best interests of the State and appropriate under the circumstances.

APPENDIX J
(other BPC rules may be found at http://www.state.me.us/agriculture/pesticides/laws/regs.htm)

01 DEPARTMENT OF AGRICULTURE, FOOD AND RURAL RESOURCES

026 BOARD OF PESTICIDES CONTROL

Chapter 41: SPECIAL RESTRICTIONS ON PESTICIDE USE

SUMMARY: This chapter describes special limitations placed upon the use of (1) aldicarb (Temik 15G) in proximity to potable water bodies; (2) trichlorfon (Dylox); (3) hexazinone (Velpar, Pronone) and (4) aquatic herbicides in the State of Maine.

Section 1. ALDICARB (TEMIK®)

The registration of aldicarb (Temik 15G) is subject to the following buffer zone requirements:

A. Aldicarb (Temik 15G) shall not be applied within 50 feet of any potable water source if that water source has been tested and found to have an aldicarb concentration in the range of one to ten parts per billion (ppb). The 50 foot buffer would be mandatory for one year with a required retesting of the water at the end of the period.

B. Aldicarb (Temik 15G) shall not be applied within 100 feet of any potable water source if that water source has been tested and found to have an aldicarb concentration in excess of 10 ppb. The 100 foot buffer would be mandatory for one year with a required retesting of the water at the end of this period.

Section 2. TRICHLORFON (DYLOX)

The registration of trichlorfon (Dylox) is subject to the following regulations:

A. Limited Use List

Any formulation containing trichlorfon (Dylox) is classified as a limited use pesticide.

B. Notice

Any person who applies trichlorfon (Dylox) by aircraft or air-carrier application equipment or who contracts or arranges for such applications of trichlorfon (Dylox) shall provide notice in conformity with this regulation.

I. Notice shall be given to:

a. All persons who maintain a home or fruit or vegetable garden on property which abuts the application site; or

b. To the public.

II. Notice pursuant to B(I)a shall be given in writing at least twenty-four (24) hours and not more than two months prior to application.

III. Notice pursuant to B(I)b shall be given by publication in a newspaper of general circulation in the area of the state affected at least twenty-four (24) hours and not more than two months prior to application.

IV. Notice shall be in the form provided by the Board and will contain at minimum:

a. The name of the chemical to be applied;

b. The boundaries of the application site;

c. The name and address of the person supplying notice;

d. Any medical or environmental warnings contained on the product labeling plus, if it is not already included on the label, a sentence stating that the compound has demonstrated some mutagenic effects in bacterial cell cultures; and

e. Instructions directing those persons notified to contact the person supplying notice if they wish to obtain information regarding precise time of application.

V. Arrangements for more specific notice pursuant to Section B(IV)e shall be made by the individual parties involved.

C. Permits

A permit to use such limited use pesticide may be issued by the Board when it finds that the criteria of Chapter 40, Section 2(c) are satisfied. The Board may impose reasonable conditions on such permits as it deems necessary to protect the health, safety and general welfare of the environment and the people of the State of Maine. Conditions may include, without limitation, requirements for demonstrating that the pest infestation will cause substantial economic harm if it goes untreated by the limited use pesticide, for posting areas to be treated and for observing no-spray buffers.

Section 3. HEXAZINONE (VELPAR, PRONONE)

The registration of hexazinone is subject to the following limitations and conditions.

A. Prohibition of Certain Air-Carrier Application Equipment

It shall be unlawful to apply any liquid pesticide mixture containing the active ingredient hexazinone with any application equipment that utilizes a mechanically generated airstream to propel the spray droplets unless the airstream is directed downward.

B. Licenses Required

I. No person shall purchase, use or supervise the use of any pesticide containing the active ingredient hexazinone unless they have obtained a private or commercial pesticide applicators license from the Board.

II. No person shall:

a. Distribute any pesticide containing the active ingredient hexazinone without a restricted use pesticide dealer's license from the Board; or

b. Distribute any pesticide containing the active ingredient hexazinone to any person who is not licensed as a private or commercial pesticide applicator by the Board.

C. Records and Reporting

Dealers distributing pesticides containing the active ingredient hexazinone shall keep records of such sales and provide reports to the Board as described in Chapter 50, "Record Keeping and Reporting Requirements."

Section 4. AQUATIC HERBICIDES

The registration of pesticides for which there is an aquatic herbicide use on the product label shall be subject to the following limitations and conditions.

A. Board Publication of List

The Board of Pesticides Control will publish by May 23, 2003 and by March 15th of each year thereafter a list of herbicide products registered in Maine for which the manufacturer has verified that there is an aquatic use on the pesticide label. Based on available information, the Board may exempt from this list pesticides that it determines are not for use in the control of aquatic vegetation. Pesticides labeled solely for use in aquariums and antifouling paints, are specifically exempt from this list.

B. Licenses Required

I. No person shall purchase, use or supervise the use of any aquatic herbicides identified on the Board's annual listing unless they have obtained a private or commercial pesticide applicator's license from the Board.

II. No person shall:

a. Distribute any aquatic herbicides identified on the Board's annual listing without a restricted use pesticide dealer's license from the Board; or

b. Distribute any aquatic herbicides identified on the Board's annual listing to any person who is not licensed as a private or commercial applicator by the Board.

C. Disclosure

The Board will make a disclosure form available to dealers distributing any aquatic herbicides identified on the Board's annual listing. The Board requests that dealers present to customers the disclosure form that advises purchasers that an aquatic discharge license must be obtained from the Maine Department of Environmental Protection before any application may be made to any surface waters of the State as defined in 38 M.R.S.A. Section 361-A(7) including any private ponds that may flow into such a body of water at any time of year.

D. Records and Reporting

Dealers distributing any aquatic herbicides identified on the Board's annual listing shall keep records of such sales and provide reports to the Board as described for restricted use pesticides in Chapter 50, "Record Keeping and Reporting Requirements."

STATUTORY AUTHORITY: 5 M.R.S.A. § 8051 *et seq*.
7 M.R.S.A. §§ 601-610;
22 M.R.S.A. §§ 1471-A, 1471-B, 1471-C, 1471-D, 1471-M.

EFFECTIVE DATE:
March 8, 1981 (Captan)

AMENDED:
May 7, 1981 (Trichlorfon)
January 2, 1984 (Aldicarb)
May 8, 1988 (Trichlorfon)
August 5, 1990 (Captan)
August 17, 1996 (Hexazinone)
October 2, 1996

EFFECTIVE DATE (ELECTRONIC CONVERSION):
March 1, 1997

AMENDED:
May 7, 1997 - Section 3(B)(II)

CONVERTED TO MS WORD:
March 11, 2003

AMENDED:
May 12, 2003 - Section 4 added

NON-SUBSTANTIVE CORRECTIONS:
June 24, 2003 - summary only

AMENDED:
February 2, 2004 - Section 4, 1st paragraph and sub-section A, filing 2004-31

APPENDIX K
SUMMARY OF COMMENTS

On September 25, 1997, copies of the proposed revised *Maine Generic State Management Plan for Pesticides and Ground Water* were distributed to Ground Water Planning Committee members, Hexazinone SMP Advisory Committee members, Board members, staff and other interested parties with a memo announcing the commencement of a 60-day comment period. A notice was also included in the Fall *BPC Communicator*, and, for the first time, information about plan availability was placed on the Internet at the BPC's home page. Several additional requests for plans were received and, in total, approximately 90 copies of the plan were distributed.

A public information gathering meeting was held on October 24 in Houlton. Aside from a few introductory remarks by a BPC staff member, only one other person spoke at the meeting. That person, a member of the Ground Water Planning Committee, expressed support for the plan and process used to create it.

Three sets of written comments were received prior to the November 26 deadline. One set of comments was from another Ground Water Planning Committee member and generally expressed support for the revised Generic SMP. Another set of comments was from a former member of the Hexazinone SMP Advisory Committee who expressed harsh words about the plan and process and the Board's ability to adequately protect ground water.

The final set of comments was received from a member of the Hexazinone SMP Advisory Committee who questioned why the relative magnitude of detections as a percent of the MCL or MEG had not been considered when calculating the percentage of sampled wells or sites with confirmed detections in Figure VIII-B (pp. 55). He reasoned that as technology allows lower detection levels and as the percentage of sites with detections may therefore increase, would these percentages stay meaningful? The Ground Water Planning Committee wrestled greatly over this detail during the plan revision process. Because prevention is the overriding goal of the Generic SMP, the Committee decided ultimately that any detection was meaningful. Even at small percentages of the MCL or MEG, the group felt steps, as simple as user awareness and education, could be initiated to prevent the potential for a more serious contamination problem.

STATE OF MAINE
DEPARTMENT OF AGRICULTURE, CONSERVATION & FORESTRY
BOARD OF PESTICIDES CONTROL
28 STATE HOUSE STATION
AUGUSTA, MAINE 04333

JANET T. MILLS
GOVERNOR

AMANDA E. BEAL
COMMISSIONER

Memorandum

To: Board of Pesticides Control
From: Alexander Peacock, Director
Subject: Secondary & Service Containers for Pesticides

October 25, 2024

Background:

It is not uncommon for pesticide applicators to purchase pesticide concentrates in bulk containers. These concentrates are then transferred to a smaller service (breakdown) container for use in the field during mixing and loading procedures as needed. Pesticide concentrates are also often pre-mixed at a company's headquarters into end use dilutions in accordance with the label. These end use dilutions are often stored in a secondary container for use in the field. BPC inspection Staff have observed unlabeled service & secondary containers in the field during the inspection and have raised concern over possible harm to human health and/or the environment if these containers are not handled appropriately.

Draft Policy:

Board of Pesticides Control (BPC) Policy for Labeling Secondary & Service Containers

Although the BPC does not require labels on secondary and service containers, the Department of Transportation (DOT) and Occupational Safety and Health Administration (OSHA) requirements may apply. BPC recommends that the applicator identify the material in the secondary or service container in the event of a spill to ensure that adequate information regarding the pesticide can be obtained in case of medical or environmental emergency. BPC recommends that such labels include the following information:

- Product name.
- EPA registration number.
- Name of active ingredient.
- Signal Word

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- If the product in the container is diluted, it should be followed by the phrase:

  "*The product in this container is diluted as directed on the pesticide product label."*

  "The dilution/mix ratio is _____." (i.e. 2% or 1 fl.oz./gallon)

- The statement:
  "Follow the directions for use on the pesticide label when applying this product."
- The name and telephone number of the applicator/pest control firm [if applicable].

It is a good management practice to ensure that the label for the pesticide product that has been put into a secondary or service container is available to any person transporting, handling and/or applying the pesticide.

Conclusions:

Often another employee/operator may use a vehicle or equipment that has a pesticide stored or mixed for use on it that the employee did not add or mix themselves. If these containers or mix tanks are properly labeled, a new user will be aware of the materials on board and be able to reference the label for proper PPE and actions to take in the event of a spill or other incident. A policy to label secondary and service containers will help prevent undue harm to human health and environment. This policy will also aid in compliance with Chapter 29: Standards for Water Quality Protection and Title 7 § 606 as seen below.

Chapter 29: STANDARDS FOR WATER QUALITY PROTECTION
Section 2. Securing Pesticide Product Containers and Mix Tanks on Sprayers, Nurse Vehicles and Other Support Vehicles during Transportation

No person shall transport any pesticide unless it is secured so as to prevent release of pesticides onto the vehicle or from the vehicle. All tanks, liquid containers, cartons and bags must be securely held so they may not shift and become punctured or spilled.

Title 7: AGRICULTURE AND ANIMALS
Part 2: MARKETING, GRADING AND LABELING
Chapter 103: PRODUCTS CONTROLLED
Subchapter 2-A: MAINE PESTICIDE CONTROL ACT OF 1975

§606. Prohibited acts

2. Unlawful alteration, misuse, divulging of formulas, transportation, disposal and noncompliance. A person may not:

D. Handle, transport, store, display or distribute pesticides in such a manner as to endanger human beings or their environment or to endanger food, feed or any other products that may be transported, stored, displayed or distributed with such pesticides; [PL 2005, c. 620, §5 (AMD).]


Fluid Ounces
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Fluid Ounces
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Secondary Containers and Service Containers for Pesticides

Secondary containers and service containers are often used by pesticide applicators when they are applying a pesticide. EPA does not require secondary containers or service containers to be labeled or to meet particular construction standards. However, for both types of containers, the applicator is responsible for following the requirements on the pesticide product's labeling and complying with other relevant requirements in the Federal Insecticide, Fungicide and Rodenticide Act (FIFRA) and other statutes.

Given that both secondary and service containers are widely used, however, EPA has some recommendations for users who choose to label these containers. These recommendations for labeling are intended to help ensure the safe use of pesticides. Any labeling on secondary or service containers should not conflict with the product labeling.

On this page:

Related Information

- Containers, Containment, Storage and Disposal of Pesticides <https://epa.gov/pesticide-worker-safety/containers-containment-storage-and-disposal-pesticides>
- Pesticide Containers <https://epa.gov/pesticide-worker-safety/pesticide-containers>

- EPA recommendations for labeling secondary and service containers
- Common questions

- Pesticide Containment Structures <https://epa.gov/pesticide-worker-safety/pesticide-containment-structures>
- Requirements for Pesticide Storage <https://epa.gov/pesticide-worker-safety/requirements-pesticide-storage>

What are Secondary and Service Containers?

Secondary containers and service containers are similar, but there are some minor differences, and different terms are used in different settings. A secondary container is used to apply and/or store an EPA-registered pesticide and, when it holds the pesticide, is neither sold nor distributed. Secondary containers are most commonly used in institutional settings for concentrated products that are diluted prior to use, or to hold pesticides filled from a larger container to be used or stored prior to application. Often secondary containers are filled by end users at the site where the product will be used.

Service containers are containers that are filled with an EPA-registered pesticide by an applicator and usually transported to a use site where the pesticide will be applied by the applicator. Although a product may be temporarily stored in a service container, the container is not intended for long-term storage. The term "service container" is often used in the agricultural setting and by pest control operators. Service containers also are not used to sell or distribute the pesticide.

EPA Recommendations for Labeling Secondary and Service Containers

Although the Agency does not require labels on secondary and service containers, the Department of Transportation (DOT) and Occupational Safety and Health Administration (OSHA) requirements may apply. EPA recommends that the applicator identify the material in the secondary or service container in the event of a spill to ensure that

adequate information regarding the pesticide can be obtained in case of medical or environmental emergency. EPA recommends that such labels include the following information:

- The name, address and telephone number of the applicator/pest control firm [if applicable].
- Product name.
- EPA registration number.
- Name and percentage of active ingredient.
- If the product in the container is diluted, it should be followed by the phrase: "*The product in this container is diluted as directed on the pesticide product label.*"
- Signal word and precautionary statements (including First Aid statements) from the registered label unless the registrant has acute toxicity data supporting lesser precautionary statements for the diluted product and alternate directions for the diluted product are indicated on the product label; and
- The statement: *"Follow the directions for use on the pesticide label when applying this product."*

It is a good management practice to ensure that the label for the pesticide product that has been put into a secondary or service container is available to any person transporting, handling and/or applying the pesticide.

EPA also allows registrants to provide labels to users for secondary containers that are used to apply or temporarily store end-use pesticides, as long as the labels that accompany the containers are not inconsistent, i.e., have no other statements that conflict, with the EPA approved pesticide label.

Common Questions

Do registrants need to submit labels for secondary containers to EPA?

Registrants are not required to submit labels for secondary containers to EPA for review. However, if the secondary container label is inconsistent with the EPA-approved label, the Agency will consider the product misbranded.

If a registrant wishes to submit and have EPA review the secondary container label, what does EPA require?

As it isn't required that a secondary container label be submitted, there are no requirements per se. EPA will review them on a case-by-case basis and would be likely to accept them if:

- The EPA-approved master label includes directions for diluting the product.
- The secondary container label is submitted as part of the master label.
- The master label bears a statement that the secondary container must be labeled as presented on the master label (e.g., "When this product is diluted in accordance with the directions on this label, the dilution container must bear the following statements:")
- The secondary container contains a statement prohibiting further sale or distribution.
- The secondary container may have reduced precautionary language (if supported by dilution-specific acute toxicity data), but not a reduced signal word.

Is labeling a secondary container considered production?

EPA does not consider the act of labeling a secondary container to be production.

Should the percentage of active ingredient listed on a secondary container be adjusted to reflect the diluted product? If not, could you provide some information as to why the concentrated product ingredient listing should be reflected on the label of the secondary container?

The percentage of active ingredient listed on the secondary container may reflect the concentrated product, or if known, the percentage of active ingredient in the end-use dilution. Listing the percentage of active ingredient as reflected on the product label and indicating the product has been diluted as directed relieves the user from having to calculate the percentage of active in the dilute formulation. Such a calculation can be difficult for the average user when the directions for use call for a ratio of product to diluent, (e.g., 1 part product to 64 parts diluent or 5 ounces of product to 128 ounces of water), and the directions do not list the percentage of active ingredient in the finished dilution.

Can an empty secondary container be sold/distributed (e.g., a pallet of 20 oz. spray bottles labeled for use as secondary containers for a particular registered product)?

In this example, the spray bottles are application equipment and secondary containers and can be sold/distributed if empty and as long as they do not bear labels or pesticidal claims. However, if at any time the contents of, or the filled secondary container itself is sold or distributed, the item is subject to registration as a pesticide product under FIFRA. If the empty spray bottles are packaged together with a registered pesticide, the whole package would be a pesticide product that requires EPA approval.

Can an applicator leave a service container with a customer for the customer to apply?

No, if the applicator leaves a filled service container with a customer for the customer to apply, the container is being used to sell or distribute the pesticide rather than for the applicator to use the pesticide. This triggers a number of different requirements. Selling and/or distributing a pesticide requires the product to be registered with EPA, the product container display full labeling, and for transfer of the product into a container to occur at a pesticide producing establishment registered with the EPA.

Pesticide Labels Home <https://epa.gov/pesticide-labels>

Introduction to Labels <https://epa.gov/pesticide-labels/introduction-pesticide-labels>

Reading Labels <https://epa.gov/pesticide-labels/keep-safe-read-label-first>

Label Review Manual <https://epa.gov/pesticide-registration/label-review-manual>

Logos and Graphic on Labels <https://epa.gov/pesticide-labels/logos-and-graphics-pesticide-product-labels>

Label Q&A <https://epa.gov/pesticide-labels/pesticide-labeling-questions-answers>

Contact Us <https://epa.gov/pesticide-labels/forms/contact-us-about-pesticide-labels> to ask a question, provide feedback, or report a problem.

LAST UPDATED ON FEBRUARY 14, 2024

Assistance <https://epa.gov/lep/assistance>

مساعدة <https://epa.gov/lep/assistance#ar>

幫助 (繁體版) <https://epa.gov/lep/assistance#chi-tr>

Asistans <https://epa.gov/lep/assistance#hc>

Assistência <https://epa.gov/lep/assistance#port>

Tulong <https://epa.gov/lep/assistance#tag>

Ayuda <https://epa.gov/lep/assistance#esp>

帮助 (简体版) <https://epa.gov/lep/assistance#chi-s>

Aide <https://epa.gov/lep/assistance#fr>

지원 <https://epa.gov/lep/assistance#kor>

Помощь <https://epa.gov/lep/assistance#rus>

Trợ Giúp <https://epa.gov/lep/assistance#viet>

Grants
<https://epa.gov/grants>

No FEAR Act Data
<https://epa.gov/ocr/whistleblower-protections-epa-and-how-they-relate-non-disclosure-agreements-signed-epa>

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<https://epa.gov/web-policies-and-procedures/plain-writing>

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JANET T. MILLS
GOVERNOR

AMANDA E. BEAL
COMMISSIONER

Memorandum

To: Board of Pesticides Control
From: Alexander Peacock, Director
Subject: Enforcement Protocol updates

October 25, 2024

Background:

During previous presentations and ratification of enforcement actions through administrative consent agreements, the Board has asked Staff to alert them prior to settlement of an administrative consent agreement when certain factors of an enforcement case exist, such as harm to human health or the environment and repeat offenders. Draft language has been added to the existing enforcement protocol for the Board's consideration.

Board recommended criteria from previous meetings:

February 9, 2024

Adams introduced a topic regarding increasing penalties for violators of BPC rule and noted that the Board successfully navigated through licensure suspension for repeat offenders (of unauthorized applications). He voiced concerns about companies that kept violating rules repeatedly.

There was further discussion about repeat violators. Bohlen suggested the Board be notified upfront if there was a pattern of repeat violations.

Peacock said that if the Board had specific parameters regarding when they would want to review a case, staff could bring that forward.

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Ianni asked staff to provide a list of triggers they thought were important for the Board to possibly be brought in earlier in the process.

February 23, 2024

Adams suggested a protocol that would trigger when certain cases should be brought before the Board before the completion of consent agreement negotiations. The Board agreed. Examples suggested included bodily harm, environmental harm and repeat offenders.

Jemison noted that it was often difficult to determine intention, but there had been cases over the years where harm was caused by pesticides to change the view from a property. He suggested that cases like this be added to the list that be brought before the Board before the finalization of a consent agreement.

Conclusions:

Draft language has been added to the Enforcement Protocol for consideration.

Paragraph 6b draft language:

6. If the Board makes the determination that a violation appears to have occurred which warrants an enforcement action, the Board may choose among one or more of the following courses of action:

b. Matters warranting enforcement action that involve impacts to bodily harm and human health, environmental harm and degradation and patterns of repeat offenses by the same entity shall be presented to the Board prior to negotiating an administrative consent agreement.

Enforcement Spreadsheet

It has also come to attention of staff that historically the Board was presented an enforcement spreadsheet annually that indicated the workload being handled by enforcement staff.

Staff plans to reinstitute this policy and present the Board an Enforcement Spreadsheet Overview annually. Staff anticipates providing an overview at the December 6, 2024 Board meeting.

ADOPTED 9/19/84
AMENDED 9/7/90
AMENDED 6/3/98
AMENDED 12/13/13
AMENDED 10/25/24

Maine Board of Pesticides Control Enforcement Protocol

The Board adopts the following enforcement protocol to be utilized in routine enforcement matters arising under the Board's statutes and regulations.[1]

1. Persons wishing to report potential violations should refer such matters, as soon and in as much detail as possible, to the Board's staff. Where such reports are submitted by telephone, the Board requests that confirmation be made in writing. As a general rule, where requested by the individual making the report, the Board shall keep the identity of that person confidential, except as the Attorney General may advise in a particular case that such information is subject to public disclosure under the Maine Freedom of Access Law.

2. As soon as practicable after receipt of a report of a potential violation, the Board's staff shall investigate. The precise method and extent of investigation shall be at the discretion of the staff, considering the potential severity of the violation and its consequences, the potential the violation may have for damage to the environment or human health, and other matters which may place demands upon staff resources at the time.

3. Following staff investigation, if the staff determines that a violation has occurred of sufficient consequence to warrant further action, the Board's staff may proceed as follows:

   a. In matters not involving substantial threats to the environment or public health , the Board's staff may discuss terms of resolution with the Attorney General's office and then with the violator without first reporting the matter to the Board. This procedure may only be used in cases in which there is no dispute of material facts or law, and the violator freely admits the violation(s) of law and acknowledges a willingness to pay a fine and resolve the matter. The terms of any negotiated proposed resolution shall be subject to the Board's subsequent review and approval, as provided in section 6b.

   b. In matters involving substantial threats to the environment or the public health or other extraordinary circumstances, or in which there is dispute over the material facts or law, the Board's staff shall bring the matter to the attention of the Board. The staff shall prepare a written report summarizing the details of the matter. Copies of the report shall be mailed to the alleged violator and any complainants so they may make comments. The report and any comments will then be distributed to the Board prior to their next available meeting. The staff will also notify the alleged violator and other involved parties about the date and location of the meeting at which the alleged violation will be considered by the Board.

4. At the Board meeting, the Board shall hear from its staff and, if requested, from the alleged violator(s) and/or their attorneys, as well as from other interested members of the public, to the extent reasonable under the circumstances and in a manner which the Board's chairman shall direct. Ordinarily, such a meeting will not be conducted as a formal adjudicatory hearing. Before making a decision regarding any action(s) which it may wish to take in response to an alleged violation, the Board may choose to go into executive session to discuss with its counsel the various enforcement options available to it and other related matters which are not subject to public disclosure under the Freedom of Access Law. However, all Board decisions shall be made on the public record and not in executive session.

[1] In emergency or other unusual situations, the Board and/or its staff may depart from this protocol, in a manner consistent with State

law, when necessary to the handling of particular enforcement actions.

5. Following receipt of the staff report and other information presented to it and completion of whatever further inquiry or deliberations the Board may wish to undertake, the Board shall make a decision regarding which course(s) of action, as described in Section 6, it deems appropriate in response to the alleged violation. Any such decision will ordinarily be based upon the Board's judgment as to whether a violation of its statutes or regulations appears to have occurred which is of sufficient consequence to warrant an enforcement action, but shall not require that the Board be satisfied to a legal certainty that the alleged violator is guilty of a particularly defined violation. In disputed matters, the ultimate decision as to whether a violation is factually and legally proven rests with the courts.

6. If the Board makes the determination that a violation appears to have occurred which warrants an enforcement action, the Board may choose among one or more of the following courses of action:

   a. In matters involving substantial violations of law and/or matters resulting in substantial environmental degradation, the Board may refer the matter directly to the Attorney General for the initiation of enforcement proceedings deemed appropriate by the Attorney General. Also, with regard to more routine violations with respect to which the Board finds sufficient legal and/or factual dispute so that it is unlikely that an amicable administrative resolution can be reached, the Board may choose to refer the matter directly to the Attorney General.

   b. Matters warranting enforcement action that involve impacts to bodily harm and human health, environmental harm and degradation and patterns of repeat offenses by the same entity shall be presented to the Board prior to negotiating an administrative consent agreement.

   c. On matters warranting enforcement action of a relatively routine nature, the Board may authorize and direct its staff to enter into negotiations with the alleged violator(s) with a view to arriving at an administrative consent agreement containing terms (including admissions, fines and/or other remedial actions) which are satisfactory to the Board, to the Attorney General and to the alleged violator(s). The Board will not ordinarily determine in the first instance the precise terms which should be required for settlement but may indicate to the staff its perception of the relative severity of the violation. In formulating a settlement proposal, the staff shall take into consideration all of the surrounding circumstances, including the relative severity of the violation, the violations record and other relevant history of the alleged violator(s), corrective actions volunteered by the alleged violator(s) and the potential impact upon the environment of the violation. The staff shall consult with the Attorney General's office before proposing terms of settlement to the alleged violator(s). Following successful negotiation of an administrative consent agreement with the alleged violator(s), the staff shall report back to the Board the terms of such agreement for the Board's review and, if it concurs, ratification. All administrative consent agreements shall become final only with the Board's and the Attorney General's approval.

   d. In the event that an administrative consent agreement cannot be arrived at as provided in paragraph b., the staff shall report the matter back to the Board for further action by it. Such action may include referral to the Attorney General for appropriate action.

   e. In addition, in appropriate cases, the Board may act to suspend the license of a certified applicator as provided in its statute, may act to refuse to renew the license of a certified applicator and/or may request that the Attorney General initiate proceedings in the Administrative Court to revoke or suspend the license of any such applicator. Where provided for by its statute, the Board shall give the licensee involved the opportunity for a hearing before the Board in connection with decisions by it to refuse to renew a license or to suspend such license.

7. Whereas the Board is establishing this protocol in order to clarify and facilitate its proceedings for the handling by it and its staff of enforcement matters, the Board recognizes that the Attorney General, as

chief law enforcement officer of the State, may independently initiate or pursue enforcement matters as he deems in the best interests of the State and appropriate under the circumstances.

Board Enforcement Case Pre-Review
Background Summary

Subject: Mosquito Squad of Southern Maine
10 Snow Canning Road
Scarborough, Maine 04074

Date of Incident(s): May through September of 2024

Summary of Complaints/Incidents:

- On May 16, 2024, a Board inspector observed two company applicators applying Talak 7.9 % F and Devito insecticides at a residential property in Old Orchard Beach, Maine. Neither applicator was wearing waterproof gloves as required by the label (see image below and label exhibit 1b). A detailed review of the products labels revealed that Devito is not permitted for use on residential lawns and turf (see label exhibit 1a)

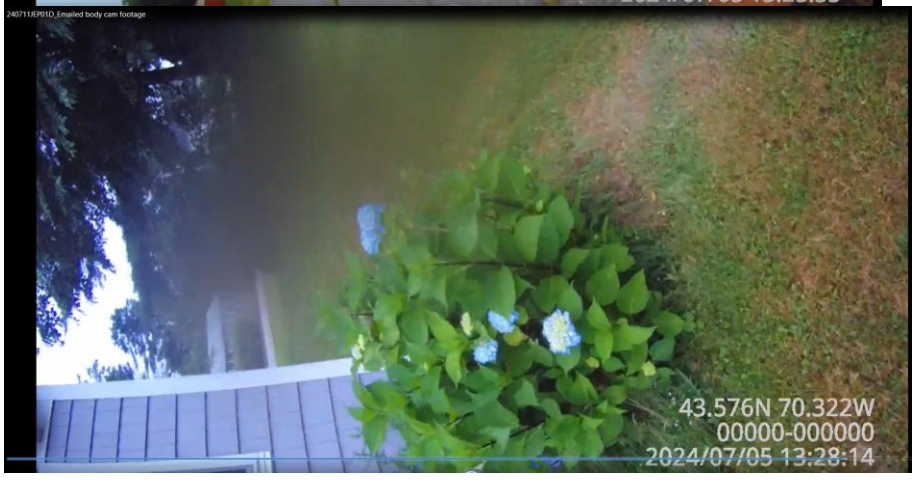
- On May 16, 2024, a Board licensed commercial applicator called the Board's office to report that Mosquito Squad had sprayed a residential property in Gray without authorization. A Board investigation revealed that a Mosquito Squad employee accidently applied Talak and Devito to the property located at 28 Eagles Nest Road in Gray instead of the authorized location of 26 Eagles Nest Road (see exhibit 2 for home

identification photos). Use on residential lawns is not permitted under the Devito label. Body Cam video showed the applicator was not wearing waterproof gloves as required by the label.

- The Board's office received a series of complaints from a resident of Scarborough expressing concern about repeated pesticide drift from a mosquito/tick applications being made to the abutting property using motorized backpack mist blowers. The caller described experiencing various symptoms following these applications and she expressed concern about possible residues on the vegetable gardens. The lawns between properties abut each other and there is no physical or vegetative buffer separating the properties.

    - On May 23, 2024, the Board received an email about an application that occurred that day. The caller stated she experienced burning in her throat during the prior application on May 2. Board sampling did not detect off-target residues in this instance. A follow-up inspection revealed that a Mosquito Squad employee applied Talak and Devito to the abutting property. The Devito label does not permit application in residential settings and the Talak label does not permit application to blooming crops or weeds like the dandelions shown below.

- On July 5, 2024, the Board received a call from the Scarborough resident stating she believed that a Mosquito Squad application to the abutting property drifted onto her property again. She stated that she experienced burning eyes, lips and throat as a result of the application. Due to significant rainfall after the application, a decision was made to not collect samples in this instance. A follow-up inspection showed that Talak and Avesta was applied to the abutting residence on July 5, 2024. Avesta, like Talak, does not permit application to plants in bloom but effort was not made to avoid these plants (see images below and label exhibit 3). Both labels say to avoid contact with humans and/or allow to dry before contact, but the applicator walks into the spray with sleeves rolled up during application.



- On July 26, 2024, the Board received a call from the Scarborough resident alleging drift had occurred on her property from a Mosquito Squad application to the abutting property. Samples were taken from both properties. Laboratory analysis showed residues on the caller's (non-target) property of 0.0084 PPM bifenthrin while the residues on the abutting (target) property were at 1.2 PPM. A comparison of the residue levels demonstrates off-target residues were 0.7 % of the on-target residues, which is below the 1% threshold contained in Chapter 22, Section B (II) for Prima Facie Evidence of a violation. A follow-up inspection revealed that a Mosquito Squad employee applied Talak and Avesta on July 26.

- On September 6, 2024, the Scarborough resident contacted the Board's office alleging pesticide drift from a Mosquito Squad application to abutting property. The caller reported that she had a burning throat and eyes, her neighbor reported similar symptoms. The Board's staff collected samples on the day of the call. Laboratory analysis showed residues on the caller's (non-target) property of 0.018 PPM bifenthrin while the residues on the abutting (target) property were at 4.5 PPM. A comparison of the residue levels demonstrates that the off-target residues were 0.4 % of the on-target residues, which is below the 1% threshold contained in Chapter 22, Section B (II) for Prima Facie Evidence of a violation. A follow-up inspection revealed that a Mosquito Squad employee applied Talak and Avesta on September 6. This application was made in a similar fashion to the others, with sleeves rolled up, walking into the spray, and applying to blossoming weeds.

Summary of Relevant Laws

7 U.S.C. § 136j(a)(2)(G):

It shall be unlawful for any person to use any registered pesticide in a manner inconsistent with its labeling**;**

01-026 CMR ch. 20, Section 6 D (2):

No person may apply a pesticide to a property of another unless prior authorization for the pesticide application has been obtained from the owner, manager or legal occupant of that property. The term “legal occupant” includes tenants of rented property.

01-026 CMR ch. 22, Section 4 B (I):

General Standard. Pesticide applications shall be undertaken in a manner which minimizes pesticide drift to the maximum extent practicable, having due regard for prevailing weather conditions, toxicity and propensity to drift of the pesticide, presence of Sensitive Areas in the vicinity, type of application equipment and other pertinent factors.

01-026 CMR ch. 22, Section 4 B (II):

Prima Facie Evidence. Pesticide residues in or on any off-target Sensitive Area Likely to Be Occupied resulting from off-target drift of pesticides from a nearby application that are 1% or greater of the residue in the target area are considered prima facie evidence that the application was not conducted in a manner to minimize drift to the maximum extent practicable. The Board shall review the site-specific application checklist completed by the applicator and other relevant information to determine if a violation has occurred. For purposes of this standard, the residue in the target area, and the residue in the Sensitive Area Likely to Be Occupied, may be adequately determined by evaluation of one or more soil, foliage or other samples, or by extrapolation or other appropriate techniques.

Attachments: Product Labels, Laboratory Reports, Complaints and Inspector Narratives

Exhibit 1a

GROUP 3A INSECTICIDE

DeVito™

with EnduraCap Technology

For Both Indoor and Outdoor Use.

For use in, on and around buildings and structures for the control of listed pests, including on non-residential lawns, ornamental trees and shrubs around residential, institutional, public, commercial, agricultural and industrial buildings.

ACTIVE INGREDIENT:	(% by weight)
Lambda-cyhalothrin*: [1 α(S*),3 α(Z)]-(±)-cyano-(3-phenoxyphenyl) methyl-3-(2-chloro-3,3,3-trifluoro-1-propenyl)-2,2-dimethylcyclopropanecarboxylate	9.7%
OTHER INGREDIENTS:	90.3%
TOTAL	100.0%

*Synthetic pyrethroid

EPA Reg. No.: 91234-250

KEEP OUT OF REACH OF CHILDREN

CAUTION/PRECAUCIÓN

Si usted no entiende la etiqueta, busque a alguien para que se la explique a usted en detalle.
(If you do not understand the label, find someone to explain it to you in detail.)

See below for additional Precautionary Statements.

FIRST AID	
If swallowed:	• Call a poison control center or doctor immediately for treatment advice. • Have person sip a glass of water if able to swallow. • **Do not** induce vomiting unless told to do so by the poison control center or doctor. • **Do not** give anything by mouth to an unconscious person.
HOT LINE NUMBER	
Have the product container or label with you when calling a poison control center or doctor, or going for treatment. You may also contact SafetyCall at **1-844-685-9173** for emergency medical treatment information.	

For Chemical Emergency: Spill, Leak, Fire, Exposure, or Accident,
Call CHEMTREC Day or Night Within USA and Canada: 1-800-424-9300 or +1 703-527-3887 (collect calls accepted)

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Cary, NC 27513

PRECAUTIONARY STATEMENTS

HAZARDS TO HUMANS AND DOMESTIC ANIMALS

CAUTION

Harmful if swallowed. Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco, or using the toilet.

ENVIRONMENTAL HAZARDS

This product is extremely toxic to fish. To protect the environment, **do not** allow pesticide to enter or run off into storm drains, drainage ditches, gutters, or surface waters. Applying this product in calm weather when rain is not predicted for the next 24 hours will help ensure that wind or rain does not blow or wash pesticide off the treatment area. Rinsing application equipment over the treated area will help avoid run-off to water bodies or drainage systems. Drift and runoff from treated areas may be hazardous to aquatic organisms in neighboring areas. Apply this product only as specified on this label.

This product is highly toxic to bees exposed to direct treatment or residues on blooming crops or weeds. Do not apply this product or allow it to drift to blooming crops or weeds if bees are visiting the treatment area. Protect pollinating insects by following label directions intended to minimize drift and to reduce risk to these organisms.

PHYSICAL AND CHEMICAL HAZARDS

Do not use this product in or on electrical equipment due to the possibility of shock hazard. **Do not** mix or allow coming in contact with oxidizing agent. Hazardous Chemical reaction may occur.

PRODUCT INFORMATION

Devito with EnduraCap Technology is a unique formulation utilizing EnduraCap™ Technology which is a proprietary blend of ingredients for use with the active ingredient Lambda-cyhalothrin.

DIRECTIONS FOR USE

It is a violation of federal law to use this product in a manner inconsistent with its labeling.

For both indoor and outdoor use.

IMPORTANT: Not for use on plants being grown for sale or other commercial use, or for commercial seed production, or for research purposes. For use on plants intended for aesthetic purposes or climatic modification and being grown in interior plantscapes, ornamental gardens or parks, or on lawns or grounds.

This product is RESTRICTED for use in New York State.

Application Restrictions for Residential Outdoor Surface and Space Sprays:
All outdoor applications must be limited to spot or crack-and-crevice treatments only, except for the following permitted uses:

1. Application to pervious surfaces such as soil, lawn, turf, and other vegetation;
2. Perimeter band treatments of 7 feet wide or less from the base of a man-made structure to pervious surfaces (e.g., soil, mulch, or lawn);
3. Applications to underside of eaves, soffits, doors, or windows permanently protected from rainfall by a covering, overhang, awning, or other structure;
4. Applications around potential exterior pest entry points into man-made structures such as doorways and windows, when limited to a band not to exceed one inch;
5. Applications to vertical surfaces (such as the side of a man-made structure) directly above impervious surfaces (e.g., driveways, sidewalks, etc.), up to 2 feet above ground level;
6. Applications to vertical surfaces directly above pervious surfaces, such as soil, lawn, turf, mulch or other vegetation) only if the pervious surface does not drain into ditches, storm drains, gutters, or surface waters.
   - **Do not** apply or irrigate to the point of runoff.
   - **Do not** make applications during rain. Avoid making applications when rainfall is expected before the product has sufficient time to dry (minimum 4 hours).
   - Rainfall within 24 hours after application may cause unintended runoff of pesticide application.
   - **Do not** apply the product into fish pools, ponds, streams, or lakes. **Do not** apply directly to sewers or storm drains, or to any area like a drain or gutter where drainage to sewers, storm drains, water bodies, or aquatic habitat can occur.
   - **Do not** allow to enter indoor or outdoor drains unless labeled for drain treatments.
     No permita la entrada a desagües internos o externos a menos que el etiquetado indique que está permitido el uso del producto para tratamiento de desagües.
   - Follow proper disposal procedures on this label.
     Siga las indicaciones del etiquetado para el desecho apropiado del producto.

   - **Do not** allow the product to enter any drain during or after application except where labelled for this use.
   - **Do not** allow children or pets to contact treated surfaces until spray has dried.
   - Spot treatments must not exceed two square feet in size (for example, 2 ft. by 1 ft. or 4 ft. by 0.5 ft.).
   - **Do not** apply directly to impervious horizontal surfaces such as sidewalks, driveways, and patios except as a spot or crack-and-crevice treatment.
   - Treat surfaces to ensure thorough coverage but avoid runoff. To treat insects harbored in voids and cracks-and-crevices, applications must be made in such a manner to limit dripping and avoid runoff onto untreated structural surfaces and plants.

PERIMETER PEST CONTROL

Devito with EnduraCap Technology is for use as a general surface (nonfood/nonfeed areas), crack and crevice, or spot treatment in, on, and around buildings and structures and their immediate surroundings, and on modes of transport. Areas of use: industrial buildings, houses, patios and porches (spot and crack and crevice treatment only), closets, furniture, apartment buildings, mobile homes, laboratories, buses, greenhouses (non-commercial), stores, factories, warehouses, wineries, vessels, railcars, trucks, trailers, aircraft (cargo and other non-cabin areas only), schools, nursing homes, hospitals, mausoleums, restaurants, hotels, correctional facilities, livestock/poultry housing, pet kennels, food granaries, food grain mills and food manufacturing, processing, and servicing establishments.

Nonfood/nonfeed areas of food/feed handling establishments: garbage rooms, lavatories, floor drains (to sewers), entries and vestibules, offices, locker rooms, machine rooms, boiler rooms, garages, mop closets, and storage (after canning or bottling).

For indoor applications, retreat at 21-day intervals to maintain control. More frequent treatments are limited to spot treatments. Do not apply to carpets as a pin stream or coarse spray treatment.

Mixing Instructions

Dilute **Devito with EnduraCap Technology** with water for application using hand-held or power-operated application equipment as a coarse spray for crack and crevice or spot and general surface (nonfood/nonfeed areas only) treatments. Application equipment that delivers low volume treatments (such as the Micro-Injector® or Actisol® applicator) may also be used to make crack and crevice or spot and general surface treatments. Fill applicator tank with the desired volume of water and add **Devito with EnduraCap Technology**. Close and shake before use in order to ensure proper mixing. Shake or re-agitate applicator tank before use if application is interrupted. Mix only amount of treatment volume as required. **Devito with EnduraCap Technology** may be applied by using a paintbrush or other porous applicator attached to a handle as a general surface treatment.

Tank Mixing

Devito with EnduraCap Technology may be tank mixed with other currently registered pesticides unless expressly prohibited by the product label. To ensure compatibility, perform a small volume mixing test with the other products. If other chemicals are added to the applicator tank, add **Devito with EnduraCap Technology** last. If mixed with EC formulations, use within 24 hours. Fill tank to desired volume and continue to agitate while making applications.

Devito with EnduraCap Technology may be tank mixed with an Insect Growth Regulator (IGR). It is the pesticide user's responsibility to ensure that all products are registered for the intended use. Read and follow the applicable restrictions and limitations and directions for use on all product labels involved in tank mixing. Users must follow the most restrictive directions for use and precautionary statements of each product in the tank mixture.

Foam Applications

Devito with EnduraCap Technology may be converted to a foam and the foam used to treat structural voids to control or prevent pests including ants, bees, termites (above ground only), wasps, or other listed arthropods harboring in walls, under slabs, or in other void areas.

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RATES FOR PESTS (HAND APPLICATION EQUIPMENT)

PESTS	DILUTION RATE	SPECIFIC USE DIRECTIONS
Ants Bedbugs (adult) Bees Boxelder Bugs Carpenter Bees Carpet Beetles Centipedes Cigarette Beetles Clover Mites Cockroaches[1] Confused Flour Beetles Crickets Earwigs Firebrats Fleas[2] Flies Lesser Grain Borers Millipedes Mosquitoes Red Flour Beetles Rice Weevils Saw-toothed Grain Beetles Silverfish Sow Bugs Spiders Stink Bugs Ticks Wasps	0.2 fl. oz. (6 mL) to 0.4 fl. oz. (12 mL) per gallon of water (0.015 - 0.03% AI)	**Ants:** Apply to any trails around doors and windows and other places where ants may be found. Locate and treat nests. Where ants are trailing inside, apply as a residual surface treatment to active areas: baseboards, corners, around pipes, in and behind cabinets, behind and under refrigerators, sinks, furnaces and stoves, cracks and crevices. When combining baits and residual surface insecticides, apply surface insecticides in cracks and crevices, along baseboards, and infested surfaces and outside barrier treatments. Use baits in other areas that are untreated by residual insecticides; also see **Outdoor Surfaces Use**. **Bedbugs:** Clean floors and surfaces by vacuuming. Apply as a coarse, low-pressure spray to harborage areas: crevices, baseboards, loose plaster, behind bed frames and headboards, beneath beds and furniture, and to bedsprings and bed frames. **Do not** apply to furniture surfaces or mattresses where people will be laying or sitting. Infested bedding should not be treated; remove bedding, place in sealed plastic bags, and take for laundering and drying at high temperatures. **Cockroaches, Crickets, Earwigs, Firebrats, Silverfish, Spiders and Stink Bugs:** Apply as a coarse, low pressure spray to areas where these pests hide: baseboards, corners, storage areas, closets, around water pipes, doors and windows, attics and eaves, cabinets, behind and under refrigerators, sinks, furnaces and stoves, the underside of shelves, drawers and similar areas. Pay particular attention to cracks and crevices; also see **Outdoor Surfaces Use**. **Bees, Flies, Mosquitoes, and Wasps:** Apply directly to walls, ceilings, window screens, and other resting areas as a residual surface treatment. May be used inside residential buildings as well as in and around carports, garages, and storage sheds; also see **Outdoor Surfaces Use**. Use caution when treating nests of stinging insects as **Devito with EnduraCap Technology** does not provide instant knockdown. Protective equipment for the applicator against stinging pests may be required. Treat bee, wasp and hornet nests late in the day when most insects will be present. Allow 2 - 3 days for the colony to die and repeat after 21 days, if necessary. Yards or other frequented areas enclosed by landscaping can benefit from the creation of a mosquito barrier to reduce invading mosquitoes by the treatment of perimeter vegetation. Apply **Devito with EnduraCap Technology** at specified rates in 2 - 5 gals. of water per 1,000 sq. ft. **Carpenter Bees:** Apply coarse spray to thoroughly wet wood surfaces where bees have been previously active or to provide protection against further damage. Apply early in the spring to prevent bees from invading wood. When bees have infested wood, surface applications can help control embedded larvae and bees that emerge from the wood. **Pantry Pests (i.e., Carpet beetle, Cigarette beetle, Confused flour beetle, Lesser grain borer, Red flour beetle, Rice weevil, and Saw-toothed grain beetle):** Apply to cupboards, shelving, and storage areas. **Remove all utensils, uncovered foodstuffs** (or any having original package opened), and shelf paper before making application. Allow treated surfaces to dry and cover shelves with clean paper before replacing any utensils, foodstuff, or other items. Destroy any foodstuff accidentally contaminated with treatment solution.
Cockroaches[1] Crickets[6] Flies[5] Litter Beetles[3] (adults/immature stages such as darkling, hide, and carrion) Mosquitoes[4] Pillbugs Scorpions Spiders[5] Spider Mites (Two-spotted, Spruce) Stink Bugs[6] Ticks[6]	0.8 fl. oz. (24 mL) per gallon of water (0.06% AI)	**Boxelder Bugs, Centipedes, Millipedes, Pillbugs, and Sow Bugs:** Apply around doors and windows and other places where these pests may be found or where they may enter premises. Treat baseboards, storage areas, and other locations listed on this label. Apply treatments to prevent infestation as described below; also see **Outdoor Surfaces Use**. **Fleas and Ticks:** To control nuisance fleas and ticks (e.g. dog ticks) apply to kennels, yards, runs, and other areas where pets may frequent. To control ticks, apply using a coarse fan spray to vegetation brush, branches, rock walls, and other areas near habitation where ticks may harbor or frequent. Treat entire area rather than making spot treatments, and retreat as necessary to maintain control, as permissible on this label. **Do not** apply to pasture or cropland, and **do not** allow animals and people access to treated areas until the deposit has dried. Applications can begin in the spring and can continue until frost to control both larvae and adult ticks; also see **Outdoor Surfaces Use**. **Do not apply directly to animals.** **Cluster Flies:** Apply in late summer or early fall before flies are observed alighting on surfaces. Apply thoroughly on siding, under eaves, and around windows and doors, paying particular attention to south-facing surfaces, but **do not** allow runoff to occur. Heavy precipitation prior to frost may require retreatments to maintain protection. In winter and spring when flies become active and are emerging, interior crack and crevice and void treatments can help reduce the infestation, along with ULV or general surface application in infested attics or unoccupied lofts. **Litter Beetles (Darkling, Hide, and Carrion Beetles) and Flies In Animal Housing (Such As Poultry Houses):** To control adult litter beetles, apply **Devito with EnduraCap Technology** to walls and floors at cleanout, before reintroduction of animals. This will suppress beetles that escaped earlier treatment and will help delay onset of future infestations. Pay attention to areas where beetles frequently occur, walls, supports, cages, stalls, and around feeders. To help control flies, apply a directed application to horizontal surfaces and overhead areas and allow to dry before reintroduction of animals; also see **Livestock/Poultry Housing Structures and Pet Kennels**.

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	per gallon of water (0.015 - 0.03% AI)	but merely a supplement. For active, structural infestations by subterranean termites, this product can only be used to supplement a federally registered conventional product that is registered as a sole source for termite control. This product will not eliminate termite infestations or provide protection against future infestation.

[1] For cockroaches, the rate for maintenance treatments is 0.015% and for clean-out treatments is 0.03%. For control of severe infestations, use 0.06% rate.

[2] For outdoor use only and use 0.03% rate.

[3] For control of LIGHT beetle infestations, use 0.03% rate.

[4] For residual control, use 0.06% rate.

[5] In all states except California, rates for flies may be increased to 0.06% when environmental conditions are severe and/or populations are high.

[6] For clean-out/severe infestations, use 0.06% rate.

Application within Food Handling Establishments

For places other than private residences in which exposed food is held, processed, prepared, or served: areas for receiving, storage, packing (canning, bottling, wrapping, boxing), preparing foods, edible waste storage and enclosed processing systems (mills, dairies, edible oils, syrups), and serving areas.

Use as a crack and crevice or spot treatment in and around both food and nonfood areas. Apply in small amounts directly into cracks and crevices, using equipment capable of delivering a pin stream of insecticide, in points between different elements of construction, between equipment and floor, openings leading to voids and hollow spaces in walls, equipment and bases. Clean food contact surfaces and equipment with an effective cleaning compound and rinse with potable water before using.

Spot treatments must not exceed two square feet in size (for example, 2 ft. by 1 ft. or 4 ft. by 0.5 ft.). Take extreme care that the product is not introduced into the air. **Do not** contaminate food and food processing surfaces.

Application within Food Serving Areas

For facilities where foods are served, such as dining rooms. Apply as a crack and crevice or spot treatment to selective surfaces: baseboards, under elements of construction, and into cracks and crevices. **Do not** treat surfaces likely to be contacted by food. (**Do not** apply when facility is in operation or foods are exposed.) Food must be covered or removed in area being treated. **Do not** apply directly to food or allow applications to contaminate food.

NOTE: Application of this product in the Food Areas and/or Food Serving Areas of Food Handling Establishments other than as a spot and/or crack and crevice treatment is not permitted. Limit the use of application equipment (such as the Micro-Injector® or Actisol® applicator) in food areas to crack and crevice treatment only.

Livestock/Poultry Housing Structures and Pet Kennels

Apply as a general surface (including directed sprays) and/or crack and crevice treatment. Make interior and exterior perimeter applications in and around the livestock, poultry, and pet housing structures. Normal cleaning of the structure must also be done along with applications of **Devito with EnduraCap Technology** to effectively control the crawling and flying insect pests listed in the table.

With the exception of cattle and calves that may be present, only apply **Devito with EnduraCap Technology** to livestock barns or housing structures when unoccupied by animals. Apply to floors, vertical, and overhead surfaces where crawling or listed flying insect pests are or may be present. Cover feeders, waterers, and feed carts before application to prevent contamination. **Do not** apply to milk rooms or feed rooms. Pay attention to animal areas: stanchions, pipes, windows and doors, and areas where insect pests hide or congregate. Exterior applications to south facing walls and foundation perimeters can help prevent interior infestations of listed flying and crawling insect pests.

For poultry houses, apply to floor area (birds grown on litter) or to walls, posts, and cage framing (birds grown in cages). Application may also be made into cracks and crevices around insulation. Reapply after each growout or sanitization procedure. Indoor control can be enhanced by making perimeter treatments around the outside of building foundations to prevent immigrating adult beetles. Apply in a uniform band 1 - 2 ft. up and 2 - 6 ft. out from foundation. Maintaining a year-round treatment program will prevent background populations from reaching problem levels.

RESTRICTIONS:

- **DO NOT** make interior applications of **Devito with EnduraCap Technology** in areas where animals, except cattle and calves, are present in the facility. Allow treated surfaces to completely dry before restocking the facility.
- **DO NOT** make applications to any animal feedstuffs, water, or watering equipment.
- **DO NOT** contaminate any animal food, feed, or water in and around livestock, poultry, or pet housing when making applications.
- **DO NOT** apply directly to animals.

Outdoor Surfaces Use

For control of ants, bees, centipedes, cockroaches, crickets, fleas, flies, millipedes, mosquitoes, scorpions, sowbugs, stink bugs, pillbugs, spiders, termites (above ground only), ticks, wasps, and other listed perimeter arthropod pests.

Apply with either hand or power application equipment as a residual treatment to ornamental plants next to foundations of buildings and to surfaces of buildings, porches (crack and crevice only), screens, window frames, eaves, patios (crack and crevice only), garages, refuse dumps, and other similar areas where these insect pests are active.

For termites, **DO NOT** use this product as the sole source of control for active, structural infestations by subterranean termites; the purpose of this application is to kill workers or winged reproductive forms of termites which are present at the time of treatment. It is not intended to provide structural pest control. It is not a substitute for mechanical alteration, soil and foundation treatment, but merely a supplement. For active, structural infestations by subterranean termites, this product can only be used to supplement a federally registered conventional product that is registered as a sole source for termite control. This product will not eliminate termite infestations or provide protection against future infestation.

Perimeter Barrier Treatments

Apply a continual band of insecticide around building foundations and around windows, doors, service line entrances, eaves, vents, and other areas to reduce the potential for entry by crawling pests. Before application, remove debris and leaf litter from next to the foundation, cut back vegetation and branches that touch the foundation, and move or rake back rocks, deep mulch, or other potential pest harborage next to the foundation. Apply the band up to 7 ft. wide around the structure (or according to state regulations governing commercial pest control) and upwards along the foundation to 2 ft. and around windows, doors, and roof overhangs. Apply as a coarse spray to thoroughly and uniformly wet the foundation and/or band area so that the insecticide will reach the soil or thatch level where pests may be active.

Amount of concentrate is dependent upon pest species (see pest table and comments), infestation levels, and service interval desired.

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Rate Table for Perimeter Barrier Applications

Fl. oz. (mL) of Devito with EnduraCap Technology	Gals. of Water[1]	Area of Coverage (sq. ft.)
0.2 fl. oz. (6 mL)	1 - 5 gals.	800 - 1,600 sq. ft.
0.4 fl. oz. (12 mL)	1 - 5 gals.	800 - 1,600 sq. ft.
0.8 fl. oz. (24 mL)	1 - 5 gals.	800 - 1,600 sq. ft.

[1] Application volume may be greater than 5 gals./800 - 1,600 sq. ft. if required under heavy vegetative or landscaping materials in order to obtain desired coverage.

Examples of Dilutions for Perimeter Barrier Applications

Application Volume Gals. of Solution per 1,000 sq. ft.	Application Rate fl. oz. of Devito with EnduraCap Technology per 1,000 sq. ft.	Fl. oz. (mL) of Devito with EnduraCap Technology to Dilute in Water According to Spray Tank Volumes		
		5 gallons	10 gallons	50 gallons
1 gal. per 1,000 sq. ft.	0.2 fl. oz. (6 mL) 0.4 fl. oz. (12 mL) 0.8 fl. oz. (24 mL)	1 fl. oz. (30 mL) 2 fl. oz. (60 mL) 4 fl. oz. (120 mL)	2 fl. oz. (60 mL) 4 fl. oz. (120 mL) 8 fl. oz. (240 mL)	10 fl. oz. (300 mL) 20 fl. oz. (600 mL) 40 fl. oz. (1200 mL)
2 gal. per 1,000 sq. ft.	0.2 fl. oz. (6 mL) 0.4 fl. oz. (12 mL) 0.8 fl. oz. (24 mL)	0.5 fl. oz. (15 mL) 1 fl. oz. (30 mL) 2 fl. oz. (60 mL)	1 fl. oz. (30 mL) 2 fl. oz. (60 mL) 4 fl. oz. (120 mL)	5 fl. oz. (150 mL) 10 fl. oz. (300 mL) 20 fl. oz. (600 mL)
5 gal. per 1,000 sq. ft.	0.2 fl. oz. (6 mL) 0.4 fl. oz. (12 mL) 0.8 fl. oz. (24 mL)	0.2 fl. oz. (6 mL) 0.4 fl. oz. (12 mL) 0.8 fl. oz. (24 mL)	4 fl. oz. (120 mL) 0.8 fl. oz. (24 mL) 1.6 fl. oz. (48 mL)	2 fl. oz. (60 mL) 4 fl. oz. (120 mL) 8 fl. oz. (240 mL)

Example Calculation: To apply the mid-rate of **Devito with EnduraCap Technology** at a volume of 5 gal./1,000 sq. ft., mix 4 oz of concentrate in 50 gallons of water. The percent active ingredient in the finished **Devito with EnduraCap Technology** dilution can be calculated with the following formula:

mL needed to add times 9.7% active in concentrate, divided by gal. finished dilution times 3,785 mL/gal. = % active in dilution. (Example: 4 oz. in 50 gal. is 120 mL times 9.7 equals 1,164, and 50 gal. times 3,785 is 189,250. Dividing 1,164 by 189,250 equals 0.006% active in the tank dilution.)

NOTE: Do not use water based sprays of **Devito with EnduraCap Technology** in conduits, motor housings, junction boxes, switch boxes, or other electrical equipment because of possible shock hazard. Thoroughly wash out sprayer and screen with water and detergent before using **Devito with EnduraCap Technology**. **Devito with EnduraCap Technology** has not stained or caused damage to painted or varnished surfaces, plastics, fabrics, or other surfaces where water applied alone causes no damage. However, treat a small area and allow to dry, to determine whether staining will occur.

LET TREATED SURFACES DRY BEFORE ALLOWING HUMANS AND ANIMALS TO CONTACT SURFACES.

RESTRICTIONS:

- **DO NOT** use this product with oil.
- **DO NOT** apply this product in any room being used as living, eating, sleeping, or recovery area by patients, the elderly, or infirm when they are in the room.
- **DO NOT** apply to institutions (including libraries, sports facilities, etc.,) in the immediate area when occupants are present.
- **DO NOT** apply to classrooms when in use.
- **DO NOT** apply this product to edible growing crops or stored raw agricultural commodities used for food or feed.
- **DO NOT** allow applications to contact water inhabited by fish, such as in aquariums and ornamental fish ponds that are located in/around structures being treated.
- **DO NOT** apply to residential lawns and turf in residential settings (e.g., homes, parks, schools, athletic fields or any other area frequented by the general public).

LAWNS/TURFGRASS

Devito with EnduraCap Technology may be used for applications to maintain non-residential indoor or outdoor areas where turf is grown. Treat non-residential landscapes around institutional, public, commercial and industrial buildings. Application rates for turf are lower than structural pest control rates, reflecting that treatment intervals are more frequent.

Applicators must ensure that they are certified in the necessary pesticide certification categories to allow application of **Devito with EnduraCap Technology** away from structures, such as to turf. Structural pest control certification categories may limit the distance away from structures for pesticide application. Consult your state extension office or pesticide regulatory officials for further information.

Mixing Instructions

Devito with EnduraCap Technology is to be mixed with water and may be used in all types of standard application equipment. Fill applicator tank with the desired volume of water and add **Devito with EnduraCap Technology**. It is suggested that the water be 5 - 7 pH. Adjust water pH with a buffering agent if necessary. Slowly add **Devito with EnduraCap Technology** to applicator tank water with maximum agitation. Close and shake or re-agitate applicator tank before use if application is interrupted. Make up only amount of treatment volume as required.

Tank Mixing

Devito with EnduraCap Technology may be tank mixed with other currently registered pesticides unless expressly prohibited by the product label. To ensure compatibility, perform a small volume mixing test with the other products. If other chemicals are added to the applicator tank, add **Devito with EnduraCap Technology** last. Fill tank to desired volume and continue to agitate while making applications. If mixed with EC formulations, use within 24 hours.

It is the pesticide user's responsibility to ensure that all products are registered for the intended use. Read and follow the applicable restrictions and limitations and directions for use on all product labels involved in tank mixing. Users must follow the most restrictive directions for use and precautionary statements of each product in the tank mixture. Follow all restrictions and precautions which appear on the labels of these products.

RESTRICTIONS:

- KEEP CHILDREN AND PETS OFF TREATED AREAS UNTIL SPRAY HAS DRIED FOLLOWING APPLICATION.
- **DO NOT** apply when turfgrass is waterlogged or when soils are saturated with water (i.e. will not accept irrigation).
- **DO NOT** apply more than 0.36 lbs. of a.i. (52.4 fl. oz. of concentrate) per acre per year.
- **DO NOT** apply this product through any type of irrigation system.
- **DO NOT** apply this product by aerial application.
- Use of this pesticide adjacent to water may affect aquatic organisms. For soil or foliar applications, **DO NOT** apply by ground within 25 feet of lakes, reservoirs, rivers, permanent streams, marshes or natural ponds, estuaries and commercial fish farm ponds.
- **DO NOT** make outdoor broadcast applications to turf when wind speed is 15 mph or greater.
- In the state of New York, **DO NOT** apply within 100 ft. of coastal marshes or streams that drain into coastal marshes.
- **DO NOT** apply to residential lawns and turf in residential settings (e.g., homes, parks, schools, athletic fields, or any other area frequented by the general public).

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RATES FOR LAWN AND TURFGRASS PESTS

PEST	AMOUNT OF DEVITO WITH ENDURACAP TECHNOLOGY*	APPLICATION INSTRUCTIONS
Ants (including Imported Fire Ants) Armyworms Centipedes Chinch Bugs[1] Crickets Cutworms Earwigs Fleas (adult) Grasshoppers Japanese Beetles (adult) Millipedes Mites Mosquitoes (adult) Pillbugs Sod Webworms Sow Bugs Stink Bugs Ticks (including species which transmit Lyme disease)	3.4 - 7 mL per 1,000 sq. ft. or 5 - 10 fl. oz. per acre	Application to turf should be started prior to the establishment of high insect pest populations and significant turf damage. Make reapplications as necessary to keep pest populations under control, using higher labeled rates as pest pressure increases. Apply at 7-day intervals if retreatment is necessary. More frequent treatments should be limited to spot treatments. For spot treatments, use 0.5 fl oz. of **Devito with EnduraCap Technology** per 1 - 2.5 gals. of water. **Surface Insect Control (armyworm, cutworms, fleas, etc):** Apply **Devito with EnduraCap Technology** at labeled rates in 2 - 5 gals. of water per 1,000 sq. ft. The use of a spreader-sticker may be useful if high rainfall amounts are forecast, otherwise the addition of adjuvants is not necessary under normal conditions for surface insect control in turf. Delay watering or mowing for 12 - 24 hours to control surface-feeding insect pests. **Thatch Inhabiting Insect Control (chinch bugs, billbugs, etc):** Apply **Devito with EnduraCap Technology** at labeled rates in 2 - 10 gals. of water per 1,000 sq. ft. The use of a nonionic wetting agent, penetrant or similar adjuvant is permitted at label rates. Lightly irrigate after application with up to 1/2 inch of water to move the **Devito with EnduraCap Technology** into the thatch layer. If irrigation is not available, then use high water application rates. **Subsurface Insect Control (mole crickets, grubs, etc):** Apply **Devito with EnduraCap Technology** at labeled rates in 4 - 10 gals. of water per 1,000 sq. ft. the use of a nonionic wetting agent, penetrant or similar adjuvant is permitted following label rates. Use the highest water application rates possible with your sprayer. Apply **Devito with EnduraCap Technology** to turf wet with dew, rain or irrigation. Water-in immediately after application with 1/4 - 1/2 inch of water. **Fire Ant Control:** Treat individual mounds with a drench application using a watering can. Use 0.5 fl. oz. of **Devito with EnduraCap Technology** per 2.5 gals. of water. Thoroughly soak each mound and a 3 ft. diameter circle around each mound. Gently apply the mixture to avoid disturbing the mound. Disturbing the mound may cause the ants to migrate and reduce the effectiveness of the treatment. Apply in early morning or late evening hours. You may make applications on a monthly basis to maintain protection of treated areas. **Mosquito Control:** Apply as a general spray around landscape plantings, turf, and building foundations to control mosquitoes. Apply **Devito with EnduraCap Technology** at labeled rates in 2 - 5 gals. of water per 1,000 sq. ft.
Bluegrass Billbugs (adult) Black Turfgrass Ataenius (adult) Chiggers Fleas (adult) Grubs (suppression) Hyperodes Weevils (adult) Mole Crickets (nymphs and young adults)	7 mL per 1,000 sq. ft or 10 fl. oz. per acre	

[1] Not for use on chinch bugs in New York State.

*Example: To treat the listed turf pests at the 7 mL per 1,000 sq. ft. rate, determine the gallons of dilution per 1,000 sq. ft. needed to adequately cover the turf. At a 5 gallon per 1,000 sq. ft. dilution, take the 7 mL and divide it by the 5 (gallon) to get 1.4 mL to be added per gallon. For a 50 gallon tank, therefore, this would be 1.4 mL x 50 = 70 mL (or 2.5 oz.) in 50 gallons of water.

Devito with EnduraCap Technology Mixing Chart for Turf Insect Pest Control

Rate of Devito with EnduraCap Technology	Application Rate Per 1,000 Square Feet of Turf				
	2 Gallons	4 Gallons	6 Gallons	8 Gallons	10 Gallons
5 oz. per acre	5.7 oz.	2.9 oz.	1.9 oz.	1.4 oz.	1.2 oz.
10 oz. per acre	11.5 oz.	5.7 oz.	3.8 oz.	2.9 oz.	2.3 oz.

Conversion Rate: 1 fluid ounce (fl. oz.) equals 29 milliliters (mL).

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ORNAMENTALS

Devito with EnduraCap Technology may be used for applications to maintain indoor or outdoor areas where ornamentals are grown. Treat non-turf areas of residential and non-residential landscaped areas around institutional, public, commercial and industrial buildings, parks, recreational areas, and athletic fields (trees, shrubs, flowers, evergreens, foliage plants and groundcovers). Application rates for ornamentals are lower than structural pest control rates, reflecting that treatment intervals are more frequent.

Applicators must ensure that they are certified in the necessary pesticide certification categories to allow application of **Devito with EnduraCap Technology** away from structures, such as to ornamental plantings. Structural pest control certification categories may limit the distance away from structures for pesticide application. Consult your state extension office or pesticide regulatory officials for further information.

IMPORTANT: Time application to flowering plants during periods when pollinating insects are not present, such as early morning or late evening.

NOTE: While phytotoxicity testing has been carried out on a wide range of ornamental plants under various environmental conditions, and no phytotoxicity has been observed, certain cultivars may be sensitive to the final spray solution.

It is advised to pre-spray a selection of ornamental plants and observe them for 7 - 10 days prior to treating large areas if local use experience is unavailable.

Mixing Instructions

Devito with EnduraCap Technology is to be mixed with water and may be used in all types of standard application equipment. Fill applicator tank with the desired volume of water and add **Devito with EnduraCap Technology**. It is suggested that the water be 5 - 7 pH. Adjust water pH with a buffering agent if necessary. Slowly add **Devito with EnduraCap Technology** to applicator tank water with maximum agitation. Close and shake or re-agitate applicator tank before use if application is interrupted. Make up only amount of treatment volume as required.

Tank Mixing

Devito with EnduraCap Technology may be tank mixed with other currently registered pesticides unless expressly prohibited by the product label. To ensure compatibility, perform a small volume mixing test with the other products. If other chemicals are added to the applicator tank, add **Devito with EnduraCap Technology** last. Fill tank to desired volume and continue to agitate while making applications. If mixed with EC formulations, use within 24 hours.

It is the pesticide user's responsibility to ensure that all products are registered for the intended use. Read and follow the applicable restrictions and limitations and directions for use on all product labels involved in tank mixing. Users must follow the most restrictive directions for use and precautionary statements of each product in the tank mixture. Follow all restrictions and precautions which appear on the labels of these products.

RESTRICTIONS:

- **DO NOT** apply more than 0.36 lbs. of the a.i. (52.4 fl. ozs. of concentrate) per acre per year.
- **DO NOT** apply this product through any type of irrigation system.
- **DO NOT** apply this product by aerial application.
- Use of this pesticide adjacent to water may affect aquatic organisms. For soil or foliar applications, **DO NOT** apply by ground within 25 feet of lakes, reservoirs, rivers, permanent streams, marshes or natural ponds, estuaries and commercial fish farm ponds.
- **DO NOT** make outdoor broadcast applications to ornamentals when wind speed is 15 mph or greater.
- **DO NOT** apply to residential lawns and turf in residential settings (e.g., homes, parks, schools, athletic fields, or any other area frequented by the general public).

TANK DILUTION RATES FOR ORNAMENTAL PESTS

PEST	AMOUNT OF DEVITO WITH ENDURACAP TECHNOLOGY	APPLICATION INSTRUCTIONS
Ants (including Imported Fire Ants) Armyworms Azalea Caterpillars Aphids Bagworms Black Vine Weevils (adult) Boxelder Bugs Budworms California Oakworms Cankerworms Cockroaches Crickets Cutworms Eastern Tent Caterpillars Elm Leaf Beetles European Sawflies Fall Webworms Flea Beetles Forest Tent Caterpillars Gypsy Moth Larvae *(continued)*	1.5 - 5 fl. oz. per 100 gals. or 44 - 148 mL per 100 gals.	Application to ornamentals should be started prior to the establishment of high insect pest populations. Apply at 7-day intervals if retreatment is necessary. Limit more frequent treatment to spot treatments. Good spray coverage is necessary to provide the most effective level of control. Addition of a spreader-sticker at labeled rates may enhance the control of insects on certain species of ornamentals having waxy, hard to wet foliage. For spot treatments use 0.5 fl. oz. **Devito with EnduraCap Technology** per 1 - 2.5 gals. of water. Consult your state university or local Cooperative Extension Service office for specific pest control application timing in your area. **Scale:** Thoroughly cover the plant with **Devito with EnduraCap Technology** spray, including trunks, stems, twigs, and foliage for control of scale insects (crawler stage). **Bagworm:** Apply **Devito with EnduraCap Technology** when bagworm larvae begin to hatch. Spray directly on the larvae. Application is the most effective when the larvae are young.

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PEST	AMOUNT OF DEVITO WITH ENDURACAP TECHNOLOGY	APPLICATION INSTRUCTIONS
Japanese Beetles (adults) June Beetles (adults) Lace Bugs Leaf-feeding Caterpillars Leafhoppers Leafminers (adults) Leaf Rollers Leaf Skeletonizers Midges Mosquitoes Oleander Moth Larvae Pillbugs Pine Sawflies Pine Shoot Beetles Pinetip Moths Plant Bugs Root Weevils Sawflies Scale Insects (crawlers) Spiders Spittlebugs Stink Bugs Striped Beetles Striped Oakworms Thrips Tip Moths Tussock Moth Larvae Wasps	1.5 - 5 fl. oz. per 100 gals. or 44 - 148 mL per 100 gals.	Application to ornamentals should be started prior to the establishment of high insect pest populations. Apply at 7-day intervals if retreatment is necessary. Limit more frequent treatment to spot treatments. Good spray coverage is necessary to provide the most effective level of control. Addition of a spreader-sticker at labeled rates may enhance the control of insects on certain species of ornamentals having waxy, hard to wet foliage. For spot treatments use 0.5 fl. oz. **Devito with EnduraCap Technology** per 1 - 2.5 gals. of water. Consult your state university or local Cooperative Extension Service office for specific pest control application timing in your area. **Scale:** Thoroughly cover the plant with **Devito with EnduraCap Technology** spray, including trunks, stems, twigs, and foliage for control of scale insects (crawler stage). **Bagworm:** Apply **Devito with EnduraCap Technology** when bagworm larvae begin to hatch. Spray directly on the larvae. Application is the most effective when the larvae are young.
Broadmites Brown Softscales California Redscales (crawlers) Clover Mites Mealybugs Pineneedlescales (crawlers) Spider Mites Whiteflies	3 - 5 fl. oz. per 100 gals or 88 - 148 mL per 100 gals.	

Devito with EnduraCap Technology Mixing Chart for Ornamental Insect Pest Control
(Devito with EnduraCap Technology to add per spray tank)

Rate of Devito with EnduraCap Technology	25 Gallons	50 Gallons	100 Gallons	200 Gallons	300 Gallons
1.5 oz.[1]	0.4 oz.	0.8 oz.	1.5 oz.	3.0 oz.	4.5 oz.
3 oz.[2]	0.8 oz.	1.5 oz.	3.0 oz.	6.0 oz.	9.0 oz.
5 oz.[3]	1.3 oz.	2.5 oz.	5.0 oz.	10.0 oz.	15.0 oz.

[1] Equivalent to 3.5 mL per 1,000 sq. ft. (5 oz. per acre) when applied at 8 gal. per 1,000 sq. ft.

[2] Equivalent to 7 mL per 1,000 sq. ft. (10 oz. per acre) when applied at 8 gal. per 1,000 sq. ft.

[3] Equivalent to 9.5 mL per 1,000 sq. ft. (14 oz. per acre) when applied at 8 gal. per 1,000 sq. ft.

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STORAGE AND DISPOSAL

...ntaminate water, food or feed by storage or disposal.

...TICIDE STORAGE: Store in a tightly closed container in a cool, dry place. Store in original container and out of reach of children, preferably in a locked storage area.

PESTICIDE DISPOSAL: Pesticide spray mixture or rinsate that cannot be used, must be disposed of in a landfill approved for pesticides. Improper disposal of excess pesticide spray mixture or rinsate is a violation of Federal law. If these wastes cannot be disposed of by the use according to label instructions, contact your State Pesticide or Environmental Control Agency or the Hazardous Waste representative at the nearest EPA Regional Office for guidance.

CONTAINER HANDLING:

For plastic containers ≤ 5 gallons: Nonrefillable Container: Do not reuse or refill this container. Triple rinse container (or equivalent) promptly after emptying. Triple Rinse as follows: Empty the remaining contents into application equipment or a mix tank and drain for 10 seconds after the flow begins to drip. Fill the container 1/4 full with water and recap. Shake for 10 seconds. Pour rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Drain for 10 seconds after the flow begins to drip. Repeat this procedure two more times. Then offer for recycling if available or puncture and dispose of in a sanitary landfill, or by other procedures allowed by state and local authorities.

For plastic containers > 5 gallons: Nonrefillable Container: Do not reuse or refill this container. Triple rinse container (or equivalent) promptly after emptying. Triple Rinse as follows: Empty the remaining contents into application equipment or a mix tank. Fill the container 1/4 full with water. Recap and tighten closures. Tip container on its side and roll it back and forth, ensuring at least one complete revolution, for 30 seconds. Stand the container on its end and tip it back and forth several times. Turn the container over onto its other end and tip it back and forth several times. Empty the rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Repeat this procedure two more times. Then offer for recycling if available or puncture and dispose of in a sanitary landfill, or by other procedures allowed by state and local authorities.

LIMITATION OF WARRANTY AND LIABILITY

IMPORTANT: READ BEFORE USE. Read the entire Directions for Use, Conditions of Warranties and Limitations of Liability before using this product. If these terms and conditions are not acceptable, return the unopened product container at once. By using this product, user or buyer accepts the following Disclaimer of Warranties and Limitations of Liability. **CONDITIONS:** The directions for use of this product are believed to be adequate and must be followed carefully. However, it is impossible to eliminate all risks associated with the use of this product. Ineffectiveness, injury, and other unintended consequences may result because of such factors as manner of use or application (including misuse), the presence of other materials, weather conditions, and other unknown factors, all of which are beyond the control of ATTICUS, LLC. To the extent consistent with applicable law, all such risks shall be assumed by the user or buyer.

DISCLAIMER OF WARRANTIES: To the extent consistent with applicable law, ATTICUS, LLC makes no other warranties, express or implied, of merchantability or of fitness for a particular purpose or otherwise, that extend beyond statements on this label. **LIMITATIONS OF LIABILITY:** To the extent consistent with applicable law, neither ATTICUS, LLC the manufacturer, nor the Seller shall be liable for any indirect, special, incidental or consequential damages resulting from the use, handling, application, storage, or disposal of this product. To the extent consistent with applicable law, the exclusive remedy of the user or buyer for any and all losses, injuries or damages resulting from the use, handling, application, or storage of this product, whether in contract, warranty, tort, negligence, strict liability or otherwise, shall not exceed the purchase price paid.

Devito™ with EnduraCap Technology is a trademark of Atticus, LLC.

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Label Exhibit 1b

TALAK™ 7.9% F

When used as a Termiticide, Individuals/Firms must be licensed by the State to apply termiticide products. States may have more restrictive requirements regarding qualifications of persons using this product. Consult the pest control regulatory agency of your State prior to use of this product.

ACTIVE INGREDIENT:	(% by weight)
Bifenthrin*.	7.9%
OTHER INGREDIENTS:	92.1%
TOTAL:	100.0%

Contains 2/3 pound active ingredient per gallon.

* Cis isomers 97% minimum, trans isomers 3% maximum.

EPA Reg. No.: 91234-145

KEEP OUT OF REACH OF CHILDREN
CAUTION

See below for additional Precautionary Statements.

FIRST AID

If swallowed: ▪ Call a poison control center or doctor immediately for treatment advice. ▪ Have person sip a glass of water if able to swallow. ▪ Do not induce vomiting unless told to do so by the poison control center or doctor. ▪ Do not give anything by mouth to an unconscious person. **If inhaled:** ▪ Move person to fresh air. ▪ If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth if possible. ▪ Call a poison control center or doctor for further treatment advice. **If on skin or clothing:** ▪ Take off contaminated clothing. ▪ Rinse skin immediately with plenty of water for 15 - 20 minutes. ▪ Call a poison control center or doctor for treatment advice. **If in eyes:** ▪ Hold eye open and rinse slowly and gently with water 15 - 20 minutes. ▪ Remove contact lenses, if present, after the first 5 minutes, then continuing rinsing eye. ▪ Call a poison control center or doctor for treatment advice.

HOT LINE NUMBER

Have the product container or label with you when calling a poison control center or doctor, or going for treatment. You may also contact SafetyCall at 1-844-685-9173 for emergency medical treatment information.

Note to Physician - This product is a pyrethroid. If large amounts have been ingested, the stomach and intestine should be evacuated. Treatment is symptomatic and supportive. Digestible fats, oils, or alcohol may increase absorption and so should be avoided.

For Chemical Emergency: Spill, Leak, Fire, Exposure, or Accident,
Call CHEMTREC Day or Night Within USA and Canada: 1-800-424-9300 or +1 703-527-3887 (collect calls accepted)

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PRECAUTIONARY STATEMENTS

Hazards to Humans and Domestic Animals

Caution - Harmful if swallowed, inhaled, or absorbed through skin. Causes moderate eye irritation. Avoid contact with skin, eyes or clothing. Avoid breathing spray mist. Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco or using the toilet. Remove contaminated clothing and wash before reuse.

All pesticide handlers (mixers, loaders, and applicators) must wear long-sleeved shirt and long pants, socks, shoes, and chemical-resistant gloves. After the product is diluted in accordance with label directions for use, and/or when mixing and loading using a closed spray tank transfer system, or an in-line injector system, shirt, pants, socks, shoes, and waterproof gloves are sufficient. In addition, all pesticide handlers must wear a respiratory protection device[1] when working in a non-ventilated space. All pesticide handlers must wear protective eyewear when working in non-ventilated space or when applying termiticide by rodding or sub-slab injection.

[1] Use one of the following Mine Safety and Health Administration (MSHA)/National Institute for Occupational Safety and Health (NIOSH) air purifying respirator types with approval number prefixes: TC-23C, TC-21C, TC-19C, TC-13F and TC-14G, or a NIOSH approved respirator with any R, P or HE filter or a NIOSH approved respirator with an organic vapor (OV) cartridge or canister with any R, P or HE prefilter.

Environmental Hazards

This pesticide is extremely toxic to fish and aquatic invertebrates. To protect the environment, do not allow pesticide to enter or run off into storm drains, drainage ditches, gutters or surface waters. Applying this product in calm weather when rain is not predicted for the next 24 hours will help to ensure that wind or rain does not blow or wash pesticide off the treatment area. Rinsing application equipment over the treated area will help avoid run off to water bodies or drainage systems.

This product is highly toxic to bees exposed to direct treatment or residues on blooming crops or weeds. Do not apply this product or allow to drift to blooming crops if bees are visiting the treatment area.

Physical and Chemical Hazards

Do not apply water-based dilutions of **Talak 7.9% F** to electrical conduits, motor housings, junction boxes, switch boxes or other electrical equipment because of possible shock hazard.

DIRECTIONS FOR USE

It is a violation of Federal Law to use this product in a manner inconsistent with its labeling.

RESTRICTIONS:

- Do not apply by air.
- Do not apply in greenhouses, nurseries.
- Do not apply this product through any kind of irrigation system.
- Not for use on sod farm turf, golf course turf, or grass grown for seed.
- Do not water the treated area to the point of runoff.
- Do not make applications during rain.
- Do not apply directly to sewers or drains, or to any area like a gutter where drainage to sewers, storm drains, water bodies, or aquatic habitat can occur, except as directed by this label.
- Do not apply directly to impervious horizontal surfaces such as sidewalks, driveways, and patios except as a spot or crack and crevice treatment. During application, do not allow pesticide to enter or run off into storm drains, drainage ditches, gutters or surface waters.
- All outdoor applications, if permitted elsewhere on this label, must be limited to spot or crack-and-crevice treatments only, except or the following permitted uses, if allowed elsewhere on this label:
  1) Application to soil or vegetation, as listed on this label, around structures;
  2) Applications to lawns, turf, and other vegetation, as listed on this label;
  3) Applications to the side of a building, up to a maximum height of 3 feet above grade;
  4) Applications to the underside of eaves, soffits, doors, or windows permanently protected from rainfall by a covering, overhang, awning, or other structure;
  5) Applications around potential pest entry points into buildings, when limited to a surface band not to exceed one inch in width;
  6) Applications made through the use of a coarse, low pressure spray to only those portions of surfaces that are directly above bare soil, lawn, turf, mulch, or other vegetation, as listed on this label, and not over an impervious surface, drainage or other condition that could result in runoff into storm drains, drainage ditches, gutters, or surface waters, in order to control occasional invaders or aggregating pests.

Application equipment that delivers low volume treatments, such as Patriot Injector® or Actisol® applicators, may also be used to make crack and crevice, deep harborage, spot and general surface treatments of **Talak 7.9% F**.

When treating adjacent to an existing structure, the applicator must check the area to be treated, and immediately adjacent areas of the structure, for visible and accessible cracks and holes to prevent any leaks or significant exposures to persons occupying the structure. People present or residing in the structure during application must be advised to remove their pets and themselves from the structure if they see any signs of leakage. After application, the applicator is required to check for leaks. All leaks resulting in the deposition of termiticide in locations other than those prescribed on this label must be cleaned up prior to leaving the application site. Do not allow people or pets to contact contaminated areas or to reoccupy contaminated areas of the structure until the clean-up is completed.

Not for use on plants being grown for sale or other commercial use, or for commercial seed production, or for research purposes. For use on plants intended only for aesthetic purposes or climatic modifications and being grown in interior plantscapes, ornamental gardens or parks, or lawns and grounds.

TERMITICIDE USES

Using this product in and around structures and building construction will prevent and control termite infestations.

To institute a barrier between the wood and the termites in the soil, the chemical dilution must be effectively dispersed in the soil. It is important to remove unnecessary materials that contain cellulose and wood from around foundation walls, crawl spaces (inside of structure), and porches, and fix damaged plumbing and construction grade in order to deny termite access to moisture.

To use this product effectively, it is important that the service technician be familiar with current termite control practices including trenching, rodding, sub-slab injection, low-pressure spray application, coarse fan spraying of soil surfaces, crack and crevice (void) injection, excavated soil treatment, and brush or spray applications to infested or susceptible wood. Using these techniques correctly is essential to prevent or control infestations by subterranean termite species of genera *Coptotermes*, *Heterotermes*, *Reticulitermes* and *Zootermopsis*. When determining what procedures to follow, the service technician should consider certain variables such as biology and behavior of the termite specie, structure design, heating ventilation, and air conditioning (HVAC) systems, water table, soil type and compaction, grade conditions, and the location and type of domestic water supplies and utilities.

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For information concerning the most up to date control practices in a given region or locale, consult the local resources for structural pest control, state cooperative extensions, and regulatory agencies.

SUBTERRANEAN TERMITE CONTROL

Important: The following precautions must be observed to avoid contamination of public and private water supplies:

- Use anti-backflow equipment or procedures to prevent siphonage of insecticide into water supplies.
- Do not contaminate cisterns, wells, or other water tanks by treating the soil beneath these structures.
- Do not treat soil that is water saturated or frozen.
- Do not treat soil where runoff may occur.
- Consult state and local specifications for recommended treatment practices in your area.
- If local or state specifications do not exist, consult the Federal Housing Administration Specifications (H.U.D.) guidance documents.

Note: For the purpose of this label, crawl spaces are defined as being inside of the structure.

Critical Areas: Points at which the foundation is penetrated or abuts another structure are Critical Areas. These include utility entry points, cracks and expansion joints, bath traps and adjacent structures such as stairs, patios and slab additions.

Structures with Wells/Cisterns Inside Foundations

Structures that contain wells or cisterns within the foundation of a structure can only be treated using the following techniques:

1. Do not treat soil while it is beneath or within the foundation or along the exterior perimeter of a structure that contains a well or cistern. The treated backfill method must be used if soil is removed and treated outside/away from the foundation. The treated backfill technique is described as follows:
   a) Trench and remove soil to be treated onto heavy plastic sheeting or similar material or into a wheelbarrow.
   b) Treat the soil at the rate of 4 gallons of dilute emulsion per 10 linear feet per foot of depth of the trench, or 1 gallon per 1.0 cubic feet of soil. See **Mixing Directions** section of this label. Mix thoroughly into the soil taking care to contain the liquid and prevent runoff or spillage.
   c) After the treated soil has absorbed the diluted emulsion, replace the soil into the trench.
2. Treat infested and/or damaged wood in place using an injection technique such as described in the **Control of Wood-infesting Insects** section of this label.

Structures with Adjacent Wells/Cisterns and/or Other Water Bodies

Applicators must inspect all structures with nearby water sources such as wells, cisterns, surface ponds, streams, and other bodies of water and evaluate, at a minimum, the treatment recommendations listed below prior to making an application.

1. Prior to treatment, if feasible, expose the water pipe(s) coming from the well to the structure, if the pipe(s) enter the structure within 3 feet of grade.
2. Prior to treatment, applicators are advised to take precautions to limit the risk of applying the termiticide into subsurface drains that could empty into any bodies of water. These precautions include evaluating whether application of the termiticide to the top of the footer may result in contamination of the subsurface drain. Factors such as depth to the drain system and soil type and degree of compaction should be taken into account in determining the depth of the treatment.
3. When appropriate (i.e., on the water side of the structure), the treated backfill technique (described above) can also be used to minimize off-site movement of termiticide.

Before these techniques are used close to cisterns, wells, or other bodies of water, seek advice from local, state or federal agencies for information on treatment practices that are acceptable in your area.

Application Rate: Use a 0.06% dilution for subterranean termites. For other pests on the label use specific listed rates.

Mixing Directions: Mix the termiticide use dilution in the following manner:

1. Fill tank 1/4 to 1/3 full.
2. Start pump to begin by-pass agitation and place end of treating tool in tank to allow circulation through hose.
3. Add appropriate amount of **Talak 7.9% F**.
4. Add remaining amount of water.
5. Let pump run and allow recirculation through the hose for 2 to 3 minutes.

Talak 7.9% F may also be combined into full tanks of water. If combined into full tanks of water, allow sufficient time for agitation and/or recirculation to ensure consistency or dilution.

To prepare a 0.06% water dilution, ready to use, dilute 3 quarts of **Talak 7.9% F** with 99.25 gallons of water.

Mixing: Using the chart below, determine the volume of **Talak 7.9% F** and water to produce the desired volume of finished dilution.

Amount of Talak 7.9% F (Gallons Except Where Noted)			
Emulsion Concentrate	**Amount of Talak 7.9% F**	**Amount of Water**	**Desired Gallons of Finished Emulsion**
0.06%	1 oz.	127 oz.	1
	5 oz.	4.9	5
	10 oz.	9.9	10
	25 oz.	24.8	25
	1.5 qt.	49.6	50
	2.25 qt.	74.4	75
	3 qt.	99.25	100
	4.5 qt.	148.8	150
	6 qt.	198.5	200
0.12%*	2 oz.	126 oz.	1
	10 oz.	4.9	5
	19.5 oz.	9.8	10
	1.5 qt.	24.6	25
	3 qt.	49.2	50
	4.5 qt.	73.8	75
	6 qt.	98.5	100
	9 qt.	147.7	150
	3	197	200

*When treating for termites, use this rate only in conjunction with volume adjustments, foam applications or underground services applications as listed below.

Common units of measure:
1 pint = 2 cups = 16 fluid ounces (oz.)
1 quart = 2 pints = 4 cups = 32 fluid ounces (oz.)

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Application Volume: To provide maximum control and protection against termite infestation apply the specified volume of the finished water emulsion and active ingredient as set forth in the **DIRECTIONS FOR USE** section of this label. If soil will not accept the labeled application volume, the volume may be reduced provided there is a corresponding increase in concentration so that the amount of active ingredient applied to the soil remains the same.

Note: Large reductions of application volume reduce the ability to obtain a continuous barrier. Variance is allowed when volume and concentration are consistent with the label directed rates and a continuous barrier can still be achieved.

The volume of the 0.12% emulsion may be reduced by 1/2 the labeled volume where desirable for pre- and post-construction applications. When the volume is reduced, the hole spacing for subslab injection and soil rodding may also need to be adjusted to account for lower volume dispersal of the termiticide in the soil. Consult the following **Volume Adjustment Chart** for details.

Volume Adjustment Chart		
Rate (% Emulsion)	0.06%	0.12%
Volume allowed		
Horizontal (gallons emulsion/10 ft²)	1.0 gallons	0.5 gallons
Vertical (gallons emulsion/10 linear ft.)	4.0 gallons	2.0 gallons

After Treatment: All holes in commonly occupied areas into which **Talak 7.9% F** has been applied must be plugged. Plugs must be of a non-cellulose material or covered by an impervious, non-cellulose material.

Foam Applications

Talak 7.9% F emulsion, from 0.06 to 0.12% may be converted to foam with 2X - 40X expansion characteristics and used to control or prevent termite infestations.

Depending on the circumstances, foam applications may be used alone or in combination with liquid emulsion applications. Applications may be made behind veneers, piers, chimney bases, into rubble foundations, into block voids or structural voids, under slabs, stoops, porches, or to the soil in crawlspaces, and other similar voids.

Foam and liquid application must be consistent with volume and active ingredient instructions in order to insure proper application has been made. The volume and amount of active ingredient are essential to an effective treatment. At least 75% of the labeled liquid emulsion volume of product must be applied, with the remaining percent delivered to appropriate areas using foam application. Refer to label and use recommendations of the foam manufacturer and the foaming equipment manufacturer.

Foam applications are generally a good supplement to liquid treatments in difficult areas, but may be used alone in difficult spots.

Application Under Slabs or to Soil in Crawlspaces to Prevent or Control Termites

When making applications, **Talak 7.9% F** foam can be used alone or in combination with liquid emulsion. Whether applied as a emulsion, foam, or some of both, the equivalent of at least 4 gallons of 0.06% emulsion (4 ounces of **Talak 7.9% F** concentrate) per 10 linear feet must be applied for vertical barrier, or at least 1 gallon of 0.06% emulsion (1 ounce of **Talak 7.9% F** concentrate) per 10 square feet must be applied for a horizontal barrier. For a foam only application, apply **Talak 7.9% F** concentrate in sufficient concentration and volume to equal 4 ounces of concentrate per 10 linear feet or 1 ounce of concentrate per 10 square feet. For example, 2 gallons of 0.12% emulsion converted to foam and used to cover 10 linear feet is the equivalent of 4 gallons of 0.06% emulsion per 10 linear feet.

Sand Barrier Installation and Treatment

As long as termites have access to soil that has not been treated and can avoid soil that has been treated with **Talak 7.9% F**, they can build mud tubes over surfaces that have been treated. Cracks and spaces should be filled with play box or builder's sand and then treated in the same manner as soil. Follow the rates listed in the **Talak 7.9% F** label.

Retreatment for subterranean termites can only be performed if there is clear evidence of reinfestation or disruption of the barrier due to construction, excavation, or landscaping and/or evidence of the breakdown of the termiticide barrier in the soil. These vulnerable or reinfested areas may be retreated in accordance with application techniques described in this product's labeling. The timing and type of these retreatments will vary depending on factors such as termite pressure, soil types, soil conditions and other factors which may reduce the effectiveness of the barrier.

Annual retreatment of the structure is prohibited unless there is clear evidence that reinfestation or barrier disruption has occurred.

Application in Conjunction with Termite Baits

As part of an IPM (integrated pest management) program for termite control, **Talak 7.9% F** may be applied to areas of the structure with known or suspected infestations such as plumbing, utility entry sites, bath traps, expansion joints, and foundation cracks at a rate of 0.06% as a spot treatment or complete barrier treatment. Applications may be made as described in the **Post-construction Subterranean Termite Treatment** section of this label.

Pre-construction Subterranean Termite Treatment

Use Precautions:

- The treatment site must be covered prior to a rain event in order to prevent run-off of the pesticide into non-target areas.
- The applicator must either cover the soil him/herself or provide written notification of the above requirement to the contractor on site and to the person commissioning the application (if different than the contractor). If notice is provided to the contractor or person commissioning the application, then they are responsible under FIFRA to ensure that: 1) if the concrete slab cannot be poured over the treated soil within 24 hours of application the treated soil is covered with a waterproof covering (such as polyethylene sheeting), and 2) the treated soil is covered if precipitation is predicted to occur before the concrete slab is scheduled to be poured.

Use Restrictions:

- Do not treat soil that is water-saturated or frozen.
- Do not treat when raining.
- Do not allow treatment to runoff from the target area.
- Do not apply with 10 feet of storm drains. Do not apply within 25 feet of aquatic habitats (such as, but not limited to, lakes; reservoirs; rivers; permanent streams; marshes or ponds; estuaries; and commercial fish farm ponds).
- Do not make on-grade applications when sustained wind speeds are above 10 mph (at application site) at nozzle end height.
- Do not apply at a lower dosage and/or concentration than specified on this label for applications prior to the installation of the finished grade.

When treating foundations deeper than 4 feet, apply the termiticide as the backfill is being replaced, or if the construction contractor fails to notify the applicator to permit this, treat the foundation to a minimum depth of 4 feet after the backfill has been installed. The applicator must trench and rod into the trench or trench along the foundation walls and around pillars and other foundation elements, at the rate prescribed from grade to a minimum depth of 4 feet. When the top of the footing is exposed, the applicator must treat the soil adjacent to the footing to a depth not to exceed the

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bottom of the footing. However, in no case should a structure be treated below the footing.

To produce effective pre-construction subterranean termite control, create vertical and/or horizontal chemically treated zones of protection using 0.06% emulsion of **Talak 7.9% F**. Follow the current edition of the Housing and Urban Development Minimum Property Standards to assure that F.H.A. termite-proofing requirements are met.

Horizontal Barriers

Establish a horizontal chemical barrier wherever treated soil will be covered by a slab, such as basement floors, carports, entrance platforms, footing trenches, and slab floors and the soil below stairs and crawl spaces.

Apply 1 gallon of 0.06% emulsion per 10 square feet, or use 1 fluid ounce of **Talak 7.9% F** per 10 square feet in sufficient water (no less than 1/2 gallon or more than 2 gallons) to provide a uniform treated barrier for the area being treated.

If the fill is coarse aggregate, such as washed gravel, a sufficient volume of emulsion must be applied to allow it to reach the soil beneath for coarse fill.

Make applications with a low-pressure spray (less than 50 p.s.i.) using a coarse spray nozzle. If foundation walls have not been installed around the treated soil and the slab will not be poured the same day as treatment, the treated soil must be covered with a water-proof barrier. Polyethylene sheeting may be used for this purpose.

Vertical Barriers

Vertical barriers must be established in Critical Areas such as along the inside of foundation walls, plumbing, bath traps, utility services and other features that will penetrate the slab.

Using a 0.06% emulsion, apply 4 gallons of emulsion per 10 linear feet per foot of depth or 4 fluid ounces of **Talak 7.9% F** per 10 linear feet per foot of depth from grade level to the top of the footing in sufficient water (not less than 2 gallons or more than 8 gallons) to provide a uniform treated barrier.

When trenching and rodding into the trench, or trenching, ensure that the emulsion reaches the top of the footing. Space rod holes so that a continuous treated barrier is created, but not exceeding 12 inches apart. Avoid soil wash-out around the footing. Trenches should be about 6 inches wide and 6 inches deep. Mix the chemical emulsion with the soil as it is being replaced in the trench. Inside vertical barriers may not be required for monolithic slabs.

When treating hollow block voids, use 2 gallons of emulsion per 10 linear feet to assure that the emulsion reaches the top of the footing.

Prior to each application, applicators must notify the general contractor, construction superintendent, or similar responsible party, of the intended termiticide application and intended sites of application and instruct the responsible person to notify construction workers and other individuals to leave the area to be treated during application and until the termiticide is absorbed into the soil.

Post-construction Subterranean Termite Treatment

For a post-construction treatment, use a 0.06% emulsion. Post-construction treatments shall be made by injection, trenching and rodding into the trench or trenching using a low-pressure spray not exceeding 25 p.s.i. at the nozzle. Proper precautions should be taken to avoid soil wash-out around the footing.

Locate, identify, and mark wells, electrical conduits, water and sewer lines, and radiant heat pipes prior to application of **Talak 7.9% F**. Do not puncture or inject **Talak 7.9% F** into these structures.

Foundations

For applications made after the final grade is installed, the applicator must trench and rod into the trench or trench along the foundation walls and around pillars and other foundation elements, at the rate prescribed from grade to the top of the footing. When the footing is more than four (4) feet below grade, the applicator must trench and rod into the trench or trench along the foundation walls at the rate prescribed to a minimum depth of four feet. The actual depth of treatment will vary depending on soil type, degree of compaction, and location of termite activity. When the top of the footing is exposed, the applicator must treat the soil adjacent to the footing to a depth not to exceed the bottom of the footing. However, in no case should a structure be treated below the footing.

Slabs

Create vertical barriers by trenching and rodding into the trench or trenching outside at the rate of 4 gallons of emulsion per 10 linear feet per foot of depth and by sub-slab injection within the structure. Ensure an even distribution of chemical. Applications must not be made below the bottom of the footing.

Apply beside the outside of the foundation and under the slab on the inside of foundation walls, where needed. Treatment of slabs may also be necessary under and beside both sides of any interior footing-supported walls, in all cracks and expansion joints, and beside one side of interior partitions. By long-rodding or grid pattern injection vertically through the slab, horizontal barriers may be created where necessary.

a. To permit the creation of an uninterrupted insecticidal barrier, drill holes in the foundation and/or slab.
b. For foundations that are less than or equal to 1 foot, dig a narrow trench about 6 inches wide beside the outside of the foundation walls. Do not dig beneath the bottom of the footing. As the soil is placed back into the trench, apply 4 gallons of emulsion per 10 linear feet per foot of depth to the trench and soil.
c. For foundations that are deeper than 1 foot, follow the rates stated above for basements.
d. A 0.06% emulsion may be used to treat exposed and wood in bath traps.

Basements

Treatment must be made by trenching and rodding into the trench, or trenching at the rate of 4 gallons of emulsion per 10m linear feet per foot of depth wherever the footing, from grade to the bottom of the foundation, is greater than 1 foot of depth. When the footer is greater than four feet below grade, the applicator may trench and rod into the trench, or trench beside foundation walls at the rate designated for four feet of depth. Space rod holes to create a continuous insecticidal barrier, but in no case more than 12 inches apart. Depending on the type of soil, degree of compaction and location of termite activity, the actual depth of treatment will differ. However, a structure should never be treated below the footer. Sub-slab injection may be needed beside the inside of foundation walls, around conduits, piers, and pipes, beside both sides of interior footing-supported walls, and beside cracks and partition walls.

Accessible Crawl Spaces: For crawl spaces, apply vertical termiticide barriers at the rate of 4 gallons of emulsion per 10 linear feet per foot of depth from grade to the top of the footing, or if the footing is more than 4 feet below grade, to a minimum depth of 4 feet. Apply by trenching and rodding into the trench, or trenching. Treat both sides of foundation and around all piers and pipes. Where physical obstructions such as concrete walkways adjacent to foundation elements prevent trenching, treatment may be made by rodding alone. When soil type and/or conditions make trenching prohibitive, rodding may be used. When the top of the footing is exposed, the applicator must treat the soil adjacent to the footing to a depth not to exceed the bottom of the footing. Read and follow the mixing and use direction section of the label if situations are encountered where the soil will not accept the full application volume.

1. Rod holes and trenches must not extend below the bottom of the footing.
2. Rod holes must be spaced so as to achieve a continuous termiticide barrier but in no case more than 12 inches apart.

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3. Trenches must be a minimum of 6 inches deep or to the bottom of the footing, whichever is less, and need not to be wider than 6 inches. When trenching in sloping (tiered) soil, the trench must be stepped to ensure adequate distribution and prevent termiticide from running off. The emulsion must be mixed with the soil as it is replaced in the trench.
4. When treating plenums or crawl spaces, turn off the air circulation system of the structure until application has been completed and all termiticide has been absorbed by the soil.

Inaccessible Crawl Spaces: For inaccessible interior areas, such as areas where there is insufficient clearance between floor joists and ground surfaces to allow operator access, excavate if possible, and treat according to the instruction for accessible crawl spaces. Otherwise, apply one or a combination of the following two methods.

1. To establish a horizontal barrier, apply to the soil surface, 1 gallon of emulsion per 10 square feet overall using a nozzle pressure of less than 25 p.s.i. and a coarse application nozzle (e.g., Delavan® Type RD Raindrop®, RD-7 or larger, or Spraying Systems Co. 8010LP TeeJet® or comparable nozzle). For an area that cannot be reached with the application wand, use one or more extension rods to make the application to the soil. Do not broadcast or powerspray with higher pressures.
2. To establish a horizontal barrier, drill through the foundation wall or through the floor above and treat the soil perimeter at a rate of 1 gallon of emulsion per 10 square feet. Drill spacing must be at intervals not to exceed 16 inches. Many states have smaller intervals, so check state regulations which may apply.

When treating plenums and crawl spaces, turn off the air circulation systems of the structure until application has been completed and all termiticide has been absorbed by the soil.

Masonry Voids: Drill and treat voids in multiple masonry elements of the structure extending from the structure to the soil in order to create a continuous treatment barrier in the area to be treated. Apply at a rate of 2 gallons of emulsion per 10 linear feet of footing, using a nozzle pressure of less than 25 p.s.i. When using this treatment, access holes must be drilled below the sill plate and should be as close as possible to the footing as is practical. Treatment of voids in block or rubble foundation walls must be closely examined. Applicators must inspect areas of possible runoff as a precaution against application leakage in the treated areas. Some areas may not be treatable or may require mechanical alteration prior to treatment.

All leaks resulting in the deposition of termiticide in locations other than those prescribed on this label must be cleaned up prior to leaving the application site. Do not allow people or pets to contact contaminated areas or to reoccupy the contaminated areas of the structure until the clean-up is completed.

Note: When treating behind veneer structures (walls, etc.) take proper care to not drill beyond the veneer. If concrete blocks exist behind the veneer, both can be drilled and treated simultaneously.

Talak 7.9% F may not be used in voids insulated with rigid foam insulation.

Excavation Technique: If treatment must be made in difficult situations, along fieldstone or rubble walls, along faulty foundation walls, and around pipes and utility lines which lead downward from the structure to a well or pond, apply using the following technique:

a. Prepare a trench, placing the removed soil into heavy-weight plastic sheeting or similar, water-impermeable material.
b. Treat the soil with 4 gallons of emulsion per 10 linear feet per foot of depth of the trench. Completely mix the emulsion into the soil exercising care to avoid liquid running off the sheeting.
c. Place the treated soil back into the trench after it has absorbed the emulsion.

Attention: Wear MSHA/NIOSH approved unvented goggles and a respirator when applying **Talak 7.9% F** in a confined area.

SPECIFIC PEST CONTROL APPLICATIONS

Underground Services: Wires, cables, utility lines, pipes, conduits, etc. Services may be within structures, in right-of-ways or to protect long range (miles) of installations of services.

To prevent attack by termites and ants, apply 0.06 to 0.12% **Talak 7.9% F** emulsion to the soil.

Apply to the bottom of the trench at the rate of 2 gallons of emulsion per 10 linear feet. Let the emulsion be absorbed into the soil. Lay services on the treated soil and cover with about 2 inches of fill soil. Apply another 2 gallons per 10 linear feet over the soil surface to complete the chemical barrier. In wide trenches, only the soil near the services should be treated. A continuous barrier of treated soil surrounding the services must be established.

In cases where the soil will not accept the above labeled volume, 1 gallon of 0.12% **Talak 7.9% F** may be used per 10 linear feet of trench. Apply both to the bottom of the trench and over the soil on top of the services.

Fill the trench with treated fill soil. Treat the soil where each service sticks out from the ground by trenching/rodding of not more than 1 to 2 gallons of emulsion into the soil.

Precautions: Do not treat electrically active underground services.

Posts, Poles, and Other Constructions: Around wooden constructions such as signs, fences and landscape ornamentation an insecticidal barrier can be established by treating with a 0.06% emulsion. Sub-surface injection and gravity-flow through holes in the bottom of the trench, are two treatment methods that can be used on poles and posts that have already been installed. A complete chemical barrier around the pole can be established by treating on all sides. For poles and posts less than six inches in diameter use 1 gallon of emulsion per foot of depth and for larger poles, use 1.5 gallons of emulsion per foot of depth. Apply to a depth of 6 inches below the bottom of the wood. For larger constructions, use 4 gallons per 10 linear feet per foot of depth.

Treatment of Wood-in-Place for Control of Wood-infesting Insects (Localized Areas in Structure): For the control of insects such as Termites, Ants, Carpenter Ants, and wood-infesting beetles such as Old House Borer and Powder Post in localized areas of infested wood in and around structures, apply a 0.06% emulsion to voids and galleries in damaged wood and in spaces between wooden members of a structure and between wood and foundations where wood is at risk. Paint on or fan spray applications may also be used. Place plastic sheeting under overhead areas that are spot treated except for soil surfaces in crawl spaces. Areas in which access is difficult may be treated by drilling, and then injecting the emulsion with a crack and crevice injector into the damaged wood or void spaces. This type of application is not intended to be a substitute for soil treatment, mechanical alteration or fumigation to control extensive infestation of wood-infesting insects.

Termite Carton Nests in Trees or Building Voids: To control termite carton nests in trees or building voids inject with a 0.06% emulsion. Multiple injection points to varying depths may be necessary. Carton nest material should be removed from building voids when nests are discovered.

Control of Bees, Wasps Hornets, and Yellow Jackets Indoors: To control Bees, Wasp, Hornets, and Yellow-Jackets, apply a 0.06% emulsion. Application should be made in the late evening when insects are at rest. Spray liberally into hiding and breeding places, especially under attic rafters, contacting as many insects as possible. Retreatment may be necessary to achieve and/or maintain control during periods of high pest pressure. Repeat application is necessary only if there are signs of renewed insect activity.

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Important: Do not apply emulsion until location of heat pipes, ducts, water and sewer lines and electrical conduits are known and identified. Caution must be taken to avoid puncturing and injection into these structural elements. Do not apply into electrical fixtures, switches, or sockets.

In the home, all food processing surfaces and utensils in the treatment area should be covered during treatment or thoroughly washed before re-use. Remove pets, birds, and cover aquariums before spraying. Do not permit humans or pets to contact treated surfaces until the spray has dried.

During any overhead applications to overhead interior areas of structures, cover surfaces below with plastic sheeting or similar materials.

Wear protective clothing, unvented goggles, gloves and respirator, when applying to overhead areas or in poorly ventilated areas. Avoid touching sprayed surfaces until spray has completely dried.

Outside of Structures

Broadcast Treatment of Wood for the Control of Wood-infesting Insects and Nuisance Pests: In order to control wood-infesting insects active inside trees, utility poles and/or fence posts, drill to the interior infested cavity and inject a 0.06% emulsion. If treating nuisance pests on the exterior of the structure, apply a 0.06% emulsion with a fan spray using a maximum pressure of 25 p.s.i. and apply just to the point of run-off. To control Bees, Wasps, Hornets, and Yellow-Jackets, direct the spray at nest openings in the ground, bushes, and in cracks and crevices. Saturate nest openings and contact as many insects as possible. Apply in late evening when insects are at rest.

Pests Under Slabs: To control infestations of Arthropods, including ants, cockroaches and scorpions living beneath the slab area, drill and inject, or horizontal rodding and then inject 1 gallon of a 0.06% to 0.12% emulsion per 10 square feet or 2 gallons of emulsion per 10 linear feet.

Formula for Determining the Active Ingredient Content of the Finished Spray Mixture: The following formula may be used to determine the percent active ingredient that is in the spray tank after mixing **Talak 7.9% F**:

$$\frac{(7.9\%) \times (\text{fl. oz. of } \textbf{Talak 7.9\% F} \text{ Added to Tank})}{(\text{Gallons of Finished Spray Mix}) \times (128)} = \text{Percent Active Ingredient of Spray Mix}$$

LAWNS AND ORNAMENTALS

Application Instructions

Talak 7.9% F may be mixed with water and other aqueous carriers for the control of insects and mites on trees, shrubs, foliage plants, non-bearing (perennial crops that will not produce a harvestable raw agricultural commodity during the season of application) fruit and nut trees, and flowers in interiorscapes including hotels, shopping malls, office buildings, etc., and outdoor plantscapes, such as around residential dwellings, parks, institutional buildings, recreational areas, athletic fields and home lawns. **Talak 7.9% F** may be tank-mixed with insect growth regulators as well as other pesticides. Observe all precautions and the directions for use for each tank mix product. Physical compatibility of **Talak 7.9% F** may vary with different combinations of products, and local cultural practices. Prepare a small scale (pint or quart jar) test sample for any combination not tested previously. Use the proper proportions of pesticides and water to make sure of the compatibility of the mixture.

Tank Mix Compatibility Testing

A jar test is recommended prior to tank mixing to ensure compatibility of **Talak 7.9% F** and other products. Use a clear glass quart jar with lid and mix the tank mix ingredients in their relative proportions. Always use water from the intended source. Invert the jar containing the mixture several times and observe the mixture for approximately 1/2 hour. Evaluate the solution for uniformity and stability. If the mixture balls-up, forms flakes, sludges, gels, oily films or layers, or other precipitates, it is not compatible and the tank mix combination should not be used.

Tank Mix Preparation:

Unless otherwise noted, follow the procedure below to prepare a tank mix:

1) Add wettable powders to tank water
2) Agitate
3) Add liquids and flowables
4) Agitate
5) Add emulsifiable concentrates
6) Agitate

Formula for Determining the Active Ingredient Content of the Finished Spray Mixture: The following formula may be used to determine the percent active ingredient that is in the spray tank after mixing **Talak 7.9% F**:

$$\frac{(7.9\%) \times (\text{fl. oz. of } \textbf{Talak 7.9\% F} \text{ Added to Tank})}{(\text{Gallons of Finished Spray Mix}) \times (128)} = \text{Percent Active Ingredient of Spray Mix}$$

Resistance: Some insects may develop resistance to products used repeatedly for control. Because the development of resistance cannot be predicted, the use of this product should conform to resistance management strategies established for the use area. Consult your local or state pest management authorities for details.

If resistance to this product develops in your area, this product, or other products with similar mode of action, may not provide adequate control. If poor performance cannot be attributed to improper application or extreme weather conditions, a resistant strain of insect may be present. If you experience difficulty with control and suspect that resistance is a reasonable cause, immediately consult your local company representative or pest management advisor for the best alternative method of control in your area.

In the State of New York, for application uses outdoors on ornamentals and lawns in landscaped areas around residential, institutional, public, commercial and industrial buildings, parks, recreational areas and athletic fields:

The Following Precautionary Measures Must be Obeyed.

A 100 foot buffer must be maintained between the application site and the waters of the State. A 100 foot buffer is required for all waters except those entirely privately owned with no outlet to State waters. The buffer must consist of well maintained, established vegetation (i.e. grass, etc.) growth and must be maintained to prevent the development of channels.

In New York State, do make a single repeat application of this product is there are signs of renewed insect activity, but no sooner than two weeks after the first application.

Lawn Application

Apply **Talak 7.9% F** as a broadcast treatment. For uniform control when applying to dense grass foliage, use volumes of up to 10 gallons per 1,000 square feet.

To ensure control of sub-surface pests, including Mole Crickets, using low volume applications (less than 2 gallons per 1,000 square feet) immediately follow treatment with irrigation of treated area with at least 0.25 inches of water.

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Application Rates

Under typical conditions, the application rates shown in the table below will provide control of the listed pests. Follow the application rates listed in the table below for typical pest pressure. **Talak 7.9% F** may be applied at up to 1 fl. oz. per 1,000 square feet at the discretion of the applicator. Use the higher application rate for maximum residual control.

Pest	Application Rate	Application Instructions
Armyworms Cutworms Sod Webworm	0.18 - 0.25 fl. oz. per 1,000 sq. ft.	For best results, postpone watering (irrigation) or mowing for 24 hours after application. Higher treatment rates (up to 1 fluid oz. per 1,000 square feet) may be necessary if high pest pressure exists and grass is maintained taller than 1 inch.
Annual Bluegrass Weevil (Hyperodes) (Adult) Banks Grass Mite Billbugs (Adult) Black Turfgrass Ataenius (Adult) Centipedes Chinch Bugs Crickets Earwigs Fleas (Adult) Grasshoppers Leafhoppers Mealybugs Millipedes Mites Pillbugs Sowbugs	0.25 - 0.50 fl. oz. per 1,000 sq. ft.	**Annual Bluegrass Weevil *(Hyperodes)* Adults:** Treatment should be timed as they travel into grass away from their overwintering sites. Travel usually begins when *Forsythia* is in full bloom and concludes when flowering dogwood *(Cornus florida)* is in full bloom. For additional detailed information, check with your State Cooperative Extension Service. **Billbug Adults:** Treatment should be made when adult billbugs are first noticed in April and May. To optimize treatment, degree day models have been developed. For additional detailed information, check with your State Cooperative Extension Service. Spring treatments for billbug adults will also offer control of over-wintered chinch bugs in temperate climates. **Black Turfgrass Ataenius Adults:** To control the first and second generation of black turfgrass ataenius adults, respectively, treatments should take place in May and July. Time the May treatment to coincide with the full bloom stage of Vanhoutte spiraea *(Spiraea vanhoutte)* and horse chestnut *(Aesculus hippocastanum)*. Time the July treatment to coincide with the blooming Rose of Sharon *(Hibiscus syriacus)*. **Chinch Bugs:** Mostly found in the thatch layer, Chinch bugs infest the base of grass plants. In order to optimize the penetration of the insecticide to location of the chinch bugs, irrigation of the grass prior to treatment may be necessary. If the grass is kept at a long mowing height or if the thatch layer excessive, use higher volume treatments. It may be necessary to use higher application rates (up to 1 fluid oz. per 1,000 square feet) to control Chinch Bug populations made up of both nymphs and adults in mid summer. **Mites:** Apply in combination with a labeled application rate of a surfactant to achieve optimal control of eriophyid mites. A second application may be needed, five to seven days after the first, to ensure optimal control.
Crane Flies	0.5 fl. oz. per 1,000 sq. ft.	Applications should be made August – February to control early to mid-season larvae as they feed on plant crowns. Applications made March – April to late-season larvae may aid in suppression.
Ants Fleas (Larvae) Imported Fire Ants Japanese Beetle (Adult) Mole Cricket (Adult) Mole Cricket (Nymph) Ticks	0.5 - 1.0 fl. oz. per 1,000 sq. ft.	**Flea Larvae:** Flea larvae mature in shaded areas accessible to pets or other animals. When treating these areas use a higher volume treatment so that the insecticide penetrates into the soil. Note: If the lawn area is being treated with **Talak 7.9% F** at 0.25 fluid ounces per 1,000 square feet for adult flea control, then the larval application rate can be accomplished by a two- to four-fold increase in spray volume. **Imported Fire Ants:** For best control use broadcast treatments in combination with mound drenches. This will control present colonies along with foraging workers and newly mated fly-in queens. It is critical either to use high volume treatments or to irrigate prior to application if the soil is dry. Apply 1 fluid oz. per 1,000 square feet when using broadcast treatments. For mound drenches, dilute 1 teaspoon of **Talak 7.9% F** per gallon of water and use 1 to 2 gallons of finished spray per mound using sufficient force to penetrate the top and allow the emulsion to flood ant channels. Treat a four foot diameter around each ant mound. Application should be made in late evening or early morning when it is cooler (65 - 80°F). Note: A spray rig calibrated to apply 1 fluid oz. per 1,000 square feet of **Talak 7.9% F** in 5 gallons per 1,000 square feet contains the equivalent emulsion (1 teaspoon per gallon) required for fire ant mound drenches in the spray tank. **Mole Cricket Adults:** Since the preferred grass areas are subject to constant invasion in early spring by the active adult stage, it can be difficult to maintain control of adult mole crickets. Make treatments as late in the day as possible and follow with up to 0.5 inches of water after treatment. To ensure maximum contact with the insecticide when the soil is dry, irrigate prior to treatment to bring the adult mole crickets closer to the soil surface. To obtain optimal control of potential nymphal populations, the grass areas preferred by adult mole crickets in the spring should be treated immediately prior to peak hatch stage. (See below).

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Pest	Application Rate	Application Instructions
Ants Fleas (Larvae) Imported Fire Ants Japanese Beetle (Adult) Mole Cricket (Adult) Mole Cricket (Nymph) Ticks	0.5 - 1.0 fl. oz. per 1,000 sq. ft.	**Mole Cricket Nymphs:** To obtain optimal control of potential nymphal populations, the grass areas preferred by adult mole crickets in the spring should be treated immediately prior to peak hatch stage. Young nymphs are more vulnerable to insecticidal treatment at this stage because they are close to the soil surface where the insecticide is most effective. Use higher application rates and frequent applications to control larger, more damaging, nymphs later in the year. Make treatments as late in the day as possible and water immediately with up to 0.5 inches of water. To ensure maximum contact with the insecticide when the soil is dry, irrigate prior to treatment to bring the adult mole crickets closer to the soil surface. **Ticks (including ticks that may transmit Lyme Disease and Rocky Mountain Spotted Fever):** Make application to the entire area where contact with ticks may occur. Do not make spot treatments. When applying to areas with heavy leaf litter or dense ground cover use higher spray volumes. To attain and/or sustain control in times of high pest pressure, retreatments may be necessary; retreat only if signs of continued or renewed tick activity are present. Repeat treatments must not be made more often than once per seven days. **Deer Ticks *(Ixodes* sp.)** have a four-stage life cycle spanning 2 years. Treat in the late fall and/or early spring to control adult ticks located on brush or grass above the soil surface and in mid to late spring to control larvae and nymphs that live in the soil and leaf litter. **American Dog Ticks** invade suburban settings in areas where residences and dwellings are constructed on former fields or wooded areas. These pests normally gather by paths or roadways where they are likely to find a host. To control tick larvae, nymphs and adults, treatments should take place, as needed, from mid spring to early fall.

Calculating Dilution Rates: To determine the proper dilution of **Talak 7.9% F** that is required to control specific pests, follow the steps below:

1) Determine the target pest requiring the highest application rate for effective control in the **Application Rates** table.

2) Choose the treatment rate in terms of fluid oz. of **Talak 7.9% F**.

3) Determine the dilution volume necessary for the treatment in the **Dilution Chart**.

4) Use the proper amount of **Talak 7.9% F** that must be mixed in your desired volume of water as shown in the **Dilution Chart**.

For example, to control ticks the **Application Rates** table shows that 0.5 to 1.0 fluid ounces of **Talak 7.9% F** must be applied per 1,000 square feet. You select an application rate of 1.0 fluid oz. per 1,000 square feet because maximum residual control is desired. Your application volume is approximately 10 gallons per 1,000 sq. ft. Consulting the **Lawn Application Dilution Chart** reveals that you should dilute 1.0 fluid oz. of **Talak 7.9% F** in 10 gallons of water.

Lawn Application Dilution Chart

Application Volume	Application Rate	Fluid Ounces* of Talak 7.9% F Diluted to these Volumes of Finished Spray			
Gallons per 1,000 sq. ft.	Fluid Ounces per 1,000 sq. ft.	1 gallon	5 gallons	10 gallons	100 gallons
1.0	0.18	0.18	0.90	1.8	18.0
1.0	0.25	0.25	1.25	2.5	25.0
1.0	0.5	0.5	2.5	5.0	50.0
1.0	1.0	1.0	5.0	10.0	100.0
2.0	0.18	–	0.45	0.90	9.0
2.0	0.25	0.13	0.63	1.25	12.5
2.0	0.5	0.25	1.25	2.5	25.0
2.0	1.0	0.5	2.5	5.0	50.0
3.0	0.18	–	0.30	0.60	6.0
3.0	0.25	–	0.42	0.83	8.3
3.0	0.5	0.17	0.83	1.67	16.7
3.0	1.0	0.33	1.67	3.33	33.3
4.0	0.18	–	0.23	0.45	4.5
4.0	0.25	–	0.31	0.63	6.3
4.0	0.5	0.13	0.63	1.25	12.5
4.0	1.0	0.25	1.25	2.5	25.0

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Lawn Application Dilution Chart *(continued)*

Application Volume	Application Rate	Fluid Ounces* of Talak 7.9% F Diluted to these Volumes of Finished Spray			
Gallons per 1,000 sq. ft.	Fluid Ounces per 1,000 sq. ft.	1 gallon	5 gallons	10 gallons	100 gallons
5.0	0.18	–	0.18	0.36	3.6
5.0	0.25	–	0.25	0.5	5.0
5.0	0.5	0.1	0.5	1.0	10.0
5.0	1.0	0.2	1.0	2.0	20.0
10.0	0.18	–	–	0.18	1.8
10.0	0.25	–	0.13	0.25	2.5
10.0	0.5	–	0.25	0.5	5.0
10.0	1.0	0.1	0.5	1.0	10.0

* To convert fluid ounces to milliliters, multiply by 29.57
1 fluid ounce = 29.57 ml = 2 tablespoons = 6 teaspoons
Do not use household utensils to measure **Talak 7.9% F**.

Ornamentals and Trees Application

Talak 7.9% F is for use on trees, shrubs, ground covers, bedding plants, and foliage plants. Treat with 0.125 to 1.0 fl. oz. of **Talak 7.9% F** per 1,000 square feet or 5.4 to 43.5 fl. oz. per 100 gallons. **Talak 7.9% F** may be diluted and used in different volumes of water as long as the maximum label rate (1.0 fluid oz. per 1,000 square feet or 43.5 fl. oz. per 100 gallons) is not exceeded. If diluted with water or other carriers, **Talak 7.9% F** may be applied through low volume application equipment as long as the maximum label rate (1.0 fluid oz. per 1,000 square feet or 43.5 fl. oz. per 100 gallons) is not exceeded.

Treat as a full coverage foliar spray using the stated application rate. If pest pressure and density of foliage increases, repeat treatments using higher rates may be needed to reach the desired control. Repeat treatments must not be made more often than once per 7 days.

Before application to entire planting, test treat a small number of plants and watch for signs of sensitivity. Some plant species may be sensitive to the final spray solution.

To avoid or delay pest resistance, it is recommended to use an alternate class of pesticide in any application program.

In the State of New York, for application uses outdoors on ornamentals and lawns in landscaped areas around residential, institutional, public, commercial and industrial buildings, parks, recreational areas and athletic fields:

The Following Precautionary Measures Must be Obeyed.

A 100 foot buffer must be maintained between the application site and the waters of the State. A 100 foot buffer is required for all waters except those entirely privately owned with no outlet to State waters. The buffer must consist of well maintained, established vegetation (i.e. grass, etc.) growth and must be maintained to prevent the development of channels.

In New York State, do make a single repeat application of this product is there are signs of renewed insect activity, but no sooner than two weeks after the first application.

Application Rates

Under typical conditions, the application rates in the table below will offer optimal control of the listed pests. **Talak 7.9% F** may be applied at up to 1 fl. oz. per 1,000 square feet (43.5 oz. per 100 gallons) at the discretion of the applicator. When maximum residual control is preferred, use the higher treatment rates.

Pest	Application Rate	Application Instructions
Bagworms Cutworms Elm Leaf Beetles Fall Webworms Gypsy Moth Caterpillars Lace Bugs Leaf Feeding Caterpillars Tent Caterpillars	0.125 - 0.250 fl. oz. per 1,000 sq. ft. (5.4 - 10.8 fl. oz. per 100 gal.)	**Bagworms:** For optimum control treat when larvae have started to hatch and are young, directing spray to contact as many larvae as possible.

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Pest		Application Rate	Application Instructions
Adelgids Ants Aphids Bees Beet Armyworm Beetles Black Vine Weevil (Adults) Broad Mites Brown Soft Scales Budworms California Red Scale (Crawlers) Centipedes Cicadas Citrus Thrips Clover Mites Crickets Diaprepes (Adults) Earwigs European Red Mite Flea Beetles Fungus Gnats (Adults) Grasshoppers Japanese Beetle (Adult) Leafhoppers	Leafrollers Mealybugs Millipedes Mites Mosquitoes Orchid Weevil Pillbugs Pine Needle Scales (Crawlers) Plant Bugs (Including *Lygus* spp.) Psyllids San Jose Scales (Crawlers) Scorpions Sowbugs Spider Mites Spiders Spittlebugs Thrips Tip Moths Treehoppers Twig Borers Wasps Weevils Whiteflies	0.25 - 0.50 fl. oz. per 1,000 sq. ft. (10.8 - 21.7 fl. oz. per 100 gal.)	**Beetles, Scale Crawlers, Twig Borers, and Weevils:** Apply to plant foliage; also treat trucks, stems and twigs.
Imported Fire Ants** Leafminers Pecan Leaf Scorch Mite Pine Shoot Beetle (Adults) Spider Mites		0.5 - 1.0 fl. oz. per 1,000 sq. ft. (21.7 - 43.5 fl. oz. per 100 gal.)	**Spider Mites:** Apply during spring and summer for most effective control of twospotted spider mites. During mid- to late-summer it may be necessary to make more frequent treatments, possibly at higher rates to achieve suitable control. Control may be enhanced by adding a surfactant or horticultural oil or by combining **Talak 7.9% F** with other products registered to control mites. Applications of **Talak 7.9% F** may be alternated with chemicals offering other modes of action in programs that are designed to manage resistance by twospotted spider mites. For recommendations on resistance management in your region check with your local Cooperative Extension Service.
** For foraging ants.			

Calculating Dilution Rates: To determine the proper dilution of **Talak 7.9% F** that is required to control specific pests, follow the steps below:

1) Determine the target pest requiring the highest application rate for effective control in the **Application Rates** table.

2) Choose the treatment rate in terms of fluid oz. of **Talak 7.9% F**.

3) Determine the dilution volume necessary for the treatment in the **Dilution Chart**.

4) Use the proper amount of **Talak 7.9% F** that must be mixed in your desired volume of water as shown in the **Dilution Chart**.

For example, to control black vine weevil adults on rhododendron, the **Application Rates** table shows that 0.25 to 0.5 fluid ounces of **Talak 7.9% F** must be applied per 1,000 square feet. You select an application rate of 0.5 fluid oz. per 1,000 square feet because maximum residual control is desired. Your application volume is approximately 300 gallons per acre, which is equivalent to 6.9 gallons per 1,000 square feet. Consulting the **Ornamental Application Dilution Chart** reveals that you should dilute 0.72 fluid oz. of **Talak 7.9% F** in 10 gallons of water.

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Ornamental Application Dilution Chart

Application Volume Gallons per		Application Rate fl. oz. per	Fluid Ounces* of Talak 7.9% F Diluted to these Volumes of Finished Spray			
1,000 sq. ft.	Acre	1,000 sq. ft.	1 gallon	5 gallons	10 gallons	100 gallons
2.3	100	0.125	–	0.27	0.54	5.4
2.3	100	0.25	0.11	0.54	1.08	10.8
2.3	100	0.5	0.22	1.09	2.17	21.7
2.3	100	1.0	0.44	2.17	4.35	43.5
4.6	200	0.125	–	0.14	0.27	2.7
4.6	200	0.25	–	0.27	0.54	5.4
4.6	200	0.5	0.11	0.54	1.09	10.9
4.6	200	1.0	0.22	1.09	2.17	21.7
6.9	300	0.125	–	–	0.18	1.8
6.9	300	0.25	–	0.18	0.36	3.6
6.9	300	0.5	–	0.36	0.72	7.2
6.9	300	1.0	0.15	0.72	1.45	14.5

* To convert fluid ounces to milliliters, multiply by 29.57
300 gallons per acre is a typical application volume for landscape ornamental applications.
1 fluid ounce = 29.57 ml = 2 tablespoons = 6 teaspoons
Do not use household utensils to measure **Talak 7.9% F**.

Pest Control on Outside Surfaces and Around Buildings

Apply **Talak 7.9% F** to outside surfaces of buildings including exterior siding, foundations, porches, window frames, eaves, patios, garages, refuse dumps, lawns such as grass areas adjacent or around private homes, duplexes, townhouses, condominiums, house trailers, apartment complexes, carports, garages, fence lines, storage sheds, barns, and other residential and non-commercial structures, soil, trunks of woody ornamentals and other areas where pests congregate or have been seen.

Talak 7.9% F may be used to control the following pests:

Ants	Chinch Bugs	Gnats	Silverfish
Carpenter Ants	Clover Mites	Grasshoppers	Sod Webworms
Fire Ants	Crickets	Hornets	Sowbugs (Pillbugs)
Armyworms	Cutworms	Japanese Beetles†	Spider Mites
Bees	Dichondra Flea Beetles	Midges	Spiders
Beetles	Earwigs	Millipedes	(Including Black Widow Spiders)
Biting Flies	Elm Leaf Beetles	Mosquitoes	Springtails
Boxelder Bugs	Firebrats	Moths	Ticks (Including Brown Dog Ticks)
Centipedes	Fleas	Roaches (Including Cockroaches)	Wasps
Chiggers	Flies	Scorpions	

† Not for use in California.

Do not apply directly to impervious horizontal surfaces such as sidewalks, driveways, and patios except as a spot or crack and crevice treatment. During application, do not allow pesticide to enter or run off into storm drains, drainage ditches, gutters or surface waters.

Additional Application Restrictions for Residential Outdoor Surface and Space Sprays:

All outdoor applications, if permitted elsewhere on this label, must be limited to spot or crack-and-crevice treatments only, except or the following permitted uses, if allowed elsewhere on this label:

1. Application to soil or vegetation, as listed on this label, around structures;
2. Applications to lawns, turf, and other vegetation, as listed on this label;
3. Applications to the side of a building, up to a maximum height of 3 feet above grade;
4. Applications to the underside of eaves, soffits, doors, or windows permanently protected from rainfall by a covering, overhang, awning, or other structure;
5. Applications around potential pest entry points into buildings, when limited to a surface band not to exceed one inch in width;
6. Applications made through the use of a coarse, low pressure spray to only those portions of surfaces that are directly above bare soil, lawn, turf, mulch, or other vegetation, as listed on this label, and not over an impervious surface, drainage or other condition that could result in runoff into storm drains, drainage ditches, gutters, or surface waters, in order to control occasional invaders or aggregating pests.

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Application

Use a 0.02 to 0.06% dilution to spray outside surfaces of buildings. Use a spray volume of up to 10 gallons of dilution per 1,000 square feet. Use higher application volumes if vegetation or landscape materials are dense.

Mixing Directions: For 0.02% suspension, mix 0.33 fluid oz. of **Talak 7.9% F** per gallon of water. For 0.06% suspension, mix 1 fluid oz. **Talak 7.9% F** per gallon of water (1 fluid oz. = 2 tablespoons). Do not use household utensils to measure **Talak 7.9% F**. Use the higher rates for heavy pest infestation, quicker knockdown or longer residual control. Retreatment may be necessary to achieve and/or maintain control during periods of high pest pressure. Repeat application only if there are signs of renewed insect activity. Repeat application limited to once per seven days.

Perimeter Treatment: Treat a band of soil and vegetation 6 to 10 feet wide around and next to the structure and the foundation of the structure to a height of 2 to 3 feet. Use 0.33 to 1.0 fluid oz. of **Talak 7.9% F** per 1,000 square feet in enough water to provide sufficient coverage (refer to **Perimeter Application Dilution Chart**).

For Ant and Fire Ant Mounds use Talak 7.9% F 0.06% Dilution as Drench Method: Use 1 to 2 gallons of dilution for each mound area. Sprinkle the mound until wet and apply to a 4 foot diameter circle around the mound. For mounds larger than 12", use a higher volume. Applications should be made in cool weather, such as in early morning or late evening hours, not in the heat of the day.

Mosquito Control: To control mosquitoes around buildings, landscapes, and lawns, dilute 0.33 to 1.0 fl. oz. of **Talak 7.9% F** per gallon of water and apply at the rate of one gallon of dilution per 1,000 square feet as a general spray. **Talak 7.9% F** may be diluted at lower concentrations and applied at higher volumes to ensure the proper amount of product per area (refer to the **Ornamental or Perimeter Application Dilution Charts**).

Calculating Dilution Rates: The following steps should be taken to determine the appropriate dilution of **Talak 7.9% F** that is required to control specific pests:

1) Select an application rate in of fluid oz. of **Talak 7.9% F**.

2) Determine your application volume and amount of spray mix you want to prepare in the **Dilution Chart**.

3) Use the **Dilution Chart** to determine the appropriate volume of **Talak 7.9% F** that must be mixed in your desired volume of water.

Perimeter Application Dilution Chart

Application Volume	Application Rate	Fluid Ounces* of Talak 7.9% F Diluted to these Volumes of Finished Spray			
Gallons per 1,000 sq. ft.	Fluid Ounces per 1,000 sq. ft.	1 gallon	5 gallons	10 gallons	100 gallons
1.0	0.33	0.33	1.67	3.3	33.3
1.0	0.5	0.5	2.5	5.0	50.0
1.0	0.67	0.67	3.33	6.7	66.7
1.0	0.75	0.75	3.75	7.5	75.0
1.0	1.0	1.0	5.0	10.0	100.0
2.0	0.33	0.17	0.83	1.65	16.5
2.0	0.5	0.25	1.25	2.5	25.0
2.0	0.67	0.33	1.67	3.35	33.5
2.0	0.75	0.38	1.88	3.75	37.5
2.0	1.0	0.5	2.5	5.0	50.0
3.0	0.33	0.11	0.55	1.10	11.0
3.0	0.5	0.17	0.83	1.67	16.7
3.0	0.67	0.22	1.11	2.23	22.3
3.0	0.75	0.25	1.25	2.5	25.0
3.0	1.0	0.33	1.67	3.33	33.3
4.0	0.33	–	0.42	0.83	8.3
4.0	0.5	0.13	0.63	1.25	12.5
4.0	0.67	0.17	0.84	1.67	16.7
4.0	0.75	0.19	0.94	1.88	18.8
4.0	1.0	0.25	1.25	2.5	25.0
5.0	0.33	–	0.33	0.67	6.7
5.0	0.5	0.1	0.5	1.0	10.0
5.0	0.67	0.13	0.67	1.33	13.3
5.0	0.75	0.15	0.75	1.5	15.0
5.0	1.0	0.2	1.0	2.0	20.0

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Perimeter Application Dilution Chart *(continued)*

Application Volume	Application Rate	Fluid Ounces* of Talak 7.9% F Diluted to these Volumes of Finished Spray			
Gallons per 1,000 sq. ft.	Fluid Ounces per 1,000 sq. ft.	1 gallon	5 gallons	10 gallons	100 gallons
10.0	0.33	-	0.17	0.33	3.3
10.0	0.5	-	0.25	0.5	5.0
10.0	0.67	-	0.33	0.67	6.7
10.0	0.75	-	0.38	0.75	7.5
10.0	1.0	0.1	0.5	1.0	10.0

* To convert fluid ounces to milliliters, multiply by 29.57
1 fluid ounce = 29.57 ml = 2 tablespoons = 6 teaspoons
Do not use household utensils to measure **Talak 7.9% F**.

INDOOR USE

Talak 7.9% F may be used for residual pest control in buildings and structures and on modes of transport. For control of ants, bees, beetles, boxelder bugs, carpet beetles, centipedes, clothes moths, cockroaches, crickets, earwigs, firebrats, flies, gnats, midges, millipedes, pillbugs, scorpions, silverfish, sowbugs, spiders, ticks and wasps.

In the home, all food processing surfaces and utensils should be covered during treatment or thoroughly washed before reuse. Exposed food should be covered or removed. Do not permit humans or pets to contact treated surfaces until the spray has dried. During any overhead applications to overhead interior areas of structures, cover surfaces below with plastic sheeting or similar materials.

Application

Apply to areas where pests hide. These areas include baseboards, corners, storage areas, closets, around water pipes, doors and windows, attics and eaves, behind and under refrigerators, cabinets, sinks, furnaces, stoves, the underside of shelves, drawers and similar areas. Treat with a low-pressure spray (25 p.s.i. or less), coarse, crack and crevice, pinstream, spot or with a paint brush. Pay close attention to cracks and crevices. Not for use as a space spray.

Mixing Directions: Prepare a dilution of **Talak 7.9% F** for spray or brush application. See **Mixing Directions** in **Pest Control on Outside Surfaces and Around Buildings** section.

- Fill sprayer with the required amount of water.
- Add **Talak 7.9% F**.
- Close sprayer and shake to ensure proper mixing.
- Prepare only the amount of solution necessary for treatment.

In order to achieve and/or maintain control in times of high pest pressure, retreatment may be needed. Repeat application should only take place if there are signs of renewed insect activity and should not exceed one application per 7 days.

Application Rates: For 0.02% suspension, mix 0.33 fluid oz. of **Talak 7.9% F** per gallon of water. For 0.06% suspension, mix 1 fluid oz. **Talak 7.9% F** per gallon of water (1 fluid oz. = 2 tablespoons). Do not use household utensils to measure **Talak 7.9% F**. Use the higher rates for heavy pest infestation, quicker knockdown or longer residual control.

Pest	Application Rate	Application Instructions
Ants Bedbugs Bees Beetles Boxelder Bugs Carpet Beetles Centipedes Clothes Moths Cockroaches Crickets Earwigs Firebrats Flies Gnats Midges Millipedes Pillbugs Scorpions Silverfish Sowbugs Spiders Ticks Wasps	0.33 - 1.0 fl. oz. per gallon of water (0.02% - 0.06% suspension)	**Ants:** Apply to ant trails, around doors and windows and other places that ant frequent. **Bedbugs:** To help control of Bedbugs, apply thoroughly to crack and crevices where bedbugs frequent. This includes bed frames, box springs, inside empty dressers and clothes closets, carpet edges, wall moldings (high and low), and wallpaper edges. Do not use on bed linens, pillows, mattresses, or clothes. Before application, remove all clothes and other articles from dressers or clothes closets. Allow all treated areas to dry before use. Not recommended for use as sole protection against bedbugs. If evidence of bedbugs is found in/on mattresses, use a product approved for this use. **Bees and Wasps:** Apply to nest in late evening when pests are at rest. Spray nests and surrounding areas thoroughly. Spray nests, entrances to nests and surrounding areas thoroughly. Contact as many insects as possible. Retreat if signs of renewed activity exist. **Boxelder Bugs, Centipedes, Earwigs, Beetles, Millipedes, Pillbugs, and Sowbugs:** Treat around doors, windows, baseboards, storage areas and other locations where pests may be found. **Cockroaches, Crickets, Firebrats, Scorpions, Silverfish, Spiders, and Ticks:** Use a coarse, low pressure spray to areas where pests hide. These areas include baseboards, corners, storage areas, closets, around water pipes, doors and windows, attics and eaves, behind and under refrigerators, cabinets, sinks, furnaces, and stoves, the underside of shelves, drawers, and similar areas. Pay close attention to cracks and crevices.

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Food/Feed Handling Establishments

Talak 7.9% F, when used as a general spot, surface, or crack and crevice treatment, may be applied in both food/feed and nonfood areas of food/feed handling establishments.

Food/feed handling establishments are any place other than private residences where exposed food/feed is held, processed, prepared or served, including areas for receiving, storing, packing (canning, bottling, wrapping, boxing), preparing, enclosed processing systems (mills, dairies, edible oils, syrups) of food and edible waste storage. Serving areas where food is exposed and the facility is in operation are also considered food areas.

Non-food areas in which applications are allowed include garbage rooms, lavatories, floor drains (to sewers), entries and vestibules, offices, locker rooms, machine rooms, garages, mop closets and storage (after canning or bottling).

Some of the use sites that are allowed include: Aircraft (do not use in aircraft cabins), apartment buildings, bakeries, bottling facilities, breweries, buses, cafeterias, candy plants, canneries, dairy product processing plants, food manufacturing plants, food processing plants, food service establishments, granaries, grain mills, hospitals, hotels, industrial buildings, laboratories, meat/poultry/egg processing plants, mobile/motor homes, nursing homes, offices, railcars, restaurants, schools, ships, trailers, trucks, vessels, warehouses and wineries.

Surface Application: Do not use this application method in food/feed handling establishments when the facility is in operation or foods/feeds are exposed. During treatment, remove or cover all food processing and/or handling equipment and do not apply directly to food products. All equipment, benches, shelving and other surfaces in food processing plants, bakeries, cafeterias, and other facilities, which food will contact must be washed after treatment. Clean food handling equipment or processing equipment and rinse completely with fresh, clean water.

Spot, Crack and Crevice Application: These types of treatments can be done when the facility is operating, but food should be covered or removed from the treatment area. Do not apply directly to food.

Foam Applications: Converting **Talak 7.9% F** to foam will allow it to be used to treat structural voids. To produce a 0.02% to 0.06% foam concentration, dilute 0.33 to 1.0 fl. oz. of **Talak 7.9% F** per gallon of water and add the manufacturer's recommended amount of foaming agent. Before application, make sure that the foaming agent is compatible with **Talak 7.9% F**.

TERMITE CONTROL (ABOVE GROUND ONLY)

The treatment methods that are expressed below are intended to kill termite workers or winged reproductives present at the time of application. These methods should supplement, not substitute for, mechanical alteration, soil treatment or foundation treatment.

Controlling winged reproductive termites and exposed workers in localized areas can be accomplished by diluting 1.0 fluid ounce of **Talak 7.9% F** per gallon of water and applying the dilution at the rate of one gallon per 1,000 square feet to attics, crawl spaces, unfinished basements and other void areas as a coarse fan spray. Both swarming termites and the areas where they gather should be treated.

Controlling above-ground termites in localized areas of infested wood may be accomplished by diluting 1.0 fluid oz. of **Talak 7.9% F** per gallon of water and applying as a liquid or foam to voids and galleries in wood that is damaged, in addition to spaces between wooden structural members and between the sill plate and foundation where the wood is at risk to attack. Drilling and then injecting the foam or dilution into damaged wood or wall voids with an appropriate directional injector will help reach those areas that are not easy to access. After treatment is completed, securely plug the holes that are in regularly occupied areas in the construction elements.

Controlling termite carton nests in building voids can be accomplished by diluting 1.0 fluid oz. of **Talak 7.9% F** per gallon of water and apply as a liquid or foam using a pointed injection tool. To obtain control, various depths of injection and numerous injection points may be needed. After treatment is complete and when feasible, remove the carton nest material from the building void.

ANT CONTROL

Nuisance Ants Indoors: Apply to ant nests for best results. Apply a dilution of 0.5 to 1.0 fluid oz. of **Talak 7.9% F** per gallon of water at the rate of one gallon of dilution per 1,000 square feet to places where ants have been seen or are believed to forage as a general surface, crack and crevice or spot treatment. Some of these areas include baseboards, in and behind cabinets, under and behind dishwashers, furnaces, refrigerators, sinks and stoves, around pipes, cracks and crevices and in corners. Pay close attention when treating entry points into the home or around doors and windows. When combining liquid **Talak 7.9% F** treatments with bait treatments use **Talak 7.9% F** as instructed above and apply baits in those areas where **Talak 7.9% F** has not been applied. Do not apply as a broadcast or general surface treatment in residential areas.

Nuisance Ants Outdoors: Apply to ant nests for best results. Treat ant trails, around doors and windows, and other places where ants have been seen or are likely to forage. Treat using a low or high volume perimeter treatment depending on the density of vegetation and landscape materials as described in the **Pest Control on Outside Surfaces and Around Buildings** section of this label. When treating concrete surfaces, more frequent treatments, higher dilutions and/or application volumes may be needed for ant control. The following procedure will normally allow optimal control:

1. Non-porous surfaces should be treated with low volume applications using 0.5 to 1.0 fluid oz. of **Talak 7.9% F** per gallon of water and applying this dilution at the rate of one gallon per 1,000 square feet.
2. Vegetation and porous surfaces should be treated with high volume applications using dilutions that are calculated to deliver 0.5 to 1.0 fluid oz. of **Talak 7.9% F** per 1,000 square feet (refer to the **Ornamental and Perimeter Application Dilution Charts**).
3. Dilute 0.5 to 1.0 fluid oz. of **Talak 7.9% F** per gallon of water and apply at a rate of up to 10 gallons of dilution per 1,000 square feet for maximum residual control.

Carpenter Ants Indoors: Treat areas where carpenter ants are seen or are predicted to forage, such as baseboards, in and behind cabinets, under and behind dishwashers, furnaces, refrigerators, sinks, and stoves, around pipes, cracks and crevices, and in corners by diluting 0.5 to 1.0 fluid oz. of **Talak 7.9% F** per gallon of water and applying at the rate of one gallon of dilution per 1,000 square feet as a general surface, crack and crevice or spot and/or foam treatment. Pay close attention to treating entry points into the home or premises such as around doors and windows. Spray or foam into cracks into crevices or dill holes and spray, mist or foam into voids and galleries where carpenter ants or their nests are present. When combining liquid **Talak 7.9% F** treatments with bait treatments use **Talak 7.9% F** as instructed above and apply baits in those areas where **Talak 7.9% F** has not been applied. Do not apply as a broadcast or general surface treatment in residential areas.

Carpenter Ants Outdoors: Treat carpenter ant nests for best results. Treat areas where carpenter ants are seen or are believed to forage, such as ant trails, around doors and windows. As stated in **Pest Control on Outside Surfaces and Around Buildings** section, apply using a low or high volume perimeter treatment of this label. When treating concrete surfaces, more frequent treatments, higher dilution and/or application volumes may be needed for carpenter ant control. Following the procedure below will normally allow optimal control:

1. Treat non-porous surfaces with low volume applications using 0.5 to 1.0 fluid oz. of **Talak 7.9% F** per gallon of water and applying this dilution at the rate of one gallon per 1,000 square feet.
2. **Talak 7.9% F** may be used as a treatment for the trunks of trees that have carpenter ant trails, or where carpenter ants are foraging. Use 0.5 to 1.0 fl. oz. of **Talak 7.9% F**

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per gallon of water and apply this dilution to wet the bark from the base of the tree to as high as possible on the trunk.

3. Vegetation and porous surfaces should be treated with high volume applications using dilutions that are calculated to deliver 0.5 to 1.0 fluid oz. of **Talak 7.9% F** per 1,000 square feet (refer to the **Ornamental and Perimeter Application Dilution Charts**).
4. Dilute 0.5 to 1.0 fluid oz. of **Talak 7.9% F** per gallon of water and apply at a rate of up to 10 gallons of dilution per 1,000 to obtain maximum residual control.

To control carpenter ants inside trees, utility poles, fencing or deck materials and similar structural members, drill to find the inside infested cavity and inject or foam a 0.06% dilution (1.0 fl. oz. of **Talak 7.9% F** per gallon of water) into the cavity with adequate volume and a proper treatment tool with a splash-back guard.

Where there are ants tunneling below the surface, dilute 0.5 to 1.0 fluid ounces of **Talak 7.9% F** per gallon of water and applying as a drench or inject the dilution or foam at intervals of 8 to 12 inches. A uniform vertical barrier should be established where there are ants tunneling below surfaces such as at the edges of walls, driveways or other hard surfaces.

Apply a 0.06% dilution to stored lumber or wood piles using a sprinkling can or a hose-end sprayer to deliver a coarse drenching spray. This wood may be used for lumber or burned after 30 days. Do not use this method of application in structures.

The soil under the area where firewood will be stacked may be treated with a dilution of 1.0 fluid oz. of **Talak 7.9% F** per gallon of water to protect the firewood from carpenter ants (and termites). Apply at the rate of one gallon of dilution per 8 square feet. DO NOT treat firewood with this product.

IMPREGNATION AND APPLICATION OF TALAK 7.9% F ON DRY BULK LAWN FERTILIZERS

Talak 7.9% F may be impregnated on dry bulk fertilizers. When applied as directed, **Talak 7.9% F**/dry bulk fertilizer mixtures provide insect control equal to that provided by the same rates of **Talak 7.9% F** applied in water.

Impregnation: Apply using a minimum 2.3 pounds of dry bulk fertilizer per 1,000 square ft. with the recommended amount of **Talak 7.9% F** per 1,000 square ft. Use a closed rotary-drum mixer or a similar type of closed blender equipped with suitable spray equipment. The spray nozzle(s) should be positioned to provide a uniform, fine spray pattern over the tumbling fertilizer for thorough coverage. The physical properties of fertilizers vary, particularly in liquid absorptive capacity. When absorptivity is sufficient, simple spray impregnation of the fertilizer with **Talak 7.9% F** provides a satisfactory dry mixture. If the absorptive capacity is inadequate, use of a highly absorptive powder is required to provide a dry, flowable mixture. Microcel E (Johns-Manville Products Corporation) is a recommended absorbent powder. Generally less than 2% by weight of Microcel E is required. DO NOT impregnate **Talak 7.9% F** onto straight coated ammonium nitrate or straight limestone because these materials will not absorb the insecticide. Dry fertilizer blends containing mixtures of ammonium nitrate or limestone may be impregnated with **Talak 7.9% F**.

The amount of **Talak 7.9% F** actually required in the preparation of individual fertilizer mixtures should be determined carefully for each production operation. This is necessary to ensure that the amount of pesticide actually contained in the mixture applied to the soil represents the correct rate of use. Bulk fertilizer impregnated with **Talak 7.9% F** should be applied immediately, not stored.

All individual Federal and State regulations relating to bulk dry fertilizer blending, registration, labeling, and application of the mixtures are the responsibility of the individual and/or company selling the fertilizer and **Talak 7.9% F** mixture.

Fertilizer for this use should be Turf fertilizers recommended for specific regions.

USE IN LIVESTOCK/POULTRY HOUSING STRUCTURES AND PET KENNELS

For control of pests including biting flies, filth-breeding flies, fleas, litter beetles, hide beetles, bed bugs, mites, and ticks.

Application may be made as a general surface spray (including directed spray) and/or as a crack and crevice treatment. For best results, make interior and exterior applications at or around the same time. In addition to applications of **Talak 7.9% F**, ensure that normal cleaning practices are followed.

Occupied Areas

Indoors, apply only to indoor cracks and crevices. For exteriors, apply to walls and foundation perimeters to help prevent interior infestations of pests. Use **Talak 7.9% F** at a rate equivalent to 0.33 to 1 fl. oz. per 1,000 sq. feet.

Unoccupied Areas

Apply to areas where crawling or flying pests may be present, such as floors, vertical surfaces, and overhead surfaces, paying special attention to areas such as stanchions, pipes, windows, and doors. Cover feeders, waterers, and feed carts before application, to avoid contamination. Do not apply to milk rooms. Make exterior applications to walls and foundation perimeters to help prevent interior infestations of pests. Use **Talak 7.9% F** at a rate equivalent to 0.33 to 1 fl. oz. per 1,000 sq. feet.

Bed Bugs, Mites and Ticks - Treat cracks and crevices, walls, posts, nest boxes, and mobile side curtains. Do not apply this product directly to animals.

Adult Flies - Make applications to areas where flies will rest, such as the ceiling, rafters, and trusses; also treat windows, walls (interior and exterior), supports, fences, and vegetation. **Talak 7.9% F** may be applied to manure in situations where fly larvae are abundant and the area cannot be cleaned.

Poultry Houses - Make applications to the floor (where birds are grown on litter), walls, posts, and cage framing (where birds are grown in cages); apply also into cracks and crevices around insulation. Reapply after each growout or sanitization procedure, but not more often than every 8 weeks. For improved indoor control, apply to the outside of building foundations to keep adult beetles from moving indoors. Apply in a uniform band 2 to 3 feet up the foundation, and 6 to 10 feet out from the structure. A routine, year-round treatment program will prevent pests from reaching problem levels.

Where Birds are Grown on Litter - Apply **Talak 7.9% F** to litter after birds are removed and during tilling at a rate equivalent to 0.33 to 1 fl. oz. per 1,000 sq. feet. If litter is removed and replaced with fresh litter, make an application to bare soil or concrete at a rate equivalent to 0.33 to 1 fl. oz. per 1,000 sq. feet, and treat the new litter once it is spread. Spray inside walls, posts, and exterior perimeter. Reapply between each flock.

Broiler-breeder Houses - To control beetles; apply as directed above for litter and soil/floor treatment.

Caged-layer Houses - For control of beetles, do not treat accumulated manure because it may disrupt natural enemies that control fly breeding. Treat the perimeter of the manure at a rate equivalent to 0.33 to 1 fl. oz. per 1,000 sq. feet. Also spray pit walls, posts, and the exterior of the structure. Reapply between each flock.

Before applying disinfectants, ensure that the **Talak 7.9% F** treatment is dry.

DO NOT apply **Talak 7.9% F** as a general surface spray when animals are present in the facility. Allow applications to dry before restocking the facility. Crack and crevice treatment may be made when animals are present.

DO NOT apply **Talak 7.9% F** to any animal feed, water, or watering equipment.

DO NOT contaminate any animal feed, food, or water in and around livestock, poultry, or pet housing when making applications.

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Attention:

- Do not apply a broadcast application to interior surfaces of homes.
- Do not apply this product in patient rooms or in any rooms while occupied by the elderly or infirm.
- Do not apply in classrooms when in use.
- Do not apply when occupants are present in the immediate area in institutions such as libraries, sports facilities, etc.
- Do not allow people or pets on treated surfaces until spray has dried.
- Let surfaces dry before allowing people and pets to contact surface.
- During any application to overhead areas of structure, cover surface below with plastic sheeting or similar material except for soil surfaces in crawlspaces.
- Do not allow spray to contact food, foodstuffs, food-contacting surfaces or food utensils or water supplies.
- Thoroughly wash dishes and food handling utensils with soap and water if they become contaminated by application of this product.
- Do not treat areas where food is exposed.
- During indoor surface applications do not allow dripping or runoff to occur.
- **Talak 7.9% F** will not stain, or damage any surface that water alone will not stain or damage.
- Do not apply to pets, crops, or sources of electricity.
- Firewood is not to be treated.
- Use only in well ventilated areas.
- Do not use on edible crops.

STORAGE AND DISPOSAL

Prohibitions: Do not contaminate water, food, or feed by storage or disposal.

Pesticide Storage: Keep out of reach of children and animals. Store in original containers only. Store in a cool, dry place and avoid excess heat. Carefully open containers. After partial use replace lids and close tightly. Do not put concentrate or dilute material into food or drink container.

In case of spill, avoid contact, isolate area and keep out animals and unprotected persons. Confine spills.

To Confine Spill: If liquid, dike surrounding area or absorb with sand, cat litter, or commercial clay. If dry material, cover to prevent dispersal. Place damaged package in a holding container. Identify contents.

Pesticide Disposal: Pesticide wastes are toxic. Do not contaminate water, food, or feed by storage or disposal. Improper disposal of excess pesticide, spray mixture, or rinsate is a violation of Federal Law. Dispose of excess or waste pesticide by use according to label directions, or contact your State Pesticide or Environmental Control Agency, or the Hazardous Waste representative at the nearest EPA Regional Office for guidance.

Container Handling: Plastic Container: Non-refillable Containers. Do not reuse or refill this container. Offer for recycling, if available, or puncture and dispose of in a sanitary landfill, or incineration, or if allowed by state and local authorities, by burning. If burned, stay out of smoke. Triple rinse or pressure rinse container (or equivalent) promptly after emptying. Triple rinse as follows:

Containers 5 gallons or less: Empty the remaining contents into application equipment or a mix tank and drain for 10 seconds after the flow begins to drip. Fill the container 1/4 full with water and recap. Shake for 10 seconds. Pour rinsate into mix tank or store rinsate for later use or disposal. Drain for 10 seconds after the flow begins to drip. Repeat this procedure two more times. Once cleaned, offer for recycling if available.

STORAGE AND DISPOSAL *(continued)*

Containers larger than 5 gallons: Empty the remaining contents into application equipment or a mix tank. Fill the container 1/4 full with water. Replace and tighten closures. Tip container on its side and roll it back and forth, ensuring at least one complete revolution, for 30 seconds. Stand the container on its end and tip back and forth several times. Turn the container over onto its other end and tip it back and forth several times. Empty the rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Repeat this procedure two more times. Once cleaned, offer for recycling or reconditioning if appropriate.

Pressure rinse as follows (all sizes): Empty the remaining contents into application equipment or a mix tank and continue to drain for 10 seconds after the flow begins to drip. Hold container upside down over application equipment or mix tank or collect rinsate for later use or disposal. Insert pressure rinsing nozzle in the side of the container and rinse at about 40 PSI for at least 30 seconds. Drain for 10 seconds after the flow begins to drip.

Refillable container: Refill this container with pesticide only. Do not reuse this container for any other purpose. Cleaning the container before final disposal is the responsibility of the person disposing of the container. Cleaning before refilling is the responsibility of the refiller.

To clean the container before final disposal, empty the remaining contents from the container into application equipment or mix tank. Fill the container about 10 percent full with water. Agitate vigorously or recirculate water with pump for 2 minutes. Pour or pump rinsate into application equipment or rinsate collection system. Repeat this rinsing process two more times.

For help with any spill, leak, fire or exposure involving this material, call day or night CHEMTREC 1-800-424-9300.

LIMITATION OF WARRANTY AND LIABILITY

IMPORTANT: READ BEFORE USE. Read the entire Directions for Use, Conditions of Warranties and Limitations of Liability before using this product. If these terms and conditions are not acceptable, return the unopened product container at once. By using this product, user or buyer accepts the following Disclaimer of Warranties and Limitations of Liability. **CONDITIONS:** The directions for use of this product are believed to be adequate and must be followed carefully. However, it is impossible to eliminate all risks associated with the use of this product. Ineffectiveness, injury, and other unintended consequences may result because of such factors as manner of use or application (including misuse), the presence of other materials, weather conditions, and other unknown factors, all of which are beyond the control of ATTICUS, LLC. All such risks shall be assumed by the user or buyer. **DISCLAIMER OF WARRANTIES:** To the extent consistent with applicable law, ATTICUS, LLC makes no other warranties, express or implied, of merchantability or of fitness for a particular purpose or otherwise, that extend beyond statements on this label. **LIMITATIONS OF LIABILITY:** To the extent consistent with applicable law, neither ATTICUS, LLC the manufacturer, nor the Seller shall be liable for any indirect, special, incidental or consequential damages resulting from the use, handling, application, storage, or disposal of this product. To the extent consistent with applicable law, the exclusive remedy of the user or buyer for any and all losses, injuries or damages resulting from the use, handling, application, or storage of this product, whether in contract, warranty, tort, negligence, strict liability or otherwise, shall not exceed the purchase price paid.

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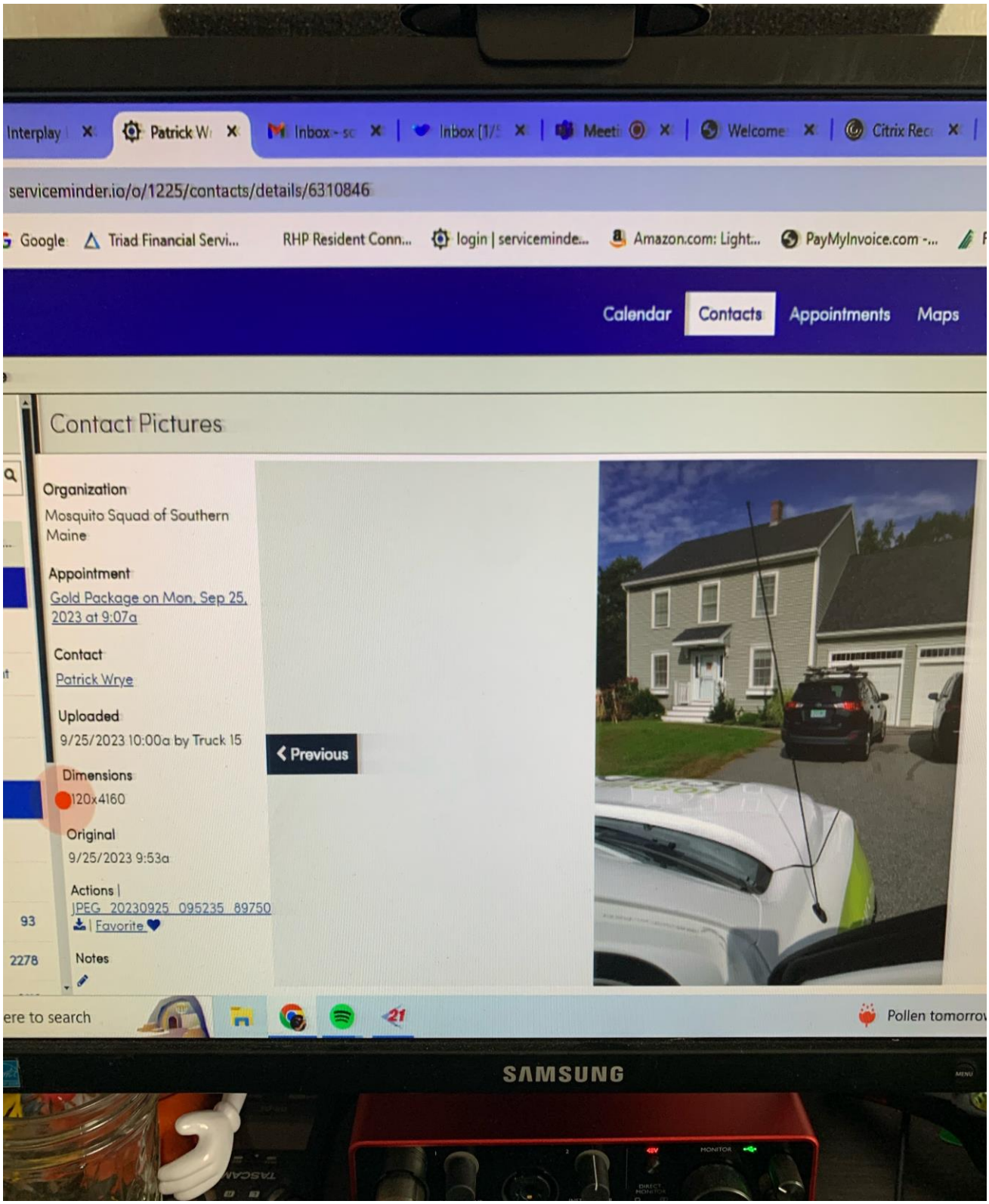
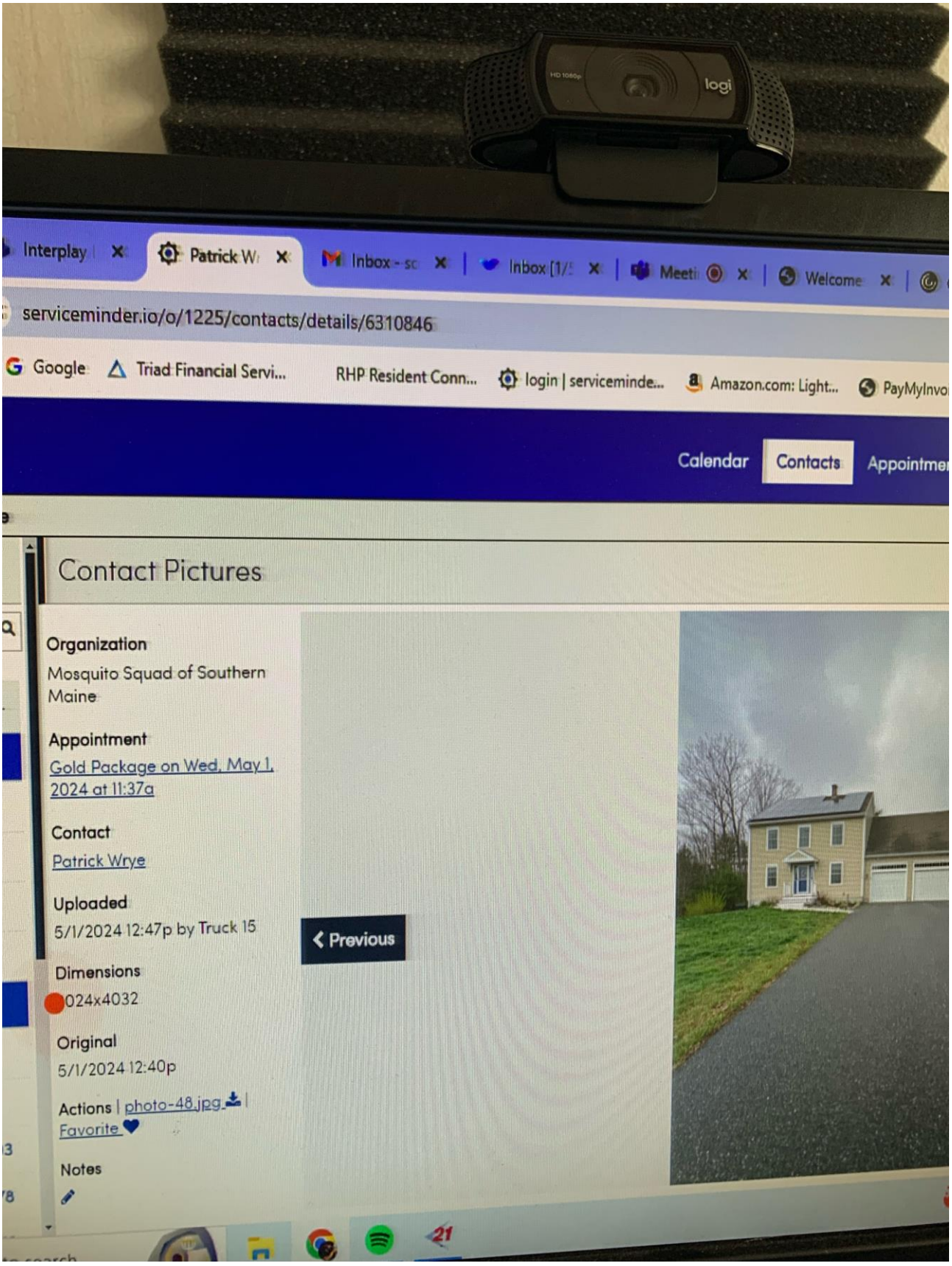
Exhibit 2

240522JEP01F _ Photos of contracted and sprayed site provided by Scott Conrad via email

Contracted spray site: 26 Eagles Nest Road, Gray



Site sprayed on 5/1/2024: 28 Eagles Nest Road, Gray



Photos taken from field for comparison:

Contracted Site

26 Eagles Nest Road, Gray

Photos taken from field for comparison:

Site Sprayed on 5/1/2024

28 Eagles Nest Road, Gray

Exhibit 3

AVESTA™ CS

Controlled Release Insecticide

For use in, on and around buildings and structures for the control of listed pest, including on lawns, ornamental trees and shrubs around residential, institutional, public, commercial, agricultural and industrial buildings; and parks, recreational areas and athletic fields.

GROUP	3	INSECTICIDE

Active Ingredient:

Lambda-cyhalothrin[1]:
[1 α(S*),3 α(Z)]-(±)-cyano-(3-phenoxyphenyl)methyl-3-(2-chloro-3,3,3-trifluoro-1-propenyl)- 2,2-dimethylcyclopropanecarboxylate. 9.7%
Other Ingredients:..... 90.3%
Total.....100.0%

[1] Synthetic pyrethroid

EPA Reg. No. 74530-53-5481

EPA Est. No. 5481-ID-01

KEEP OUT OF REACH OF CHILDREN

CAUTION

First Aid	
Have the product container or label with you when calling a poison control center or doctor, or going for treatment.	
If on skin or clothing:	• Take off contaminated clothing. • Rinse skin immediately with plenty of water for 15-20 minutes. • Call a poison control center or doctor for treatment advice.
If in eyes:	• Hold eye open and rinse slowly and gently with water 15-20 minutes. • Remove contact lenses, if present, after the first 5 minutes, then continuing rinsing eye. • Call a poison control center or doctor for treatment advice.
If swallowed:	• Call a poison control center or doctor immediately for treatment advice. • Do not give any liquid to the person. • Do not induce vomiting unless told to do so by the poison control center or doctor. • Do not give anything by mouth to an unconscious person.
If inhaled:	• Move person to fresh air. • If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth if possible. • Call a poison control center or doctor for further treatment advice.
Have the product container or label with you when calling a poison control center or doctor, or going for treatment.	
Have the product container or label with you when calling a poison control center or doctor, or going for treatment. **FOR THE FOLLOWING EMERGENCIES, PHONE 24 HOURS A DAY:** For Medical Emergencies phone:.....1-888-681-4261 For Transportation Emergencies, including spill, leak or fire, phone: CHEMTREC®.....1-800-424-9300 For Product Use Information phone: AMVAC®.....1-888-462-6822	

Si usted no entiende la etiqueta, busque a alguien para que la explique a usted en detalle. (If you do not understand the label, find someone to explain it to you in detail.)

See additional precautionary statements and directions for use in booklet.

Net Contents: _____

Manufactured for:

AMVAC®
4100 E. Washington Blvd.
Los Angeles, CA 90023 U.S.A.
1-888-462-6822

PRECAUTIONARY STATEMENTS

Hazards to Humans and Domestic Animals

CAUTION

Harmful if absorbed through skin. Avoid contact with skin, eyes or clothing. Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum or using tobacco. Remove and wash contaminated clothing before reuse. Prolonged or frequently repeated skin contact may cause allergic reactions in some individuals.

Environmental Hazards

This product is extremely toxic to fish and other aquatic organisms. Do not contaminate water when cleaning equipment or disposing of equipment wash water. Do not apply directly to water, or to areas where surface water is present, or to intertidal areas below the mean high water mark. Drift and runoff from treated areas may be hazardous to aquatic organisms in neighboring areas. Apply this product only as specified on this label. When making applications, care should be used to avoid household pets, particularly fish and reptile pets. This product is highly toxic to bees exposed to direct treatment or residues on blooming crops or weeds. Do not apply this product or allow it to drift to blooming crops or weeds if bees are visiting the treatment area.

Physical and Chemical Hazards

Do not use this product in or on electrical equipment due to the possibility of shock hazard.

GENERAL INFORMATION

AVESTA CS is a unique formulation which is a proprietary blend of ingredients for use with the active ingredient Lambda-cyhalothrin.

DIRECTIONS FOR USE

It is a violation of Federal law to use this product in a manner inconsistent with its labeling.

IMPORTANT: Not for use on plants being grown for sale or other commercial use, or for commercial seed production, or for research purposes. For use on plants intended for aesthetic purposes or climatic modification and being grown in interior plantscapes, ornamental gardens or parks, or on lawns or grounds.

All outdoor applications must be limited to spot or crack-and-crevice treatments only, except for the following permitted uses:

1. Treatment to soil or vegetation around structures;
2. Applications to lawns, turf, and other vegetation;
3. Applications to building foundations, up to a maximum height of 3 feet above grade;
4. Applications to underside of eaves, soffits, doors, or windows permanently protected from rainfall by a covering, overhang, awning, or other structure;
5. Applications around potential pest entry points into buildings, when limited to a surface band not to exceed one inch in width;
6. Applications made through the use of a coarse, low pressure spray to only those portions of surfaces that are directly above bare soil, lawn, turf, mulch or other vegetation, as listed on this label, and not over an impervious surface, drainage or other condition that could result in runoff

into storm drains, drainage ditches, gutters, or surface waters, in order to control occasional invaders or aggregating pests.

- Do not apply directly to impervious horizontal surfaces such as sidewalks, driveways, and patios except as a spot or crack-and-crevice treatment. During application, do not allow pesticide to enter or runoff into storm drains, drainage ditches, gutters or surface waters.
- Do not water treated area to the point of run-off.
- Do not make applications during rain.
- Do not apply directly to sewers or drains, or to any area like a gutter where drainage to sewers, storm drains, water bodies, or aquatic habitat can occur, except as directed by this label.

This product is RESTRICTED for use in New York State.

PERIMETER PEST CONTROL

AVESTA CS is for use as a general surface (nonfood/nonfeed areas), crack and crevice, or spot treatment in, on, and around buildings and structures and their immediate surroundings, and on modes of transport. Areas of use include, industrial buildings, houses, patios, porches, closets, furniture, apartment buildings, mobile homes, laboratories, buses, greenhouses (non-commercial), stores, factories, warehouses, wineries, vessels, railcars, trucks, trailers, aircraft (cargo and other non-cabin areas only), schools, nursing homes, hospitals, mausoleums, restaurants, hotels, correctional facilities, livestock/poultry housing, pet kennels, food granaries, food grain mills and food manufacturing, processing, and servicing establishments.

Nonfood/nonfeed areas of food/feed handling establishments include garbage rooms, lavatories, floor drains (to sewers), entries and vestibules, offices, locker rooms, machine rooms, boiler rooms, garages, mop closets, and storage (after canning or bottling).

For indoor applications, **AVESTA CS** can be reapplied at 21-day intervals if necessary.

Mixing Instructions
Dilute **AVESTA CS** with water for application using hand-held or power-operated application equipment as a coarse spray for crack and crevice or spot and general surface (non-food/ non-feed areas only) treatments. Application equipment that delivers low volume treatments, such as the Micro-Injector™ or Actisol™ applicator, may also be used to make crack and crevice or spot and general surface treatments. Fill applicator tank with the desired volume of water and add **AVESTA CS**. Close and shake before use in order to ensure proper mixing. Shake or reagitate applicator tank before use if application is interrupted. Mix only amount of treatment volume as required. **AVESTA CS** may be applied by using a paintbrush or other porous applicator attached to a handle as a general surface treatment.

Tank Mixing
AVESTA CS may be tank mixed with other currently registered pesticides unless expressly prohibited by the product label. A small volume mixing test with the other products is recommended to ensure compatibility. If other chemicals are added to the applicator tank, **AVESTA CS** should be added last. If mixed with EC formulations, use within 24 hours. Fill tank to desired volume and continue to agitate while making applications.

AVESTA CS may be tank mixed with an Insect Growth Regulator (IGR). Observe all restrictions and precautions which appear on the labels of these products.

Foam Applications
AVESTA CS may be converted to a foam and the foam used to treat structural voids to control or prevent pests including ants, bees, termites (above ground only), wasps, or other arthropods harboring in walls, under slabs, or in other void areas.

RATES FOR PESTS (HAND APPLICATION EQUIPMENT)

Pests	Dilution Rate (Concentration of AI)	SPECIFIC USE DIRECTIONS
Ants Bedbugs (Adult) Bees Boxelder Bugs Carpenter Bees Carpet Beetles Centipedes Cigarette Beetles Clover Mites Cockroaches[1] Confused Flour Beetles Crickets Eagwigs Firebrats Fleas[2] Flies Lesser Grain Borers Millipedes Mosquitoes Red Flour Beetles Rice Weevils Saw-toothed Grain Beetles Silverfish Sowbugs Spiders Ticks Wasps	0.2 fl. oz (6 mL) to 0.4 fl. oz (12 mL) per gallon of water (0.015-0.03% AI)	**Ants:** Apply to any trails around doors and windows and other places where ants may be found. Locate and treat nests. Where ants are trailing inside, apply as a residual surface treatment to active areas such as baseboards, corners, around pipes, in and behind cabinets, behind and under refrigerators, sinks, furnaces and stoves, cracks and crevices. When combining baits and residual surface insecticides, apply surface insecticides in cracks and crevices, along baseboards, and infested surfaces and outside treatments. Use baits in other areas that are untreated by residual insecticides; also see **Outdoor Surfaces Use.** **Bedbugs:** Clean floors and surfaces by vacuuming. Apply as a coarse, low-pressure spray to harborage areas including crevices, baseboards, loose plaster, behind bed frames and headboards, beneath beds and furniture, and to bedsprings and bed frames. Do not apply to furniture surfaces or mattresses where people will be laying or sitting. Infested bedding should not be treated, but should be removed, placed in sealed plastic bags, and taken for laundering and drying at high temperatures. **Cockroaches, Crickets, earwigs, Firebrats, Silverfish, and Spiders**: Apply as a coarse, low-pressure spray to areas where these pests hide, such as baseboards, corners, storage areas, closets, around water pipes, doors and windows, attics and eaves, cabinets, behind and under refrigerators, sinks, furnaces and stoves, the underside of shelves, drawers and similar areas. Pay particular attention to cracks and crevices; also see **Outdoor Surfaces Use**
Cockroaches[1] Crickets[6] Flies[5] Litter Beetles[3] (Adults/ Immature stages such as Darkling, Hide, and Carrion) Mosquitoes[4] Pillbugs Scorpions Spiders[6] Spider Mites (Two-spotted, Spruce) Ticks[6]	0.8 fl. oz. (24 mL) per gallon of water (0.06% AI)	**Bees, Flies, Mosquitoes, and Wasps:** Apply directly to walls, ceilings, window screens, and other resting areas as a residual surface treatment. May be used inside residential buildings as well as in and around carports, garages, and storage sheds; also see **Outdoor Surfaces Use.** Use caution when treating nests of stinging insects as AVESTA CS does not provide instant knockdown. Protective equipment for the applicator may be required. Treat bee, wasp and hornet nests late in the day when most insects will be present. Allow 2-3 days for the colony to die and repeat after 21 days, if necessary. **Carpenter Bees:** Apply coarse spray to thoroughly wet wood surfaces where bees have been previously active or to provide protection against further damage.

		Apply early in the spring to prevent bees from invading wood. When bees have infested wood, surface applications can help control embedded larvae and bees that emerge from the wood. **Pantry Pests** (i.e. Carpet beetle, Cigarette beetle, Confused flour beetle, Lesser grain borer, Red flour beetle, Rice weevil, and Sawtoothed grain beetle): Apply to cupboards, shelving, and storage areas. Remove all utensils, uncovered foodstuffs (or any having original package opened), and shelf paper before making application. Allow treated surfaces to dry and cover shelves with clean paper before replacing any utensils, foodstuff, or other items. Any foodstuff accidentally contaminated with treatment solution should be destroyed. **Boxelder Bugs, Centipedes, Millipedes, Pillbugs, and Sowbugs:** Apply around doors and windows and other places where these pests may be found or where they may enter premises. Treat baseboards, storage areas, and other locations. Apply treatments to prevent infestation as described below; also see **Outdoor Surfaces Use.** **Fleas and Ticks:** To control nuisance fleas and ticks (e.g. dog ticks) apply to kennels, yards, runs, and other areas where pets may frequent. To control ticks, apply using a coarse fan spray to vegetation brush, branches, rock walls, and other areas near habitation where ticks may harbor or frequent. Treat entire area rather than making spot treatments, and retreat as necessary to maintain control. Do not apply to pasture or cropland, and do not allow animals and people access to treated areas until the deposit has dried. Applications can begin in the spring and can continue until frost to control both larvae and adult ticks; also see **Outdoor Surfaces Use.** **Cluster Flies:** Apply in late summer or early fall before flies are observed alighting on surfaces. Apply thoroughly on siding, under eaves, and around windows and doors, paying particular attention to south-facing surfaces, but do not allow runoff to occur. Heavy precipitation prior to frost may require retreatments to maintain protection. In winter and spring when flies become active and are emerging, interior crack and crevice and void treatments can help reduce the infestation, along with ULV or general surface application in infested attics or unoccupied lofts. **Litter Beetles (Darkling, Hide, and Carrion Beetles) and Flies in Animal Housing (Such as Poultry Houses):** To control adult litter beetles, apply KENDO 9.7 CS to walls and floors at cleanout, before reintroduction of animals. This will suppress beetles that escaped earlier treatment and will help delay onset of future infestations. Pay attention to areas where beetles frequently occur, such as walls, supports, cages, stalls, and around feeders. To help

		control flies, apply a directed application to horizontal surfaces and overhead areas and allow to dry before reintroduction of animals; also see **Livestock/ Poultry Housing Structures and pet Kennels.**
Termites (above ground only)	0.2 fl. oz.(6 mL) - 0.4 fl. oz. (12 mL) per gallon of water (0.015 - 0.3% AI)	**AVESTA CS** may be used on termites to kill workers or winged reproduction forms which may be present in treated channels at the time of treatment. These applications are not a substitute for mechanical alteration to control subterranean termites, soil treatment labeled termiticide, or fumigation for extensive infestation of drywood termites or other wood-infesting insects, but are considered supplemental. This product is not recommended as sole protection against termites. For active termite infestations, get a professional inspection.
[1]For cockroaches, the recommended rate for maintenance treatments is 0.015% and for clean-out treatments is 0.03%. For control of severe infestations, use 0.06% rate. [2]For outdoor use only and use 0.03% rate. [3]For control of LIGHT beetle infestations, use 0.03% rate. [4]For residual control, use 0.06% rate [5]In all states except California, rates for flies may be increased to 0.06% when environmental conditions are severe and /or populations are high. [6]For clean-out/ severe infestations, use 0.06% rate.		

Application Within Food Handling Establishments
For places other than private residences in which exposed food is held, processed, prepared, or served including, but not limited to, areas for receiving, storage, packing (canning, bottling, wrapping, boxing), preparing foods, edible waste storage and enclosed processing systems (mills, dairies, edible oils, syrups), and serving areas.
Use as a crack and crevice or spot treatment in and around both food and nonfood areas. Apply in small amounts directly into cracks and crevices, using equipment capable of delivering a pin stream of insecticide, in points between different elements of construction, between equipment and floor, openings leading to voids and hollow spaces in walls, equipment and bases. Food contact surfaces and equipment should be cleaned with an effective cleaning compound and rinsed with potable water before using.
Limit individual spot treatments to an area no larger than 20% of the treated surface. Individual spot treatments may not exceed two sq. ft. Take extreme care that the product is not introduced into the air. Avoid contamination of food and food processing surfaces.

Application Within Food Serving Areas
For facilities where foods are served, such as dining rooms. Apply as a crack and crevice or spot treatment to selective surfaces such as baseboards, under elements of construction, and into cracks and crevices. Avoid treating surfaces likely to be contacted by food. (Do not apply when facility is in operation or foods are exposed.) Food must be covered or removed in area being treated. Do not apply directly to food or allow applications to contaminate food.

NOTE: Application of this product in the Food Areas and/or Food Serving Areas of Food Handling Establishments other than as a spot and/or crack and crevice treatment is not permitted. Use of application equipment such as the Micro-Injector or Actisol applicator in food areas should be limited to

crack and crevice treatment only.

Livestock/Poultry Housing Structures and Pet Kennels
Apply as a general surface (including directed sprays) and/or crack and crevice treatment. Make interior and exterior perimeter applications in and around the livestock, poultry, and pet housing structures. Normal cleaning of the structure must also be done along with applications of **AVESTA CS** to effectively control the crawling and flying insect pests listed in the table.

With the exception of cattle and calves that may be present only apply AVESTA CS to livestock barns or housing structures when unoccupied by animals. Apply to floors, vertical, and overhead surfaces where crawling or flying insect pests are or may be present. Feeders, waterers, and feed carts should be covered before application to prevent contamination. Do not apply to milk rooms or feed rooms. Pay attention to animal areas including stanchions, pipes, windows and doors, and areas where insect pests hide or congregate. Exterior applications to south facing walls and foundation perimeters can help prevent interior infestations of flying and crawling insect pests.

For poultry houses, apply to floor area (birds grown on litter) or to walls, posts, and cage framing (birds grown in cages). Application should also be made into cracks and crevices around insulation. Reapply after each growout or sanitization procedure. Indoor control can be enhanced by making perimeter treatments around the outside of building foundations to prevent immigrating adult beetles. Apply in a uniform band 1 - 3 ft. up and 2 - 6 ft. out from foundation. Maintaining a year-round treatment program will prevent background populations from reaching problem levels.

RESTRICTIONS:
- **DO NOT** make applications of **AVESTA CS** in areas where animals, except cattle and calves, are present in the facility. Allow treated surfaces to completely dry before restocking the facility.
- **DO NOT** make applications to any animal feedstuffs, water, or watering equipment.
- **DO NOT** contaminate any animal food, feed, or water in and around livestock, poultry, or pet housing when making applications.

Outdoor Surfaces Use
For control of ants, bees, centipedes, cockroaches, crickets, fleas, flies, millipedes, mosquitoes, scorpions, sowbugs, pillbugs, spiders, termites (above ground only), ticks, wasps, and other similar perimeter arthropod pests.

Apply with either hand or power application equipment as a residual treatment to ornamental plants next to foundations of buildings and to surfaces of buildings, porches, screens, window frames, eaves, patios, garages, refuse dumps, and other similar areas where these insect pests are active. Remove all exposed food and cooking utensils. Cover all food handling surfaces or wash thoroughly after treatment and before use. Do not use on edible crops.

Perimeter Treatments
Apply a continual band of insecticide around building foundations and around windows, doors, service line entrances, eaves, vents, and other areas to reduce the potential for entry by crawling pests. Before application, remove debris and leaf litter from next to the foundation, cut back vegetation and branches that touch the foundation, and move or rake back rocks, deep mulch, or other potential pest harborage next to the foundation. Apply the band up to 10 ft. wide around the structure (or according to state regulations governing commercial pest control) and upwards along the foundation to 3 ft. and around windows, doors, and roof overhangs. Apply as a coarse spray to thoroughly and uniformly wet the foundation and/or band area so that the insecticide will reach the soil or thatch level where pests may be active.

Amount of concentrate is dependent upon pest species (see pest table and comments), infestation levels, and service interval desired.

Rate Table For Perimeter Barrier Applications

Application Rate:	Gals. of Water[1]	Area of Coverage (sq. ft.)

Fl. oz. (mL) of AVESTA CS		
0.2 fl. oz (6mL)	1-5 gals.	800-1600 sq. ft
0.4 fl. oz (12 mL)	1-5 gals.	800-1600 sq. ft
0.8 fl. oz (24 mL)	1-5 gals	800-1600 sq. ft
[1]Application volume may be greater than 5 gals./800-1600 sq. ft. if required under heavy vegetative or landscaping materials in order to obtain desired coverage.		

Examples Of Dilutions For Perimeter Barrier Applications

Application Volume Gals. of Solution per 1,000 sq. ft.	Application Rate Fl. oz (mL) of AVESTA CS per 1,000 sq. ft.	Fl. oz (mL) of AVESTA CS to Dilute in Water According to Spray Tank Volumes		
		5 gals.	10 gals.	50 gals.
1 gal. per 1,000 sq. ft.	0.2 fl. oz (6 mL) 0.4 fl. oz (12 mL) 0.8 fl. oz. (24 mL)	1 fl. oz. (30 mL) 2 fl. oz (60 mL) 4 fl. oz. (120 mL)	2 fl. oz. (60 mL) 4 fl. oz (120 mL) 8 fl. oz. (240 mL)	10 fl. oz. (300 mL) 20 fl. oz (600 mL) 40 fl. oz. (1200 mL)
2 gal. per 1,000 sq. ft.	0.2 fl. oz (6 mL) 0.4 fl. oz (12 mL) 0.8 fl. oz. (24 mL)	0.5 fl. oz. (15 mL) 1 fl. oz (30 mL) 2 fl. oz. (60 mL)	1 fl. oz. (30 mL) 2 fl. oz (60 mL) 4 fl. oz. (120 mL)	5 fl. oz. (150 mL) 10 fl. oz (300 mL) 20 fl. oz. (600 mL)
5 gal. per 1,000 sq. ft.	0.2 fl. oz (6 mL) 0.4 fl. oz (12 mL) 0.8 fl. oz. (24 mL)	0.2 fl. oz. (6 mL) 0.4 fl. oz (12 mL) 0.8 fl. oz. (24 mL)	0.4 fl. oz. (12 mL) 0.8 fl. oz (24 mL) 1.6 fl. oz (48 mL)	2 fl. oz. (60 mL) 4 fl. oz (120 mL) 8 fl. oz. (240 mL)

Example calculation: to apply the mid-rate of AVESTA CS at a volume of 5 gal./1,000 sq. ft., mix 4 oz of concentrate in 50 gallons of water. The percent active ingredient in the finished AVESTA CS dilution can be calculated with the following formula:

mL needed to add times 9.7% active in concentrate, divided by gal. finished dilution times 3785 mL/gal. = % active in dilution (Example: 4 oz. in 50 gal. is 120 mL times 9.7 equals 1164, and 50 gal. times 3785 is 189250. Dividing 1164 by 189250 equals 0.006% active in the tank dilution).

NOTE: Do not use water based sprays of **AVESTA CS** in conduits, motor housings, junction boxes, switch boxes, or other electrical equipment because of possible shock hazard. Thoroughly wash out sprayer and screen with water and detergent before using **AVESTA CS**. **AVESTA CS** has not stained or caused damage to painted or varnished surfaces, plastics, fabrics, or other surfaces where water applied alone causes no damage. However, treat a small area and allow to dry, to determine whether staining will occur.

LET TREATED SURFACES DRY BEFORE ALLOWING HUMANS AND PETS TO CONTACT SURFACES.

RESTRICTIONS:

- DO NOT use this product with oil.
- DO NOT apply this product in any room being used as living, eating, sleeping, or recovery area by patients, the elderly, or infirm when they are in the room.
- DO NOT apply to institutions (including libraries, sports facilities, etc.,) in the immediate area when occupants are present.
- DO NOT apply to classrooms when in use.
- DO NOT apply this product to edible growing crops or stored raw agricultural commodities used for food or feed.
- DO NOT allow applications to contact water inhabited by fish, such as in aquariums and ornamental fish ponds that are located in/around structures being treated.

LAWNS/TURFGRASS AND ORNAMENTALS

AVESTA CS may be used for applications to maintain indoor or outdoor areas where turf and ornamentals are grown such as residential landscaped areas and non-residential landscapes around institutional, public, commercial and industrial buildings, parks, recreational areas, and athletic fields (Including trees, shrubs, flowers, evergreens, foliage plants and groundcovers). Application rates for turf and ornamentals are lower than structural pest control rates, reflecting that treatment intervals are more frequent.

Applicators must ensure that they are certified in the necessary pesticide certification categories to allow application of **AVESTA CS** away from structures, such as to turf and ornamental plantings. Structural pest control certification categories may limit the distance away from structures for pesticide application. Consult your state extension office or pesticide regulatory officials for further information.

IMPORTANT: Time application to flowering plants during periods when pollinating insects are not present, such as early morning or late evening.

RESTRICTIONS:

- **DO NOT** apply this product through any type of irrigation system.
- **DO NOT** apply this product to edible crops.
- **DO NOT** apply this product by aerial application.
- Use of this pesticide adjacent to water may affect aquatic organisms. To protect these organisms, **DO NOT** apply this pesticide within 25 ft. of lakes, reservoirs, rivers, permanent streams, marshes or natural ponds, estuaries, and commercial fish farm ponds.
- **DO NOT** make outdoor broadcast applications to turf and ornamentals when wind speed is 15 mph or greater.
- In the state of New York, **DO NOT** apply within 100 ft. of coastal marshes or streams that drain into coastal marshes.

Mixing Instructions

AVESTA CS is to be mixed with water and may be used in all types of standard application equipment. Fill applicator tank with the desired volume of water and add **AVESTA CS**. It is suggested that the water be 5 - 7 pH. Adjust water pH with a buffering agent if necessary. Slowly add **AVESTA CS** to applicator tank water with maximum agitation. Close and shake or reagitate applicator tank before use if application is interrupted. Make up only amount of treatment volume as required.

Tank Mixing

AVESTA CS may be tank mixed with other currently registered pesticides unless expressly prohibited by the product label. A small volume mixing test with the other products is recommended to ensure compatibility. If other chemicals are added to the applicator tank, **AVESTA CS** should be added last. Fill tank to desired volume and continue to agitate while making applications. If mixed with EC formulations, use within 24 hours.

Observe all restrictions and precautions which appear on the labels of these products.

INSECT CONTROL on ORNAMENTAL PLANTS

AVESTA CS is for use to control the pests listed in the table below in such areas as residential landscaped areas and landscaped areas around institutional, public, commercial and industrial buildings, parks, recreational areas, and athletic fields (including trees, shrubs, flowers, evergreens, foliage plants and groundcovers).

NOTE: While phytotoxicity testing has been carried out on a wide range of ornamental plants under various environmental conditions, and no phytotoxicity has been observed, certain cultivars may be sensitive to the final spray solution.
It is advised to prespray a selection of ornamental plants and observe them for 7-10 days prior to treating large areas if local use experience is unavailable.

RESTRICTIONS:

• **DO NOT** apply more than 0.36 lbs. of the a.i. (52.4 fl. ozs. of concentrate) per acre per year.

TANK DILUTION RATES FOR ORNAMENTAL PESTS

Pest	Amount of AVESTA CS	Application Instructions
Ants (Including Imported fire Ants) Armyworms Azalea caterpillars Aphids Bagworms Black vine weevils (adult) Boxelder bugs Budworms California oakworms Cankerworms Cockroaches Crickets Cutworms Eastern tent caterpillars Elm leaf beetles European sawflies Fall webworms Flea beetles Forest tent caterpillars Gypsy moth larvae Japanese beetles (adults) June beetles (adults) Lace bugs Leaf-feeding caterpillars Leafhoppers Leafminers (adults) Leaf rollers Leaf skeletonizers Midges Mosquitoes Oleander moth larvae Pillbugs Pine sawflies Pine shoot beetles Pintip moths Plant bugs Root weevils Sawflies Scale insects (crawlers) Spiders Spittlebugs Striped beetles Striped oakworms Thrips Tip moths Tussock moth larvae Wasps	1.5 - 5 fl. oz. per 100 gals. or 44 - 148 mL per 100 gals	Application to ornamentals should be started prior to the establishment of high insect pest populations. Apply at 7-day intervals if retreatment is necessary. Limit more frequent treatment to spot treatments. Good spray coverage is necessary to provide the most effective level of control. Addition of a spreader-sticker at recommended rates may enhance the control of insects on certain species of ornamentals having waxy, hard to wet foliage. For spot treatments use 0.5 fl. oz. **AVESTA CS** per 1 - 2.5 gals. of water. Consult your state university or local Cooperative Extension Service office for specific pest control application timing in your area. **Scale**: Thoroughly cover the plant with **AVESTA CS** spray, including trunks, stems, twigs, and foliage for control of scale insects (crawler stage). **Bagworm**: Apply **AVESTA CS** when bagworm larvae begin to hatch. Spray directly on the larvae. Application is the most effective when the larvae are young.

Broadmites Brown softscales California redscales (crawlers) Clover mites Mealybugs Pineneedlescales (crawlers) Spider mites Whiteflies	3 - 5 fl. oz per 100 gals or 88 – 148 mL per 100 gals.	

AVESTA CS Mixing Chart for Ornamental Insect Pest Control
(**AVESTA CS** to add per spray tank)

Rate of AVESTA CS	25 Gals.	50 Gals.	100 Gals.	200 Gals.	300 Gals.
1.5 oz[1]	0.4 oz	0.8 oz	1.5 oz	3.0 oz	4.5 oz
3 oz[2]	0.8 oz	1.5 oz	3.0 oz	6.0 oz	9.0 oz
5 oz[3]	1.3 oz	2.5. oz	5.0 oz	10.0 oz	15.0 oz

[1]Equivalent to 3.5 mL per 1,000 sq. ft. (5 oz per acre) when applied at 8 gal. per 1,000 sq. ft.
[2]Equivalent to 7 mL per 1,000 sq. ft. (10 oz. per acre) when applied at 8 gal. per 1,000 sq. ft.
[3]Equivalent to 9.5 mL per 1,000 sq. ft. (14 oz. per acre) when applied at 8 gal. per 1,000 sq. ft.

LAWN/TURFGRASS INSECT PEST CONTROL
AVESTA CS is for use to control the pests listed in the table below around such areas as residential, institutional, public, commercial and industrial buildings, parks, recreational areas and athletic fields.

RESTRICTIONS:
- **KEEP CHILDREN AND PETS OFF TREATED AREAS UNTIL SPRAY HAS DRIED FOLLOWING APPLICATION.**
- **DO NOT** apply when turfgrass is waterlogged or when soils are saturated with water (i.e. will not accept irrigation).
- **DO NOT** apply more than 0.36 lbs. of a.i. (52.4 fl. oz. of concentrate) per acre per year.

RATES FOR LAWN AND TURFGRASS PESTS

Pest	Amount of AVESTA CS*	Application Instructions
Ants (Including Imported Fire Ants) Armyworms Centipedes Chinch Bugs Crickets Cutworms Earwigs Fleas (adult) Grasshoppers Japanese beetles (adults) Millipedes Mites Sod webworms Sow bugs Ticks (including species which transmit Lyme disease)	3.4 – 7 mL per 1,000 sq. ft. or 5 – 10 fl. oz per acre	Application to turf should be started prior to the establishment of high insect pest populations and significant turf damage. Make reapplications as necessary to keep pest populations under control using higher rates as pest pressure increases. Apply at 7-day intervals if retreatment is necessary. More frequent treatments should be limited to spot treatments. For **spot treatments**, use 0.5 fl. oz. of **AVESTA CS** per 1 - 2.5 gals. of water. **Surface Insect Control (armyworm, cutworms, fleas, etc.):** Apply **AVESTA CS** at recommended rates in 2 - 5 gals. of water per 1,000 sq. ft. The use of a spreader-

Bluegrass billbugs (adult) Black turfgrass ataenius (adult) Chiggers Fleas (adult) Grubs (suppression) Hyperodes weevils (adult) Mole crickets (nymphs and young adults)	7 mL per 1,000 sq.ft. or 10 fl. oz. per acre	sticker may be useful if high rainfall amounts are forecast, otherwise the addition of adjuvants is not necessary under normal conditions for surface insect control in turf. Delay watering or mowing for 12 - 24 hours to control surface-feeding insect pests. **Thatch Inhabiting Insect Control (chinch bugs, billbugs, etc.):** Apply **AVESTA CS** at recommended rates in 2 - 10 gals. of water per 1,000 sq. ft. The use of a nonionic wetting agent, penetrant or similar adjuvant is recommended at label rates. Lightly irrigate after application with up to 1/2 inch of water to move the **AVESTA CS** into the thatch layer. If irrigation is not available, then use high water application rates. **Subsurface Insect Control (mole crickets, grubs, etc.):** Apply **AVESTA CS** at recommended rates in 4 - 10 gals. of water per 1,000 sq. ft. The use of a nonionic wetting agent, penetrant or similar adjuvant is strongly recommended following label rates. Use the highest water application rates possible with your sprayer. Apply **AVESTA CS** to turf wet with dew, rain or irrigation. Water-in immediately after application with ¼ - ½ inch of water. **Fire Ant Control:** Treat individual mounds with a drench application using a watering can. Use 0.5 fl. oz. of **AVESTA CS** per 2.5 gals. of water. Thoroughly soak each mound and a 3 ft. diameter circle around each mound. Gently apply the mixture to avoid disturbing the mound. Disturbing the mound may cause the ants to migrate and reduce the effectiveness of the treatment. Apply in early morning or late evening hours. You may make applications on a monthly basis to maintain protection of treated areas. **Mosquito Control:** Apply as a general spray around landscape plantings, turf, and building foundations to control mosquitoes. Apply **AVESTA CS** at recommended rates in 2 – 5 gals. of water per 1,000 sq. ft.
*Example: To treat the listed turf pests at the 7 mL per 1,000 sq. ft. rate, determine the gallons of dilution per 1,000 sq. ft. needed to adequately cover the turf. At a 5 gallon per 1,000 sq. ft. dilution, take the 7 mL and divide it by the 5 (gallon) to get 1.4. mL to be added per gallon. For a 50 gallon tank, therefore, this would be 1.4. mL X 50 = 70 mL (or 2.5. oz) in 50 gallons water.		

AVESTA CS Mixing Chart for Turf Insect Pest Control
(AVESTA CS to add per 100 gal. spray tank)

	Application Rate Per 1,000 Square Feet of Turf				
	2 gal.	**4 gal.**	**6 gal.**	**8 gal.**	**10 gal.**
5 oz. per acre	5.7 oz.	2.9 oz.	1.9 oz.	1.4 oz.	1.2 oz.
10 oz. per acre	11.5 oz.	5.7 oz.	3.8 oz.	2.9 oz.	2.3 oz.
Conversion Rate: 1 fluid ounce (fl. oz.) equals 29 milliliters (mL)					

STORAGE AND DISPOSAL

Do not contaminate water, food or feed by storage or disposal.

Storage and Spill Procedures: Store upright at room temperature. Keep container closed when not in use. Do not store near food or feed. Avoid exposure to extreme temperatures. In case of spillage or leakages, soak up with an absorbent material such as sand, sawdust, earth, Fuller's earth, etc. Dispose of with chemical waste.

Pesticide Disposal: Pesticide, spray mixture or rinse water that cannot be used according to label instructions must be disposed of at or by an approved waste disposal facility.

Container Disposal:

Nonrefillable container. Do not reuse or refill this container. Clean container promptly after emptying. Triple rinse as follows: Empty the remaining contents into application equipment or a mix tank and drain for 10 seconds after the flow begins to drip. Fill the container ¼ full with water and recap. Shake for 10 seconds. Pour rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Drain for 10 seconds after the flow begins to drip. Repeat this procedure two more times. Offer for recycling if available.

LIMITED WARRANTY AND DISCLAIMER

The manufacturer warrants (a) that this product conforms to the chemical description on the label; (b) that this product is reasonably fit for the purposes set forth in the directions for use, subject to the inherent risks referred to herein, when it is used in accordance with such directions; and (c) that the directions, warnings, and other statements on this label are based upon responsible experts' evaluations of reasonable tests of effectiveness, of toxicity to laboratory animals and to plants and residues on food crops, and upon reports of field experience. Tests have not been made on all varieties of food crops and plants, or in all states or under all conditions.

THERE ARE NO EXPRESS WARRANTIES OTHER THAN THOSE SET FORTH HEREIN. TO THE EXTENT CONSISTENT WITH APPLICABLE LAW THE MANUFACTURER NEITHER MAKES NOR INTENDS, NOR DOES IT AUTHORIZE ANY AGENT OR REPRESENTATIVE, TO MAKE ANY OTHER WARRANTIES, EXPRESS OR IMPLIED, AND IT EXPRESSLY EXCLUDES AND DISCLAIMS ALL IMPLIED WARRANTIES OF MERCHANTABILITY OF FITNESS FOR A PARTICULAR PURPOSE, OR ANY WARRANTY OF QUALITY OR PERFORMANCE. THIS WARRANTY DOES NOT EXTEND TO, AND THE BUYER SHALL BE SOLELY RESPONSIBLE FOR, ANY AND ALL LOSS OR DAMAGE WHICH RESULTS FROM THE USE OF THIS PRODUCT IN ANY MANNER WHICH IS INCONSISTENT WITH THE LABEL DIRECTIONS, WARNINGS OR CAUTIONS.

TO THE EXTENT CONSISTENT WITH APPLICABLE LAW BUYER'S EXCLUSIVE REMEDY AND MANUFACTURER'S OR SELLER'S EXCLUSIVE LIABILITY FOR ANY AND ALL CLAIMS, LOSSES, DAMAGES, OR INJURIES RESULTING FROM THE USE OR HANDLING OF THIS PRODUCT, WHETHER OR NOT BASED IN CONTRACT, NEGLIGENCE, STRICT LIABILITY IN TORT OR OTHERWISE, SHALL BE LIMITED, AT THE MANUFACTURER'S OPTION, TO REPLACEMENT OF, OR THE REPAYMENT OF THE PURCHASE PRICE FOR, THE QUANTITY OF PRODUCT WITH RESPECT TO WHICH DAMAGES ARE CLAIMED. TO THE EXTENT CONSISTENT WITH APPLICABLE LAW MANUFACTURER OR SELLER SHALL NOT BE LIABLE FOR SPECIAL, INDIRECT OR CONSEQUENTIAL DAMAGES RESULTING FROM THE USE OR HANDLING OF THIS PRODUCT.

AMVAC offers this product, and Buyer accepts it, subject to the foregoing Limited Warranty which may be varied only by agreement in writing signed by an authorized representative of AMVAC.

Inspection ID	Inspection Date	Associated EC	Location	Background	Potential Violation Notes
RC-104814	5/22/2024	EC-78856	Gray	Application made 5/1/24, Complaint recevied 5/16/24	Improper Property Verification, Improper PPE (no gloves), label use violation for Devito, Applicator walking into spray
RC-105823	5/16/2024	None	Old Orchard Beach	Witnessed directly by inspector, not initiated by complaint	Improper PPE (no gloves), Label use viloations for Devito product, applicator walking into spray
RC-107835	5/24/2024	EC-77858	Scarborough	Samples collected on or about the day after the application, comp	Sample results Non-Detect and Q (below quantitiation)
RC-107824	6/3/2024	EC-77858	Scarborough		label use vilation for Devito, applicator walking into spray, applicator sprays flowers in bloom
RC-108809	7/8/2024	EC-79857	Scarborough	Samples collected on or about three days after the application (d	N/A
RC-111812	7/11/2024	EC-79857	Scarborough		Applicator sprays flowers in bloom, applicator walks into spray
RC-109832	7/29/2024	EC-79857	Scarborough	Samples collected on or about three days after application, comp	Bifenthrin detected at 0.0084ppm, below the 1% threshhold
RC-109831	7/31/2024	EC-79857	Scarborough		Applicator sprays flowers in bloom, applicator walks into spray
RC-112816	9/6/2024	EC-79857	Scarborough	Samples collected on or about the same day of application, comp	Sample detections below 1% for bifentrhin in both the immediate neighboring house and next house down (0.018ppm and 0.016ppm respectively)
RC-108825	9/17/2024	EC-79857	Scarborough		Applicator walks into spray, sleeves rolled up during application, applicator walks into spray despite label warning to avoid product contact with humans until dry

STATE OF MAINE
DEPARTMENT OF AGRICULTURE, CONSERVATION AND FORESTRY
BOARD OF PESTICIDES CONTROL
28 STATE HOUSE STATION
AUGUSTA, MAINE 04333

JANET T. MILLS
GOVERNOR

AMANDA E. BEAL
COMMISSIONER

October 17, 2024

Parterre Ecological/Parterre Garden Services
Shana Hostetter
14 Braintree St.
Portland, ME 04103

RE: Variance permit for CMR 01-026 Chapter 29, Parterre Ecological/Parterre Garden Services

Greetings,

The Board of Pesticides Control considered your application for a variance from Chapter 29. The variance is approved, provided that all products to be used are currently registered in the State of Maine or were registered at the time of purchase and that any application is made above the high-water line.

The Board authorizes the issuance of two-year permits for Chapter 29, therefore this permit is valid until December 31, 2025, as long as applications are consistent with the information provided on the variance request. Please notify the Board in advance of changes, particularly if you plan to use a different product from those listed.

Please bear in mind that your permit is based upon your company adhering to the precautions listed in Section X of your Chapter 29 variance request.

I will alert the Board at its next meeting that the variance permit has been issued. If you have any questions concerning this matter, please feel free to contact me at 287-2731.

Sincerely,

Alexander Peacock

Alexander Peacock
Director

ALEXANDER PEACOCK, DIRECTOR
90 BLOSSOM LANE, DEERING BUILDING

maine DEPARTMENT OF Agriculture Conservation & Forestry

PHONE: (207) 287-2731
THINKFIRSTSPRAYLAST.ORG

BOARD OF PESTICIDES CONTROL
APPLICATION FOR VARIANCE PERMIT
(Pursuant to Chapter 29, Section 6 of the Board's Regulations)

I. Shana Hostetter — (717) 587-5355
Name — Telephone Number

Parterre Ecological
Company Name

3 Stonecliff Road, Biddeford, Maine, 04005
Address — City — State — Zip

II. Shana Hostetter — CMA-6371
Master Applicator (if applicable) — License Number

14 Braintree Street, Portland, Maine, 04103
Address — City — State — Zip

III. **As part of your application, please send a revegetation plan and digital photos showing the target site and/or plants and the surrounding area, particularly showing proximity to wetlands and water bodies, to pesticides@maine.gov**

IV. Area(s) where pesticide will be applied:
See Attached Land Managment Plan for more details. We will apply pesticides in the 'wild spaces' at the Abenakee Golf Club. There are approximately 12 acres of wild spaces that have varied levels of invaisve plant species intermingled in within the native vegetation. The largest swath of 'wild space' is coastal and contains a wetland.

V. Pesticide(s) to be applied:(Including EPA Registration Number)
Round Up Custom, 524- 343
Garlon 3A, 62719-37

VI. Purpose of pesticide application:
To control invasive plant species in the 'wild spaces' at the Abenakee Club.

VII. Approximate dates of spray application:

November 2024 - November 2026

VIII. Application Equipment:

Cut Stump Application (Buckthorn Blaster), Backpack Sprayer, Hand-held Foamer

IX. Standard(s) to be varied from:

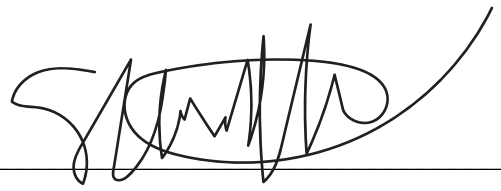
Chapter 29, Section 6, Section A

X. Method to ensure equivalent protection:

When using backpack sprayer we will be using large droplet sizes to minimize drift. We will only apply herbicide when the wind is less than 15mph. Spray only when ground is dry and not saturated with water. Avoid spraying when forecasts show a threat of heavy rains. Do not spray on rainy days and cease spray operations if rain is in the immediate forecast.

XI. Revegetation Plan (attach separately if necessary)

See attached Land Management Plan

Signed:  Date: 10/11/24

Return completed form to: **Board of Pesticides Control, 28 State House Station, Augusta, ME 04333-0028**
OR E-mail to: pesticides@maine.gov

Rev. 8/2013

LAND MANAGEMENT PLAN

A NARRATIVE FOR INVASIVE MANAGEMENT & NATIVE PLANT RESTORATION

View of the Lower Wet Area and Beach Edge

ABENAKEE GOLF CLUB · BIDDEFORD POOL, MAINE

PARTERRE
ECOLOGICAL

PROJECT INTRODUCTION

This plan addresses a proposed invasive management and restoration planting at the Abenakee Golf Club located at 2 Stone Cliff Road in Biddeford Pool, Maine. There is about 12 acres of wild space on this golf course. Most of that acreage is buffer space between the greens of the golf course and the coast. There is a smaller section of wild space called 'The Pit,' and a 20-30' strip that boarders the Audubon's property.

Over all the wild spaces are densely vegetated with woody trees and shrubs, although there are pockets of mowed meadow. There is significant invasive plant pressure in these wild spaces especially along the edges. The interior of the largest swath of wild space does contain a wetland. This area seems to be minimally invaded and consists mostly of native species. See Appendix B for more details.

The invasive population on site is mature and self-perpetuating. These species will inevitability displace the remnant native population unless decisive action is taken. These invasives include common culprits such as privet, bittersweet, honeysuckle, barberry, Norway maple, sycamore maple, and a very small patch of Japanese Knotweed.

Knotweed is the most aggressive of invaders, and one that requires aggressive and immediate means of control. Luckily, there is only a small and very manageable patch currently. Immediate action should be taken to control that patch before it takes hold and creates a bigger problem.

The purpose of this plan is to identify the invasives plants we propose to remove, provide a description of each, and detail best management practices for control and management. The plan also includes a narrative for proposed native restoration, specifies plant species and delineates planting methods.

Finally, it provides a detailed maintenance calender for all aspects of proposed management and ecological restoration over an extended timeline.

CONTENTS

ABENAKEE CLUB GEOGRAPHY & GOALS

The Abenakee Club is situated in the middle of the Biddeford Pool peninsula. The property borders Wood Island Harbor to the north, the Audubon Sanctuary and the East Point Sanctuary is to the east, and residential properties make up the southern and western borders. Most of the property consists of manicured greens for playing golf. About 12 acres of the property are wild spaces that contain wetlands, uplands, sandy coastlines, shrublands, and meadows. There is a mix of native and invasive plant vegetation. The invasive plants are mostly concentrated on the edges of the wild spaces and are starting to dominate the native ecosystems that are present. The goal of this Land Management Plan is to present an inventory of the native and invasive species, identify the level of invasive plant pressure, share our Invasive Plant Management strategies, and propose native species to replace the removed invasives if necessary.

Property Boundary of the Abenakee Golf Club

Wild Spaces Where Invasive Plant Management Will Occur

0' 100' 200' 300'

EXISTING CONDITIONS: INVASIVE PLANT IMAGES

‘The Pit’ is starting to be dominated by bittersweet, honeysuckle and barberry.

Small patch of knotweed located on the path toward the coast.(Path to Beach)

There are several large invasive trees like Norway maples and sycamore maples on site. These trees will continue to grow bigger and produce offspring that will start to dominate the overstory. (Lookout Tower Area)

EXISTING CONDITIONS: INVASIVE PLANT IMAGES

Bittersweet is one of the most prolific invasive species on site. It is seen here dominating the native alders, willows and asters. (Lower Wet Area)

Bittersweet is producing fruit on the wild edge along the course. (Lower Wet Area)

Privet has escaped from the hedge planted by the tennis courts and has taken hold in some of the wild spaces. (Lower Wet Area)

EXISTING CONDITIONS: INVASIVE PLANT IMAGES

Honeysuckle growing along the coast. (Beach Edge)

Bittersweet along the property line that borders residential properties. (Residential Edge)

EXISTING CONDITIONS: INVASIVE SPECIES INVENTORY

Upland Area

Invasive Pressure: Medium to High
Edges worse than interior

INVASIVES/UNDESIRABLE NON-NATIVES:

TREES/SHRUBS/WOODY VINES

Lonicera sp. (Shrub Japanese Honeysuckle)
Celastrus orbiculatus (Asiatic Bittersweet)
Acer platanoides (Norway Maple)

HERBACEOUS PLANTS

Solanum dulcamara (Bittersweet Nightshade)
Rubus phoenicolasius (Wineberry)

Upper Meadow

Invasive Pressure: Low
Area appears to be mowed frequently

INVASIVES/UNDESIRABLE NON-NATIVES:

WOODY VINE

Celastrus orbiculatus (Asiatic Bittersweet)

Beach Edge

Invasive Pressure: Medium to High

INVASIVES/UNDESIRABLE NON-NATIVES:

TREES/SHRUBS/WOODY VINES

Ligustrum sp. (Privet)
Rosa rugosa (Rugosa Rose)
Lonicera sp. (Bush Honeysuckle)
Celastrus orbiculatus (Asiatic Bittersweet)

HERBACEOUS PLANTS

Solanum dulcamara (Bittersweet Nightshade)

Lower Wet Area

Invasive Pressure: Medium-High
Edges worse than interior

INVASIVES/UNDESIRABLE NON-NATIVES:

TREES/SHRUBS/WOODY VINES

Trees/Shrubs/Woody Plants
Celastrus orbiculatus (Asiatic Bittersweet)
Ligustrum sp. (Privet)
Acer platanoides (Norway Maple)

HERBACEOUS PLANTS

Convolvulus arvensis (Field Bindweed)
Lythrum salicaria (Purple Loosestrife)
Rubus phoenicolasius (Wineberry)
Securigera varia (Crown Vetch)
Cirsium arvense (Canada Thistle)

Path to Beach

Invasive Pressure: Medium to High
Edges worse than interior

INVASIVES/UNDESIRABLE NON-NATIVES:

TREES/SHRUBS/WOODY VINES

Acer platanoides (Norway Maple)
Lonicera sp. (Shrub Japanese Honeysuckle)
Celastrus orbiculatus (Asiatic Bittersweet)
Rosa rugosa (Rugosa Rose)

HERBACEOUS PLANTS

Fallopia japonica (Japanese Knotweed)

Lookout Tower Area

Invasive Pressure: Low

INVASIVES/UNDESIRABLE NON-NATIVES:

TREES/SHRUBS/WOODY VINES

Lonicera sp. (Shrub Japanese Honeysuckle)
Ligustrum sp. (Privet)
Celastrus orbiculatus (Asiatic Bittersweet)
Acer platanoides (Norway Maple)

The Pit

Invasive Pressure: Medium

INVASIVES/UNDESIRABLE NON-NATIVES:

TREES/SHRUBS/WOODY VINES

Celastrus orbiculatus (Asiatic Bittersweet)
Lonicera sp. (Shrub Japanese Honeysuckle)
Berberis vulgaris (Barberry)

HERBACEOUS PLANTS

Rubus phoenicolasius (Wineberry)
Artemisia vulgaris (Mugwort)
Securigera varia (Crown Vetch)

Residential Edge

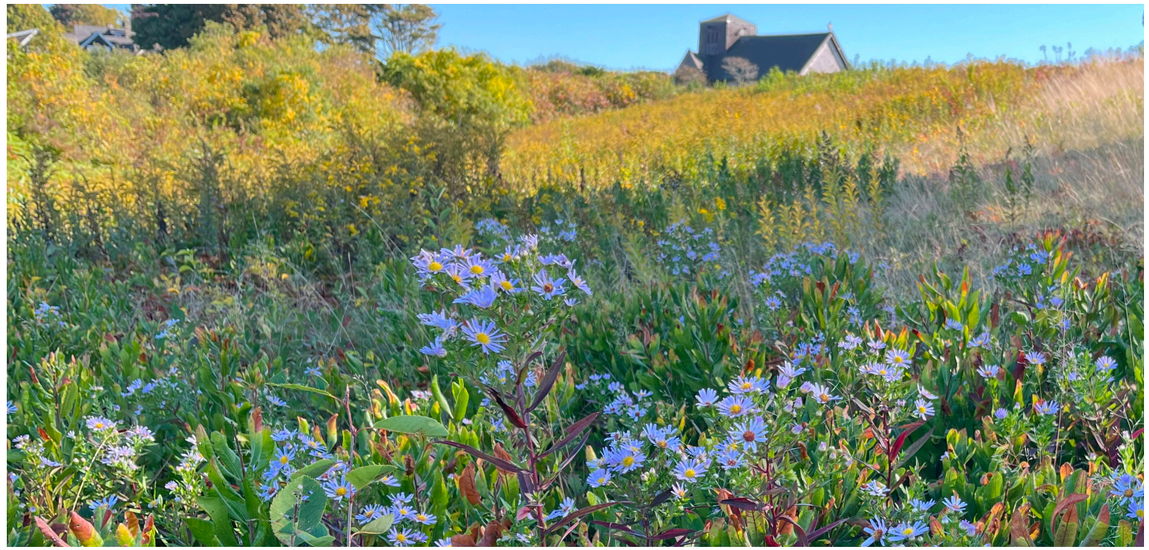
Invasive Pressure: Spotty, low

INVASIVES/UNDESIRABLE NON-NATIVES:

TREES/SHRUBS/WOODY VINES

Lonicera sp. (Shrub Japanese Honeysuckle)
Ligustrum sp. (Privet)
Celastrus orbiculatus (Asiatic Bittersweet)
Solanum dulcamara (Bittersweet Nightshade)

EXISTING CONDITIONS: NATIVE PLANT IMAGES



Bayberry, goldenrod and asters growing in a mowed area of the wild spaces at the Abenakee Club. (Upper Meadow)

Above: High bush cranberry fruiting in the fall.
Below: Winterberry shown here along the edge of the wild space and golf greens. (Lower Wet Area)

Black willow and pussy willow are prominent along the lower wet areas of the wild spaces. (Lower Wet Area)

EXISTING CONDITIONS: NATIVE PLANT IMAGES

Staghorn sumac with pitch pine in the distance. (The Pit)

Little Bluestem naturalizing in meadow areas. (The Pit)

Bayberry and Virginia rose intermingling on the edge of the wild areas. (Lookout Tower Area)

EXISTING CONDITIONS: NATIVE SPECIES INVENTORY

See map on page 7 for location of zones

Upland Area

Invasive Pressure: Medium to High
Edges worse than interior

NATIVES:

TREES/SHRUBS/WOODY VINES

Prunus sp. (Cherry)
Pinus strobus (White Pine)
Crataegus sp. (Hawthorn)
Rhus typhina (Staghorn Sumac)
Amelanchier sp. (Serviceberry)
Sorbus americana (Mountain Ash)
Viburnum trilobum (Cranberrybush Viburnum)
Spiraea alba (Meadowsweet)
Rubus sp. (Raspberry, Blackberry, etc.)
Myrica pensylvanica (Bayberry)
Rosa sp. (Native Roses)

HERBACEOUS PLANTS

Solidago sp. (Goldenrods)
Euthamia sp. (Grass-leaved Goldenrod)
Symphyotrichum sp. (Asters)

Upper Meadow

Invasive Pressure: Low
Area appears to be mowed frequently

NATIVES:

TREES/SHRUBS/WOODY VINES

Myrica pensylvanica (Bayberry)
Prunus sp. (Cherry)
Spiraea alba (Meadowsweet)
Vaccinium angustifolium (Lowbush Blueberry)
Viburnum dentatum (Arrowwood Viburnum)
Toxicodendron radicans (Poison Ivy)

HERBACEOUS PLANTS

Solidago sp. (Goldenrods)
Euthamia sp. (Grass-leaved Goldenrods)
Rubus sp. (Dewberry)
Achillea millefolium (Yarrow)
Fragaria virginiana (Wild Strawberry)
Rubus sp. (Blackberry)

Residential Edge

Invasive Pressure: Spotty, low

Mostly ornamental plants.

Lower Wet Area

Invasive Pressure: Medium-High
Edges worse than interior

NATIVES:

TREES/SHRUBS/WOODY VINES

Salix discolor (Pussy Willow)
Salix sp. (Willow)
Acer rubrum (Red Maple)
Ilex verticillata (Winterberry)
Cornus racemosa (Gray Dogwood)
Alnus sp. (Alder)
Viburnum trilobum (Cranberrybush Viburnum)
Parthenocissus quinquefolia (Virginia Creeper)

HERBACEOUS PLANTS

Symphyotrichum sp. (Asters)
Impatiens capensis (Jewelweed)
Typha sp. (Cattail)
Rubus sp. (Raspberry, Blackberry, etc.)
Euthamia sp. (Grass-leaved Goldenrod)
Solidago sp. (Goldenrods)

Path to Beach

Invasive Pressure: Medium to High
Edges worse than interior

NATIVES:

TREES/SHRUBS/WOODY VINES

Viburnum trilobum (Cranberrybush Viburnum)
Alnus sp. (Alders)
Cornus sericea (Redtwig Dogwood)
Viburnum dentatum (Arrowwood Viburnum)
Ilex verticillata (Winterberry)

HERBACEOUS PLANTS

Onoclea sensibilis (Sensitive Fern)
Symphyotrichum sp. (Asters)
Carex sp. (Sedges)
Impatiens capensis (Jewelweed)

Beach Edge

Invasive Pressure: Medium to High

NATIVES:

TREES/SHRUBS/WOODY VINES

Amelanchier sp. (Serviceberry)
Populus tremuloides (Quaking Aspen)
Quercus rubra (Red Oak)
Prunus sp. (Cherry)
Viburnum dentatum (Arrowwood Viburnum)

HERBACEOUS PLANTS

Symphyotrichum sp. (Asters)
Solidago sempervirens (Seaside Goldenrod)

Lookout Tower Area

Invasive Pressure: Low

NATIVES:

TREES/SHRUBS/WOODY VINES

Myrica pensylvanica (Bayberry)
Prunus sp. (Cherry)
Spiraea alba (Meadowsweet)
Juniperus communis (Common Juniper)
Rosa sp. (Roses)
Amelanchier sp. (Serviceberry)
Vaccinium corymbosum (Highbush Blueberry)

HERBACEOUS PLANTS

Solidago sp. (Goldenrods)
Symphyotrichum sp. (Asters)

The Pit

Invasive Pressure: Medium

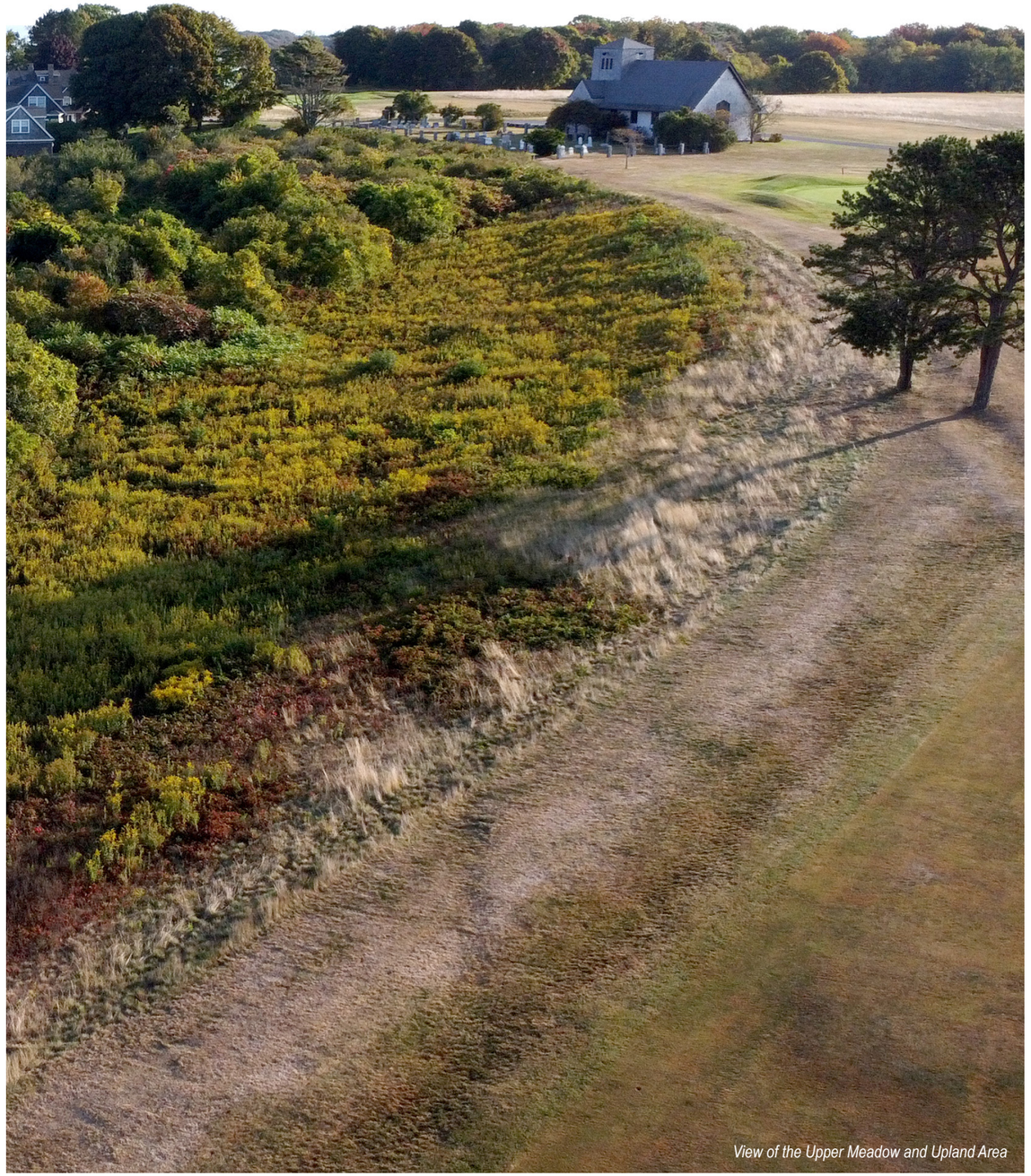
NATIVES:

TREES/SHRUBS/WOODY VINES

Comptonia peregrina (Sweet Fern)
Myrica pensylvanica (Bayberry)
Toxicodendron radicans (Poison Ivy)
Rhus typhina (Staghorn Sumac)
Salix sp. (Willow)
Amelanchier sp. (Serviceberry)
Spiraea alba (Meadowsweet)
Betula populifolia (Gray Birch)
Rosa sp. (Roses)
Quercus velutina (Black Oak)

HERBACEOUS PLANTS

Solidago sp. (Goldenrods)
Schizachyrium scoparium (Little Bluestem)



View of the Upper Meadow and Upland Area

PROPOSED GENERAL INVASIVE MANAGEMENT TECHNIQUES

MANUAL HAND REMOVAL METHODS:

Manual methods of invasive plant management - including hand pulling and cutting - will be prioritized whenever possible. For tenacious woody plants, use of a weed-wrench is recommended. To minimize soil disturbance (which can activate invasive seed banks), only shallow-rooted invasive plants less than 1” in caliper should be hand pulled from the soil. Invasive plant species greater than 1” caliper are best cut and treated. Invasive plant material will be disposed of off site, chipped and spread, or piled discreetly in the woods as habitat piles.

MECHANICAL MANAGEMENT:

Mechanical methods of invasive control include mowing, string-trimming, and sawing down of single large specimens or extensive stands of a particular plant. In a few cases repeated mowing or cutting is all that is needed to weaken a plant’s resources to the point of die-off. With most aggressive invasives however, mowing and cutting are only the first step in a more intensive program plan that involves selective herbicidal treatments.

Hand pulling invasives will be prioritized.

Mechanical mowing of a dense stand of phragmites.

PROPOSED GENERAL INVASIVE MANAGEMENT TECHNIQUES

CUT AND DAB TREATMENT:

All invasive plant species that have a base greater than 1” in caliper will be addressed with herbicide application. Invasive plants of this size usually have extensive fibrous root systems which provide beneficial soil stabilization and are best left in situ. Unfortunately, they also maintain the ability to resprout, which is why we propose a cut and dab method with Garlon 3A™ (a triclopyr-based herbicide) on individual cut stumps. Licensed Herbicide Applicators will complete all treatments.

FOAM APPLICATION:

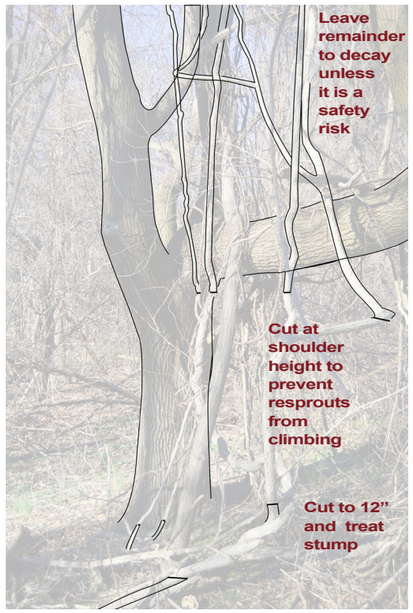
Some invasives, particularly persistent herbaceous plants like Japanese Knotweed, or resprouting woodies, are best managed with a foliar foam application. This technique allows the technician to systematically target the new green growth of a plant, where herbicide is absorbed most effectively. The foam adheres to the foliage and the herbicide is trans-located through the vascular system of the plant. Foliar foam wipes are best performed in late summer to fall when the plant is actively reserving energy in the rootstock.

Licensed applicators with required Personal Protective Equipment paint the stems of invasive species after cutting.

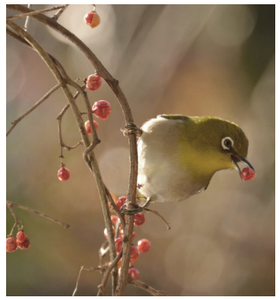
Licensed applicators with required Personal Protective Equipment paint the stems of invasive species after cutting.

SPECIALIZED INVASIVE MANAGEMENT TECHNIQUES:
ASIATIC BITTERSWEET

Invasive Bittersweet (Celastrus orbiculatus) has the capacity to girdle, weaken, and even kill mature canopy trees. Without consistent management, vines will eventually open large holes in the canopy while suppressing saplings from filling the gaps. They readily resprout after being cut and can damage the aesthetic and ecological value of meadows and forests alike.



Removing the entire vines from trees is often dangerous and unnecessary (unless it poses safety risk). Best management practice involves making cuts at shoulder height followed by a cut at 12" and immediate herbicide treatment. Bittersweet aggressively suckers after cutting so it is important to cut and treat during or after its flowering period (late June to December).



Established vines produce thousands of bright red berries that mature in late fall and are spread by birds.

SPECIALIZED INVASIVE MANAGEMENT TECHNIQUES:
JAPANESE KNOTWEED

Japanese Knotweed (Fallopia japonica) is one of the most difficult invasive species to control. Its main mode of spreading is through cut portions of its rhizomes or stem, which can actively resprout from a 1" fragment. Growing 10-15' and often shading out any competitors, Japanese Knotweed can quickly form a monoculture, especially along waterways and wetland edges.

Identification: Herbaceous perennial, with long heart shaped leaves and hollow stems. Young sprouts can be red.

Knotweed flowers in late August and early September.

Unfortunately, knotweed roots can extend over 6' below the ground making organic treatment nearly impossible. Even so, it can take 2-5 seasons to fully control it through repeat herbicide treatments. These are best undertaken during August and September when the plant is in its weakest stage and nutrients are flowing back into the roots There are two ways to approach treatment.

1. Cut and treat: For small patches, cut the stem between the 1st and 3rd node and add a 50% solution of a wetland-approved herbicide such as Aquaneat™ (glyphosate), generally 5 oz per treated stem. If density is < 5 ft per plant treat every third stem. Do this for 2-5 seasons.

2. Cut in May, with a foliar or stem application of herbicide in late summer. Best practice for dense mature stands of knotweed. The May mowing or cutting causes the knotweed to regrow to a more manageable height in the late summer, at which point the leaves an be easily painted with a 6.0% Aquaneat (glyphosate) solution before the plant pulls its nutrients back into the roots in preparation for winter.

RESTORATION PLANTING RECOMMENDATIONS

Restoration planting will happen once a substantial amount of the Invasive Plant Management has occurred. In the areas where the invasive plant pressure is low, we recommend letting the existing native plants creep in and take over. Where the invasive plant pressure is moderate or high, we recommend replanting with native trees, shrubs, or perennials based on the soil type and sun exposure.

For example, the areas along the Beach Edge can be naturally re-vegetated with neighboring native plants. However, the edge of the Lower Wet Area is heavily invaded with bittersweet. Once that bittersweet is removed, large gaps in the shrub layer will most likely be present. That would be a place where we would recommend replanting with native shrubs suitable to that area. See following page for examples of native trees, shrubs and perennials that we would recommend being planted in the wild areas of the Abenakee Club.

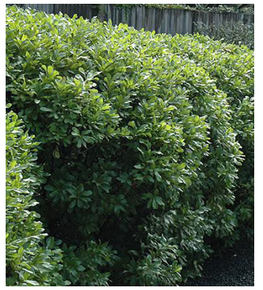
Aster novae-angliae (New England Aster) and Solidago spp. (Goldenrod) taking up space in a meadow. These would make great additions to a native meadow at the Abenakee Club as we manage out invasive vines like bittersweet.

UPLAND SHRUBS

Rosa virginiana
Virginia Rose

Aronia melanocarpa
Black Chokeberry

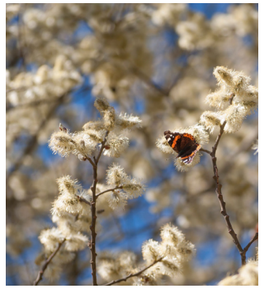
Diervilla lonicera
Northern Bush Honeysuckle



Myrica pensyvanica
Northern Bayberry

WETLAND SHRUBS

Ilex verticillata
Winterberry



Salix discolor
Pussy Willow

Clethra alnifolia
Summersweet

Sambucus canadensis
American Elderberry

SMALL TREES

Amelanchier canadensis
Serviceberry

Betula papyrifera
Paper Birch

Prunus pensylvanica
Fire Cherry

Craetegus mollis
Downy Hawthorn

PERENNIALS

Asclepias syriaca
Common Milkweed

Panicum virgatum
Switchgrass

Pycnanthemum tenuifolium
Mountain Mint

Vernonia lettermannii
Iron Butterfly Ironweed

NATIVE RESTORATION TECHNIQUES: PLUGS AND POTS

Many native herbaceous perennials and grasses are best installed as plugs, quarts, or even 1-gallon specimens for the more immediate coverage, impact, and stabilization they provide. They can be used to establish an herbaceous layer entire or overlaid in a matrix on a newly-seeded area. Container plants also allow for the creation of drifts and masses of plants in a way that simple seeding cannot. Planted correctly, their roots will quickly expand, stabilizing soils and creating an understory of healthy native vegetation.

PLANTING PLUGS

- Plugs and container plants are small, with compact root systems, and must be kept moist at all times. Water thoroughly two to three hours before planting. This also facilitates laying out as the roots will not be as liable to dessicate.
- Determine the spacing of the plugs. Dependent on species and container size, this could range anywhere from 8” to 3’ on center, in a grid formation. If massing species together, take care to put taller varieties towards the “back” of the meadow or plot; shorter plants in “front”.
- Planting holes will be dug with a variety of tools - trowels, picks, soil knives, shovels, even augers, mechanical or otherwise (especially useful in highly compacted soil). The plug’s or plant’s crown should sit at soil level and be gently tamped down around its base. Water immediately, and continue to water on a regular basis the first year of establishment.
- Mulch helps conserve soil moisture and reduces weed pressure. We recommend 2” of shredded leaf much immediately after planting.
- Whole plants will fill in more quickly than seeded areas, but weed pressure may still be high. Be vigilant in maintenance.

Plugs and container plants will have dense root systems that must be kept moist.

NATIVE RESTORATION TECHNIQUES: SEEDING DISTURBED SOILS

RESTORATION SEEDING

- The first step in seeding is a thorough site evaluation. Environmental factors such as sun exposure, soil type, topography, grade, and existing vegetation must all be considered. These attributes determine the native plant community best suited for the area.
- The second very crucial task is management of existing invasive species. This can be done though manual and mechanical means, or through the targeted and elective use of herbicides.
- Prepare the site for sowing and planting. Clear off leaves and debris, pick up twigs and sticks, and scarify the soil surface in preparation for sowing.
- Hand-broadcasting seed is the preferred method in delicate wetland soils. Plugs and container plants can be installed at the same time or can be planted once the seedlings have emerged.
- Finally, mulch the area after sowing. Mainely Mulch® protects germinating seeds while providing room for them to emerge. Thick wood chips, sawdust, or other bulky mulches will not be used.
- A three-year maintenance plan is recommended to ensure greatest success. If a newly seeded installation is managed intensively and responsibly during its establishment, it will become self-regulating and require very little to no maintenance in the future.

Clear the space of debris

Seed mixes can be hand broadcast if the space is small enough to permit it.

Newly seeded meadow with straw mulch.

MANAGEMENT CALENDER FOR TREATMENT AND PLANTING

TASK	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Hand removal woody seedlings < 1” caliper	■	■	■	■	■						□	□
Hand pulling herbaceous species			■	■	■			□	■	■	□	
Mechanical management of woody	■	■	■	■	■	□	□	□	□	□	□	□
Cut and dab herbicide on woody invasives	□	□	□	□	□	■	■	■	■	■	■	■
Japanese Knotweed Cutback				■	■	■						
Japanese Knotweed Chemical Treatment								■	■	■		
Restoration: Seeding			■	■	■	□			■	■	■	■
Restoration: Planting			□	■	■	■			■	■	□	
Restoration: Live staking	■	■	■	□						□	■	■

■ Optimal timing and efficiency

□ Not optimal but mostly effective

□ Possible, but not ideal

The timing of various containment and restoration strategies is critical to their success. Fortunately, the calender provides ample opportunity for action at any time of the year. Tasks should be performed by trained ecological technicians and licensed herbicide applicators. These recommendations for restoration take into consideration the long term health of the Abenakee Club. Once invasive plants have been managed in a particular area, the restoration of native species should begin.

PROPOSED MANAGEMENT, RESTORATION & MAINTENANCE SCHEDULE

WINTER 2024 - 2025

» Systematically remove woody invasive plants according to priority (determined by Abenakee Club and Parterre Eco).

» Apply herbicide to freshly cut stumps (if seasonally applicable).

SPRING 2025

» Continue to remove invasive woody plants from wild areas.

EARLY TO MID SUMMER 2025

» Cut and control Japanese Knotweed.

» Repeat cut and dab herbicide application to any resprouting invasive tree, shrub, and vine species.

» Hand pull any invasive seedlings less than 1” in diameter; stem treat invasive perennials and remove seed heads.

MID SUMMER TO FALL 2025

» Monitor plant response and continue hand pulling and herbicide application methods on resprouting invasive plant species.

» Apply spray or foam herbicide application to herbaceous invasive plants two times during growing season.

ONGOING MAINTENANCE AND MONITORING:

» After the treatments up until this point, the management plan should be evaluated. If treatments have been successful, only monitoring and minimal hand removal need be continued to keep invasive plant species at bay. Native trees, shrubs, and herbaceous forbs should dominate the minimally invaded areas.

» Once the bulk of the heavier invaded areas are treated several times, a plan to re-vegetate with native restoration planting should be devised and implemented in the Summer of 2026.

APPENDIX A: INVASIVE PLANT PAGES

NORWAY MAPLE
ACER PLATANOIDES

DESCRIPTION:

Acer platanoides, Norway Maple is a tree occurring in all regions of the state in upland and wetland habitats. It is especially common in urban areas. It grows in full sun to shade. It out-competes native vegetation, including sugar maple, Acer saccharum which it is frequently confused with. Norway autumn color is yellow, while Sugar is orange/red. Norway has white sap, while Sugar has clear sap in the petiole (stems). Norway maple leaf points reduce to a fine “hair”, while the tips of the points on Sugar leaves are rounded.

HABITAT:

Norway maple is well adapted to various soils, grows in dry conditions, and can tolerate areas of soil pollution. Norway maples were widely planted in the United States as street trees and have escaped to natural habitats. Trees produce large numbers of seeds that are wind dispersed and invade natural areas, displacing native trees. Quickly establishing, they create a canopy of dense shade that prevents regeneration of native seedlings. May be alleopathic (capable of inhibiting neighboring plants’ growth). Norway Maple produces copious amounts of seeds, and multitudes of seedlings can be found even one mature tree,

MANAGEMENT:

Manual methods of hand-pulling seedlings is recommended. For larger saplings, a ‘Weed Wrench’ is effective. Girdling the tree by cutting through the bark (cambium) layer all around the trunk is also an option as is basal bark treatment with a Triclopyr-based herbicide. Girdling is most effective in spring and should include reducing the canopy for safety, but consider leaving trunks for habitat value.

JAPANESE BARBERRY
BERBERIS THUNBBERGII

DESCRIPTION:

Japanese Barberry, or Berberis thunbergii, makes a dense, deciduous shrub understory that grows to 8 feet. Branches are brown, deeply grooved, zigzag in form and bear a single sharp spine at each node. The leaves are small (½ to 1 ½ inches long), oval shaped, green, bluish-green, or dark reddish purple. Flowering occurs from mid-April to May in the northeast. Pale yellow flowers about ¼ in. Across hang in umbrella-shaped clusters of 2-4 flowers along the length of the stem. The fruits are bright red berries about 1/3” long that are borne on narrow stalks. They mature during late summer and fall and persist through the winter.

HABITAT:

Japanese Barberry is shade tolerant, drought resistant, and adaptable to a variety of open and forested habitats, and disturbed areas. It prefers to grow in full sun, but will flower and fruit even in heavy shade. There is also strong research to support the surprise benefit of controlling Japanese Barberry in the reduction of black legged (or deer) tick populations.

MANAGEMENT:

Japanese Barberry is produces seed prolifically, and with a high germination rate, so removal of fruiting branches is high priority. However, barberry also spreads by rhizome, so underground root fragments should be removed. Manual methods of hand pulling sprouts works well in small populations, but large populations may require chemical applications by applying a solution of glyphosate to foliage, or a triclopyr-based solution to cut stumps.

ORIENTAL BITTERSWEET
CELASTRUS ORBICULATUS

DESCRIPTION:

Celastrus orbiculatus, Asiatic Bittersweet is a deciduous climbing vine common in areas of disturbance in our New England forests. It has glossy, rounded leaves that are alternate with finely toothed margins. The leaves turn yellow in the fall. The fruiting plants produce small greenish flower clusters from leaf axils that mature in fall to produce high numbers of fruiting seed. The seed are noticeably yellow, globular capsules that split open at maturity to reveal red-orange fruiting seeds. Roots are also distinctly orange.

HABITAT:

Bittersweet spreads easily into forest edges, woodlands, unmanaged meadows and old fields. Most disturbed sites that are not being actively managed that receive full sun are susceptible. The vine can tolerate shade but is often found in more open, sunny areas.

MANAGEMENT:

Small seedlings can be hand pulled, but bittersweet resprouts prolifically from root fragments, so more aggressive measures need be taken on all specimens but the very smallest. For established plants, vines should be cut to ground to reduce mass, but repeat cuttings will promote resprouting roots and should be avoided in most cases. Rake any seeds present, bagging in plastic bags, tying, and disposing of correctly.

JAPANESE KNOTWEED
FALLOPIA JAPONICA

DESCRIPTION:

Fallopia japonica, or Japanese knotweed is an herbaceous perennial which was originally imported from Asia as a garden specimen. This relatively short, shrub-like plant forms large dense clumps that measure between 3-10 feet high and as wide as the space permits. It rarely reproduces by seed but instead relies on its large rhizomes which may reach a length of 15-18' feet. The stems are green tinged with reddish pink in, ridged, jointed and hollow. It is often confused with bamboo. The large heart-shaped leaves are alternate on the stem, with red venation. The white plumed flowers appear in late summer. It invades a wide variety of habitats and forms dense stands that crowd out other plants. It is especially pervasive on streambanks where its perennial roots do little to inhibit erosion while crowding out preferred native woody vegetation.

HABITAT:

Japanese knotweed often invades disturbed sunny sites, and is often found along roadsides and especially stream banks and shorelines. However, it also tolerates deep shade, mesic soils, heat and salinity. Reproduction occurs primarily both by its extensive rhizomes but has also been known to reproduce from cuttings, which makes it a challenge to eradicate.

MANAGEMENT:

If possible hand cut large stands early in the year so that the resprouting stalks will be more manageably-sized. Then apply a glycosophate-based solution to resprouted leaves during late summer flowering. Any portions of the root system not removed or killed by herbicide will potentially re-sprout, so follow up applications will be necessary to control population. See Sheet 15 for details.

MORROW'S HONEYSUCKLE

LONICERA MORROWII

DESCRIPTION:

Lonicera morrowii, Morrow's honeysuckles are upright, deciduous shrubs that typically have a multi-stem mounding appearance. Oval leaves are opposite along the stem with smooth edges (no teeth or lobes) and hairy on the underside. Mature stems are often hollow on the interior and peeling on the outer bark. In the spring pairs of fragrant, tubular flowers less than an inch long are borne along the stem in the leaf axils. The fruits are red to orange, and fleshy.

HABITAT:

Honeysuckles are relatively shade-intolerant and usually colonize forest edges, abandoned fields, and other open, upland habitats. Grazed meadows and disturbed woodlands are especially vulnerable. Woodlands and open meadows, especially those that have been grazed or otherwise disturbed and are left unmanaged are also highly susceptible. Morrow's Honeysuckle are highly adaptable and can grow in even challenging environments such as roadsides and wetland edges.

MANAGEMENT:

Honeysuckle management can combine mechanical mowing and manual hand pulling with cut and dab herbicide treatments. Small specimens may be removed manually as honeysuckle root systems are fairly shallow. Root resprouting can persist for a few years and several seasons of management may be required to fully control the population.

APPENDIX B: FB ENVIRONMENTAL WETLAND DETAILS

TO: Robert Searle, Golf Course Superintendent, Abenakee Club

FROM: Kevin Ryan, FB Environmental Associates

SUBJECT: Site Reconnaissance – Biddeford Pool, Maine

DATE: January 10, 2023

CC: Forrest Bell, FB Environmental

Attachments: 1) Cowardin Wetland Classification System 2) Site Reconnaissance Map; 3) Site Photographs

As requested by the Abenakee Club, FB Environmental Associates, LLC (FBE) conducted natural community reconnaissance at the Abenakee Club golf course property in Biddeford Pool, Maine. The specific Survey Area is an approximately 10-acre portion of a 50-acre parcel associated with the Abenakee Club's golf course (see attached map). FBE Ecological Services Division Lead and Senior Wetland Scientist Kevin Ryan, PhD, conducted the field investigation on 8 November 2022.

WETLAND AND TERRESTRIAL RECONNAISSANCE METHODOLOGY

Approximate boundaries of wetlands and terrestrial (i.e., non-wetland) cover types encountered during the survey were geo-located using a handheld GPS unit (Garmin GPSMAP 78) which is typically accurate to within 30 feet. Although cursory, the delineation of hydrologic features within the project area was based on the protocols described in the 1987 USACE Wetlands Delineation Manual[1] and the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region, Version 2.0[2]. This methodology involves identifying wetlands based on three criteria: the presence of hydrophytic vegetation, hydric soils, and wetland hydrology. For a given area to be considered a wetland, all three of these parameters must be met, with some exceptions for disturbed areas.

All wetlands were classified using the Classification of Wetlands and Deepwater Habitats of the United States[3] (Attachment 1). This water resource classification system was developed by the United States Fish and Wildlife Service (USFWS) and is commonly referred to as "Cowardin Classification". The Cowardin Classification is used to define wetlands and other aquatic resources by their landscape position, cover type, and hydrologic regime. Special modifiers can be added that describe water regime/chemistry, soil types, or disturbances.

WETLANDS OF SPECIAL SIGNIFICANCE

In Maine, Wetlands of Special Significance (WoSS) are regulated by the Maine Department of Environmental Protection under chapter 310 of the Maine Natural Resources Protection Act. All coastal wetlands and great ponds (inland bodies of water >10 acres in size) are classified as WoSS. In addition, a freshwater wetland may be considered one of special significance if it: (1) contains a natural community that is critically imperiled or imperiled as defined by the Maine Natural Areas Program; (2) contains significant wildlife habitat; (3) is located within 250 feet of a coastal wetland; (4) is located within 250 feet of a great pond; (5) contains at least 20,000 square feet of aquatic vegetation, emergent marsh vegetation, or open water; (6) is inundated with floodwater

[1] Environmental Laboratory. (1987). Corps of Engineers Wetlands Delineation Manual, Technical Report Y-87-1, U.S. Army Engineer Waterways Experiment Station, Vicksburg, MS.
[2] U.S. Army Corps of Engineers. (2012). Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region (Version 2.0), ed. J. S. Wakeley, R. W. Lichvar, C. V. Noble, and J. F. Berkowitz. ERDC/EL TR-12-1. Vicksburg, MS: U.S. Army Engineer Research and Development Center.
[3] Cowardin, L. M., V. Carter, F. C. Golet, E. T. LaRoe. 1979. Classification of wetlands and deepwater habitats of the United States. U.S. Department of the Interior, Fish and Wildlife Service, Washington, D.C. 131 pp.

during a 100-year flood event based on flood insurance maps; (7) is or contains peatlands; or (8) is located within 25 feet of a river, stream or brook. FBE assessed the Survey Area for the presence of WoSS.

GENERAL SITE DESCRIPTION

The Survey Area consists of an unmanicured section of land east of Stonecliff Road, west of St. Martins Lane and in-between the Abenakee golf course to the south and Wood Island Harbor to the north. The area consists of a large, approximately 5.3-acre freshwater wetland complex surrounded by approximately 3.3 acres of shrub thicket comprised mainly of non-native, invasive plant species. A small, approximately 1.3-acre area of old field is situated in-between the manicured portion of the golf course and the terrestrial shrub thicket.

The Survey Area generally slopes north away from the golf course and towards the wetland and Wood Island Harbor. The wetland complex itself is relatively flat. The northeastern end of the Survey Area is particularly steep, consisting mainly of shrub thicket that is presumably difficult to manage due to the slope.

WETLAND AND TERRESRIAL COVER TYPES

A total of four separate cover types were mapped within the Survey Area – two of which are wetland and two are terrestrial. The wetland complex within the Survey Area meets the criteria to be considered WoSS, as much of it is within 250 feet of a coastal wetland. No potential vernal pools were observed within the Survey Area. Descriptions of mapped areas are below, and photos are provided in Attachment 3.

Scrub-Shrub Wetland (PSSIE)

The area mapped as Scrub-Shrub Wetland meets the classification of a seasonally flooded/saturated palustrine scrub-shrub wetland with broad-leaved, deciduous vegetation. The wetland is comprised of predominantly freshwater vegetation species. It does not appear that the wetland is regularly flooded with saltwater although it is a possibility during spring tides and/or significant storm events.

Small red maple trees are present, but not dominant in the wetland. The vegetation of the wetland is instead dominated by thick patches of common winterberry (*Ilex verticillata*) with bayberry (*Morella caroliniensis*), speckled alder (*Alnus incana*), meadowsweet (*Spiraea alba*), and large specimens of poison ivy (*Toxicodendron radicans*) also present in the shrub layer. Observed herbaceous vegetation in this portion of the wetland included cinnamon fern (*Osmundastrum cinnamomeum*) and skunk cabbage (*Symplocarpus foetidus*).

The interior of the wetland is dominated by native vegetation, with no noted presence of invasive vegetation. There are several patches of non-native, invasive purple loosestrife (*Lythrum salicaria*) present along the outskirts of the wetland.

Emergent Marsh Wetland (PEMID)

A stand of broad-leaved cattail (*Typha latifolia*) is situated within the center of the larger scrub-shrub wetland. The area meets the classification of a continuously saturated palustrine emergent wetland with persistent vegetation (PEMID). ("Persistent" means there is evidence that the vegetation remains throughout the winter until the next growing season). This area has a wetter hydrologic regime than the surrounding scrub-shrub wetland.

FB Environmental Associates | Abenakee Club Site Reconnaissance

Old Field

"Old field" is a term used in ecology that describes lands that were formerly cultivated or grazed but were later abandoned. Areas of old field, if left alone, typically regenerate into a cover type that would naturally be present. In the case of the Survey Area, if left unmowed the old field area will likely transition to a community similar to or identical to the adjacent shrub thicket (described below).

Shrub Thicket

A very dense area of shrub thicket surrounds the wetland complex within the Survey Area. This area is dominated by non-native, invasive plant species, namely Morrow's honeysuckle (*Lonicera morrowii*) and Asiatic bittersweet (*Celastrus orbiculatus*) with some Japanese barberry (*Berberis thunbergii*) also present. Native shrub species observed in the upland shrub thicket included raspberry (*Rubus* sp.), staghorn sumac (*Rhus hirta*), and willows (*Salix* sp.).

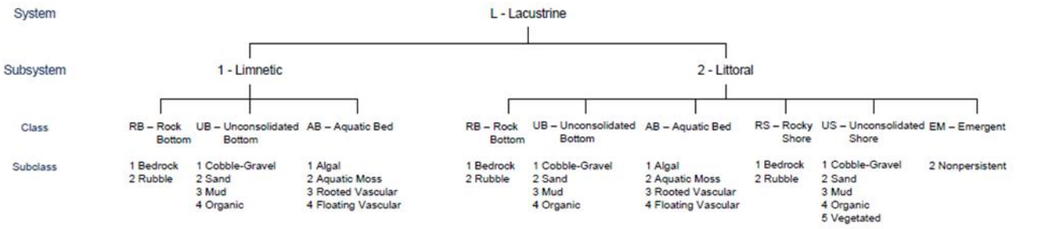
CONCLUSION

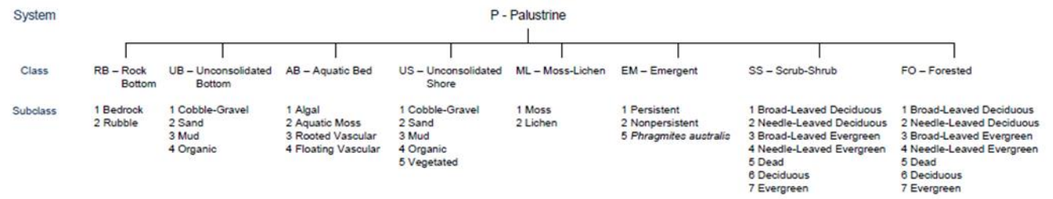
The wetland complex within the Survey Area meets the criteria to be considered WoSS, owing to its proximity to a coastal wetland. A formal wetland functions and values assessment was not part of the scope of this project; however, the wetland complex undoubtedly provides a number of important functions and values, specifically groundwater recharge/discharge, floodflow alteration, sediment/toxicant retention, nutrient removal, production export, sediment/shoreline stabilization, wildlife habitat, educational and scientific value, uniqueness/heritage, and visual quality/aesthetics.

This WoSS designation will likely result in increased permitting standards (i.e., increased time and cost) if alterations or development are proposed within the Survey Area. Due to its relatively pristine condition and proximity to the ocean, it would be environmentally and ecologically prudent to avoid any human disturbance to the wetland complex

ATTACHMENT 1. COWARDIN WETLAND CLASSIFICATION SYSTEM

WETLANDS AND DEEPWATER HABITATS CLASSIFICATION



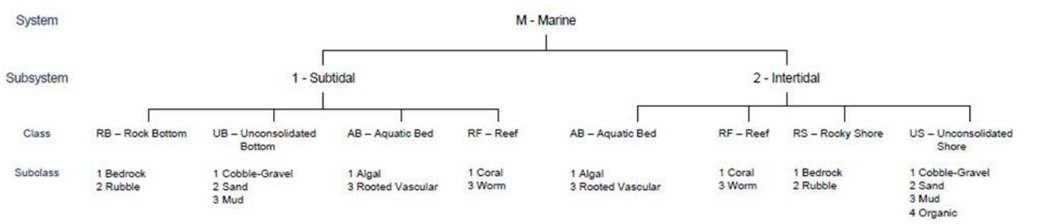


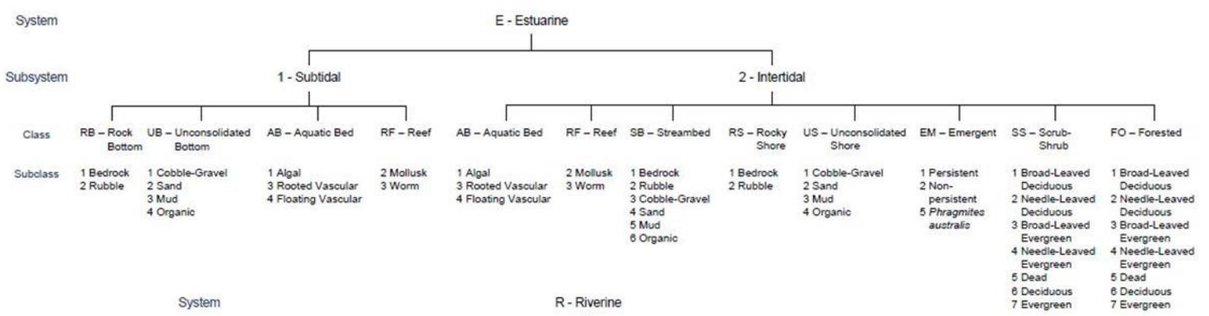
MODIFIERS

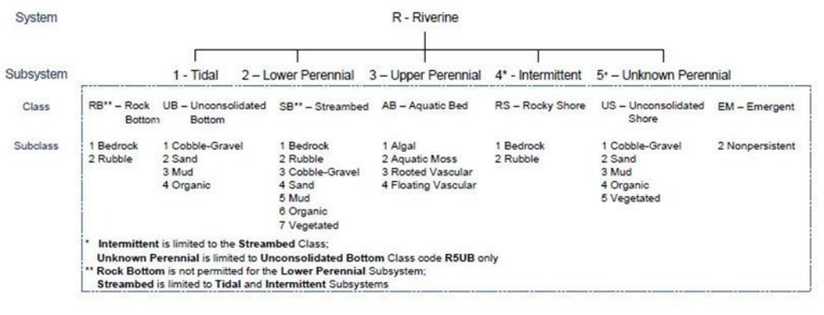
In order to more adequately describe the wetland and deepwater habitats, one or more of the water regime, water chemistry, soil, or special modifiers may be applied at the class or lower level in the hierarchy. The farmed modifier may also be applied to the ecological system.

Water Regime			Special Modifiers	Water Chemistry			Soil
Nontidal	**Saltwater Tidal**	**Freshwater Tidal**		**Coastal Halinity**	**Inland Salinity**	**pH Modifiers for all Fresh Water**	
A Temporarily Flooded	L Subtidal	S Temporarily Flooded-Tidal	b Beaver	1 Hyperhaline	7 Hypersaline	a Acid	g Organic
B Saturated	M Irregularly Exposed	R Seasonally Flooded-Tidal	d Partly Drained/Ditched	2 Euhaline	8 Eusaline	t Circumneutral	n Mineral
C Seasonally Flooded	N Regularly Flooded	T Semipermanently Flooded-Tidal	f Farmed	3 Mixohaline (Brackish)	9 Mixosaline	i Alkaline	
E Seasonally Flooded/ Saturated	P Irregularly Flooded	V Permanently Flooded-Tidal	h Diked/Impounded	4 Polyhaline	0 Fresh		
F Semipermanently Flooded			r Artificial	5 Mesohaline			
G Intermittently Exposed			s Spoil	6 Oligohaline			
H Permanently Flooded			x Excavated	0 Fresh			
J Intermittently Flooded							
K Artificially Flooded							

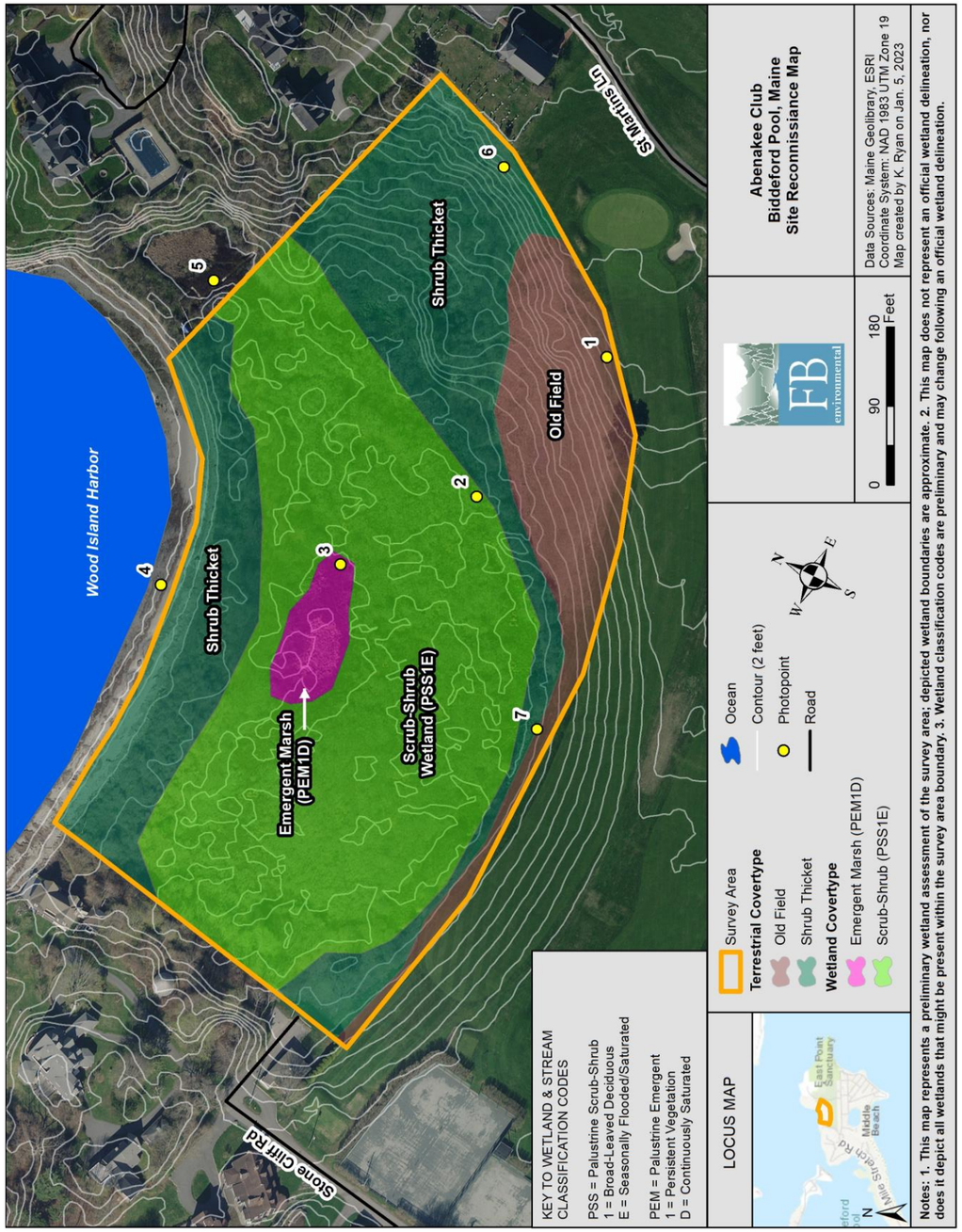
WETLANDS AND DEEPWATER HABITATS CLASSIFICATION







ATTACHMENT 2. WETLAND RECONNAISSANCE MAP



ATTACHMENT 3. SITE PHOTOGRAPHS

View of the Survey Area from the Abenakee Club golf course.

Photopoint 1. The area of old field in-between the golf course and the shrub thicket.

Photopoint 2. The interior of the scrub-shrub wetland.

Photopoint 3. View from the edge of the emergent marsh within the larger scrub-shrub wetland.

Photopoint 4. The interface between the beach and the shrub thicket.

Photopoint 5. Thick winterberry (*Ilex verticillata*) at the northeastern end of the Survey Area.

Photopoint 6. View over of shrub thicket on the steep slope at the northeast end of the Survey Area.

Photopoint 7. A stand of purple loosestrife at the edge of the wetland complex.

StriCore™

1590.41

SePRO

Pethoxamid	Group	15	Herbicide

For preemergence weed control of crabgrass, selected annual grasses, sedges, and annual broadleaf weeds in Turf and Ornamental sites - Residential, Commercial, and Institutional Lawns and Landscapes, Golf Courses, Sod Farms, Utility Right- of-Ways, Roadsides, Railways, Industrial areas, and Field Grown Ornamentals. Intended for use by professional applicators in residential areas.

ACTIVE INGREDIENT:

Pethoxamid	46.88%
Other Ingredients	53.12%
Total:	100.00%

Contains petroleum distillates.
StriCore is an emulsifiable concentrate containing 4 lbs active ingredient per gallon.

KEEP OUT OF REACH OF CHILDREN

WARNING/AVISO

Si usted no entiende la etiqueta, busque a alguien para que se la explique a usted en detalle (if you do not understand this label, find someone to explain it to you in detail).

See other panels for additional precautionary information.

FIRST AID	
IF IN EYES:	• Hold eye open and rinse slowly and gently with water for 15-20 minutes. • Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. • Call a poison control center or doctor for treatment advice.
IF SWALLOWED:	• Immediately call a poison control center or doctor. • Do not give any liquid to the person. • Do not induce vomiting unless told to do so by a poison control center or doctor. • Do not give anything by mouth to an unconscious person.
IF ON SKIN OR CLOTHING:	• Take off contaminated clothing. • Rinse skin immediately with plenty of water for 15-20 minutes. • Call a poison control center or doctor for treatment advice.

NOTE TO PHYSICIAN
Contains petroleum distillate. Vomiting may pose aspiration pneumonia hazard.

HOT LINE NUMBER
Have the product container or label with you when calling a poison control center or doctor or going for treatment. You may also contact INFOTRAC 1-800-535-5053 for emergency medical treatment information.

EPA Reg. No. 279-3628-67690 FPL20200826
EPA Est. No. 70815-GA-002 166102

Sold by: SePRO Corporation
11550 North Meridian Street, Suite 600, Carmel, IN 46032

Herbicide

Net contents 1 gallon (Non-refillable)

PRECAUTIONARY STATEMENTS

HAZARDS TO HUMANS AND DOMESTIC ANIMALS

WARNING. Causes substantial but temporary eye injury. Do not get in eyes or on clothing. Harmful if swallowed. Avoid contact with skin, eyes or clothing. Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco or using the toilet. Remove and wash contaminated clothing before reuse. Prolonged or frequently repeated skin contact may cause allergic reactions in some individuals.

PERSONAL PROTECTIVE EQUIPMENT (PPE)

Applicators and all other handlers must wear: long-sleeved shirt and long pants, shoes plus socks, protective eyewear, and waterproof gloves.

Follow manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables exist, use detergent and hot water. Keep and wash PPE separately from other laundry.

ENGINEERING CONTROLS

When handlers use closed systems or enclosed cabs in a manner that meets the requirements listed in the Worker Protection Standard (WPS) for agricultural pesticides [40 CFR 170.240(d)(4-6)], the handler PPE requirements may be reduced or modified as specified in the WPS.

USER SAFETY RECOMMENDATIONS

Users should:

- Wash hands before eating, drinking, chewing gum, using tobacco or using the toilet.
- Remove clothing/PPE immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing.
- Remove PPE immediately after handling this product. Wash the outside of gloves before removing. As soon as possible, wash thoroughly and change into clean clothing.

ENVIRONMENTAL HAZARDS

Do not apply directly to water, or to areas where surface water is present or to intertidal areas below the mean high-water mark. Do not contaminate water when disposing of equipment washwater or rinsate.

DIRECTIONS FOR USE

It is a violation of Federal law to use this product in a manner inconsistent with its labeling. Read all Directions for Use carefully before using and applying this product.

Do not apply this product in a way that will contact workers or other persons, either directly or through drift. Only protected handlers may be in the area during application. For any requirements specific to your State or Tribe, consult the agency responsible for pesticide regulation.

AGRICULTURAL USE REQUIREMENTS

Use this product only in accordance with its labeling and with the Worker Protection Standard, 40 CFR part 170. This Standard contains requirements for the protection of agricultural workers on farms, forests, nurseries, and greenhouses, and handlers of agricultural pesticides. It contains requirements for training, decontamination, notification, and emergency assistance. It also contains specific instructions and exceptions pertaining to the statements on this label about personal protective equipment (PPE) and restricted-entry interval. The requirements in this box only apply to uses of this product that are covered by the Worker Protection Standard.

Do not enter or allow worker entry into treated areas during the restricted entry interval (REI) of 12 hours.

PPE required for early entry to treated areas that is permitted under the Worker Protection Standard and that involves contact with anything that has been treated, such as plants, soil, or water, is:

- Coveralls over long-sleeved shirt and long pants;
- Protective eyewear;
- Waterproof gloves; and
- Shoes plus socks.

NON-AGRICULTURAL USE REQUIREMENTS

The requirements in this box apply to uses of this product that are NOT within the scope of the Worker Protection Standard for agricultural pesticides (40 CFR Part 170). The WPS applies when this product is used to produce agricultural plants on farms, forests, nurseries, or greenhouses.

Do not allow people (other than applicator) or pets on treatment area during application. Do not enter treatment area until spray has dried.

WEED RESISTANCE MANAGEMENT

For resistance management, StriCore is a Group 15 herbicide. Any weed population may contain or develop plants naturally resistant to StriCore and other Group 15 herbicides. The resistant biotypes may dominate the weed population if these herbicides are used repeatedly in the same field. Appropriate resistance-management strategies should be followed.

To delay herbicide resistance, take one or more of the following steps:

- Rotate the use of StriCore or other Group 15 herbicides within a growing season sequence or among growing seasons with different herbicide groups that control the same weeds in a field.
- Use tank mixtures with herbicides from a different group if such use is permitted; where information on resistance in target weed species is available, use the less resistance-prone partner at a rate that will control the target weed(s) equally as well as the more resistance-prone partner. Consult your local extension service or certified crop advisor if you are unsure as to which active ingredient is currently less prone to resistance.
- Adopt an integrated weed-management program for herbicide use that includes scouting and uses historical information related to herbicide use and crop rotation, and that considers tillage (or other mechanical control methods), cultural (e.g., higher crop seeding rates; precision fertilizer application method and timing to favor the crop and not the weeds), biological (weed-competitive crops or varieties) and other management practices.
- Scout after herbicide application to monitor weed populations for early signs of resistance development. Indicators of possible herbicide resistance include: (1) failure to control a weed species normally controlled by the herbicide at the dose applied, especially if control is achieved on adjacent weeds; (2) a spreading patch of non-controlled plants of a particular weed species; (3) surviving plants mixed with controlled individuals of the same species. If resistance is suspected, prevent weed seed production in the affected area by an alternative herbicide from a different group or by a mechanical method such as hoeing or tillage. Prevent movement of resistant weed seeds to other fields by cleaning harvesting and tillage equipment when moving between fields, and planting clean seed.

- If a weed pest population continues to progress after treatment with this product, discontinue use of this product, and switch to another management strategy or herbicide with a different mode of action, if available.
- Contact your local extension specialist or certified crop advisors for additional pesticide resistance-management and/or integrated weed-management recommendations for specific crops and weed biotypes.
- For further information or to report suspected resistance, contact your SePRO Technical Specialist. You can also contact your pesticide distributor or state extension specialist for specific practices or recommendations in your area.

PRODUCT INFORMATION

StriCore is intended for use by professional applicators in residential areas.

StriCore is an emulsifiable concentrate containing 4 lbs active ingredient per gallon. The mode of action of StriCore involves uptake by both roots and shoots of existing weeds and prevention of growth by newly emerged weed seedlings.

StriCore provides preemergence control of most annual grasses and certain broadleaf weeds in turf and ornamental sites in residential, commercial, and institutional lawns and landscapes, golf courses, commercial sod farms, industrial areas (including utility right-of-ways, roadsides, and railways), and field grown ornamentals.

Turfgrass injury could result from application of this product on turfgrass that has been weakened by stresses such as unfavorable weather conditions, disease, chemical or mechanical influences.

Moisture is necessary to activate the active ingredient pethoxamid in soil for weed control. Dry weather following applications of StriCore may reduce effectiveness. However, when adequate moisture is received after dry conditions, StriCore will control susceptible germinating weeds. StriCore may not control weeds that germinate after application but before an activating rainfall or irrigation of at least ½ inch, or weeds that germinate through cracks resulting from dry soil. When adequate moisture is not received after StriCore application, weed control may be improved by irrigation.

In peat and muck soils and soils highly enriched with organic matter (i.e., sawdust) and/or synthetic mixes, the activity of StriCore may be reduced. In turfgrass areas which have heavy thatch, the weed control of StriCore may be reduced.

MIXING AND APPLICATION INSTRUCTIONS

Shake Well Before Using.

General Handling Instructions

This product must not be mixed or loaded within 50 feet of any wells (including abandoned wells and drainage wells), sink holes, perennial or intermittent streams and rivers, and natural or impounded lakes and reservoirs. This setback does not apply to properly capped or plugged abandoned wells and does not apply to impervious pad or properly diked mixing/loading areas.

Operations that involve mixing, loading rinsing, or washing of this product into or from pesticide handling or application equipment or containers within 50 feet of any well are prohibited unless conducted on an impervious pad constructed to withstand the weight of the heaviest load that may be positioned on or moved across the pad. Such a pad shall be designed and maintained to contain any product spills or equipment leaks, container or equipment rinse or wash water, and rainwater that may fall on the pad. Surface water shall not be allowed to either flow over or from the pad, which means the pad must be self-contained. The pad shall be sloped to facilitate material removal. An unroofed pad shall be of sufficient capacity to contain at a minimum 110% of the capacity of the largest pesticide container or application equipment on the pad. A pad that is covered by a roof of sufficient size to completely exclude precipitation from contact with the pad shall have a minimum containment capacity of 100% of the capacity of the largest pesticide container or application equipment on the pad. Containment capacities as described above shall be maintained at all times. The above specific minimum containment capacities do not apply to vehicles when delivering pesticide shipments to the mixing/loading site. States may have in effect additional requirements regarding wellhead setbacks and operational containment.

This product must be used in a manner which will prevent back siphoning into wells, spills or improper disposal of excess pesticide, spray mixtures or rinsates.

Spray Tank Preparation

It is important that spray equipment is clean and free of existing pesticide deposits before using this product. Follow the spray tank clean out procedures specified on the label of product previously applied before adding StriCore to the tank.

Mixing with Water

For best results, fill spray tank with one fourth of the volume of clean water needed for the area to be treated. Start the agitation system and add StriCore to the tank. Make sure StriCore is thoroughly mixed before application or before adding another product to the spray tank.

Mixing with Liquid Fertilizers

Utilize local recommendations for sources and rates of fertilizer and refer to mixing directions on the fertilizer labels (e.g. UAN or urea solutions). Determine the compatibility of this product with the desired fluid fertilizer by mixing small proportional quantities in advance (See the Tank Mixtures Compatibility section below).

Tank Mixtures Compatibility

StriCore is believed to be compatible with most commonly used herbicides, insecticides, fungicides, growth regulators, liquid fertilizers, and spray adjuvants commonly used in turf and ornamental plant management. However, when preparing a new tank mix, conduct an appropriate compatibility test by mixing proportional amounts of all spray ingredients in a test vessel (jar) prior to tank mixing with other products. Shake the mixture vigorously and allow it to stand for five to ten minutes. Rapid precipitation of the ingredients and failure to resuspend when shaken indicates that the mixture is incompatible and should not be applied. Provided the jar test indicates the mixture to be compatible, prepare the tank mixture as follows:

1. Fill the tank one fourth full with water.
2. With the agitator operating, add the specified amounts of ingredients using the following order: dry granules first and liquid suspensions (flowable) second. As the agitation continues and the tank is filled with water add EC products third followed by the addition of water soluble products.

Read, and observe mixing instructions of all tank mix partners. It is the pesticide user's responsibility to ensure that all products are registered for the intended use. Read and follow the applicable restrictions and limitations and directions for use on all product labels involved in tank mixing. Users must follow the most restrictive directions for use and precautionary statements of each product in the tank mixture. No label dosage rate may be exceeded. Tank mixture recommendations are for use only in states where the companion products and application site are registered. In addition, certain states or geographical regions may have established dosage rate limitations. Consult your state Pesticide Control Agency for additional information regarding the maximum use rates.

Use StriCore spray mixture immediately after mixing. Do not allow spray solutions to stand or dry in the tank.

Ground Equipment

Spray Volume: Apply this product in a sufficient volume of carrier solution to provide a uniform spray distribution. Spray volumes of 20-175 gallons per acre (0.5 to 4.0 gal/1,000 sq ft) for turfgrasses and ornamentals. Spray pressures adjusted to 20 - 40 psi are appropriate. Apply the higher spray volumes for dense weed populations.

Power sprayers: Uniform and accurate spray coverage requires proper calibration and operation of spray equipment. The use of marker dyes or foams can improve application accuracy. Boom sprayers equipped with appropriate flat fan nozzles, tips and screens are ideal for broadcast applications. Power sprayers fitted with spray wand/gun may also be used for broadcast application after careful calibration by the applicator. Power sprayers fitted with spray wand/gun are suitable for spot treatments. It is important to avoid over application of this product due to excessive overlapping or spot treatment.

Hand-operated sprayers: Backpack and compression sprayers are appropriate for small turfgrass areas and spot treatments. Wands fitted with a flat fan nozzle tip should be held stationary at the proper height during application. A side-to-side or swinging arm motion may result in uneven coverage or excessive application.

SPRAYER EQUIPMENT CLEAN-OUT

After spraying StriCore and before using sprayer equipment for any other applications, the sprayer must be thoroughly cleaned using the following procedure:

1. Drain sprayer tank, hoses, and spray boom and thoroughly rinse the inside of the sprayer tank with clean water to remove sediment and residues. In addition, thoroughly flush sprayer hoses, boom, and nozzles with clean water.
2. Fill the tank 1/2 full with clean water, and add appropriate detergent or ammonia (follow manufacturer's directions for use). Fill the tank to capacity and operate the sprayer for 15 minutes to flush hoses, boom, and nozzles.
3. Drain the sprayer system. Rinse the tank with clean water and flush through the hoses, boom, and nozzles. Remove and clean spray tips and screens separately.
4. Properly dispose of all cleaning solution and rinsate in accordance with Federal, State and local regulations and guidelines.

Do not drain or flush equipment on or near desirable trees or plants. Do not contaminate any body of water including irrigation water that may be used on other plants.

The applicator must be familiar with and consider the information covered in the Spray Drift Management section below.

RUNOFF REDUCTION

To prevent off-site movement due to runoff or wind erosion:

- Avoid treating powdery dry or light sand soils when conditions are favorable for wind erosion. Under these conditions, the soil surface must first be settled by rainfall or irrigation.
- Do not apply to impervious substrates, such as paved or highly compacted surfaces.

The applicator must be familiar with and consider the information covered in the Spray Drift Management section below.

SPRAY DRIFT MANAGEMENT

THE APPLICATOR IS RESPONSIBLE FOR AVOIDING OFF-SITE SPRAY DRIFT.

BE AWARE OF NEARBY NON-TARGET SITES AND ENVIRONMENTAL CONDITIONS.

Information on Droplet Size

The best drift management strategy is to apply the largest droplets that provide sufficient coverage for pesticide performance. Applying larger droplets reduce drift potential but will not prevent drift if applications are made improperly or under unfavorable environmental conditions (see Wind, Temperature and Humidity, and Temperature Inversion sections in this label).

Boomless Ground Applications: Setting nozzles at the lowest effective height will help to reduce the potential for spray drift.

Handheld Technology Applications: Take precautions to minimize spray drift.

Controlling Spray Volume Droplet Size

Volume – Use high flow rate nozzles that produce medium droplets to apply the highest practical spray volume. Nozzles with higher rated flow generally produce larger droplets.

Pressure – When higher flow rates are needed, use higher flow rate nozzles rather than increasing spray pressure. Do not exceed the nozzle manufacturer's recommended pressures. Lower pressure produces larger droplets in many types of nozzles.

Number of Nozzles – Use the minimum number of nozzles that provide uniform coverage.

Nozzle Type – Use a nozzle type that is designed for the intended application. Do not use nozzles that produce fine or very fine spray droplets (e.g. cone).

Wind – Variable wind speeds with changing directions may pose the largest potential for drift damage. Drift potential is lowest between wind speeds of 2 to 10 mph. However, many factors, including droplet size and equipment type determine drift potential at any given speed. Applications should be avoided if wind speed is below 2 mph due to variable wind direction and high inversion

potential. Do not apply StriCore when wind speed exceeds 15 mph. NOTE: Local terrain can influence wind patterns. Every applicator shall be familiar with local wind patterns and how they affect spray drift.

Temperature and Humidity – When making applications in low relative humidity set up equipment to produce larger droplets to compensate for evaporation, but they still should remain within the medium droplet size category. Droplet evaporation is most severe when conditions are both hot and dry.

Temperature Inversions – Applications should not occur during temperature inversion, because drift potential is high. Temperature inversions restrict vertical air mixing, which causes small-suspended droplets to remain in a concentrated cloud. This cloud can move in unpredictable directions due to the low speed and variable winds common during inversions. Temperature inversions are characterized by increasing temperatures with altitude and are common during conditions of limited cloud cover and light to no wind. They begin to form as the sun sets and may often continue into the morning. The presence of a temperature inversion may be indicated by ground fog. However, if fog is not present, the movement of smoke from a ground source or an aircraft smoke generator can also identify inversions. Smoke that remains in layers and moves laterally in a concentrated cloud (under low wind conditions) indicates an inversion, while smoke that moves upward and rapidly dissipates indicates good vertical air mixing.

Sensitive Areas – The pesticide must only be applied when the potential for drift to adjacent sensitive areas (e.g. residential areas, bodies of water, known habitat for threatened or endangered species, nontarget crops) is minimal (e.g. when wind is blowing away from the sensitive areas).

DIRECTIONS FOR USE IN TURFGRASS (including sod production)

StriCore can be used on seeded, sodded or sprigged turfgrasses that are well established. StriCore is taken up by the shoots and/or roots of emerging weeds. This update results in the inhibition of shoot and root tissue growth soon after weed germination.

Established Turfgrass

This product may be used on well-established turfgrass that are listed in Table 1.

StriCore has demonstrated tolerance on both cool and warm season turfgrasses. However, not all varieties and/or cultivars have been evaluated. Turfgrass managers desiring to treat newly released varieties should first apply StriCore to a small area prior to treatment of larger areas.

When applied as directed under the conditions described, the following established grasses are tolerant to StriCore at the specified use rates (Table 1).

Table 1. Tolerant grasses

Grass Type		Maximum Use Rates Do not exceed maximum use rates per turf species in a single application		
		Fl oz per acre	Lb ai per acre	Fl oz per 1,000 sq ft
Cool Season Grasses				
Bentgrass, creeping	*Agrostis stolonifera*	16 to 48	0.5 to 1.5	0.37 to 1.1
Fescue, fine	*Festuca* spp.			
Ryegrass, perennial	*Lolium perenne*			
Bluegrass, Kentucky	*Poa pratensis*			
Fescue, tall	*Festuca arundinaceus*			
Warm Season Grasses				
Bahiagrass	*Paspalum notatum*	16 to 48	0.5 to 1.5	0.37 to 1.1
Buffalograss	*Buchloe dactyloides*			
Carpetgrass	*Axonopus affinis*			
Centipedegrass	*Eremochloa ophuiroides*			
Kikuyugrass	*Pennisetum clandestinum*			
Seashore Paspalum	*Paspalum vaginatum*			
Zoysiagrass	*Zoysia* spp.			
Bermudagrass & hybrids	*Cynodon dactylon*			
High Weed Pressure: Where a use rate range is given, use the higher rate when weed pressure is high and/or conditions are favorable for weed development.				

Restrictions

- Do not use on turfgrasses other than those listed on this label (refer to Table 1).
- Do not apply to areas where dichondra, colonial bentgrass, velvet bentgrass or annual bluegrass (*Poa annua*) are desirable species.
- Do not apply directly to landscape ornamental foliage or ornamental beds containing dormant bulbs or non-woody perennials.
- Do not apply with surfactants unless previous experience has demonstrated combinations with surfactant to be physically compatible and non-injurious to the grass type in question.
- Do not apply more than 48 fl oz of StriCore per acre (1.5 lb a.i./acre) per year.
- Do not apply to non-target areas under conditions which favor runoff or wind erosion of soil containing this product.

Application Instructions and Precautions

First application of this product can be made following the second mowing provided the grass has developed into a uniform stand with a good root system. Turf injury may result from application of this product on turf that is not well established or has been weakened by stresses such as unfavorable weather conditions, disease, chemical or mechanical influences.

StriCore application may cause temporary discoloration to exposed leaf surfaces on certain turfgrass cultivars. Treated turfgrass will recover with new growth. Discolored leaf tissue will be removed with mowing. To reduce potential for discoloration, do not apply StriCore on turfgrass that is weakened by weather, mechanical, chemical, disease or other related stress. Maintain proper cultural practices such as adequate moisture and fertility levels to promote healthy turf growth.

StriCore may be applied alone or in tank-mixtures with other labeled herbicides for weed control at various times. Observe all precautions and limitations on the labels of each product used in tank-mixtures. Tank-mixtures are permitted only in states where the tank-mix partner is registered. Refer to and follow the label for each tank-mix product used for precautionary statements, directions for use, geographic and other restrictions.

Dry weather following application of StriCore may reduce weed control. If irrigation is not possible and rain does not occur within 7 days after application, weed control may be reduced.

Sequential applications

StriCore can be applied in sequential applications, but do not exceed the maximum use rate per year 48 fl oz StriCore (1.5 lb a.i.) per acre. Where weeds are emerged use appropriate tank-mixtures for control of the weed species present.

Preemergence Control of Annual, Biennial, & Perennial Broadleaf Weeds, Grasses and Sedges

StriCore will provide preemergence control or suppression of the weeds/grasses/sedges in Table 2. Do not exceed the application rates specified for the turf species in Table 1.

Table 2. Weeds/Grasses/Sedges Controlled or Suppressed by StriCore with Preemergence Application

Common Name	Scientific Name	Control (C) or Suppression (S)*
Broadleaf Weeds		
Amaranth, Palmer	*Amaranthus palmeri*	C
Amaranth, Powell	*Amaranthus* powellii	C
Beggarweed, Florida	*Desmodium tortuosum*	S
Carolina Geranium [1]	*Geranium carolinianum*	S
Carpetweed	*Mollugo verticillata*	C
Chickweed, common [2]	*Stellaria media*	S
Chickweed, mouseear (from seed)	*Cerastium vulgatum*	S
Eclipta	*Eclipta prostrata*	S
Galinsoga, hairy	*Galinsoga quadriradiata*	C
Galinsoga, smallflower	*Galinsoga parviflora*	C
Hairy Bittercress	*Cardamine hirsuta*	S

(continued)

Table 2. Weeds/Grasses/Sedges Controlled or Suppressed by StriCore with Preemergence Application
(continued)

Common Name	Scientific Name	Control (C) or Suppression (S)*
Broadleaf Weeds *(continued)*		
Henbit [2]	*Lamium amplexicaule*	S
Knotweed, prostrate	*Polygonum aviculare*	S
Lambsquarters, common	*Chenopodium album*	S
Nightshade, Eastern black	*Solanum ptychanthum*	C
Nightshade, hairy	*Solanum physalifolium*	S
Pigweed, prostrate	*Amaranthus blitoides*	C
Pigweed, redroot	*Amaranthus retroflexus*	C
Pigweed, smooth	*Amaranthus hybridus*	C
Pigweed, tumble	*Amaranthus albus*	C
Purslane, common	*Portulaca oleracea*	S
Pusley, Florida [1]	*Richardia scabra*	C
Shephardspurse [2]	*Capsella bursa-pastoris*	S
Sida, prickly	*Sida spinosa*	S
Speedwell [1]	*Veronica* spp.	S
Spiderwort, tropical	*Commelina benghalensis*	C
Spurge, prostrate [1]	*Euphorbia humistrata*	C
Velvetleaf	*Abutilon theophrasti*	S
Waterhemp, common	*Amaranthus rudis*	C
Waterhemp, tall	*Amaranthus tuberculatus*	C
Woodsorrel, yellow (from seed) [1]	*Oxalis stricta*	S
Grasses		
Barnyardgrass	*Echinochloa crus-galli*	C
Bluegrass, annual [3]	*Poa annua*	C
Crabgrass, large	*Digitaria sanguinalis*	C
Crabgrass, smooth	*Digitaria ischaemum*	C
Crowfootgrass	*Dactyloctenium aegyptium*	C

(continued)

Table 2. Weeds/Grasses/Sedges Controlled or Suppressed by StriCore with Preemergence Application
(continued)

Common Name	Scientific Name	Control (C) or Suppression (S)*
Grasses *(continued)*		
Cupgrass, Prairie	*Eriochloa contracta*	C
Cupgrass, Southwestern	*Eriochloa acuminata*	C
Cupgrass, woolly	*Eriochloa villosa*	S
Foxtail, bristly	*Setaria verticillata*	C
Foxtail, giant	*Setaria faberi*	C
Foxtail, green	*Setaria viridis*	C
Foxtail, yellow	*Setaria pumila*	C
Goosegrass [4]	*Eleusine indica*	C
Itchgrass	*Rottboellia cochinchinensis*	S
Johnsongrass (seedling)	*Sorghum halepense*	S
Millet, browntop	*Urochloa ramosa*	S
Millet, foxtail	*Setaria italica*	C
Millet, wild-proso	*Panicum miliaceum*	S
Millet, Texas	*Urochloa texana*	S
Oat, wild	*Avena sativa*	S
Panicum, browntop	*Panicum fasiculata*	C
Panicum, fall	*Panicum dichotomiflorum*	C
Panicum, Texas	*Panicum texanum*	S
Rice, red	*Oryza sativa*	S
Ryegrass, Italian	*Lolium multiflorum*	C
Sandbur, field	*Cenchrus spinifex*	S
Sandbur, Southern	*Cenchrus echinatus*	S
Sprangletop, Amazon	*Leptochloa panicoides*	C
Sprangletop, bearded	*Leptochloa fusca*	C
Shattercane	*Sorghum bicolor*	S
Signalgrass, broadleaf	*Urochloa platyphylla*	C

(continued)

Table 2. Weeds/Grasses/Sedges Controlled or Suppressed by StriCore with Preemergence Application *(continued)*

Common Name	Scientific Name	Control (C) or Suppression (S)*
Grasses *(continued)*		
Wheat, volunteer	*Triticum aestivum*	S
Witchgrass	*Panicum capillare*	C
Sedges		
Flatsedge, rice	*Cyperus iria*	C
Nutsedge, yellow	*Cyperus esculentus*	S
* "Suppression" means that efficacy is consistent, but below levels generally considered as good control. Control of these weeds can be erratic, due partially to variable weather conditions.		

1. Weeds are suppressed at lower label rates (<24 fl oz/acre). For optimum control apply rates of at least 24 fl oz per acre in a single application. Do not exceed the application rate specified for the turf species in Table 1.
2. Apply StriCore in late summer, fall or winter before weed germinates for control.
3. *Poa annua* is a winter annual. Applications of StriCore should be made in August or September to established, non-overseeded turf before *Poa annua* germinates. Consult local turfgrass specialists for more specific applications timings for your local area since August and September are approximate timings.
4. In areas of extended growing season and heavy pressure, weed control will be enhanced by a second application of StriCore 60-90 days after initial application. However, do not exceed the maximum single application rate specified for the turf species in Table 1 and do not exceed the maximum yearly rate of 1.5 lb ai/acre (48 fl oz/acre).

Application to Reseeded, Overseeded, Newly-sodded, or Sprigged areas

Reseeding, overseeding or sprigging of treated areas within 4 months after application of this product could inhibit the establishment of desirable grasses.

Best results are obtained for reseeding or overseeding when mechanical or power seeding equipment (slit seeders) are used to give good seed to soil contact and proper soil cultivation, irrigation and fertilization practices are followed.

Sod Production

It is recommended that sod be established for at least four (4) months before an application of StriCore. Do not apply this product within three (3) months of harvest.

Additional Sod Restrictions

- Do not apply to newly laid sod until the sod has rooted and exposed edges have grown in.
- Do not harvest treated sod prior to 90 days after application.

DIRECTIONS FOR USE ON ORNAMENTALS (FIELD GROWN)

StriCore can be used on field grown ornamentals.

ORNAMENTALS

This product may be used on tolerant ornamental species listed in Table 3.

Table 3. Tolerant Ornamental Species

The species listed in Table 3 are tolerant to StriCore. Apply only to listed tolerant ornamental species.

Common Name	**Scientific Name**
Field-Grown Ornamentals and Landscaping Cultivars	
Arborvitae	*Thuja* spp.
Ash	*Fraxinus* spp.
Aucuba	*Aucuba* spp.
Bald Cypress	*Taxodium distichum*
Bamboo	*Nandina domestica*
Barberry	*Berberis* spp.
Birch	*Betula* spp.
Bougainvillea	*Bougainvillea* spp.
Boxwood	*Buxus* spp.
Camellia	*Camellia* spp.
Cherry	*Prunus* spp.
Citrus	*Citrus* spp.
Cleyera	*Ternstoemia gymanathera*
Crabapple, Apple	*Malus* spp.
Crepe Myrtle	*Lagerstroemia* spp.
Dogwood	*Cornus* spp.
Douglas Fir	*Pseudotsuga menziesii*
Eleagnus	*Eleagnus* spp.
Euonymus	*Euonymus* spp.
Fig	*Ficus* spp.
Fir	*Abies* spp.
Firethorn	*Pyracantha* spp.
Forsythia	*Forsythia* spp.

(continued)

Table 3. Tolerant Ornamental Species *(continued)*
The species listed in Table 3 are tolerant to StriCore. Apply only to listed tolerant ornamental species.

Common Name	**Scientific Name**
Field-Grown Ornamentals and Landscaping Cultivars *(continued)*	
Gardenia	*Gardenia jasminoides*
Gingko	*Gingko biloba*
Glossy Abelia	*Abelia* spp.
Hemlock	*Tsuga* spp.
Hibiscus	*Hibiscus* spp.
Holly	*Ilex* spp.
Honey Locust	*Gleditsia triacanthos*
Hydrangea	*Hydrangea* spp.
Indian Hawthorne	*Raphiolepis* spp.
Ironweed	*Vernonia noveboracensis*
Japanese Andromeda	*Pieris japonica*
Juniper	*Juniperus* spp.
Kalmia	*Kalmia* spp.
Leucothoe	*Leucothoe* spp.
Lilac	*Syringa* spp.
Locust	*Robinia* spp.
Magnolia	*Magnolia* spp.
Maple	*Acer* spp.
Mexican Fan Palm	*Washingtonia robusta*
Ninebark	*Physocarpus* spp.
Oak	*Quercus* spp.
Oleander	*Nerium oleander*
Osmanthus	*Osmanthus* spp.
Pachysandra	*Pachysandra* spp.
Pampas Grass	*Cortaderia selloana*
Pear	*Pyrus* spp.
Photinia	*Photinia* spp.

(continued)

Table 3. Tolerant Ornamental Species *(continued)*
The species listed in Table 3 are tolerant to StriCore. Apply only to listed tolerant ornamental species.

Common Name	Scientific Name
Field-Grown Ornamentals and Landscaping Cultivars *(continued)*	
Pine	*Pinus* spp.
Pittosporum	*Pittosporum* spp.
Podocarpus	*Podocarpus* spp.
Poplar	*Populus* spp.
Privet	*Ligustrum* spp.
Rhododendron/Azalea	*Rhododendron* spp.
Rose	*Rosa* spp.
Shrub Verbina	*Lantana* spp.
Snowberry	*Symphoricarpos* spp.
Spicebush	*Illicium* spp.
Spiraea	*Spiraea* spp.
Spruce	*Picea* spp.
St. John's Wort	*Hypericum* spp.
Sweet Broom	*Cytisus racemosus*
Sweetgum	*Liquidambar* spp.
Switchgrass	*Panicum virgatum*
Tulip Tree	*Liriodendron tulipifera*
Wax Myrtle	*Myrica* spp.
Viburnum	*Viburnum* spp.
Weigela	*Weigela* spp.
Willow	*Salix* spp.
Wisteria	*Wisteria sinensis*
Yew	*Taxus* spp.
Yucca	*Yucca* spp.

Restrictions

- Apply to established ornamentals only.
- Do not use on herbaceous or bulb ornamental plants.
- Do not apply to areas where ornamental bulbs or dormant non-woody perennials are present. StriCore is soil-active and may damage these plants upon emergence.

- Do not graze or feed livestock plant material cut from areas treated with StriCore.
- When plants are under stress (such as heat, drought, or frost damage), some cultivars of listed plants may be sensitive to StriCore.
- Do not apply adjuvants or surfactants with post applications of StriCore unless tested on small areas prior to applications.
- Do not apply more than 48 fl oz of StriCore per acre (1.5 lb a.i./acre) per year.
- Do not apply to non-target areas under conditions which favor runoff or wind erosion of soil containing this product.
- Do not use on food producing trees, vines, or plants.

Application Precautions

StriCore will provide preemergence control or suppression of the weeds in Table 2.

Apply as a directed spray toward the base of the plant, or if sprayed over-the-top be sure to thoroughly irrigate so that the spray moves down to the base of the plant. StriCore is most effective when applied to soil free of clods, weeds, debris such as leaves or mulch. Apply pre-emergence with at least 0.25 inches of irrigation or rainfall to ensure the product is activated in the soil before weed seeds germinate.

Direct application of StriCore onto actively growing foliage may cause unacceptable injury to desirable plants. See Table 3 for a list of tolerant plants. To reduce injury, apply StriCore as a site directed spray to the soil around the base of the plant. Avoid application directly to plant foliage where possible. However, if the application makes contact with the foliage, apply overhead irrigation to wash StriCore from the plant surfaces onto the soil.

The addition of liquid fertilizers and/or surfactants can increase the probability of superficial damage to green plant tissue inadvertently treated with StriCore. Apply with liquid fertilizers and/or surfactants only if previous experience has demonstrated combinations to be physically compatible and non-injurious to the ornamental plant type in question.

Table 4. Application Sites and Instructions

Site	Application Instructions
Newly-Transplanted Field Nursery Stock	• Apply after new transplant material has formed roots and is well established. • Do not apply until soil has settled around transplants. • Direct application toward base of plant and avoid terminal and bud area of plant.

Site	Application Instructions
Established Field Nursery Stock, or Landscape Plants	• Apply at any time as a directed spray toward the base of the plant.

Table 5. Application Rates

Apply StriCore prior to germination of target weeds species listed in Table 2.

Amount to Apply	Comments
16 to 48 fl oz/acre (0.37 to 1.1 fl oz/1,000 sq ft) (0.5 lb to 1.5 lb ai/A)	1. For preemergence weed control, apply 16-48 fl oz/A in a single application. 2. Multiple applications may be made if needed as long as total amount applied in one year does not exceed 48 fl oz/A. 3. Direct application toward base of plants.
High Weed Pressure: Where a use rate range is given, use the higher rate when weed pressure is high and/or conditions are favorable for weed development.	

ADDITIONAL USE INSTRUCTIONS

Railroad Rights-of-Way

Controls many weeds and maintains bare ground on railroad rights-of-way, including railroad yards, railroad crossings and railroad bridge abutments.

Highway, Roadside, Pipeline and Utility Rights-of-Way

Controls many weeds and maintains bare ground in highway, roadside, pipeline and utility rights-of-way. Such areas would include, but are not limited to, guardrails, road shoulders, electric utility substations, pipeline pumping stations, around electric transmission towers, around distribution line poles plus other areas where complete vegetation control is desired.

Industrial Areas, Fence Rows and Other Non-crop Sites

Controls weeds and maintains bare ground in industrial areas including production facilities, tank farms, storage areas, parking areas, lumber yards, airports, military installations, along fence rows, and in similar non-crop sites where complete vegetation control is needed.

METHOD AND RATE OF APPLICATION FOR ADDITIONAL USES

For residual control of germinating weeds in non-crop land, apply [by ground] using 16 to 48 fluid ounces (0.5 to 1.5 pounds active ingredient) per acre in a minimum of 10 gallons of spray solution per acre. StriCore will provide preemergence control or suppression of the weeds listed in Table 2.

Aerial Application Use Restrictions

- Aerial application is allowed only when environmental conditions prohibit ground application.
- The maximum release height must be 10 feet unless a greater application height is required for pilot safety.
- When this product is allowed to be applied by air, applicator must use a minimum finished spray volume of 5 gallons per acre.

Nozzle Orientation – For aerial application, the recommended practice is to orient nozzles so that the spray is released parallel to the airstream. This orientation usually produces larger droplets as compared to other nozzle orientations. Significant nozzle deflection from horizontal will reduce droplet size and increase drift potential.

Boom Length – For some aerial use patterns, reducing the effective boom length to less than ¾ of the wingspan or rotor length may further reduce drift without reducing swath width.

Application Height – Aerial applications should not be made at a height greater than 10 feet above the top of the target plant canopy unless a greater height is required for aircraft safety. Making applications at the lowest height that is safe reduces exposure of droplets to evaporation and wind.

Swath Adjustment – When aerial applications are made with a crosswind, the swath will be displaced downwind. Therefore, on the upwind and downwind edges of the field, the applicator must compensate for this displacement by the path of the aircraft upwind. Swath adjustment or offset distance should increase when conditions favor increased drift potential (higher winds, smaller droplets, etc).

In peat and muck soils and soils highly enriched with organic matter (i.e., sawdust) and/or synthetic mixes, the activity of StriCore may be reduced.

Use labeled rates of burndown herbicides such as glyphosate, glyphosate-trimesium, diquat, 2,4-D, dicamba, etc. as tank mixtures with StriCore. Use recommended adjuvants for the herbicide tank mix partner. For all products used in tank mixes, refer to the specific product labels for all restrictions on tank mixing and observe all label precautions, instructions and rotational cropping restrictions.

Timing

For best results, apply StriCore alone or in combination with other herbicides for residual control of weeds in late summer, fall, or early spring to insure adequate moisture for soil activation.

STORAGE AND DISPOSAL

Do not contaminate water, food or feed by storage or disposal.

Pesticide Storage: Store unused product in original container in a cool, dry, secure area.

Pesticide Disposal: Pesticide wastes may be hazardous. Improper disposal of excess pesticide, spray mixture or rinsate is a violation of Federal Law. If these wastes cannot be disposed of by use according to label instructions, contact your State Pesticide or Environmental Control Agency, or the Hazardous Waste Representative at the nearest EPA Regional Office for guidance.

Container Handling:

Nonrefillable container. [equal to or less than 5 gallons]

Do not reuse or refill this container. Offer for recycling if available or puncture and dispose of in a sanitary landfill, or by incineration, or, if allowed by state and local authorities, by burning. If burned, stay out of smoke.

Triple rinse as follows: Empty the remaining contents into application equipment or a mix tank and drain for 10 seconds after the flow begins to drip. Fill the container ¼ full with water and recap. Shake for 10 seconds. Pour rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Drain for 10 seconds after the flow begins to drip. Repeat this procedure 2 more times.

Nonrefillable container. [greater than 5 gallons] [and less than 260 gallons]

Do not reuse or refill this container. Offer for recycling if available, or puncture and dispose of in a sanitary landfill, or by incineration, or if allowed by state and local authorities, by burning. If burned, stay out of smoke.

Triple rinse or pressure rinse as follows:

Triple rinse as follows: Empty the remaining contents into application equipment or a mix tank. Fill the container ¼ full with water. Replace and tighten closures. Tip container on its side and roll it back and forth, ensuring at least one complete revolution, for 30 seconds. Stand the container on its end and tip it back and forth several times. Turn the container over onto its other end and tip it back and forth several times. Empty the rinsate into application equipment or a mix tank and store rinsate for later use or disposal. Repeat this procedure two more times.

Pressure rinse as follows: Empty the remaining contents into production equipment or a mix tank and continue to drain for 10 seconds after the flow begins to drip. Hold container upside down over production equipment or a mix tank or collect rinsate for later use or disposal. Insert pressure rinsing nozzle in the side of the container, and rinse at about 40 PSI for at least 30 seconds. Drain for 10 seconds after the flow begins to drip.

Refillable container. Refill this container with pesticide only. Do not reuse this container for any other purpose. Cleaning the container before final disposal is the responsibility of the person disposing of the container. Cleaning before refilling is the responsibility of the refiller. To clean the container before final disposal, empty the remaining contents from this container into application equipment or a mix tank. Fill the container about 10 percent full with water. Agitate vigorously or recirculate water with the pump for 2 minutes. Pour or pump rinsate into application equipment or rinsate collection system. Repeat this procedure two more times. Then offer for recycling if available or puncture and dispose of in a sanitary landfill, or by other procedures approved by state and local authorities.

Conditions of Sale and Limitation of Warranty and Liability:

NOTICE: Read the entire Directions for Use and Conditions of Sale and Limitation of Warranty and Liability before buying or using this product. If the terms are not acceptable, return the product at once, unopened, and the purchase price will be refunded.

The Directions for Use of this product must be followed carefully. It is impossible to eliminate all risks inherently associated with the use of this product. Crop injury, ineffectiveness, or other unintended consequences may result because of such factors as manner of use or application, weather or crop conditions beyond the control or SePRO Corporation or Seller. All such risks shall be assumed by Buyer and User, and Buyer and User agree to hold SePRO Corporation and Seller harmless for any claims relating to such factors.

Seller warrants that this product conforms to the chemical description on the label and is reasonably fit for the purposes stated on the Directions for Use when used in accordance with the directions under normal conditions of use. TO THE EXTENT CONSISTENT WITH APPLICABLE LAW, SEPRO CORPORATION MAKES NO WARRANTIES OF MERCHANTABILITY OR OF FITNESS FOR A PARTICULAR PURPOSE, NOR ANY OTHER EXPRESS OR IMPLIED WARRANTIES WITH RESPECT TO THE SELECTION, PURCHASE, OR USE OF THIS PRODUCT. Any warranties, express or implied, having been made are inapplicable if this product has been used contrary to label instructions, or under abnormal conditions, or under conditions not reasonably foreseeable to (or beyond the control of) seller or SePRO Corporation, and buyer assumes the risk of any such use.

To the extent consistent with applicable law, SePRO Corporation or seller shall not be liable for any incidental, consequential or special damages resulting from the use or handling of this product. TO THE EXTENT CONSISTENT WITH APPLICABLE LAW, THE EXCLUSIVE REMEDY OF THE USER OR BUYER, AND THE EXCLUSIVE LIABILITY OF SEPRO CORPORATION AND SELLER FOR ANY AND ALL CLAIMS, LOSSES, INJURIES OR DAMAGES (INCLUDING CLAIMS BASED ON BREACH OF WARRANTY, CONTRACT, NEGLIGENCE, TORT, STRICT LIABILITY OR OTHERWISE) RESULTING FROM THE USE OR HANDLING OF THIS PRODUCT, SHALL BE THE RETURN OF THE PURCHASE PRICE OF THE PRODUCT OR, AT THE ELECTION OF SePRO Corporation OR SELLER, THE REPLACEMENT OF THE PRODUCT. This Conditions of Sale and Limitation of Warranty and Liability may not be amended by any oral or written agreement.

StriCore™

1590.41

SePRO

Pethoxamid | Group 15 Herbicide

PEEL FILM HERE

For preemergence weed control of crabgrass, selected annual grasses, sedges, and annual broadleaf weeds in Turf and Ornamental sites - Residential, Commercial, and Institutional Lawns and Landscapes, Golf Courses, Sod Farms, Utility Right- of-Ways, Roadsides, Railways, Industrial areas, and Field Grown Ornamentals. Intended for use by professional applicators in residential areas.

Active Ingredient	
Pethoxamid	46.88%
Other Ingredients	53.12%
TOTAL	100.00%

Contains petroleum distillates.
StriCore is an emulsifiable concentrate containing 4 lbs active ingredient per gallon.

KEEP OUT OF REACH OF CHILDREN

WARNING

Si usted no entiende la etiqueta, busque a alguien para que se la explique a usted en detalle (if you do not understand this label, find someone to explain it to you in detail).

See other panels for additional precautionary information.

FIRST AID	
If in eyes	• Hold eye open and rinse slowly and gently with water for 15-20 minutes. • Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. • Call a poison control center or doctor for treatment advice.
If swallowed	• Immediately call a poison control center or doctor. • Do not give any liquid to the person. • Do not induce vomiting unless told to do so by a poison control center or doctor. • Do not give anything by mouth to an unconscious person.
If on skin or clothing	• Take off contaminated clothing. • Rinse skin immediately with plenty of water for 15-20 minutes. • Call a poison control center or doctor for treatment advice.
NOTE TO PHYSICIAN Contains petroleum distillate. Vomiting may pose aspiration pneumonia hazard.	
HOT LINE NUMBER Have the product container or label with you when calling a poison control center or doctor or going for treatment. You may also contact **INFOTRAC 1-800-535-5053** for emergency medical treatment information.	

STORAGE AND DISPOSAL

Do not contaminate water, food or feed by storage or disposal.
Pesticide Storage: Store unused product in original container in a cool, dry, secure area.
Pesticide Disposal: Pesticide wastes may be hazardous. Improper disposal of excess pesticide, spray mixture or rinsate is a violation of Federal Law. If these wastes cannot be disposed of by use according to label instructions, contact your State Pesticide or Environmental Control Agency, or the Hazardous Waste Representative at the nearest EPA Regional Office for guidance.
Container Handling:
Nonrefillable container. [equal to or less than 5 gallons]
Do not reuse or refill this container. Offer for recycling if available or puncture and dispose of in a sanitary landfill, or by incineration, or, if allowed by state and local authorities, by burning. If burned, stay out of smoke.

00811055015907

EPA Reg. No. 279-3628-67690
EPA Est. No. 70815-GA-002

Sold by:
SePRO Corporation 11550 North Meridian Street,
Suite 600, Carmel, IN 46032

FPL20200826
166102

Herbicide

Net contents 1 gallon (Non-refillable)

8c

EPA Finalizes Rule to Protect Farmworkers, Families and Communities from Pesticide Exposures

October 2, 2024

Contact Information
EPA Press Office (press@epa.gov)

WASHINGTON – Today, Oct. 2, the U.S. Environmental Protection Agency is announcing a final rule to restore the pesticide Application Exclusion Zone (AEZ) requirements under the 2015 Agricultural Worker Protection Standard (WPS). The AEZ is an area surrounding outdoor pesticide application equipment where people are prohibited while pesticides are applied. This rule finalizes the agency's 2023 proposed rule <https://epa.gov/newsreleases/epa-proposes-rule-protect-farmworkers-and-pesticide-handlers-exposures> without change and advances the Biden-Harris Administration's commitment to environmental justice, protecting farmworkers, pesticide handlers, their families and agricultural communities. It reinstates AEZ protections, extends protections for neighboring communities, makes requirements easier to understand, and provides flexibilities for family farms without compromising protections.

"Farmworkers help to provide the food we feed our families every day and it's EPA's job to keep them safe from pesticides," **said Assistant Administrator for the Office of Chemical Safety and Pollution Prevention Michal Freedhoff.** "No one should be at risk from pesticide related illness because of their job or where they live. Today's rule is another significant step by the Biden-Harris Administration to protect public health and deliver on environmental justice."

Application Exclusion Zone

The WPS regulation protects over two million agricultural workers (and their families) and pesticide handlers who work on over 600,000 agricultural establishments. In 2015, EPA made significant changes to the regulation to reduce incidents of pesticide exposure among farmworkers and their family members. Less pesticide exposure means a healthier workforce and fewer lost wages, medical bills, and absences from work and school.

These changes include creating the "Application Exclusion Zone" (AEZ), an area with additional requirements to protect workers and bystanders. This area immediately surrounds the pesticide application equipment during an outdoor pesticide application. The AEZ only exists during the application, moves with the equipment during application, and can extend outside of an agricultural establishment (e.g., school grounds, residential neighborhoods). The 2015 regulation required that pesticide applicators suspend their applications if anyone is in the AEZ. It also required employers to ensure that the AEZ requirements are understood and followed and prohibited employers from directing or allowing any of their workers to enter an AEZ. By requiring additional precautions in an AEZ, the 2015 regulation aimed to prevent pesticides from contacting farmworkers and bystanders.

In 2020, the previous administration published a rule limiting AEZ protections to agricultural establishments and shrinking the size of the AEZ from 100 feet to 25 feet for some ground-based spray applications. These changes would have meant that applicators no longer had to suspend applications if people in the AEZ were outside of an agricultural establishment, such as a neighboring property or in an easement. Additionally, some AEZs would have been sized smaller (e.g., 25 feet instead of 100 feet) even for some fine sprays, which tend to drift farther. Prior to the effective date of the 2020 AEZ Rule, petitions were filed in the U.S. District Court for the Southern District of New York (SDNY) and in the U.S. Second Circuit Court of Appeals challenging the 2020 Rule. The SDNY issued an order granting the petitioners' request for a temporary restraining order and preliminary injunction enjoining the effective date of the rule. As a result, the 2020 AEZ Rule never went into effect.

In 2021, EPA began reviewing the 2020 AEZ Rule in accordance with Executive Order 13990, *Protecting Public Health and the Environment and Restoring Science to Tackle the Climate Crisis.* The agency determined that the provisions in the 2020 AEZ Rule that weakened protections for farmworkers and nearby communities from pesticide exposure should be rescinded. The proposed rule to reinstate several provisions of the 2015 rule was published in March of 2023.

Final Rule Provisions

With today's action, EPA is finalizing its 2023 proposed rule without change. The final rule reinstates several 2015 WPS provisions protecting farmworkers and bystanders, including:

1. The AEZ suspension requirement will apply beyond the boundaries of the agricultural establishment.
2. The AEZ suspension requirement will apply in easements on the establishment (for example, easements for utility workers to access telephone lines).
3. The AEZ distance for ground-based applications will be:
    - 25 feet for applications with medium or larger droplets when sprayed from a height greater than 12 inches from the soil surface or planting medium.
    - 100 feet for applications with fine droplets.

Additionally, the final rule includes two revisions that the agency believes provide clarity and flexibility for growers and farming families without increasing risk to farmworkers and bystanders:

1. An “immediate family exemption” that allows farm owners and their immediate family to remain inside enclosed structures or homes during pesticide application. This exemption, which is limited to farming families, provides them the flexibility to decide whether to stay on-site during pesticide applications, rather than compelling them to leave even when they feel safe remaining in their own homes.
2. A clarification that suspended pesticide applications can resume only after people leave the AEZ.

These changes are a critical part of EPA’s efforts to protect the health of farmworkers and support the agency’s priority to advance equity and justice for all communities. Learn more about EPA’s extensive efforts to train, support and enhance safe working conditions for agricultural workers at local, state and national levels on EPA’s website <https://epa.gov/pesticide-worker-safety>.

EPA will release interim guidance by the end of October to support the regulated community in complying with the new rule and will accept feedback on how to improve the guidance after its release.

The new rule will be effective 60 days after publication of the federal register notice and will be available in docket EPA-HQ-OPP-2022-0133 at the Regulations.gov <http://www.regulations.gov> page.

Contact Us <https://epa.gov/newsreleases/forms/contact-us> to ask a question, provide feedback, or report a problem.

LAST UPDATED ON OCTOBER 2, 2024

Budget & Performance <https://epa.gov/planandbudget>

Contracting <https://epa.gov/contracts>

EPA www Web Snapshot <https://epa.gov/utilities/wwwepagov-snapshots>

Grants <https://epa.gov/grants>

No FEAR Act Data <https://epa.gov/ocr/whistleblower-protections-epa-and-how-they-relate-non-disclosure-agreements-signed-epa>

Plain Writing <https://epa.gov/web-policies-and-procedures/plain-writing>

Privacy <https://epa.gov/privacy>

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Follow.

Pesticide Update

EPA's Office of Chemical Safety and Pollution Prevention

EPA Updates Mitigation Menu Website with Options to Protect Nontarget Species from Pesticide Runoff

The U.S. Environmental Protection Agency (EPA) has updated its mitigation menu website to include all current measures to reduce exposure to nontarget species from pesticide runoff from agricultural uses. The menu provides growers with options for reducing runoff as part of future pesticide labels that implement EPA's Final Herbicide Strategy from August 2024.

Updates to the mitigation menu website include:

- Additional runoff/erosion mitigation measures and descriptions;
- A table describing the number of runoff/erosion points for each mitigation measure;
- Updates to the mitigation descriptions;
- A runoff/erosion mitigation points calculator to help applicators calculate the number of points earned for practices already in place on the field;
- Information to help applicators understand how voluntary participation in conservation programs can fulfill EPA label requirements; and
- An archive of previous versions of the mitigation menu for reference and enforcement purposes.

If a new active ingredient registration or a registration review decision for a conventional pesticide requires runoff/erosion mitigation to reduce ecological exposures, the label for that pesticide will reference this menu. A pesticide applicator will then need to review the menu and determine whether menu measures need to be

employed and, if so, how many measures. The mitigations described in the menu apply only when the product label references the menu website.

EPA hosts this mitigation menu on the agency's website rather than including it on each pesticide label. By posting the menu online, EPA can add or modify mitigation measures on the menu without updating thousands of individual labels each time, which would take years to complete. This approach ensures that agricultural pesticide users can benefit promptly from those changes to the menu. EPA intends to periodically update the mitigation menu website to reflect new mitigation measures or changes in mitigation descriptions.

EPA's other strategies, including the Federal Insecticide, Fungicide, and Rodenticide Act Interim Ecological Mitigation and the Vulnerable Species Action Plan, will rely on the same mitigation menu website for conventional agricultural uses. When finalized, the Hawaii Strategy and the Draft Insecticide Strategy will also use this website. By using the same menu website, EPA reduces complexity for pesticide applicators.

The mitigation menu website currently only includes runoff/erosion mitigation options. EPA intends to update the mitigation menu website in the future to include spray drift mitigation options arising from the ESA strategies, when those mitigation requirements apply.

Visit the Mitigation Menu Website

EPA

Pesticide Update

EPA's Office of Chemical Safety and Pollution Prevention

EPA Releases Pesticide and Endangered Species Educational Resources Toolbox

Today, the U.S. Environmental Protection Agency (EPA) released an online toolbox with educational materials related to pesticides and endangered species -- another step in the agency's efforts to protect endangered species, support farmers, and provide critical environmental protections for communities across the country.

When EPA registers a pesticide or reevaluates it in registration review, the agency has a responsibility under the Endangered Species Act (ESA) to ensure that the use of the pesticide does not jeopardize the continued existence of federally threatened or endangered (listed) species or adversely modify their designated critical habitats. Over the last few years, EPA has developed strategies and educational materials in support of the agency's implementation of its ESA obligations. The Pesticide and Endangered Species Educational Resources Toolbox catalogs educational resources including guidance documents, handouts, presentations, informational webinars, and other resources relating to EPA's endangered species work. The toolbox can be sorted alphabetically, by publication date, or by topic and has a search function that allows users to search by keyword or phrase.

EPA developed the materials in this toolbox for a variety of stakeholders who may have differing levels of knowledge about EPA's efforts to protect listed species. For example, crop consultants, retailers, extension agents, and others, may use these materials to educate growers and applicators on the ESA strategies or mitigation measures they may see on product labels.

This initial release of the toolbox primarily consolidates existing materials from various locations on EPA's website into one location. EPA has also included a new one-page handout on Bulletins Live! Two. This handout explains what Bulletins are,

why users need to know about Bulletins, and how to find them on Bulletins Live! Two.

EPA will continue adding new materials to the toolbox as they are developed.

Visit the Toolbox

A Helpful Guide to Bulletins Live! Two

What are Bulletins? Bulletins tell us the geographically specific pesticide use limitations for the protection of threatened and endangered species and their designated critical habitat listed under the Endangered Species Act.

What is Bulletins Live! Two? Bulletins Live! Two (BLT) is an online search engine to help you find Bulletins that may apply to you.

Why do I need to know about Bulletins?

- Bulletins are important! You must follow use instructions found on your label, which may direct you to access and follow directions from BLT.
- The label will also tell you when you must access BLT, which is typically within six months of your application date.

How do I search on BLT?

Searching and printing bulletins is quick and easy! Each search takes less than 5 minutes.

Follow these 4 steps!

1. Gather the information you will need:
   - Application location (zip code, street address, town, etc.)
   - When you wish to apply (Month, Year)
   - Pesticide EPA Registration Number* - leave this blank to see all the products with use limitations in your area
2. Input this information into the search engine.
3. If a pink area is visible on the map, click it, and a green "Printable Bulletin" button will appear in the top right corner. Click it to download a PDF of your bulletin.
4. Review the bulletin for any use limitations.

Now that I have my Bulletins, what do I do with them?

- Follow all use limitations and requirements both on the label and the bulletin.
- Bulletins can be downloaded to be referenced in the future.

How do I learn more?

- **Enroll to receive OPP Updates!**
  To sign-up go to: https://www.epa.gov/pesticides. Public updates are often issued when either new or updated Bulletins are published in BLT.
- **Visit our website!**
  For more information visit:
  www.epa.gov/pesticides/bulletins
- **QR Code to Bulletins Live! Two** →

*Where do I find the Pesticide EPA Registration Number?

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Expand the sections below to learn more about the NCIT Basic Program

What is the NCIT Basic Program?

Over 21,000 regulatory discipline and compliance professionals have benefited from this training and certification program in investigation and inspection techniques and procedures. Even if you are an experienced investigator, you are certain to gain new skills and knowledge from this course. Teaching methodologies include lectures, role-playing, group activities, and video presentations.

The program contains 10 modules pertaining to regulatory investigations. They are:

1. Professional Conduct
2. Principles of Administrative Law
3. Investigative Process
4. Principles of Evidence
5. Evidence Collection, Tagging, and Storage
6. Interviewing Techniques
7. Investigator Safety
8. Overview of Inspections and Inspection Procedures
9. Report Writing
10. Testifying in Administrative and Criminal Proceedings

The Association of American Pesticide Control Officials
together with
The U.S. Environmental Protection Agency (EPA)

As part of a cooperative state/federal outreach program, your company, or your Internet site has been identified as possibly being involved in the sale or distribution of materials or products classified as pesticides. This notice is intended to alert you that this activity may be regulated under both federal and/or state law. Please read the following information carefully and visit the sites referenced at the end of this message. In order to avoid other agencies duplicating this message to you, please acknowledge your receipt of this message to the sender.

Any material, whether naturally derived or not, that is used or intended to be used for control or elimination of any pest (weeds, insects, microorganisms, etc.) is classified as a pesticide. EPA has developed an Internet site to help you determine what is considered a pesticide. **http://www.epa.gov/pesticides/about/index.htm**.

Examples of products that are pesticides are:

- Cockroach sprays and baits
- Insect repellants
- Rat and mouse poisons
- Flea and tick sprays, powders, collars, and wrist bands
- Disinfectants and sanitizers
- Mold and mildew controls
- Lawn and garden products that kill weeds, insects, or some plant diseases
- Some swimming pool chemicals
- Insect control chalk (also known as Chinese chalk)
- Plant protection chemicals that kill weeds, insects, or plant diseases

While there are a few exceptions, most pesticides require registration with the EPA and with any state in which they are sold or distributed. Even advertising products or materials that may be classified as pesticides may be construed as distribution of a pesticide. It is against the law to sell unregistered or misbranded pesticides in the United States. This means that if you produce, sell, or offer for sale a pesticide product or device[1] via the Internet that is mislabeled, not registered, or no longer registered, you could be breaking the law and subject to penalties, including fines. Generally, it is the *seller's responsibility* to ensure that pesticides sold over the Internet are labeled according to federal standards and are registered by EPA and any state in which they are distributed before offering them for sale.

The following important points should be considered regarding your establishment operations:

> **Federal and State Law**: The EPA administers the federal pesticide law and each state has a pesticide control law that further restricts and/or clarifies local administration of pesticide commerce. BOTH levels of law must be followed.

> Distribution: Actual sale and distribution of pesticides are regulated by both the EPA and the states.

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[1] A pesticide device is any instrument or contrivance (other than firearm) which is intended for trapping, destroying, repelling, or mitigating a pest, but NOT including the equipment used to apply pesticides.

Some states have declared specific general use pesticides as "State-Limited-Use" pesticides. These pesticides may require a dealer license to sell and a certification to purchase and use them.

> **Dealer Licensing:** Many states also require that all pesticide dealers operating in that state be licensed, even if the dealer is not physically located in the state. This includes sales over the Internet. Many states also regulate the offer for sale of pesticides even though the company does not take possession of the products being offered for sale (such as auction sites or electronic brokerage).

> **Certified Applicators:** Some pesticides are classified as "Restricted Use" pesticides (RUPs). Both federal and state laws require sellers and/or buyers of RUPs to be licensed or certified by the state agencies where either party involved in a transaction may operate.

> **Records:** Many states require that sales records be kept and reports of transactions be submitted on a regular basis.

It is beyond the scope of this message to summarize all of the requirements of federal and state pesticide law. Your electronic commerce site has been entered into the [list tracking site here] that serves as a resource to the pesticide regulatory agencies to track electronic commerce of pesticides. The intent of this tracking is to reduce the number of times you may receive this message, as well as be a tool for the regulatory agencies.

To review specifics on the federal pesticide law (Federal Insecticide, Fungicide, and Rodenticide Act), please click here: **http://www4.law.cornell.edu/uscode/7/ch6.html**

To obtain a list of all state pesticide agency home pages, please click here: **http://aapco.ceris.purdue.edu**

For information about federal pesticide registration, please click here:
http://www.epa.gov/pesticides/regulating/registering/index.htm

This notice does not constitute a warning or enforcement action by any federal or state authorities. Such authorities may independently pursue any initiative that, in their judgement, they believe is appropriate. Similarly, this notice does not reflect the enforcement policy of any federal or state authorities.

Pesticide Notification, v. 03-29-04

United States Environmental Protection Agency
Office of Enforcement & Compliance Assurance
Washington, DC 20460
March 2004

Fact Sheet on Pesticides Sales in E-Commerce

Internet-based pesticide marketing is a new and evolving medium for pesticide sales and distribution. All types of pesticides are sold through the internet, including conventional use and antimicrobial pesticides. U.S. EPA is working closely with the states through the Association of American Pesticide Control Officials (AAPCO) to develop an informed and nationally consistent approach to pesticide electronic commerce activities, including agricultural use pesticides.

What is a pesticide?

A pesticide is any substance or mixture of substances intended for preventing, destroying, repelling, or mitigating any pest or intended for use as a plant regulator, defoliant, or desiccant. The substances listed below are all examples of pesticides.

- Cockroach sprays and baits
- Flea and tick sprays, powders, collars and wrist bands
- Hospital disinfectants
- Industrial Chemicals
- Insect control chalk (a/k/a Chinese chalk)
- Insect repellants
- Kitchen, laundry, and bath disinfectants and sanitizers
- Lawn and garden products that kill weeds, insects, or plant diseases
- Plant protection chemicals that kill weeds, insects, or plant diseases
- Products that kill or control mold or mildew
- Rat, mouse, and other rodent poisons
- Some swimming pool chemicals

Why is the U.S. EPA concerned about pesticide sales over the internet?

Pesticides are poisons designed to control specific organisms. Handling of pesticides according to U.S. EPA and state registration and labeling requirements ensures that exposure to these products is minimized. However, a misused or mishandled pesticide may be harmful to humans, other organisms, and the environment. The anonymity and remoteness of the parties involved in internet sales increases the inherent risk involved with the handling or use of pesticides when they are purchased over the internet and shipped.

What laws apply if you sell pesticides over the internet?

Many different types of pesticides are offered for sale over the internet. Both federal and state pesticide laws and regulations apply to these sales. Relevant federal requirements are listed below.

- Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) 7 U.S.C. §§135 *et seq.*
- Federal Food, Drug, and Cosmetic Act (FFDCA) 21 U.S.C. §§301 *et seq.*
- 40 Code of Federal Regulations Parts 150 to 189
- 49 Code of Federal Regulations Parts 100 to 185
- 19 Code of Federal Regulations §§12.110 to 12.117

No person in any state may distribute, sell, or offer for sale or distribution to any person any pesticide that is not registered in accordance with §3 of FIFRA. Generally, it is the **seller's**

responsibility to ensure that pesticides sold over the internet are labeled according to federal standards and are registered both by the U.S. EPA and any state in which they are distributed before offering them for sale.

If you are selling a pesticide over the internet, be aware that there are federal and state laws affecting the shipment, proper transportation, and delivery of the pesticide. Federal laws administered by the U.S. EPA, the U.S. Department of Transportation, U.S. Postal Service, and the U.S. Department of Homeland Security regulate the shipping and transportation of pesticides. Each state has its own laws regulating the sale, distribution, and use of pesticides within that state. You should check on the state laws regulating the use and sale of pesticides in each state where you sell pesticides. Some states regulate restricted use pesticides (see below) more strictly than the federal government.

Dealers must meet federal requirements and be certified according to state law in each state where they sell pesticides. Applicators must meet federal requirements and be licensed in each state where they apply pesticides. Certification and licensing functions are typically administered by states and defined by state law. Some higher risk pesticides are classified as restricted use pesticides (RUPs), and are more stringently regulated by the states and the U.S. EPA than general use pesticides. RUPs may be sold only by licensed dealers and purchased only by certified applicators.

What laws apply if you purchase pesticides over the internet?

The label is the law. The pesticide you purchase must be used in accordance with the instructions on the label. It is a violation of federal law to use a pesticide in a manner inconsistent with its labeling.

If you purchase a restricted use pesticide (RUP), federal law requires that you must be a certified applicator in the state where the pesticide will be used. Applicator certification, although required by both state and federal law, is administered by the individual states.

What does it mean to "handle" a pesticide?

Proper handling of pesticides may include, but is not limited to, the listing, sale, purchase, shipping, transport, delivery, receiving, preparation, and use of the product. Some of these actions are covered by FIFRA and state laws relating to the use of pesticides.

Shipping, transport, delivery and acceptance of pesticides are covered by laws and regulations administered by the states, the U.S. Postal Service, and the U.S. Department of Transportation.

If you are handling a pesticide in any of these contexts, you should contact the carrier you want to use for shipping and the pesticide officials in your state before transporting the product.

What types of web sites market pesticides?

Several types of sites typically are involved in the sale, distribution, and use of pesticides, including:

Registrant or producer sites

Many registrants and producers of pesticides have established web sites that will work to support internet marketing plans.

Retail or distributor sites

These sites include both commercial pesticide retailers that specialize in pesticide sales and general retailers that sell a variety of products, including pesticides. Retailers in both groups have web sites that offer their products for sale over the internet.

Commercial user and applicator sites

Pest control and janitorial companies have web sites established to market their goods over the internet. Industrial chemicals are also marketed over the internet for sale in larger quantities.

Auction sites

Auction sites, like eBay, include both general auction sites and agricultural chemical auction sites. These web sites often act like brokers and bring buyers and sellers together to sell pesticides.

eBay has developed, in cooperation with U.S. EPA, and implemented a policy that allows for the sale of general use pesticides and clean, empty containers as collectibles. This policy prohibits the sale of restricted use pesticides, unregistered, cancelled, or suspended pesticides.

Foreign sites

Foreign-based web sites advertise and market pesticides worldwide, including in the United States. Pesticides marketed on foreign web sites may or may not be registered for use in the United States. Even if a particular pesticide offered for sale is registered, it may not be in compliance with FIFRA or relevant state laws and regulations.

Other

Some web sites are informational and may provide copies of labels, material safety data sheets, or other information on pesticides. Sometimes these web sites will provide instructions on how to make pesticides.

What enforcement actions has U.S. EPA taken to date?

Through U.S. EPA's early enforcement activities pertaining to internet pesticides, the Agency has gained valuable experience in enforcement against e-commerce violators. U.S. EPA worked cooperatively with the Federal Trade Commission (FTC) on regulating web sites that sold pesticides which targeted Anthrax. As a result, U.S. EPA and FTC are sharing information on pesticide-related e-commerce and furthering their partnership in the regulation of this aspect of e-commerce. Future areas of focus include web sites that sell restricted use pesticides to persons who are neither trained nor certified in the application of these toxic chemicals as required by FIFRA.

Other useful web sites and information sources

The following subjects provide information on compliance with pesticide laws and regulations and can be accessed through the U.S. EPA web site at: http://www.epa.gov

- Pesticide Compliance Assistance: http://www.epa.gov/compliance/assistance/pesticides/index.html
- FIFRA Enforcement: http://www.epa.gov/compliance/civil/programs/fifra/index.html
- Office of Pesticide Programs: http://www.epa.gov/pesticides/about/aboutus.htm
- Agriculture Compliance Assistance Center: http://www.epa.gov/agriculture
- Clean Sweep Program: http://www.epa.gov/pesticides/regulating/clean_summ.htm
- Interactive Pesticide Label: http://www.epa.gov/pesticides/label

The following web sites provide additional information about the proper handling, transportation and shipping of pesticides.

- U.S. Customs and Border Protection, Import Guide on Internet Purchases: http://www.cbp.gov/xp/cgov/import/infrequent_importer_info/internet_purchases.xml
- U.S. Department of Transportation - Office of Hazardous Material Safety: http://hazmat.dot.gov
- U.S. Postal Service, Domestic Mail Manual, Chapter 23, Hazardous Materials: http://pe.usps.gov/cpim/ftp/manuals/DMM/c023.pdf
- U.S. Postal Service, Hazardous, Restricted, or Perishable Mail: http://www.usps.com/cpim/ftp/pubs/pub52.pdf