



PAUL R. LEPAGE
GOVERNOR

STATE OF MAINE
MAINE DEPARTMENT OF AGRICULTURE, CONSERVATION AND FORESTRY
BOARD OF PESTICIDES CONTROL
28 STATE HOUSE STATION
AUGUSTA, MAINE 04333-0028

WALTER E. WHITCOMB
COMMISSIONER
HENRY S. JENNINGS
DIRECTOR

BOARD OF PESTICIDES CONTROL

July 10, 2015

AMHI Complex, 90 Blossom Lane, Deering Building, Room 319, Augusta, Maine

AGENDA

8:30 AM

1. Introductions of Board and Staff
2. Public Hearing on Proposed Rule Amendments to Chapters 31, 34 and 35

The Board will hear testimony on the proposed amendments to the following three rules:

- **Chapter 31 Certification and Licensing Provisions/Commercial Applicators**
 1. Change the license period from two years to three; change the certification period from six years to three and align the licensing and certification periods.
 2. Amend the description of Category 6B to clarify what types of applications are included.
 3. Change the requirement for passing both the core and category exams within one year of each other to within five years.
 4. Clarify that certified or licensed wastewater or drinking water operators are exempt from licensing only while applying pesticides to the wastewater or drinking water and not while performing other duties such as weed management.
- **Chapter 34 Certification and Licensing Provisions/Dealers**
 1. Shorten the time period a person must wait before re-taking an exam they have failed to align with other licensing rules.
 2. Change the license period from one year to three; change the certification period from five years to three and align the licensing and certification periods.
- **Chapter 35 Certification and Licensing Provisions/Spray Contracting Firms**
 1. Remove the requirements for spotters and monitors for forest insect aerial spray programs.
 2. Change the license period from two years to three.

Additional details of the proposed amendments were described in the public hearing notice published in major newspapers and on the Secretary of State website on June 17, 2015. Copies of

the notice and the proposed rule amendments are available upon request, and may be viewed at the Board's website, <http://www.maine.gov/dacf/php/pesticides/rulemaking.html>

Written comments may be e-mailed to henry.jennings@maine.gov, or mailed to the Board's address above, until 5:00 PM on July 24, 2015.

3. Minutes of the June 5, 2015, Board Meeting

Presentation By: Henry Jennings
Director

Action Needed: Amend and/or Approve

4. Board Discussion About Herbicide Label Plant-Back Restrictions as They Apply to Cover Crops

At the April 24, 2015 meeting, John Jemison requested that the Board review the herbicide plant-back label restrictions and how they currently prevent farmers from planting cover crops that are being recommended by the United States Department of Agriculture. The staff has been researching the question and will update the Board on the current status.

Presentation By: Lebelles Hicks
Staff Toxicologist

Action Needed: Provide input to staff

5. Board Discussion About Further Streamlining of the Agency Licensing and Other Processes

The staff has been working to develop a new, comprehensive technology solution to better manage the licensing processes and provide a self-service internet portal for licensees. Because programming/automating complex business rules is both difficult and expensive, one aspect of the development involves a methodical analysis of the current processes with a view toward identifying opportunities to simplify and/or improve those processes. The staff will provide a brief overview of the current progress and invite input on other potential areas to improve the agency processes.

Presentation By: Gary Fish
Manager of Pesticide Programs

Action Needed: Provide Guidance to the Staff

6. Review of Letter to from Justin Nichols Recommending Changes to the Board's Posting Requirements

Justin Nichols and Gail Jones, landscapers, were working at a client's property in Falmouth for about 35 minutes when both of them started feeling ill. Shortly thereafter they discovered a sign indicating the lawn had been sprayed just prior to their arrival. Nichols called the telephone number listed on the sign but was unable to get any timely information about what had been applied at the site. Nichols subsequently wrote to the Board inspector with the goal of providing input and recommendations for the Board to consider.

Presentation By: Henry Jennings
Director

Action Needed: Determine the appropriate response

7. Consideration of a Consent Agreement with the Town of Hartland

On June 3, 1998, the Board amended its Enforcement Protocol to authorize staff to work with the Attorney General and negotiate consent agreements in advance on matters not involving substantial threats to the environment or public health. This procedure was designed for cases where there is no dispute of material facts or law, and the violator admits to the violation and acknowledges a willingness to pay a fine to resolve the matter. This case involves two unlicensed municipal employees who applied sodium bisulfite to control weeds on municipal sidewalks and walkways.

Presentation By: Raymond Connors
Manager of Compliance

Action Needed: Approve/Disapprove the Consent Agreement Negotiated by Staff

8. Draft Policy Regarding Interpretation of CMR 01-026, Chapter 10, Section 2 (P) (2), Definition of Property Open to Use by the Public as Regards Outdoor Applications

At the December, 2014 and the April and June, 2015 meetings the Board had discussions about the definition of “property open to use by the public,” as it applies to treating small areas within a large land holding. Section 2 (P) (2) of Chapter 10 provides the exemption, “where the public has not been permitted upon the property at any time within seven days of when the property received a pesticide application.” The discussion included information from a survey made of land trusts which use this exemption to apply pesticides to control invasive vegetation. The staff has drafted a policy based on that discussion.

Presentation By: Henry Jennings
Director

Action Needed: Approve/Disapprove the Policy

9. Other Old or New Business

- a. Department of Agriculture, Conservation and Forestry Pollinator Protection Plan
- b. Other

10. Schedule of Future Meetings

August 27-28, October 9, November 13, and December 18, 2015, are tentative Board meeting dates. The Board will decide whether to change and/or add dates.

- a. August meeting:
 - Who is planning to travel in the state van from Augusta?
 - Who will be staying at the Machias Motor Inn?
 - Make sure to sign up for sandwiches and drinks before leaving today.

- b. Adjustments and/or Additional Dates?

11. Adjourn

NOTES

- The Board Meeting Agenda and most supporting documents are posted one week before the meeting on the Board website at www.thinkfirstspraylast.org.
- Any person wishing to receive notices and agendas for meetings of the Board, Medical Advisory Committee, or Environmental Risk Advisory Committee must submit a request in writing to the Board's office. Any person with technical expertise who would like to volunteer for service on either committee is invited to submit their resume for future consideration.
- On November 16, 2007, the Board adopted the following policy for submission and distribution of comments and information when conducting routine business (product registration, variances, enforcement actions, etc.):
 - *For regular, non-rulemaking business*, the Board will accept pesticide-related letters, reports, and articles. Reports and articles must be from peer-reviewed journals. E-mail, hard copy, or fax should be sent to the attention of Anne Bills, at the Board's office or anne.bills@maine.gov. In order for the Board to receive this information in time for distribution and consideration at its next meeting, all communications must be received by 8:00 AM, three days prior to the Board meeting date (e.g., if the meeting is on a Friday, the deadline would be Tuesday at 8:00 AM). Any information received after the deadline will be held over for the next meeting.
- During rulemaking, when proposing new or amending old regulations, the Board is subject to the requirements of the APA (Administrative Procedures Act), and comments must be taken according to the rules established by the Legislature.



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BOARD OF PESTICIDES CONTROL

June 5, 2015

AMHI Complex, 90 Blossom Lane, Deering Building, Room 319, Augusta, Maine

MINUTES

Present: Bohlen, Eckert, Flewelling, Granger, Jemison, Morrill, Stevenson

1. Introductions of Board and Staff

- The Board, Staff, and Assistant Attorney General Randlett introduced themselves.
- Staff Present: Connors, Couture, Jennings, Patterson, Tomlinson

2. Minutes of the April 24, 2015 Board Meeting

Presentation By: Henry Jennings
Director

Action Needed: Amend and/or Approve

April 24, 2015, Minutes:

- **Jemison/Flewelling: Moved and seconded to adopt minutes**
- **In Favor: Unanimous**

3. Review of Draft “Guidance for the Application of Pesticides In Forest Settings In Order to Minimize the Risk of Discharges to Surface Waters”

On June 27, 2012, the Board approved *Interim Guidelines for Forest Pesticide Applications* which were intended to assist foresters in minimizing the risk of discharges to surface waters. In April, 2015, the Maine Department of Environmental Protection finalized a general permit for aerial application of pesticides to forestry sites and referenced BPC Best Management Practices. Additionally, at the Joint Standing Committee on Agriculture, Conservation and Forestry work session for LD 817, An Act Regarding Aerial Pesticide Spray Projects, there was discussion about adding references to technological advances for aerial spraying. The Board reviewed the interim guidelines at the April 24, 2015 meeting and provided some input which the staff has attempted to capture in a new draft.

Presentation By: Mary Tomlinson
Pesticides Registrar and Water Quality Specialist

Action Needed: Provide Guidance to the Staff

- Jennings said that the guidance document does not describe any recommendations as BMPs. Operators need the ability to choose which practices to implement because all of the practices will not be feasible in all circumstances. These are not requirements.
- Tomlinson sent the draft document to foresters and a few other people, seeking feedback, and heard nothing back.
- Jennings wanted to make sure no one can construe these as legal parameters. There was concern about this from the Board.
- Eckert asked what the difference between neutral and stable atmospheric conditions is. Jennings replied that stable atmosphere occurs first thing in the morning if you have clear sky when there is very little air movement. Under neutral conditions there is some horizontal movement but the vertical movement caused by thermals has not begun yet. Under unstable conditions, the thermals have formed and there is both horizontal and vertical air movement. Applicators do not want to apply small droplets in stable air because high target residues can result.
- Bohlen asked who the target audience is for this, applicators only or a broader audience? Jennings replied that it will most likely be someone well versed on the subject. Bohlen responded there was terminology used that was very technical. Jennings suggested the staff go back and look at places where terminology could use further explanation. When Tomlinson drew those up and sent them out she used multiple forestry manuals and input from foresters.
- Morrill questioned item 4 on page 20. The document mentions buffer areas in several spots and then provides an actual footage buffer in that location. Jennings stated this came from foresters. Since they are required to buffer surface waters with their harvesting practices, they use this as a way to buffer streams by both vegetation and distance. Morrill suggested taking the whole bullet out because buffers are explained under item 16, etc. Jennings agreed to delete item 20.
- Bullet point 34 is missing closing parentheses. Tomlinson stated that this has been fixed.
 - **Morrill/Jemison: Moved and seconded to accept the draft as amended**
 - **In Favor: Unanimous**

4. Interpretation of CMRCMR 01-026, Chapter 10, Section 2(P)(2), Definition of Property Open to Use by the Public as Regards Outdoor Applications

At the December 5, 2014, meeting the Board had a discussion about the definition of “property open to use by the public,” which state statutes defines as commercial applications requiring a licensed applicator. Section 2(P)(2) of Chapter 10 provides the exemption, “where the public has not been permitted upon the property at any time within seven days of when the property received a pesticide application.” During that discussion it was noted that this exemption has been used most commonly by land trusts to treat for invasive plants where they post and indicate the area (but not the entire “property”) is temporarily closed to the public. The Board discussed this topic at the March 13 and April 24, 2015 meetings, but tabled the matter pending further input from Maine land trusts. The Board will review those findings and provide guidance on whether this is the appropriate interpretation of the rule.

Presentation By: Henry Jennings
Director

Action Needed: Provide Guidance on Interpretation of the Chapter 10 Definition

- Jennings stated there was interest in reaching out to land trusts to see what sort of impact it might have if the seven day exemption applied to the entire property. The land trust network sent out an online survey. Attachment 9G summarizes this survey.

- The survey provides information on how many land trusts are doing their own invasive species control and which are hiring commercial applicators. Many are doing invasive plant control, but few are hiring commercial applicators.
- Bohlen stated the tenor of the responses revolves around two ideas: pesticide application safety and entirely blocking land trusts from doing invasive plant control.
- Bohlen stated the take home message was that many of the land trusts have extremely limited capacity to do any of this. There are only a few, two or three, that have licensed their own master applicators. For many of the land trusts this is not a top priority and if we make it a \$500 fee, they just will not do invasive plant control. Invasive plant control is a low priority activity anyway. Bohlen felt the overall feeling from the land trusts was that changing the current interpretation of exemption was a bad thing. He is leaning towards not making it apply to the entire property and going with option two.
- Of the land trusts that responded to survey 47% said they sprayed and 53% did not.
- Eckert asked of the people not using the licensed applicators, what are they doing and how are they doing it? Is it staff, someone fairly knowledgeable, or volunteers? Bohlen said his feeling was the ones not using licensed applicators are using off the shelf products. Many land trusts do hand removal of invasive plants as well.
- Jennings stated most of the off the shelf herbicides are typically not restricted. Stevenson stated that internet purchases could be a concern.
- Granger asked if we are only talking about herbicides, or all pesticides. Morrill stated he believes they are talking about all pesticides, but the Board is mainly concerned about the spraying of trails.
- Granger suggested a third option, areas on property open to the public which are treated with pesticides must be closed to the public for a period of seven days after treatment. Granger stated this keeps people off the area that has been sprayed, but doesn't close down the entire property. Jennings stated the third paragraph is similar to Granger's option. What Granger is suggesting sounds a lot like what the interpretation is now.
- The real question is what is the definition of "property"? Randlett suggests replacing the word "property" with "treated area".
- The other question is, to keep it open are you required to use a commercial applicator?
- Recreational areas, trails, and parks are the areas affected by this rule.
- Flewelling suggested the Board go with option two and then revise it as necessary.
- Bohlen suggested thinking about this not in terms of a public health risk, but of overuse of material, excessive runoff, and not paying attention to buffers.
- Jennings stated educating the land trusts on proper pesticide use is an alternative to changing the interpretation of the exemption.
- Ann Gibbs stated that Fish is providing this kind of training and the DACF has a new hire that is doing this.
- Stevenson did not think closing down 100 acres to apply to one acre makes much sense. He also stated they have not seen any problems/issues with how things are being done. Are we trying to solve a problem that is not there?
 - **Randlett suggested that the staff come back with a rewritten policy and the Board agreed.**

5. Board Discussion About How to Handle Situations in Which a Property Owner Removes Signs Prior to the Required 48 Hours

In April of 2015, the Board's office received an inquiry about whether it was lawful for a property owner to remove signs posted pursuant to Chapter 28, Section 3, prior to the expiration of the 48 hour posting period. One homeowner allegedly removes the signs as soon as the lawn care company leaves

the property. Chapter 28 states that signs “shall remain in place at least two days following the completion of the application.” The staff is seeking Board input on the interpretation of that standard and whether the staff should enforce the standard with homeowners.

Presentation By: Henry Jennings
Director

Action Needed: Provide Guidance to the Staff

- How should staff respond when homeowners are pulling up pesticide application signs as soon as the applicator leaves?
- Jennings stated he had reservations about aggressively enforcing the posting standards with homeowners for a variety of reasons.
- Morrill stated if an application is done by a commercial applicator, it needs to be posted, however a homeowner can buy the same products and apply them and would not need to post signs.
- Randlett stated he was not interested in enforcement against homeowners, but if it is a landlord-tenant situation or the public is invited onto the property, then the signs take on more public significance. When this is at a rental property and the landlord pulls up signs, tenants may have no idea that an application was made.
- Jemison suggested that one solution could be the lawn care companies put in their contract that it is the homeowner’s obligation to keep the sign up for two days. Morrill said that the necessary information is on the sign. Stevenson remarked that space is a premium on the homeowner agreement forms. Jemison noted that the signs say should, but not must. Bohlen felt uncomfortable with the idea of specifying what a business needs to put in a contract. Jemison said he was seeing this as a way to protect the businesses. Morrill stated that there is already a lot of information in the contracts.
- Connors agreed with Randlett that it is not so much about enforcement, but clarifying who is responsible for making sure the sign is up for two days. Connors suggested having the sign state, “Homeowner Do Not Remove”. In this particular case, it was about the abutter. Another issue is the public walking by a property and going off a sidewalk and unknowingly onto a location that has recently been sprayed with pesticides. Connors also noted that homeowners may not own all the way to the sidewalk.
- Flewelling asked if this was a single incident. Connors replied that there have been multiple incidents of a similar nature, but this is one is at the forefront.
- Bohlen said he is trying to envision how this is going to be enforced. He asked Connors if the Board would even hear about these signs being removed.
- Eckert remarked that after the sign has been posted, the responsibility shifts to the homeowner; the company did its job by posting the sign.
- Connors said that in other New England states the commercial applicators inform the homeowner not to remove the sign for a specified amount of time and in some instances that is in writing.
- Morrill said the Board cannot currently pursue any action on this. Randlett stated in a certain circumstance this could come into play and the Board should be careful about making a pronouncement that they do not want to pursue any action against a property owner. Bohlen provided an example of a circumstance in which the commercial property owner might have an incentive to remove the sign prematurely: a bed & breakfast may want to pull signs early because it would detract from what they are trying to promote.
- Connors suggested that in order to determine when enforcement is appropriate you first need to determine applicability. Granger suggested the sign be put up and removed by the applicator. Connors said that in his view the placing of the sign is specific to the applicator and the responsibility of removing of the sign is implied to be the responsibility of the property owner.

Connors asked what is the Board's position? The real question is whose duty is it to remove the sign?

- Jennings offered that the Assistant Attorney General has provided an interpretation. He believed the important question is the level of priority enforcement of this standard deserves.
- Bohlen said the level of priority for him has to do with the level of the risk to the public.
- Eckert remarked that she sees a difference in priority between a situation involving homeowner and abutter versus a business and a larger public group.
- Connors said that it is still unclear who the sign language applies to. It is natural for the homeowner or tenant to remove the sign. Jennings responded that it applies to anybody who removes the sign.
- Bohlen stated that the test for this should be asking what is the risk to others, not what is the risk to property owners.

6. Board Discussion About Commercial Certification and Licensing Periods

The Board's staff has been working with the State Office of Information Technology and Pegasystems to develop a new technology solution to manage the Board's licensing system and other process oriented activities. That effort includes an analysis of the Board's processes and discussion about whether any of those processes can be streamlined or simplified. The commercial applicator licensing requirement is one that adds complexity, but not necessarily benefit—licenses last for two years and the certification period lasts for six years—which makes that process more difficult to automate. Private licenses have the same three-year license and certification period. Because the staff is in the midst of analyzing its business processes, it seemed appropriate to bring process questions to the Board for review and discussion.

Presentation By: Henry Jennings
Director

Action Needed: Provide Guidance to the Staff

- Jennings explained that the staff is in the midst of a fairly large scale “business process management” technology solution development project. This is a good opportunity to go through each requirement and ask ourselves why we came up with each specific rule and does it still make sense.
- For example, there is a fair amount of confusion on the part of commercial applicators about the six-year certification period and the two-year license period. Jennings asked the Board about exploring simplifying specific license processes.
- Morrill remarked that it was easier to track credits over a three-year period.
- Stevenson suggested five years and five years.
- Morrill said that if the Board can make it easier for the applicators and the staff they should do it. He suggested three years and three years. Jennings said that from a management standpoint it is easier to track credits for a three-year period rather than a five- or six-year period. There is added cost with a longer licensing period. What if the licensing period is five years and a person quits prior to working five years?
- Morrill stated that is easier to keep track of credits over a three-year period.
- Bohlen suggested all licenses should be on the same period and they can have different credits; that is fine, but all license periods should be the same.
- Eckert asked why it was set up like it is to begin with? Jennings responded that it used to be a one year license period and a five year certification period.
- Morrill said this is the time to simplify this.

- Jennings noted that this would require rulemaking, but not major-substantive if the fee is not changed. The staff will initiate rulemaking on this.
- Jennings discussed the merits of the requirement for passing a core and category exam within a one-year period.
- Eckert suggested staggering the licenses so that staff does not have to review all licenses in one year.
- Jennings stated if anyone else has ideas on processes that seem unnecessarily complex, now is the time to bring them up.
- Jemison suggested changing the license and certification periods for all licenses to three years.
- Bohlen agreed the licensing process looks absurdly complicated.

7. Board Discussion About Enforcement of the Ag Basic License Requirement

On April 1, 2015, the new Maine statute requiring licensing of “private applicators of general use pesticides for food production” (the so-called Ag Basic license) went into effect. The compliance staff has raised the question about how the Board recommends enforcing this new standard. Historically, the Board has endorsed a phased approach to enforcement of new standards. The staff is seeking guidance on the appropriate enforcement approach.

Presentation By: Raymond Connors
 Manager of Compliance

Action Needed: Provide Guidance to the Staff

- Connors asked for the Board’s view on how to approach enforcement of the new licensing requirement.
- Morrill stated there was already a three-year phase in on this.
- Eckert suggested giving them a warning on the first inspection and then enforcement action on the second inspection. Morrill and Flewelling worried this will put out the word that people do not need to worry about getting a license until they are inspected.
- Katie Green stated she felt MOFGA tried very hard to get the word out, but there are still many people who are not licensed. Tim Hobbes remarked that all the potato growers are licensed.
- Connors said that for an Ag Basic grower using pesticides, the criteria is \$1,000 of gross produce sales. The produce season is just beginning. When does the trigger start since the law went into effect April 1? How do you prove when \$1,000 of edible products have been sold?
- Dave Struble asked how many Ag Basic licenses have been issued? Connors replied that there are approximately 400 Ag Basic licenses currently, but Gary would be in a better position to answer the question. Dave Struble asked what percent of the population that 400 is?
- Jennings said that a large percentage of those licenses are from medical marijuana people, which was not anticipated. Some growers chose to get private licenses, rather than Ag Basic. Also, growers do not need a license if they are only using FIFRA Section 25b exempt products.
- Jemison remarked that the statute stating selling “\$1,000 annually” is bad wording.
- Stevenson asked how inspectors figure out how much growers sell?
- Ann Gibbs noted for nursery licenses they have a defined area that they require licenses for.
- Connors said that in the past, in the lawn care industry, the inspectors discussed the licensing requirements, left a brochure, and then the applicator signed off on that. He suggested using a similar process in this situation.
- Morrill said that continuing to provide educational support is the best approach.
- Some farms have three or four people with Ag Basic licenses

8. Consideration of a Consent Agreement with Tractor Supply Company of Brentwood, TN

On June 3, 1998, the Board amended its Enforcement Protocol to authorize staff to work with the Attorney General and negotiate consent agreements in advance on matters not involving substantial threats to the environment or public health. This procedure was designed for cases where there is no dispute of material facts or law, and the violator admits to the violation and acknowledges a willingness to pay a fine to resolve the matter. This case involves a retailer that was selling pesticides positioned closer than ten feet from animal feed.

Presentation By: Raymond Connors
Manager of Compliance

Action Needed: Approve/Disapprove the Consent Agreement Negotiated by Staff

- Tractor Supply sells pesticides that require a General Use Pesticide Distributors license. Connors said that some of the requirements of the pesticide self service area (such as signs, 10' rule, spill kit), were ignored in 14 of the Tractor Supply stores. Many of these stores were in violation more than one year.
- Connors sent the corporate office a warning letter.
- The stores have corporate planograms dictating which products go where, so store managers were reluctant to move products.
- In 2014, there were eight Tractor Supply Stores that were inspected and had violations.
- Connors sent them a Consent Agreement that they acknowledged and paid.
- Bohlen stated eight stores and \$1,000 does not seem like nearly a high enough fine for this large of a corporation.
- Morrill noted that there are six years of failed inspections. Why didn't we send a warning letter in 2008 and then a fine in 2009? Morrill asked why we waited so long to fine them?
- Randlett replied that he also questioned the fine amount because he thought it was low, but then understood it better after talking to Connors. Connors had been working with a new Tractor Supply Company employee who was working to bring the stores into compliance. Morrill stated he felt there was uneven treatment concerning farmers and this company. Connors stated there was a distinction with this situation where there were individual stores that had violations, but not in all the sequential years the consent agreement covered.
- Bohlen asked if the Tractor Supply stores are going to be inspected this year? The Board needs evidence they're making changes; if this does not work, then the fine needs to be ratcheted up.
- Eckert added that there needs to be equal treatment between farmers and large corporations.
 - **Flewelling/Eckert: Motion to approve consent agreement negotiated by staff**
 - **In Favor: Unanimous**

9. Other Old or New Business

- a. Variance Permit for Maine Department of Transportation, Bureau of Maintenance & Operations
 - Morrill asked what the first three variances were for. He would like that stated in the letter. Item 9.d. the variance permit for Dubois Contracting lists the purpose of the variance, items 9.a., 9.b., and 9.c. do not provide this level of detail.
- b. Variance Permit for RWC, Inc
- c. Variance Permit for Asplundh Tree Expert Co.—Railroad Division

- d. Variance Permit for Dubois Contracting
- e. EMERA Maine Letter
 - Letter to inform BPC that they plan to hydraulically spray 53 substations in SOR and 43 in NOR
- f. Nancy Oden Letter and Article
 - EPA proposing temporary pesticide-free zones for honeybees.
- g. Land Trusts Memo and Survey
 - 51 of 80 land trusts responded to survey
- h. Other?
 - The staff hasn't secured a room to meet in yet at University of Machias for next Board meeting. There are some places that can be rented, but they are expensive and/or inconvenient.

10. Schedule of Future Meetings

July 10 and August 28, 2015 are the next tentative Board meeting dates. The Board will decide whether to change and/or add dates.

- Tentative plan for field trip/Board meeting August 27-28 (Thanks to Nancy McBrady for her hard work on this)
 - Leave Augusta Thursday morning, August 27, arrive in Jonesboro around noon. Have lunch and tour the Blueberry Hill Farm Experimental Station.
 - Proceed to Wyman's of Maine, Deblois for a tour of the processing facility and fields.
 - Proceed to Machias for dinner/overnight. Listening session in the evening?
 - Board Meeting Friday, August 28 at University of Maine Machias. Listening session before meeting?
 - Eat lunch.
 - Return to Augusta.
- Adjustments and/or Additional Dates? - Those who want to ride in the van, meet at the Deering Building at 8am on August 27th
- Board will plan to hold October meeting on the 9th at the Deering Building
- Board will plan to hold November meeting on the 13th
- Board will plan to hold December meeting on the 18th

11. Adjourn

- **Eckert/Flewelling: Moved and seconded to adjourn at 10:20am**
- **In Favor: Unanimous**

Notice of Agency Rule-making Proposal

AGENCY: Agriculture, Conservation and Forestry, Board of Pesticides Control

CHAPTER NUMBER AND TITLE: Board of Pesticides Control Rules:
Amendments to Chapter 31—Certification and Licensing Provisions/Commercial Applicators
Amendments to Chapter 34—Certification and Licensing Provisions/Pesticide Dealers
Amendments to Chapter 35—Certification and Licensing Provisions/Spray Contracting Firms

PROPOSED RULE NUMBER (*leave blank; assigned by Secretary of State*):

CONTACT PERSON FOR THIS FILING: Henry Jennings, 207-287-7543, henry.jennings@maine.gov

CONTACT PERSON FOR SMALL BUSINESS INFORMATION (if different):

PUBLIC HEARING: Friday, July 10, 2015, 8:30 am, Room 319, Deering Building, 90 Blossom Lane, Augusta

COMMENT DEADLINE: 5:00 pm, Friday, July 24, 2015

BRIEF *SUMMARY:

Chapter 31—Four amendments are proposed:

1. Change the license period from two years to three; change the certification period from six years to three and align the licensing and certification periods.
2. Amend the description of Category 6B to clarify what types of applications are included.
3. Change the requirement for passing both the core and category exams within one year of each other to within five years.
4. Clarify that certified or licensed wastewater or drinking water operators are exempt from licensing only while applying pesticides to the wastewater or drinking water and not while performing other duties such as weed management.

Chapter 34—Two amendments are proposed:

1. Shorten the time period a person must wait before re-taking an exam they have failed to align with other licensing rules.
2. Change the license period from one year to three; change the certification period from five years to three and align the licensing and certification periods.

Chapter 35—Two amendments are proposed:

1. Remove the requirements for spotters and monitors for forest insect aerial spray programs.
2. Change the license period from two years to three.

IMPACT ON MUNICIPALITIES OR COUNTIES (if any)

STATUTORY AUTHORITY FOR THIS RULE:

Chapter 31—22 MRSA §§ 1471-D

Chapter 34—22 MRSA §§ 1471-D

Chapter 35—22 MRSA §§ 1471-D

SUBSTANTIVE STATE OR FEDERAL LAW BEING IMPLEMENTED (if different):

E-MAIL FOR OVERALL AGENCY RULE-MAKING LIAISON: Mari.Wells@maine.gov

* Check one of the following two boxes.

The above summary is for use in both the newspaper and website notices.

The above summary is for the newspaper notice only. A more detailed summary / basis statement is attached.

Please approve bottom portion of this form and assign appropriate AdvantageME number.

APPROVED FOR PAYMENT Henry Jennings DATE: June 9, 2015
(authorized signature)

FUND	AGENCY	ORG	APP	JOB	OBJT	AMOUNT
014	01A	4003	01			

Rule-Making Fact Sheet
(5 MRSA §8057-A)

AGENCY: Agriculture, Conservation and Forestry, Board of Pesticides Control

NAME, ADDRESS, PHONE NUMBER OF AGENCY CONTACT PERSON:

Henry Jennings, 28 SHS Augusta, ME 04333, 207-287-7543, henry.jennings@maine.gov

CHAPTER NUMBER AND RULE TITLE:

Board of Pesticides Control Rules:

Amendments to Chapter 31—Certification and Licensing Provisions/Commercial Applicators

Amendments to Chapter 34—Certification and Licensing Provisions/Pesticide Dealers

Amendments to Chapter 35—Certification and Licensing Provisions/Spray Contracting Firms

STATUTORY AUTHORITY:

Chapter 31—22 MRSA §§ 1471-D

Chapter 34—22 MRSA §§ 1471-D

Chapter 35—22 MRSA §§ 1471-D

DATE AND PLACE OF PUBLIC HEARING:

Friday, July 10, 2015, 8:30 am, Room 319, Deering Building, 90 Blossom Lane, Augusta

COMMENT DEADLINE: 5:00 pm, Friday, July 24, 2015

PRINCIPAL REASON OR PURPOSE FOR PROPOSING THIS RULE:

All of the proposed amendments are intended to simplify and standardize licensing and certification periods and/or to clarify ambiguous rule language.

Chapter 31—Four amendments are proposed:

1. Change the license period from two years to three; change the certification period from six years to three and align the licensing and certification periods.
2. Amend the description of Category 6B to clarify what types of applications are included.
3. Change the requirement for passing both the core and category exams within one year of each other to within five years.
4. Clarify that certified or licensed wastewater or drinking water operators are exempt from licensing only while applying pesticides to the wastewater or drinking water and not while performing other duties such as weed management.

Chapter 34—Two amendments are proposed:

1. Shorten the time period a person must wait before re-taking an exam they have failed to align with other licensing rules.
2. Change the license period from one year to three; change the certification period from five years to three and align the licensing and certification periods.

Chapter 35—Two amendments are proposed:

1. Remove the requirements for spotters and monitors for forest insect aerial spray programs.
2. Change the license period from two years to three.

ANALYSIS AND EXPECTED OPERATION OF THE RULE:

Aligning the licensing and certification periods will reduce the administrative burden on applicators/businesses; extending the licensing period will reduce costs associated with paperwork and writing checks. Changing the requirement for passing both core and category exams within one year of each other will potentially reduce the number of applicators re-taking exams they've already passed, but the number affected will be small. The other amendments will clarify the rules, fostering common understanding among the regulated community.

FISCAL IMPACT OF THE RULE: The amendments should reduce the administrative burden on businesses.

FOR RULES WITH FISCAL IMPACT OF \$1 MILLION OR MORE, ALSO INCLUDE:

ECONOMIC IMPACT, WHETHER OR NOT QUANTIFIABLE IN MONETARY TERMS:

INDIVIDUALS OR GROUPS AFFECTED AND HOW THEY WILL BE AFFECTED:

BENEFITS OF THE RULE:

Note: If necessary, additional pages may be used.

01 DEPARTMENT OF AGRICULTURE, CONSERVATION AND FORESTRY

026 BOARD OF PESTICIDES CONTROL

Chapter 31: CERTIFICATION AND LICENSING PROVISIONS/COMMERCIAL APPLICATORS

SUMMARY: These regulations describe the requirements for certification and licensing of commercial applicators.

1. Individual Certification and Company/Agency Licensing Requirements

- A. Any commercial applicator must be either:
 - I. licensed as a commercial applicator/master; or
 - II. licensed as a commercial applicator/operator; or
 - III. supervised on-site by either a licensed commercial applicator/master or a commercial applicator/operator who is physically present on the property of the client the entire time it takes to complete an application conducted by an unlicensed applicator. This supervision must include visual and voice contact. Visual contact must be continuous except when topography obstructs visual observation for less than five minutes. Video contact does not constitute visual observation. The voice contact requirement may be satisfied by real time radio or telephone contact. In lawn care and other situations where both the licensed and unlicensed applicator are operating off the same application equipment, the licensed applicator may move to an adjoining property on the same side of the street and start another application so long as he or she is able to maintain continuous visual and voice contact with the unlicensed applicator.
- B. All commercial applicator licenses shall be affiliated with a company/agency and shall terminate when the employee leaves the employment of that company or agency.
- C. Individuals certified as commercial applicators are eligible to license with one or more companies/agencies upon submission of the application and fee as described in Section 6 of this regulation. The individual's certification remains in force for the duration of the certification period as described in Section 5 of this regulation.
- D. Each branch office of any company, agency, organization or self-employed individual ("employing entity") required to have personnel licensed commercially under state pesticide law shall have in its employment at least one master applicator. This Master must be licensed in all categories which the branch office of the company or agency performs applications and any Operators must also be licensed in the categories in which they perform or supervise pesticide applications. This master applicator must actively supervise persons applying pesticides within such employing entity and have the ability

to be on site to assist such persons within six (6) hours driving time. Whenever an out-of-state employing entity is conducting a major application project they must have a master applicator within the state.

E. Exemptions

- I. Employing entities ~~only~~ performing only post harvest treatments to agricultural commodities are exempt from master licensing requirements.
- II. Persons applying pesticides to household pets and other non agricultural domestic animals are exempt from commercial applicator licensing.
- III. Swimming pool and spa operators that are certified by the National Swimming Pool Foundation, National Spa and Pool Institute or other organization approved by the Board are exempt from commercial applicator licensing. However, these persons must still comply with all provisions of C.M.R. 10-144, Chapter 202 – Rules Relating to Public Swimming Pools and Spas Administered by the Maine Bureau of Health.
- IV. Certified or licensed Wastewater or Drinking Water Operators applying registered disinfectants to waste or drinking water as part of their employment.
- V. Adults applying repellents to children with the consent of parents/guardians.
- VI. Persons installing antimicrobial metal hardware.

2. Categories of Commercial Applicators

- A. All commercial applicators shall be categorized according to the type of work performed as outlined below:
 - I. **Agricultural Animal and Plant Pest Control**
 - a. **Agricultural Animal** - This subcategory includes commercial applicators using or supervising the use of pesticides on animals and to places on or in which animals are confined. Doctors of Veterinary Medicine engaged in the business of applying pesticides for hire as pesticide applicators are included in this subcategory; however, those persons applying pesticides as drugs or medication during the course of their normal practice are not included.
 - b. **Agricultural Plant** - This subcategory includes commercial applicators using or supervising the use of pesticides in the production of crops including blueberries, orchard fruit, potatoes, vegetables, forage, grain and industrial or non-food crops.

Option I - Limited Commercial Blueberry - This option includes commercial applicators using or supervising the use of pesticides in the production of blueberries only.

Option II - Chemigation - This option includes commercial applicators using or supervising the use of pesticides applied through irrigation equipment in the production of crops.

Option III - Agricultural Fumigation - This option includes commercial applicators using or supervising the use of fumigant pesticides in the production of crops.

Option IV - Post Harvest Treatment - This option includes commercial applicators using or supervising the use of pesticides in the post harvest treatment of food crops.

II. **Forest Pest Control**

This category includes commercial applicators using or supervising the use of pesticides in forests, forest nurseries, Christmas trees, and forest seed producing areas.

III. **Ornamental and Turf Pest Control**

- a. **Outdoor Ornamentals** - This subcategory includes commercial applicators using or supervising the use of pesticides to control pests in the maintenance and production of outdoor ornamental trees, shrubs and flowers.
- b. **Turf** - This subcategory includes commercial applicators using or supervising the use of pesticides to control pests in the maintenance and production of turf, such as at turf farms, golf courses, parks, cemeteries, athletic fields and lawns.
- c. **Indoor Ornamentals** - This subcategory includes commercial applicators using or supervising the use of pesticides to control pests in the maintenance and production of live plants in shopping malls, businesses, residences and institutions.

IV. **Seed Treatment**

This category includes commercial applicators using or supervising the use of pesticides on seeds.

V. **Aquatic Pest Control**

- a. **General Aquatic** - This subcategory includes commercial applicators using or supervising the use of pesticides applied directly to surface water, including but not limited to outdoor application to public drinking

water supplies, golf course ponds, rivers, streams and wetlands. Excluding applicators engaged in public health related activities included in categories VII(e) and VIII below.

- b. **Sewer Root Control** - This subcategory includes commercial applicators using or supervising the use of pesticides applied to sewers to control root growth in sewer pipes.

VI. ~~Right-Of-Way~~ **Vegetation Management**

- a. **Rights-of-Way Vegetation Management** - This subcategory includes commercial applicators using or supervising the use of pesticides in the management of vegetation on utility, roadside and railroad rights-of-way.
- b. **~~Industrial/Commercial/Municipal~~ General Vegetation Management** - This subcategory includes commercial applicators using or supervising the use of pesticides in the management of vegetation (including invasive plants) on sites not included in category VI a ~~industrial, commercial, municipal or publicly owned areas~~ including, but not limited to, municipal and other publicly owned properties, industrial or commercial plants and buildings, lumber yards, airports, tank farms, storage areas, parking lots, ~~and~~ sidewalks, and trails.

VII. **Industrial, Institutional, Structural and Health Related Pest Control**

- a. **General** - This subcategory includes commercial applicators using or supervising the use of pesticides in, on or around human dwellings, office buildings, institutions such as schools and hospitals, stores, restaurants, industrial establishments (other than in Category 6) including factories, warehouses, food processing plants, food or feed transportation facilities and other structures, vehicles, railroad cars, ships, aircraft and adjacent areas; and for the protection of stored, processed or manufactured products. This subcategory also includes commercial applicators using or supervising the use of pesticides to control rodents on refuse areas and to control other pests, including but not limited to birds and mammals.
- b. **Fumigation** - This subcategory includes commercial applicators using or supervising the use of fumigants or fumigation techniques in any type of structure or transportation device.
- c. **Disinfectant and Biocide Treatments** - This subcategory includes commercial applicators using or supervising the use of pesticides to treat water in manufacturing, swimming pools, spas, industrial cooling towers, public drinking water treatment plants, sewers and air conditioning systems.
- d. **Wood Preserving** - This subcategory includes commercial applicators using or supervising the use of restricted use pesticides to treat lumber,

poles, railroad ties and other types of wooden structures including bridges, shops and homes. It also includes commercial applicators applying general use pesticides for remedial treatment to utility poles.

- e. **Biting Fly & other Arthropod Vectors** - This subcategory includes commercial applicators and non-public health governmental officials using or supervising the use of pesticides in management and control of biting flies & other arthropod vectors of public health and public nuisance importance including, but not limited to, ticks, mosquitoes, black flies, midges, and members of the horsefly family.
- f. **Termite Pests** - This subcategory includes commercial applicators using or supervising the use of pesticides to control termites.

VIII. **Public Health Pest Control**

- a. **Biting Fly Pests** - This subcategory includes governmental officials using pesticides in management and control of potential disease vectors or other pests having medical and public health importance including, but not limited to, mosquitoes, black flies, midges, and members of the horsefly family.
- b. **Other Pests** - This subcategory includes governmental officials using pesticides in programs for controlling other pests of concern to public health including, but not limited to, ticks and birds and mammal vectors of human disease.

IX. **Regulatory Pest Control**

This category includes governmental employees using pesticides in the control of pests regulated by the U.S. Animal and Plant Health Inspection Service or some other governmental agency.

X. **Demonstration and Research Pest Control**

This category includes all individuals who (1) demonstrate to the public the proper use and techniques of application of pesticides or supervise such demonstration, (2) conduct field research with pesticides, and in doing so, use or supervise the use of pesticides. Individuals who conduct only laboratory-type research are not included. Applicants seeking certification in this category must also become certified in whatever category/subcategory they plan to make applications under; e.g., Categories I - IX.

XI. **Aerial Pest Control**

This category includes commercial applicators, including pilots and co-pilots, applying or supervising the application of pesticides by means of any aircraft. Applicants seeking certification in this category must also become certified in whatever category/subcategory they plan to make applications under; e.g., Categories I - IX.

3. **Competency Standards for Certification of Commercial Applicators**

- A. Applicants seeking commercial certification must establish competency in the general principles of safe pest control by demonstrating knowledge of basic subjects including, but not limited to, pesticide labeling, safety, environmental concerns, pest organisms, pesticides, equipment, application techniques and applicable laws and regulations. (Core Exam).
- B. Applicants seeking commercial certification must demonstrate competency in each applicable category or subcategory. (Category Exam). Competency in the applicable category or subcategory shall be established as follows:

I. **Agricultural Animal and Plant Pest Control**

- a. **Agricultural Animals.** Applicants seeking certification in the subcategory of Animal Pest Control as described in Section 2(A)(I)(a) must demonstrate knowledge of animals, their associated pests, and methods of pest control. Areas of practical knowledge shall include specific toxicity, residue potential, relative hazards of different formulations, application techniques, and hazards associated with age of animals, stress, and extent of treatment.
- b. **Agricultural Plant.** Applicants seeking certification in the subcategory of Plant Pest Control as described in Section 2(A)(I)(b) Options I - IV must demonstrate practical knowledge of the crops grown and the specific pests of those crops on which they may be using pesticides. Areas of such practical knowledge shall include soil and water problems, preharvest intervals, reentry intervals, phytotoxicity, potential for environmental contamination, non-target injury, and community problems related to pesticide use in certain areas. Also required shall be a knowledge of current methodology and technology for the control of pesticide drift to non-target areas, the proper meteorological conditions for the application of pesticides, and the potential adverse effect of pesticides on plants, animals or humans.

II. **Forest Pest Control**

Applicants seeking certification in the category of Forest Pest control as described in Section 2(A)(II) must demonstrate practical knowledge of forest vegetation management, forest tree biology and associated pests. Such required knowledge shall include population dynamics of pest species, pesticide-organism interactions, integration of pesticide use with other pest control methods, environmental contamination, pesticide effects on non-target organisms, and use of specialized equipment. Also required shall be a knowledge of current methodology and technology for the control of pesticide drift to non-target areas, the proper meteorological conditions for the application of pesticides, and the potential adverse effect of pesticides on plants, animals or humans.

III. **Ornamental and Turf Pest Control**

- a. **Outdoor Ornamentals.** Applicants seeking certification in the Outdoor Ornamental subcategory as defined in Section 2(A)(III)(a) must demonstrate practical knowledge of pesticide problems associated with the production and maintenance of trees, shrubs and floral plantings. Such knowledge shall include potential phytotoxicity, undue pesticide persistence, and application methods, with particular reference to techniques used in proximity to human habitations. Also required shall be a knowledge of current methodology and technology for the control of pesticide drift to non-target areas, the proper meteorological conditions for the application of pesticides, and the potential adverse effect of pesticides on plants, animals or humans.
- b. **Turf.** Applicants seeking certification in the Turf subcategory as described in Section 2(A)(III)(b) must demonstrate practical knowledge of pesticide problems associated with the production and maintenance of turf. Such knowledge shall include potential phytotoxicity, undue pesticide persistence, and application methods, with particular reference to techniques used in proximity to human habitations. Also required shall be a knowledge of current methodology and technology for the control of pesticide drift to non-target areas, the proper meteorological conditions for the application of pesticides, and the potential adverse effect of pesticides on plants, animals or humans.
- c. **Indoor Ornamentals.** Applicants seeking certification in the Indoor Ornamental subcategory described in Section 2(A)(III)(c) must demonstrate practical knowledge of pesticide problems associated with the production and maintenance of indoor ornamental plantings. Such knowledge shall include pest recognition, proper pesticide selection, undue pesticide persistence, and application methods with particular reference to techniques used in proximity to human presence.

IV. **Seed Treatment**

Applicants seeking certification in the category of Seed Treatment as described in Section 2(A)(IV) must demonstrate practical knowledge of seed types and problems requiring chemical treatment. Such knowledge shall include seed coloring agents, carriers and binders which may affect germination, hazards associated with handling, sorting, and mixing in the treatment process, hazards of introduction of treated seed into food and feed channels, and proper disposal of unused treated seeds.

V. **Aquatic Pest Control**

- a. **General Aquatic** - Applicants seeking certification in the subcategory of General Aquatic as described in Section 2(A)(V)(a) must demonstrate practical knowledge of proper methods of aquatic pesticide application, application to limited area, and a recognition of the adverse effects which can be caused by improper techniques, dosage rates, and formulations. Such knowledge shall include basic factors contributing to the development of nuisance aquatic plant growth such as algal blooms, understanding of various water use situations and potential downstream effects from pesticide use, and potential effects of various aquatic pesticides on plants, fish, birds, insects and other organisms associated with the aquatic environment. Also required shall be an understanding of the Department of Environmental Protection laws and regulations pertaining to aquatic discharges and aquatic weed control and a knowledge of current methodology and technology for the control of pesticide drift to non-target areas, the proper meteorological conditions for the application of pesticides, and the potential adverse effect of pesticides on plants, animals or humans.
- b. **Sewer Root Control** - Applicants seeking certification in the subcategory of Sewer Root Control as described in Section 2(A)(V)(b) must demonstrate practical knowledge of proper methods of sewer root control pesticide application, application to pipes, and a recognition of the adverse effects which can be caused by improper techniques, dosage rates, and formulations. Such knowledge shall include potential effects on water treatment plants, movement of pesticides into off target pipes or buildings and the hazards of sewer gases.

VI. **~~Right-of-Way~~ Vegetation Management**

Applicants seeking certification in the subcategories under ~~Right-of-Way~~ Vegetation Management as described in Section 2(A)(VI) (a-b) must demonstrate practical knowledge of the impact of ~~right-of-way~~ pesticide use on a wide variety of environments. Such knowledge shall include an ability to recognize target organisms and circumstances specific to the subcategory, awareness of problems of runoff, root pickup and aesthetic considerations associated with excessive foliage destruction and "brown-out", and an understanding of the mode of action of ~~right-of-way~~ herbicides, and reasons for

the choice of particular chemicals for particular problems, importance of the assessment of potential impact of ~~right-of-way~~ spraying on adjacent public and private properties and activities, and effects of ~~right-of-way~~ spraying on fish and wildlife species and their habitat. Also required shall be a knowledge of current methodology and technology for the control of pesticide drift to non-target areas, the proper meteorological conditions for the application of pesticides, and the potential adverse effect of pesticides on plants, animals or humans.

VII. **Industrial, Institutional, Structural and Health Related Pest**

- a. **General.** Applicants seeking certification in the subcategory of General Pest Control as described in Section 2(A)(VII)(a) must demonstrate a practical knowledge of a wide variety of pests and methods for their control. Such knowledge shall include identification of pests and knowledge of life cycles, formulations appropriate for various indoor and outdoor uses, methods to avoid contamination of food and feed, and damage to structures and furnishings, avoidance of risk to humans, domestic animals, and non-target organisms and risks to the environment associated with structural pesticide use.
- b. **Fumigation.** Applicants seeking certification in the subcategory Fumigation as described in Section 2(A)(VII)(b) must demonstrate a practical knowledge of a wide variety of pests and fumigation methods for their control. Such knowledge shall include identification of pests and knowledge of life cycles, fumigant formulations, methods to avoid contamination of food and damage to structures and furnishings, and avoidance of risks to employees and customers.
- c. **Disinfectant and Biocide Treatments.** Applicants seeking certification in the Disinfectant and Biocide Treatments subcategory described in Section 2(A)(VII)(c) must demonstrate practical knowledge of water organisms and their life cycles, drinking water treatment plant, cooling water and pool or spa system designs, labels and hazards of disinfectants and biocides and proper application techniques to assure adequate control while minimizing exposure to humans and the environment.
- d. **Wood Preserving.** Applicants seeking certification in the Wood Preserving Subcategory described in Section 2(A)(VII)(d) must demonstrate practical knowledge in wood destroying organisms and their life cycles, nonchemical control methods, pesticides appropriate for wood preservation, hazards associated with their use, proper handling of the finished product, proper disposal of waste preservatives, and proper application techniques to assure adequate control while minimizing exposure to humans, livestock and the environment.
- e. **Biting Fly and Other Arthropod Vector Pests.** Applicants seeking certification in the subcategory of Biting Fly and Other Arthropod Vector Pest control as described in Section 2(A)(VII)(e) must demonstrate a practical knowledge of the species involved, their

potential roles in disease transmission, and the use of pesticides in their control. Such knowledge shall include identification of and familiarity with life cycles and habitat requirements, special environmental hazards associated with the use of pesticides in control programs, and knowledge of the importance of integrating chemical and non-chemical control methods. Also required shall be a knowledge of current methodology and technology for the control of pesticide drift to non-target areas, the proper meteorological conditions for the application of pesticides, and the potential adverse effect of pesticides on plants, animals or humans.

- f. **Termite Pests.** Applicants seeking certification in this subcategory must demonstrate a practical knowledge of Termite pests and methods for their control. Such knowledge shall include identification of termites and knowledge of life cycles, formulations appropriate for various indoor and outdoor uses, methods to avoid contamination of food and feed, and damage to structures and furnishings, avoidance of risk to humans, domestic animals, and non-target organisms and risks to the environment associated with structural pesticide use.

VIII. **Public Health Pest Control**

- a. **Biting Fly and Other Arthropod Vector Pests.** Applicants seeking certification in the subcategory of Biting Fly and Other Arthropod Vector Pest Control as described in Section 2(A)(VIII)(a) must demonstrate a practical knowledge of the species involved, their potential roles in disease transmission, and the use of pesticides in their control. Such knowledge shall include identification of and familiarity with life cycles and habitat requirements, special environmental hazards associated with the use of pesticides in control programs, and knowledge of the importance of integrating chemical and non-chemical control methods. Also required shall be a knowledge of current methodology and technology for the control of pesticide drift to non-target areas, the proper meteorological conditions for the application of pesticides, and the potential adverse effect of pesticides on plants, animals or humans.
- b. **Other Pests.** Applicants seeking certification in the subcategory of Other Pest Control as described in Section 2(A)(VIII)(b) must demonstrate a practical knowledge of the species involved, their potential roles in disease transmission, and the use of pesticides in their control. Such knowledge shall include identification of and familiarity with life cycles and habitat requirements, special environmental hazards associated with the use of pesticides in control programs, and knowledge of the importance of integrating chemical and non-chemical control methods. Also required shall be a knowledge of current methodology and technology for the control of pesticide drift to non-target areas, the proper meteorological conditions for the application of pesticides, and the potential adverse effect of pesticides on plants, animals or humans.

IX. **Regulatory Pest Control**

Applicants seeking certification in the category of Regulatory Pest Control as described in Section 2(A)(IX) must demonstrate practical knowledge of regulated pests and applicable laws relating to quarantine and other regulations of pests. Such knowledge shall also include environmental impact of pesticide use in eradication and suppression programs, and factors influencing introduction, spread, and population dynamics of relevant pests. Also required shall be a knowledge of current methodology and technology for the control of pesticide drift to non-target areas, the proper meteorological conditions for the application of pesticides, and the potential adverse effect of pesticides on plants, animals or humans.

X. Demonstration and Research Pest Control

Applicants seeking certification in the category of Demonstration and Research Pest Control as described in Section 2(A)(X) must demonstrate practical knowledge in the broad spectrum of activities involved in advising other applicators and the public as to the safe and effective use of pesticides. Persons involved specifically in demonstration activities will be required to demonstrate knowledge of pesticide-organism interactions, the importance of integrating chemical and non-chemical control methods, and a grasp of the pests, life cycles and problems appropriate to the particular demonstration situation. Field researchers will be required to demonstrate general knowledge of pesticides and pesticide safety, as well as a familiarity with the specific standards of this Section which apply to their particular areas of experimentation. All individuals certified in this category must also be certified in one or more of the previous categories or subcategories which represent at least 80% of their practice. Also required shall be a knowledge of current methodology and technology for the control of pesticide drift to non-target areas, the proper meteorological conditions for the application of pesticides, and the potential adverse effect of pesticides on plants, animals or humans.

XI. Aerial Pest Control

Applicants seeking certification in the category of Aerial Pest Control as described in Section 2(A)(XI) must demonstrate at least a practical knowledge of problems which are of special significance in aerial application of pesticides, including chemical dispersal equipment, tank, pump and plumbing arrangements; nozzle selection and location; ultra-low volume systems; aircraft calibration; field flight patterns; droplet size considerations; flagging methods; and loading procedures. Applicants must also demonstrate competency in the specific category or subcategory in which applications will be made, as described in paragraphs I, II, VI and VIII herein. Also required shall be a knowledge of current methodology and technology for the control of pesticide drift to non-target areas, the proper meteorological conditions for the application of pesticides, and the potential adverse effect of pesticides on plants, animals or humans.

4. Competency Standards for Certification of Commercial Applicator/Master

- A. **Regulations Exam.** An applicant seeking certification as a commercial applicator/master must successfully complete a closed book exam on the appropriate chapters of the Board's regulations. The passing grade shall be 80%. An applicant must successfully complete the regulations exam before being allowed to proceed to the master exam. The staff may waive the requirements for the closed book regulation exam if it determines that a pest management emergency exists necessitating the issuance of a nonresident license pursuant to Section 6 B of this chapter, provided that the staff verbally reviews the pertinent regulations with the applicant prior to issuing a nonresident license.
- B. **Master Exam.** An applicant seeking certification as a commercial applicator/master must also demonstrate practical knowledge in ecological and environmental concerns, pesticide container and rinsate disposal, spill and accident mitigation, pesticide storage and on site security, employee safety and training, potential chronic effects of exposure to pesticides, pesticide registration and special review, the potential for groundwater contamination, principles of pesticide drift and measures to reduce drift, protection of public health, minimizing public exposure and use of non pesticide control methods. In addition, applicant must demonstrate the ability to interact with a concerned public.

5. Certification Procedures for Commercial Applicators

A. Initial Certification

- I. **Application for Exams.** ~~All persons desiring to take exams must request an application from the Board's office and submit all required information and fees.~~ Individuals applying to take exams must submit a completed application and associated fees. All fees are waived for governmental employees.
- a. Information shall include name, Social security number, home address, company address, name and telephone number of supervisor and categories for which certification is desired.
- b. A non-refundable fee of \$10.00 for each core, category or subcategory exam shall accompany the application.
- c. Study materials for other than the regulations exam are available through the University of Maine Cooperative Extension Pest Management Office for a fee.
- d. A non-refundable fee of \$50.00 for the regulations and master exams shall accompany the application for Master exams. Study material for the regulations exam will be sent to the applicant upon receipt of their application and the required fees.
- II. **Appointment for Exams**
- a. ~~Upon receipt of an application the staff shall schedule an exam date and notify the applicant. If the scheduled date is not convenient for the~~

~~applicant, it shall be the responsibility of the applicant to contact the Board's office to arrange a more convenient time to take the exams. Exams will be scheduled by Board staff. It is the responsibility of the applicant to reschedule if necessary.~~

- b. All exam fees shall be forfeited if an applicant fails to notify the Board that he/she cannot sit for the exams on the scheduled date at least 24 hours in advance of the scheduled exam. Applicants who cancel their exam appointment two times in a row shall also forfeit their exam fees. Re-application shall require an additional \$15.00 fee.
- c. Exams will be available year-round on an appointment basis at the Board's office in Augusta.
- d. Exams may also be offered at other locations designated by the Board staff. Appointments for these exams should be arranged by application with the Board's office in Augusta.

III. Exams

- a. Applicants in all areas except category I(b)IV, Post Harvest Treatment shall take a closed book core exam plus a closed book category technical exam on each applicable category or subcategory for which they anticipate making pesticide applications.
- b. In addition to the exams described above in sections (a), applicants for commercial applicator/master certification in all areas except category I(b)IV, Post Harvest Treatment must complete a closed book written regulations exam as well as a master exam. Applicants for commercial applicator/master must successfully complete the core and at least one category exam or the combined exam before being eligible to take the master exams. Applicants must also successfully complete the regulations exam before being allowed to commence on the master exam.
- c. Applicants in subcategory I(b)IV Post Harvest Treatment shall take one closed book exam which combines the core exam and the category exam.

IV. Examination Procedures. All applicants shall comply with these rules or forfeit their opportunity to complete the exams at a specified appointment.

- a. Applicants should be present and ready to take the exams at the appointed time.
- b. Applicants shall not talk during the examination period.
- c. Applicants shall not be allowed to bring any books, papers, cellular telephones, calculators or electronically stored data into the examining room. Pencils and work sheets will be provided and all papers shall be collected at the end of the period.

- d. Applicants shall not make notes of the exams and shall not leave the table during an exam unless authorized by the staff.

V. **Qualification Requirements.** An applicant must achieve a passing score of 80 percent on each exam.

- a. An applicant who fails the core exam must re-apply and pay all required fees and may not retake that examination prior to 6 days after the date of such failed examination. If an applicant fails again the applicant must reapply and pay all required fees and wait 6 more days before retaking again.
- b. An applicant who fails a category exam must re-apply and pay all required fees and may not retake that examination prior to 6 days after the date of such failed examination. If an applicant fails again the applicant must reapply and pay all required fees and wait 6 more days before retaking again.
- c. An applicant who passes the core and one category exam shall be considered eligible for operator level licensing in that particular category so long as that person will be working under the supervision of a Master applicator. If at a later date the applicant wishes to add another category, only the appropriate category exam shall be required.
- d. An applicant who fails a master exam must re-apply and pay all required fees and may not retake the examination prior to 6 days after the date of such failed examination.
- e. Any applicant must pass both the core and at least one category exam within ~~12 months~~ a 5 year period before qualifying for certification.
- f. Any applicant who violates any of the rules pertaining to examinations shall wait a minimum of 60 days before retaking.

VI. **Expiration.** Certification under this Section will expire on December 31st of the ~~sixth~~ third year after the date of successful completion of ~~the~~ required exams and on December 31st of every ~~sixth~~ third year thereafter unless a special restricted certification period is assigned by the Board or Board staff.

VII. An applicant's original certification period shall not be extended due to the applicant qualifying for another category or upgrading to the master level.

B. **Recertification of Applicators**

- I. Persons with current valid certification may renew that certification by either providing documentation from a substantially equivalent professional certification program approved by the board or by accumulating recertification

credits during the certification period described in Section 5(A)VI according to the following schedule:

- a. **Master level** - ~~18~~ 9 credit hours, including at least ~~3~~ 2 in a category or subcategory they are licensed for and 1 credit hour in environmental science, ecology or toxicology.
- b. **Operator level** - ~~12~~ 6 credit hours, including at least ~~3~~ 2 in a category or subcategory they are licensed for and 1 credit hour in environmental science, ecology or toxicology.

II. Recertification credits will be available through Board-approved meetings including but not limited to industry and trade organization seminars, workshops where pesticide topics are presented and approved home study courses.

- a. Board staff will review program agendas and monitor programs as time permits.

III. Credit will be allowed for topics including, but not limited to:

- a. Applicable laws and regulations.
- b. Environmental hazards.
- c. Calibration and new application techniques.
- d. Label review.
- e. Applicator safety.
- f. Storage and disposal.
- g. Pest identification and control.
- h. Integrated pest management.

IV. Persons organizing meetings for which they want credits awarded must contact the Board in writing at least 15 days in advance of the meeting with details of the agenda. Board staff will review program agendas and assign credit values.

- a. One credit will be assigned for each one hour of presentation on appropriate topics.
- b. An individual who conducts a meeting for which the Board does assign recertification credits will be eligible for two credits for each one hour of presentation on appropriate topics.
- c. An individual who organizes a meeting shall be required to maintain a sign-up sheet and supervise the signing of the sheet by all applicators

attending the program. That individual shall submit the sign-up sheet to the Board at the same time the verification attendance forms are collected and submitted to the Board.

- V. For in state programs, ~~each participant will complete a form to verify attendance at each program for which credit is allowed at the site~~ applicants must submit verification of attendance at approved programs to the Board. For out of state programs, applicators must ~~notify the Board about attendance and send a registration receipt or other proof of attendance and a copy of the agenda or other description of the presentations attended. The agenda must show the length of each presentation and describe what was covered.~~ submit verification of attendance; they may also be asked to provide documentation such as an agenda or descriptions of the presentations attended.
- VI. A person who fails to accumulate the necessary credits during their first ~~six~~ three year certification period will have to retake and pass all exam(s) required for initial certification. If a person fails to accumulate the necessary credits again that person must retake and pass all exam(s) required for initial certification and within one year thereafter, obtain the balance of the recertification credits which that person failed to accumulate during the previous certification period. If that person does not obtain the balance of credits needed, the Board will not renew their license until the make- up credits are accrued.
- VII. ~~Attendance verification forms must verify attendance by the applicator of the entire approved program(s) for which recertification credit is sought, and must be completed, signed and submitted to the program organizer or Board representative by the applicator seeking recertification credit(s).~~ Applicants must attend the entire approved program(s) for which recertification credit is sought. No other person may complete or sign ~~the~~ a verification form on ~~the~~ another applicator's behalf. Any form that is completed or signed by a person other than the applicator will be deemed a fraudulent report and will not be approved by the Board for recertification credit(s). Any credit(s) approved by the Board pursuant to an attendance verification form which is subsequently determined by the Board to have been completed or signed by a person other than the applicator shall be void and may not be counted towards the applicator's recertification requirements; and any recertification issued on the basis of such credits shall be void.

6. Licensing

- A. All Commercial Applicators required to be certified under this chapter and state pesticide law shall be licensed before using or supervising the use of pesticides as described in Section 1(A).
- B. **Nonresident licenses.** When the staff determines that a pest management emergency exists which necessitates the use of aerial application and for which there are not sufficient qualified Maine licensees, it may issue a license without examination to nonresidents who are licensed or certified by another state or the Federal Government

substantially in accordance with the provisions of this chapter. Nonresident licenses issued pursuant to this section are effective until December 31 of the year in which they are issued.

- C. **Application.** Application for a commercial applicator license shall be on forms provided by the Board.
- I. The completed application must include the name of the company or agency employing the applicant.
 - II. Unless the applicant is the owner of a company, the completed application must be signed by both the applicant and that person's supervisor to verify the applicant is an employee of the company/agency.
- D. **Fee.** At the time of application, the applicant must tender the appropriate fee as follows:
- I. For a commercial applicator license - ~~\$70.00~~\$105.00 per person.
 - II. For replacement, upgrade to master or to add categories \$5.00.
- E. Commercial applicators who apply pesticides for hire (custom applicators) and operate a company that is incorporated or which employs more than one applicator (licensed or unlicensed) must comply with Chapter 35, Certification & Licensing Provisions/Spray Contracting Firms which requires an additional Spray Contracting Firm License.
- F. **Insurance.** Commercial applicators who spray for hire (custom applicators) shall be required to have liability insurance in force at any time they make a pesticide application.
- I. Applicators shall submit a completed and signed form provided by the Board at the time they apply for their license which attests that they will have the required amounts of insurance coverage in effect when they make pesticide treatments. The information submitted on the form must be true and correct.
 - II. Insurance coverage must meet or exceed the following minimum levels of liability:
 - a. **Ground applicators**

Public liability	\$100,000 each person \$300,000 each occurrence
Property damage	\$100,000 each occurrence
 - b. **Aircraft applicators**

Public liability	\$100,000 each person \$300,000 each occurrence
Property damage	\$100,000 each occurrence

G. **Reports.** Annual Summary Reports described in Chapter 50, Section 2(A) must be submitted for each calendar year by January 31 of the following year. In the event a required report is not received by the due date, the person's license is temporarily suspended until the proper report is received or until a decision is rendered at a formal hearing as described in 22 MRSA §1471-D (7).

H. **Expiration**

I. All licenses will expire at the end of the ~~second calendar year after issuance~~ certification period as determined in Section 5(A)VI or when an individual licensee terminates employment with the company/agency with which the individual's license is affiliated.

II. The licensee or a company/agency representative shall notify the Board in writing within 10 days after a licensee is terminated from employment.

III. Also, all licenses within a company/agency are suspended if the licensed Master is terminated from employment or dies.

I. **Decision.** Within 60 days of receipt of application by the Board, unless the applicant agrees to a longer period of time, the Director shall issue, renew or deny the license. The Director's decision shall be considered final agency action for purposes of 5 M.R.S.A. §11001 *et seq.*

7. **Transition**

For the purposes of converting from two year licenses and six year certification periods to three year licenses with concurrent three year certification periods, and to ensure that license expirations are evenly distributed across any three year period. During the transition period, the Board may initially issue one, two, or three year licenses with corresponding certification periods. Licensees must obtain a proportional number of recertification credits per year during the transition period. License fees will also be prorated in accordance with the length of the license term. The length of the initial license terms will be assigned by the Board when a license is renewed, based on applicant's last name.

STATUTORY AUTHORITY: 22 M.R.S.A., Section 1471-D

EFFECTIVE DATE:

January 1, 1983 (filed with Secretary of State August 13, 1982)

AMENDED:

December 29, 1982

January 1, 1984

January 1, 1984 - Section 7

May 20, 1984 - Section 6

May 13, 1985 - Section 5

Emergency amendment effective April 18, 1986 - Section 6

August 3, 1986 - Section 6

November 30, 1986 - Section 3

May 23, 1987 - Section 1

April 27, 1988

April 29, 1990

January 1, 1996 (adopted by Board October 7, 1994 - see Section 8 for transition dates)

October 2, 1996

EFFECTIVE DATE (ELECTRONIC CONVERSION):

March 1, 1997

AMENDED:

December 28, 1999 -- also converted to MS Word

March 5, 2003

July 3, 2005 – filing 2005-267

March 4, 2007 – filing 2007-69

July 2, 2009 – filing 2009-318 (EMERGENCY, later reverted to pre-emergency status)

CORRECTIONS:

February, 2014 – agency names, formatting

AMENDED:

December 9, 2014 – filing 2014-280

01 DEPARTMENT OF AGRICULTURE, CONSERVATION AND FORESTRY

026 BOARD OF PESTICIDES CONTROL

Chapter 34: CERTIFICATION AND LICENSING PROVISIONS/PESTICIDE DEALERS

SUMMARY: These regulations describe the requirements for certification and licensing of pesticide dealers.

Section 1. Competency Standards for Certification

No person shall be certified as a pesticide dealer unless that person has demonstrated knowledge of pesticide classifications, formulations, labeling, safety, storage and applicable laws and regulations. Also required shall be knowledge of current methodology and technology for the control of pesticide drift to non-target areas, the proper meteorological conditions for the application of pesticides, and the potential adverse effect of pesticides on plants, animals or humans.

Section 2. Certification Procedures for Pesticide Dealers

A. Initial Certification

1. **Application for Exam.** All persons desiring to take the exam must request an application from the Board's office and submit all required information and fees.
 - a. Information shall include name, home address, Social Security number, name and telephone number of company and company address.
 - b. A fee of \$10.00 for the exam shall accompany the application.
2. **Appointment for Exam**
 - a. ~~Upon receipt of an application the staff shall schedule an exam date and notify the applicant. If the scheduled date is not convenient for the applicant, it shall be the responsibility of the applicant to contact the Board's office to arrange a more convenient time to take the exams. Exams will be scheduled by Board staff. It is the responsibility of the applicant to reschedule if necessary.~~
 - b. All exam fees shall be forfeited if an applicant fails to notify the Board that he/she cannot sit for the exam on the scheduled date at least 24 hours in advance of the scheduled exam. Re-application shall require an additional \$15.00 fee.

- c. Exams will be available year-round on an appointment basis at the Board's office in Augusta.
 - d. Exams may also be offered at other locations designated by the Board staff. Appointments for these exams should be arranged by application with the Board's office in Augusta.
3. Study materials for the dealer exam are available through the University of Maine Cooperative Extension Pest Management Office for a fee.
4. **Examinations.** All applicants shall complete the closed book dealer exam covering subjects specified in Section 1.
5. **Examination Procedure.** All applicants shall comply with these rules or forfeit their opportunity to complete the exam at a specified appointment.
 - a. Applicants should be present and ready to take the exam at the appointed time.
 - b. Applicants shall not talk during the examination period.
 - c. Applicants shall not be allowed to bring any books or papers into the examining room. Pencils and work sheets will be provided and all papers shall be collected at the end of the period.
 - d. Applicants shall not make notes of the exam and shall not leave the table during an exam unless authorized by the staff.
6. **Qualification.** An applicant desiring to qualify for dealer certification must achieve a passing score of 80 percent.
 - a. An applicant who fails the exam may not re-apply to take the examination prior to ~~14~~ 6 days after the date of such examination. If an applicant fails again the applicant must wait ~~30~~ 6 days before retesting.
 - b. Any applicant who violates any of the rules pertaining to examinations shall wait a minimum of 60 days before retesting.
7. **Expiration.** Certification under this section will expire on December 31st of the ~~fifth~~ third year after the date of successful completion of the exam and on December 31st of every ~~fifth~~ third year thereafter unless a special restricted certification period is assigned by the Board or Board staff.

B. **Recertification**

1. Any person with current valid certification may renew that certification by accumulating ~~15~~ 9 recertification credits during the certification period described in Section 2(A)7.

2. Recertification credits will be available through Board-approved meetings including but not limited to industry and trade organization seminars, workshops where pesticide topics are presented and approved home study courses.
3. Credit will be allowed for topics including but not limited to:
 - a. Applicable laws and regulations,
 - b. Label review,
 - c. Pesticide formulations,
 - d. Applicator safety,
 - e. Storage and disposal,
 - f. Pest identification control,
 - g. Integrated pest management.
4. Persons organizing meetings for which they want credits awarded must contact the Board in writing at least 15 days in advance of the meeting and submit details of the pesticide topics, including titles and length of time devoted to them. Board staff will review program agendas and assign credit values. Board staff will monitor programs as time permits.
5. A minimum credit of one hour shall be assigned for each one hour of presentation on appropriate topics.
6. An individual who conducts a meeting for which the Board does assign recertification credits will be eligible for two credits for each one hour of presentation on appropriate topics.
7. For in state programs, ~~each participant will complete a form to verify attendance at each program for which credit is allowed at the site. applicants must submit verification of attendance at approved programs to the Board.~~ For out of state programs, applicants must notify the Board about attendance and send a registration receipt or other proof of attendance a copy of the agenda or other description of the presentations attended. The agenda must show the length of each presentation and describe what was covered. submit verification of attendance; they may also be asked to provide documentation such as an agenda or descriptions of the presentations attended.
8. A person who fails to accumulate the necessary credits will have to re-apply to ~~take re-take and pass~~ the exam required for initial certification.

Section 4. Licensing

- A. **Application.** Application for a pesticide dealer license shall be on forms provided by the Board.
- B. **Fee.** At the time of application, the applicant must tender the appropriate fee as follows:
 - 1. For a pesticide dealer license - ~~\$20.00~~ \$60.00 per person.
 - 2. For replacement or alteration - \$5.00.
- C. **Reports.** All required reports described in Chapter 50 must have been submitted in proper form before a license will be processed.
- D. **Expiration.** All licenses will expire at the end of the certification period as determined in Section 2 A 7. ~~at the end of each calendar year.~~

Section 5. Special Dealer Requirements

- A. Each dealer shall be responsible for the acts of those people in his/her employ and the dealer's license shall be subject to denial, suspension or revocation for any violation of the statute or regulations, whether committed by the dealer, his/her office, agent, employee, or other person acting in concert or participation with him/her.
- B. A licensed dealer must be present in the outlet at the time of sale of a restricted use pesticide so that she/he may supervise the transaction.
- C. Restricted-use and limited-use pesticides shall be stored separately in an area not accessible for self service.
- D. No dealer shall sell any restricted-use pesticides to any person who does not have in his/her possession a valid license.
- E. No dealer shall sell any limited-use pesticides to any person who does not have in his/her possession a valid license and limited-use permit.
- F. Dealers shall either maintain a record of restricted sales pursuant to Chapter 50, "Record Keeping and Reporting Requirements".

Section 6. Transition

For the purposes of converting from one year licenses and five year certification periods to three year licenses with concurrent three year certification periods, and to ensure that license expirations are evenly distributed across any three year period, the Board may initially issue one, two, or three year licenses with corresponding certification periods. Licensees must obtain a proportional number of recertification credits per year during the transition period. License fees will also be prorated in accordance with the length of the license term. The length of the initial license terms will be assigned by the Board when an existing license is renewed, based on the applicant's last name.

STATUTORY AUTHORITY: 22 M.R.S.A. §1471-D

EFFECTIVE DATE:

January 1, 1983.

AMENDMENT EFFECTIVE:

August 17, 1996

EFFECTIVE DATE (ELECTRONIC CONVERSION):

March 1, 1997

CONVERTED TO MS WORD:

March 11, 2003

MINOR CORRECTION:

April 25, 2013 – grammar in first paragraph

February, 2014 – agency names, formatting

01 DEPARTMENT OF AGRICULTURE, CONSERVATION AND FORESTRY

026 BOARD OF PESTICIDES CONTROL

Chapter 35: CERTIFICATION AND LICENSING PROVISIONS/SPRAY CONTRACTING FIRMS

SUMMARY: These regulations describe the requirements for certification and licensing of spray contracting firms.

1. Competency Standards for Certification

No person shall be certified as a spray contracting firm unless it demonstrates that the firm will have in its employment a sufficient number of licensed Master and Operator applicators to actively supervise and conduct the program in accordance with all applicable laws and regulations, and that such firm will otherwise be competent to responsibly make a pesticide application. ~~Where a major forest insect aerial spray program is undertaken, the firm must also demonstrate that there will be an adequate number of licensed spotters to accompany each spray team.~~ A responsible official of the contracting firm will sign a statement attesting that he/she is familiar with and that the contracting firm will comply with all statutes, rules, and guidelines of the Board.

2. Certification Procedures

All applicants must complete and submit an application provided by the Board which details the organizational structure of the spray contracting firm.

- A. Information shall include the firm name, chief officer, telephone number and location of the company headquarters, and business mailing address.
- B. Information shall also include a listing of all Master applicators who shall have responsibility for spray programs conducted in Maine along with their business locations and telephone numbers.
- C. Information shall also be included, as required on the application form, which demonstrates whether the firm has the necessary competence to responsibly apply pesticides in Maine.

3. Licensing

- A. **Application.** Application for a spray contracting firm license shall be on the same form provided by the Board for certification information.
- B. **Fee.** At the time of application, the applicant must submit a fee of ~~\$200.00~~ \$300.00.
 - 1. For replacement or alteration - \$5.00.

- C. **Insurance.** An applicant must submit a completed and signed form, provided by the Board, which attests that the spray contracting firm will have the required amounts of insurance specified in Chapter 31 in effect when any employee or agent makes a pesticide application.
- D. **Reports.** Annual Summary Reports described in Chapter 50, Section 2(A) must be submitted for each calendar year by January 31 of the following year. In the event a required report is not received by the due date, the person's license is temporarily suspended until the proper report is received or until a decision is rendered at a formal hearing as described in 22 MRSA §1471-D (7).
- E. **Decision.** Within 15 days of receipt of application by the Board, unless the applicant agrees to a longer period of time, the Director shall issue, renew or deny the license. The Director's decision shall be considered final agency action for purposes of 5 M.R.S.A. §11001 *et seq.*
- F. **Refusal to Renew.** The Board may refuse to renew a license if it is not in accordance with any of the requirements hereof or if the Board makes, as to the licensee, any of the findings set forth in 22 M.R.S.A. §1471-D (8), which describe the bases for a decision by the Administrative Court to suspend or revoke a license. If the Board determines that there is evidence sufficient to refuse to renew a license, it shall give notice and an opportunity for a hearing before the Board prior to making that determination final.
- G. **Expiration.** All spray contracting firm licenses will expire at the end of the ~~second~~ third calendar year after issuance.

4. **Special Spray Contracting Firm Requirements**

- A. No spray contracting firm may use or supervise the use of any pesticide within the State without prior certification from the Board.
- B. Each spray contracting firm shall be responsible for the acts of those people in its employ and its license shall be subject to denial, refusal to renew, suspension, or revocation, and such firm shall otherwise be punishable under the law, for any violation of the statutes or regulations, whether committed by the owner, chief officer, agent, employee or other person acting in concert or participation with it.
- C. No spray contracting firm shall make a forest insect aerial spray application until it ascertains that legally required notification has been given to the public and the Board, and there has been compliance with all other requirements for such an application, including any required licensing of its employees, agents and independent contractors and their employees.
- D. ~~No spray contracting firm shall make a major forest insect aerial spray application unless licensed applicators, spotters and monitors are in place to direct or monitor each spray aircraft or each team of spray aircraft during actual applications.~~

~~E.D.~~ A spray contracting firm shall cause its ~~licensed spotters and other~~ employees and agents to prepare reports pursuant to Chapter 50, "Record Keeping and Reporting".

5. Grandfathering and Transitions

~~The 1999 amendments to this chapter which extend the license period shall affect licenses renewed after December 31, 2000.~~

For the purposes of converting from two year licenses to three year licenses to ensure that license expirations are evenly distributed across any three year period, the Board may initially issue one, two, or three year licenses. License fees will be prorated in accordance with the length of the license term. The length of the initial license terms will be assigned by the Board when an existing license is renewed, based on company name.

STATUTORY AUTHORITY: 22 M.R.S.A. § 1471-D

EFFECTIVE DATE:

February 6, 1985

AMENDED:

January 12, 1986

August 17, 1996

EFFECTIVE DATE (ELECTRONIC CONVERSION):

March 1, 1997

AMENDED:

December 28, 1999; also converted to MS Word

CORRECTIONS:

February, 2014 – agency names, formatting

FROM THE DESK OF JUSTIN NICHOLS
313 Hodsdon Road, Pownal, Maine 04069

June 1, 2015

Eugene Meserve
Maine Board of Pesticides Control
28 State House Station
Augusta Maine
04333

Dear Mr. Meserve:

Thank you very much for your rapid response to our inquiries last Tuesday, May 26th. Thank you also to Ray Connors and LeBelle Hicks for their timely efforts to track down information and make contact with True Green. I began this letter at your request as an explanation of the facts of the incident of last week, and then added some suggestions that I hope the Board will take into consideration. A quick background on me: I am a professional gardener and have applied both traditional and organically certified pesticides for 25 years in this capacity. I have no political party affiliation, but rather approach things on an issue by issue basis. I am opposed to burdensome or reactive regulation, but in the case of pesticides, I believe that the public's right-to-know, and health, as well as overall environmental effects are cause for a more stringent monitoring.

At your request I have summarized the events of yesterday, May 26th, 2015. Gail Jones of Durham, Maine and I began work on the Evans property on Whipple Farm Lane in Falmouth Maine at approximately 8:55 AM. We began edging beds and tree rings and applying bark mulch to the the areas edged. The grass was very wet with what we thought was dew, as the humidity was above 90%. The homeowner drove out and greeted us at around 9:15 and discussed the work we were doing. He made no mention of any application of pesticide or fertilizer, though it had occurred shortly before. *(I am unsure of the communication True Green had with Mr Evans at the time of the application, though Mr. Evans has since emailed us that he has information from True Green that a urea was applied, which he viewed as fairly benign. In my opinion, it is the job of True Green to educate the customer as to the hazards of the product and any reentry intervals or drying requirements of the products they apply. I do not know what if any conversation took place between Mr. Evans and True Green.)* We continued working and by 9:30 Gail mentioned that she was getting a sinus headache. I felt nauseas and my face was red where I had been touching it with my bare wet hands. We were working on an area of about 200 feet of lawn that abuts a sidewalk with no barrier between. A few minutes later, Gail saw the True Green pesticide application sign at the driveway far end of the property. It indicated that there had been an application at 8:18 that morning. There was only that one sign.

We looked around and saw no other signs. We went to the rear of the home to wash off with a hose and saw no signs. We are both quite certain that there was only one sign on the property. It is possible someone removed additional signs between 8:18 and 8:55, but seems unlikely as it is a over-55 community and I can think of no motivation for someone to do such a thing.

After going to the home of a neighbor who let us use her facilities to continue cleaning ourselves and our equipment, I called the number on the True Green sign to find out what we had been exposed to. Between 9:38 and 10:13 I called True Green four times at three numbers 1-888-463-9128, 1-800-464-0171, and 1-800-878-4733. I was transferred multiple times, but given no help whatsoever. I explained that we had been covered in chemical and needed HELP. I stressed our exposure and concern and the unacceptability of True Green offering no help. I said we were probably going to head to the emergency room and that we needed to know what we had been exposed to as we had been on our hands and knees and soaking wet in chemical. Each True Green representative passed me along and said they could do nothing for me. One said they were an answering service. Once I was transferred to a phone system that never picked up. One said they were only customer service and I needed to speak with The Corporate Office. One said they were in a corporate office, but that they were a satellite office. The corporate office told me they couldn't provide me with a local contact and that they were experiencing high call volume in our area and referred me back to the number on the sign—all of this despite my virtual pleas for information, and clear expression that we needed help and to know immediately what had been sprayed on the property. It was a fairly nightmarish experience and worthy of a good comedy send up, and fortunately, Gail and I had not been exposed to anything to which we reacted allergically or was of acute toxicity to humans. The combination of three herbicides, one insecticide and a fertilizer application and possibly other adjuvants or materials clearly affected both of us. Still, the failure and/or incapability of True Green to provide a local contact, name, or number is quite astounding.

There was one small sign on the far end of property at the driveway. Hundreds of elderly walk through there each day with pets, grandchildren, etc. It is the height of irresponsibility to apply pesticides without adequate signage, especially adjacent to two hundred feet of highly travelled sidewalk. And why didn't the homeowner know? And why did I never receive any help from True Green. Not one person took my name or number. None of the many people I spoke with at True Green displayed knowledge of policy or procedure for addressing a pesticide exposure. Based on this experience, I believe that this True Green should be required to improve their practices. However I think this incident is likely indicative of broader systemic issues, and, rather than having this be a call for a punitive step against True Green, I think a more productive approach is to consider ways in which

we can improve the situation around commercial pesticide application in Maine. After reflecting on this experience, I recommend the following practical steps to the Board of Pesticides Control, with the aim of educating the public, protecting the public, and building the public trust.

1: Pesticide warning signs must provide a local number which anyone in need can call for rapid information regarding the application.

This could save lives. This cannot but help medical staff, parents of exposed children, other citizens who have been exposed to pesticides, pet owners, bee keepers, concerned neighbors, etc.

2: Pesticide application signs must list the name of the Products applied and the EPA registration number.

I can't think of any reason not to do this. It helps the applicator double check their work. It helps the homeowner to be sure the correct application has occurred. It helps anyone who may have been exposed to the product to protect their health.

3. Pesticide application yard signs must be increased in size, both to carry adequate information, and so that they can be seen and read by those without 20/20 eyesight. Perhaps we increase the size to 8 by 10 with fonts commensurate with the new sign size.

Why not? What are we trying to hide with tiny signs that are unreadable to many, certainly to most of the members of the retirement community and many Americans with disabilities.

4. Develop a specific formula for the placement of yard signs.

Sign frequency should be based on a specific formula, such as footage of frontage on public ways or nearby occupied dwellings, rather than the current loose standard. This could be fine-tuned to apply primarily to residential or heavily-foot- trafficked areas. For example, one sign every 50 feet of frontage on a public way in a residential area might be a reasonable standard.

5. Require pesticide application signs based on proximity of the application to abutters, and public ways, in addition to the current policy in which the category(e.g Turf) triggers the posting requirement.

One benefit of this is that it may obviate the need to demarcate the specific area treated, which while helpful, could be burdensome to the applicator. See 6 below.

6. Require demarcation of any area treated within 50 feet of public way.

Demarcation might take the form of biodegradable landscape paint, flags, small signs, flagging tape.

7. Increase the requirement from 2 to 7 years for the keeping of records of or pertaining to the application of pesticides.

Two years of record keeping for business or commercial application of pesticides seems grossly inadequate when one considers that a misapplication of pesticides could cause a water supply or other public or private resource long-term contamination. It hardly seems an undue burden on business in the digital age to keep records as long as one would for tax purposes.

Sincerely,

Justin Nichols

Pownal, Maine

Proposed Administrative Consent Agreement Background Summary

Subject: Town of Hartland
PO Box 280
Hartland, Maine 04943

Date of Incident(s): Approximately July 9th and July 16th of 2014

Background Narrative: A caller reported to the Board that he thought Hartland town employees were spraying Roundup or a similar type product to sidewalks and walkways around town. Through a follow-up inspection, it was determined that a town employee did apply a 40% concentrate sodium bisulfite solution to about one mile of sidewalk as a crack and crevice treatment targeting growing grass and broadleaf weeds. Neither the town employee nor any other town employee was licensed as a commercial applicator at the time of the applications.

Summary of Violation(s): 22 M.R.S. § 1471-D(1)(A). Commercial pesticide applications may only be conducted by certified commercial applicators.

Rationale for Settlement: The town manager and town employees were cooperative with the inspection. Town personnel were not aware of the commercial licensing requirement.

Attachments: Proposed Consent Agreement

JUN 04 2015

STATE OF MAINE
DEPARTMENT OF AGRICULTURE, CONSERVATION AND FORESTRY
BOARD OF PESTICIDES CONTROL

Chris Littlefield)
Town of Hartland)
PO Box 280)
Hartland, Maine 04943)

ADMINISTRATIVE CONSENT AGREEMENT
AND
FINDINGS OF FACT

amount: \$250.00
date: 6/2/15
check#: 2181

This Agreement by and between the Town of Hartland (hereinafter called the "Town") and the State of Maine Board of Pesticides Control (hereinafter called the "Board") is entered into pursuant to 22 M.R.S.A. §1471-M (2)(D) and in accordance with the Enforcement Protocol amended by the Board on June 3, 1998.

The parties to this Agreement agree as follows:

1. That on July 29, 2014, the Board received a call that Hartland town employees were spraying Roundup or a similar type product to sidewalks and walkways around town and near a bridge and lake. The caller appeared familiar with a license being required for this type of work.
2. That on July 30, 2014, a Board inspector conducted a follow up inspection starting with Chris Littlefield, the town manager. Littlefield stated that two town employees had made a crack and crevice herbicide application to sidewalks around town at his request because a selectman wanted weeds controlled. Littlefield did not know the date of the application or the product used, but was cooperative in arranging a meeting with the employees who made the application.
3. That on August 6, 2014, the Board inspector met with Littlefield, Russel Dickey and Brad Russel. Dickey made the application to the sidewalks over the course of two days, which he thought were on July 9 and July 16. Brad Russel, who works primarily at the water treatment plant, supplied the two-gallon hand can sprayer and the 40% sodium bisulfite solution used to make the applications. The sodium bisulfite was from fifty-five gallon containers of this product stored at the water treatment plant and used to treat effluent.
4. That during the inspection described in paragraph three, Dickey said he applied the 40% concentrate sodium bisulfite solution undiluted. He applied approximately twenty-five gallons to about one mile of sidewalk as a crack and crevice treatment targeting growing grass and broadleaf weeds.
5. That CMR 01-026 Chapter 10, Section 2 (MM), defines a pesticide in part as "any substance or mixture of substances intended for preventing, destroying, repelling or mitigating any pest".
6. That applying the sodium bisulfite solution as described in paragraphs three and four, constitutes application of sodium bisulfite solution as a pesticide.
7. That any person making a pesticide application that is a custom application, as defined under 22 M.R.S.A. § 1471-C(5-A), must be a certified commercial applicator in accordance with 22 M.R.S.A. § 1471-D(1)(A).
8. That "commercial applicator" also includes individuals who apply pesticides in connection with their duties as employees of local governments, according to 22 M.R.S.A. § 1471-C(5).
9. That a custom application is defined in 22 M.R.S.A. § 1471-C(5-A) as any application of any pesticide under contract or for which compensation is received or any application of a pesticide to a property open to use by the public.
10. That the application described in paragraphs two, three, and four constitutes a custom application as defined in 22 M.R.S.A. § 1471-C(5-A).

11. That no one from the Town had a commercial pesticide applicator's license at the time of the custom application described in paragraphs two, three, and four.
12. That the circumstances described in paragraphs one through eleven constitute a violation of 22 M.R.S.A. § 1471-D(1)(A).
13. That the Board has regulatory authority over the activities described herein.
14. That the Town expressly waives:
 - a. Notice of or opportunity for hearing;
 - b. Any and all further procedural steps before the Board; and
 - c. The making of any further findings of fact before the Board.
15. That this Agreement shall not become effective unless and until the Board accepts it.
16. That, in consideration for the release by the Board of the causes of action which the Board has against the Town resulting from the violation referred to in paragraph twelve, the Town agrees to pay to the State of Maine the sum of \$250. (Please make checks payable to Treasurer, State of Maine.)

IN WITNESS WHEREOF, the parties have executed this Agreement of two pages.

TOWN OF HARTLAND

By: Christopher Littlefield Date: 6/2/15

Type or Print Name: Christopher Littlefield

BOARD OF PESTICIDES CONTROL

By: _____ Date: _____
Henry Jennings, Director

APPROVED:

By: _____ Date: _____
Mark Randlett, Assistant Attorney General



PAUL R. LEPAGE
GOVERNOR

STATE OF MAINE
DEPARTMENT OF AGRICULTURE, CONSERVATION AND FORESTRY
BOARD OF PESTICIDES CONTROL
28 STATE HOUSE STATION
AUGUSTA, MAINE 04333-0028

WALTER E. WHITCOMB
COMMISSIONER

HENRY S. JENNINGS
DIRECTOR

MAINE BOARD OF PESTICIDES CONTROL

**POLICY CONCERNING DENYING ACCESS TO THE PUBLIC
FOR SEVEN DAYS TO AREAS "OPEN TO USE BY THE PUBLIC"**

DRAFT July 10, 2015

Background

At the December, 2014, and the April and June, 2015 meetings, the Board had discussions regarding pesticide applications to private lands which are held open for public use. State statutes define pesticide applications made to property open to use by the public as "custom applications" which may only be conducted by a licensed commercial applicator.

Section 2 (P) (2) of Chapter 10 defines "property open to use by the public." Property is deemed to be open to use by the public where its owner, lessee or other lawful occupant operates, maintains or holds the property open or allows access for routine use by members of the public. The rule also defines when those areas are NOT considered open to the public.

One of those exemptions includes areas, "where the public has not been permitted upon the property at any time within seven days of when the property received a pesticide application."

The Board discussed what the term "property" means in the context of this exemption and whether or not to interpret it in a way that allows land trusts and other land owners to control invasive plants or other vegetation and then close off only the area that was treated instead of the entire property.

Board Policy

The Board determined that because pesticide applications to recreational areas, trails and parks pose minimal risks, the exemption from consideration as a "property open to use by the public" is appropriate when the public is excluded from treated areas for seven days. Therefore pesticide applications under those circumstances will not require supervision by a licensed commercial applicator.

Maine Department of Agriculture,
Conservation and Forestry

POLLINATOR PROTECTION PLAN
2015

Walter E. Whitcomb, Commissioner
Ellis Additon, Director, Bureau of Agriculture,
Food, and Rural Resources

Introduction

Pollinators are vitally important to fruit and vegetable production both in Maine and across the country. In recent years, national concern over the health of managed and wild pollinators has increased. Beekeepers have suffered significant colony losses dating back to 2006, and a syndrome described as Colony Collapse Disorder (CCD) has garnered considerable attention in the popular press. These trends have raised questions about the sustainability of managed colonies and whether pollinator decline will adversely affect agricultural production.

Overall, Maine's pollinators appear to be in better health than those in many other states. Department of Agriculture, Conservation and Forestry (DACF) experts have not yet observed any evidence of CCD in the state. Even with a generally healthy prognosis, Maine honey bee health is clearly being impacted by parasites, diseases, management practices, and, in some cases, the presence of chemicals.

Maine has an effective apiary program with a long history of being proactive and engaged in pollinator health issues. The State Apiarist is well known and respected throughout the country and serves on national Pollinator Protection Workgroup, a subcommittee of the Pesticide Program Dialog Committee. DACF's apiary program has been effective in maintaining positive relationships with both hobbyist and contract beekeepers. Out-of-state pollinator service contractors working in Maine must pre-file permit applications which allow DACF to inspect hives and track their movements. In-state beekeepers pay a nominal fee to register their hives which also allows the State Apiarist to keep ahead of disease and pest issues.

The DACF is also known for having a progressive and active pesticide program. The Maine Board of Pesticides Control (BPC) is extremely active in the area of pesticide education, featuring timely topics presented by well-renowned experts. The BPC prides itself on responding to complaints quickly with thorough and objective investigations, which could include investigations about impacted pollinators.

DACF staff has invested considerable resources in researching pollinator health issues in recent years. Scientific literature is tracked, scrutinized and evaluated for information and recommendations that can be applied in Maine for the benefit of pollinators. Pollinator plans from other states have also be reviewed and analyzed. The collective expertise, research and insight of the DACF staff form the basis for this plan.

Maine's Pollinator Protection Plan

The DACF sees great value in taking a proactive, coordinated approach to protecting pollinators in Maine. Consequently, the DACF elected to craft a plan that documents the Department's commitment to pollinator health as well as DACF activities that support that goal. The plan also contains a compilation and synthesis of existing recommendations—in the form of Best Management Practices—intended to protect pollinator health.

This plan is modelled after the North Dakota Department of Agriculture plan. It is also based—in part—on input received at the November 20, 2014 Pollinator Health and Safety Conference co-sponsored by the DACF and the University of Maine Cooperative Extension. Cooperating sponsors included the Maine Beekeepers Association, the Maine Farm Bureau and the Maine Organic Farmers and Gardeners Association. This conference focused on pollinator issues and provided an opportunity for landowners, beekeepers, pesticide users, government officials, and other stakeholders to discuss pollinator health issues. It was also an opportunity for these stakeholders to offer input on reasonable practices that beekeepers, landowners, and pesticide applicators could incorporate to protect pollinators and minimize impacts to crop production.

This plan is designed to reduce risks to pollinators in the state, focusing mainly on managed hives. Education, improved communication, and the promotion of pollinator health Best Management Practices (BMPs) form the cornerstones of this plan. The intent is to continuously incorporate the latest scientific consensus covering pollinator issues, and to serve both as an informational document and an action plan for all interested parties.

Challenges Faced by Beekeepers

Beekeepers face a challenging task of keeping colonies alive with the threat of CCD, varroa mites, tracheal mites, small hive beetles, bacterial, fungal and viral diseases, declining quality forage, and pesticide exposure. Nationally, year-to-year colony survival is variable but elevated since CCD was first identified in 2006.

Growers and other pesticide users cannot help beekeepers manage threats from mites, beetles, and the microbes that weaken their hives. They can, however, help with reducing their exposure to pesticides and improving the quality of forage available. Even though varroa mites are considered the greatest threat to honey bee colonies, a strong colony can handle the pressures of this tiny creature better than one weakened by other stressors.

Honey bees feed on pollen for their protein source, and utilize nectar for carbohydrates. They must obtain these nutrients from a variety of plants in order to obtain all the essential amino acids and nutrients required to build and maintain a strong hive. Bees can become easy targets for pests, predators and pathogens when they do not obtain the proper balance of nutrients. Bees provided with high quality forage are better able to handle stressors from all directions.

Honey bees may be exposed to pesticides applied directly to hives to rid them of pests such as the varroa mite or applied to plants on which they forage.

Challenges Faced by Growers and Pesticide Users

Growers face many challenges in attempting to obtain acceptable yields. Growers contend with insect pests, diseases, weeds, drought, overland flooding, and other factors that impact crop production and quality. They often need to eliminate pests and competing plants without impacting yields. They also must consider the timing of pesticide applications with respect to harvest and rotational intervals. Even with Integrated Pest Management (IPM) systems, pests often are able to adapt quickly to different methods, rotations, pesticides, or reproduce so quickly that their populations rise exponentially in a short time. Because of the nature of such pests, making timely chemical applications as part of an IPM plan is essential to manage pests effectively.

There are over 10,000 registered pesticides in Maine that are used to manage agricultural and non-agricultural pests. In many cases, pesticide applicators have a limited time window to make an application. Factors such as pest infestation levels, temperature, precipitation, wind speed, water levels, use buffers, and presence of pollinators all affect pesticide choices and decisions on when, where, and how to apply pesticides. Applicators also must pay attention to the location of sensitive sites adjacent to treatment sites, such as surface water, endangered species, organic fields, and beehives. The ideal time to apply many of these chemicals is likely to coincide with when the pollinators are most active, putting pesticide applicators in a difficult position of balancing pest management needs and protecting pollinators.

Homeowners also need to take special precaution when applying pesticides. The pesticide user BMPs apply to anyone using pesticides. The pesticide label is the law and it contains instructions intended to minimize risks to human health, pollinators, and every other component of our environment.

DACF Activities Committed to Pollinator Health

The DACF devotes resources to the following activities in support of pollinators:

- All Maine licensed pesticide applicators must pass the core exam which covers the basics of legal and appropriate pesticide application. The study manual provided for this exam contains information on the importance and protection of pollinators.
- The Board of Pesticides Control (BPC) participates annually in numerous pesticide applicator recertification training courses. Appropriate use of pesticides and pollinator protection are emphasized in these trainings.
- The State Apiarist speaks to a wide variety of audiences about pollinator health and safety.
- New pesticide applicators can, prior to testing for the core exam, attend an optional core exam training at which appropriate use of pesticides and pollinator protection are emphasized. The DACF offers this training many times annually.
- The BPC website contains extension information and numerous pertinent links about pollinator protection and appropriate use of pesticides. The Board supported website *GotPests?* provides IPM information to homeowners.
- The BPC, in cooperation with the state apiarist, investigates all pesticide complaints regarding pollinators and, in the event of a bee kill, references the EPA's bee kill protocol for these complaints.
- The DACF will work with Maine fruit commodity groups using contracted pollinator services to improve communication and coordination, and to investigate tactics that reduce risks to pollinators.
- Hive registration and inspection conducted by the state apiarist is important to managing pollinator health and is another opportunity for outreach and stakeholder feedback.
- The DACF will continue working with University System to develop guidance on product choices to reduce risk to bees.

Best Management Practices

These voluntary BMPs for pesticide users, landowners/growers, and beekeepers are shared with the intent of:

- Encouraging positive relationships and co-existence among beekeepers, landowners, and pesticide applicators;
- Reducing pesticide exposure and subsequent risk of pesticides to pollinators;
- Supporting both a robust apiary industry and agricultural economy; and

- Continued compliance with state pesticide and apiary requirements.

Beekeeper Best Management Practices

- **Work with landowners to choose hive locations.** Ideal hive locations will have minimal impact on agricultural activities but will still have adequate access to forage and water. Avoid placing hives in low spots to minimize impacts from drift or temperature inversions on hives. Give consideration to timing after rain events when determining which roads to travel. Discuss with landowners preferred roads/trails to use. Beekeepers should also request contact information for applicators, renters, and neighbors (if applicable).
- **Be cognizant of neighboring landowners when placing and moving hives.** Neighboring landowners often use the same roads, trails, and section lines. Do not block these right-of-ways or place hives so close they may cause problems for other land-users. Take appropriate steps to ensure that bees do not negatively affect operations of neighboring landowners, such as considering the proximity of hives to neighboring yards, bins, equipment, or storage sites.
- **Work constructively with applicators when notified of upcoming pesticide applications.** When informed of a planned application, beekeepers should block, move, or net hives, or find other strategies to allow pesticide applicators to manage pests while minimizing pesticide exposure by bees.
- **Notify landowners and applicators when arriving and when moving hives.** If possible, notify nearby pesticide applicators and landowners when you place or move beehives. This will ensure they are aware of current hive locations and can notify you before making pesticide applications. Contact information for nearby pesticide applicators can usually be obtained from landowners.
- **Obtain landowner permission for hive placement every year and maintain positive contact.** As landowner information changes, it is important to ensure everybody is updated and bees are not placed without permission. This step is imperative to ensure hives do not become a nuisance.
- **Immediately report all suspected pesticide-related bee kills to the DACF pesticide program.** Inspect bee behavior regularly. The DACF is the lead pesticide regulatory agency in the state. The DACF will respond to complaints and may collect and analyze samples from the location for pesticide residues. Some pesticides degrade rapidly and timely reporting will aid the pesticide investigation. Beekeepers can report suspected pesticide incidents by calling 207-287-2731 and speaking to a representative from the BPC.
- **Use registered pesticides according to the label.** When pesticide use is necessary to manage pests within hives, use registered pesticides and comply with all restrictions, precautions and directions found on the pesticide label. Failure to comply with label directions may decrease the effectiveness of pesticides, increase the risk of adverse effects to bees, cause unsafe pesticide residues in honey and other products, and potentially lead to pesticide resistance. Contact the DACF pesticide program with any questions on pesticide labeling or to determine whether a pesticide is registered in the state.
- **Comply with all requirements of the Maine beekeeping law.**
 - For all beekeepers:

- i. Maintain hives free of diseases and parasites
 - ii. Provide the ACF Commissioner with all apiary (hive) locations
 - iii. Report the total number of colonies to the ACF Commissioner
- In state only :
 - a. Pay Beekeeper's Licensing fee each year
- If importing honeybees to Maine:
 - a. Pay Beekeeper's Registration fee each year
 - b. Obtain an import permit
 - c. Provide certificate of hive inspection prior to importing honeybees or used equipment
 - d. Continue to provide up to date hive locations throughout the season. This ensures that all locations are accurate when applicators attempt to locate them.
- **Ensure hives are easily visible to applicators.** Hives must be visible so applicators can locate them before spraying.

Landowner/Grower/Agency Best Management Practices

- **Work with beekeepers to choose hive locations.** Ideal locations for hives will have minimal impact on farming/ranching operations, but will still allow bees to access forage and water. Communicate with beekeepers about which roads/trails can be problematic when wet and any preferred traffic routes. Landowners may also want to provide contact information for applicators, renters, and neighbors.
- **Communicate with renters about bee issues.** Renting land for agricultural production is a common practice. Landowners and renters should discuss bee issues, such as who has authority to allow bees, how long they will be allowed and hive placement. These issues should be addressed and included when rental agreements are negotiated.
- **Communicate with pesticide applicators about who has the responsibility to look for hives, notify neighbors, etc.** When contracting with commercial pesticide applicators, make sure that there is a clear understanding of who has the responsibility to identify hive locations and communicate with beekeepers. Applicators may do this as part of their standard procedures, but some landowners may prefer to make beekeeper contacts themselves.
- **Agronomists should consider pollinator impacts when making pesticide recommendations.** Ensure that agronomists and crop consultants consider pollinator issues when making pesticide recommendations, including product choices and pesticide timing decisions.
- **Plant bee forage.** Plant flowering plants, trees and shrubs to improve bee forage, especially in non-farmable or non-crop areas. Doing so provides forage and it may also concentrate bees away from fields to be treated with pesticides, thereby minimizing impacts to pollinators. State agencies, such as the Maine Department of Transportation (MDOT), are encouraged to incorporate development/expansion of pollinator forage into their strategic plans. MDOT is already evaluating plantings and mowing practices that are more beneficial to pollinators.

- Many pesticide labels require untreated **vegetative buffer strips** around sensitive sites. Plant flowering plants in those buffer strips to provide additional bee forage.
- If planting **cover crops**, add flowering plants into the mix. Even a small percentage of flowering plants can provide a considerable amount of forage for pollinators.

Pesticide User Best Management Practices

- **Use Integrated Pest Management.** Utilize economic thresholds and IPM to determine if insecticides are required to manage pests.
- **Choose pesticides carefully.**
 - When insecticides are required, try to choose insecticides with low toxicity to bees, lower residual toxicity or repellent properties towards bees; pay particular attention to pollinator toxicity and product persistence.
 - Choose formulations that present a lower risk to bees.
 - Avoid dusts and wettable powder insecticide formulations; these can leave a powdery residue which sticks to hairs on bees. Bees then bring the pesticide back to the hive and potentially expose the entire hive to the pesticide for an unknown amount of time.
 - Granular and liquid formulations are safer for pollinators since granules are not typically picked up by bees and liquids dry onto plant surfaces.
 - Ultra low volume formulations are usually more hazardous than other liquid formulations.
 - Microencapsulated formulations are highly toxic to pollinators.
 - Avoid tank mixing of insecticides and fungicides as specific mixtures may cause synergistic toxic effects on bees and most combinations have not been researched.
- **Use caution around flowering plants.** Pesticide applicators should pay special attention when making applications on or near plants that are or will soon flower.
 - Many pesticides, especially insecticides, have use restrictions prohibiting applications when bees are foraging in the treatment area. Some labels prohibit applications when crops are blooming and require that the applicator notify beekeepers in the area prior to application. Check with the University of Maine Cooperative Extension at least annually for up-to-date product recommendations.
 - Do not apply any pesticides, including fungicides, during bloom.
 - Identify weeds which are attractive to bees; note when they bloom.
 - Check fields for bee activity prior to making applications.
 - Mow flowering weeds prior to application so that bees will not be foraging on them.
- **Use registered pesticides according to the label.** Pesticide label language is developed to ensure that pesticides will not pose a risk of unreasonable adverse effects to human health or the environment. Failure to comply with the label not only puts humans and the environment at risk,

it is also illegal. Applicators are bound by all directions, precautions and restrictions on pesticide labeling, even when following other BMPs. Contact the DACF with any questions on pesticide label language.

- **When possible, apply pesticides early morning or in the evening.** Pollinators are most active during daylight hours and when the temperature is over 55 degrees Fahrenheit. Apply pesticides early in the morning or preferably in the evening when bees are less active to reduce the chances that bees will be foraging in or near the treatment site.
 - Be cognizant of temperature restrictions on pesticides. The efficacy of some pesticides is reduced at certain temperatures.
 - Be aware of temperature inversions when choosing the best time for applications.
 - Applying pesticides in the early evening allows them to decompose during the night. Unusually low temperatures can increase the time that toxic residue remains on the crop.
- **Avoid drift.** Pesticide drift is the off-site movement of pesticides through the air from the treatment site to adjacent areas, either in the form of mist, particles or vapor. Drift reduces the effectiveness of the chemical applied since only part of the applied amount reaches the target. Drifting chemicals also pose a risk to non-target organisms that come in contact with the off-target residues. These insecticides can negatively affect bees and other beneficial insects by direct contact or by contaminating their forage and habitat. Drifting herbicides have the potential to further reduce quality forage available to pollinators. Contact University of Maine Cooperative Extension for more information on how to reduce pesticide drift.
- **Incorporate pollinator considerations in planning wide-area spray programs.** Currently, there are no wide-area spray programs routinely occurring in Maine. However, populations of the spruce budworm are on the upswing and there is a rising threat of mosquito-borne diseases. Land managers and project coordinators should plan to incorporate strategies, such as careful selection of products or spraying at dusk, in order to minimize any potential risks to pollinators.
- **Communicate with your neighbors about pesticide applications and hive locations.** Bees will fly several miles to find quality forage. The BPC has rules that allow nearby landowners to request advance notification. Apiarists are encouraged to communicate with their neighbors about pesticide use.

Supporting Pollinator Forage and Habitat

- **Bee Forage.** Everyone can plant forage for bees. Plants that support pollinators are also beneficial for other wildlife, are often visually attractive and can help improve soil health. Flowers often come to mind when thinking about bees, but bees also utilize trees, shrubs and other less-noticeable plants for pollen and nectar sources. It is important to consider diversity when choosing plants to ensure adequate forage for the entire growing season. Diversity will also ensure pollinators have access to all of the nutrients they require to be healthy. Easy, efficient ways to improve pollinator forage include:
 - Plant trees, shrubs and flowers that provide good forage for all types of pollinators. Diversity is important. The pollen and nectar of each species carries a different nutrient load for the pollinators. Diversity can be worked into existing plantings. Every time a plant is added and/or replaced, choose a variety that will contribute to pollinator forage. Foraging honey bees are typically not aggressive.

- Create bee forage along secondary roads. Ditches along secondary roads often contain several species of plants that provide forage for pollinators. It is a common practice to mow ditches for the safety of motorists and to prevent drifting snow. Consider spot spraying noxious weeds and mowing ditches later in the year to ensure that bee forage is available. Incorporate short forbs into secondary road ditches to minimize attracting large wildlife.
- Put out flower pots, create flowerbeds, plant trees or shrubs, or establish gardens to provide forage. Create **habitat for beneficial, wild pollinators**. Roughly 70 percent of native bees nest in the ground. They burrow into areas of well-drained, bare or partially vegetated soil. Other bees nest in abandoned beetle houses in snags or in soft centered, hollow twigs and plant stems. Bees will also utilize dead trees and branches. Habitats can be created by leaving deadfalls and brush piles as nesting habitat. Consider the type of habitat you wish to create and pollinators you want to attract. Be cognizant that certain structures might attract other animals such as fox, coyote, skunks, and porcupines.
- **Increase public land access for managed hives.** Public land typically does not incorporate crop production and large scale insecticide use. There are some agencies that allow beekeepers to place honey bees on state and federal lands. Contact DACF for more information. Permission must be obtained and hives placed on state or federal lands must also be registered with the DACF.

Maine Board of Pesticides Control

**Miscellaneous Pesticides Articles
July 2015**

(identified by Google alerts or submitted by individuals)

Some Maine retailers phasing out products that harm bees

centralmaine.com /2015/05/26/some-maine-retailers-phasing-out-products-that-harm-bees/

By Eric Russell Portland Press Herald | @PPHEricRussell | 207-791-6344

A growing number of Maine retailers have begun phasing out use of a class of pesticides that research shows harms honey bees, but consumers may still be confused about what stores have done to get rid of them.

Neonicotinoids have come under closer scrutiny because of their effect on bees, which are vital to plant pollination, but the Environmental Protection Agency still hasn't taken a firm stance on banning production. Retailers, in part because of public pressure, are attempting to address the problem pesticides themselves, but there is no uniform policy. Some stores have pulled products with neonicotinoids from shelves, some have begun labeling them and some have done nothing, creating confusion among consumers about which plants to purchase.



Pam Jones of Kennebunk holds a heather plant on Tuesday that she bought at Home Depot in Biddeford recently. Because the label on the pot didn't list any pesticides, Jones thought she was buying a pesticide-free heather plant. When she pulled the plant out of the pot to put it into the ground, she was surprised to find a label at the bottom of the pot stating the plant was treated with a pesticide containing neonicotinoids. She thinks plants that contain pesticides should be clearly labeled in an easy to see place. Portland Press Herald photo by Gregory Rec





Pam Jones of Kennebunk holds a heather plant on Tuesday that she bought at Home Depot in Biddeford recently. Because the label on the pot didn't list any pesticides, Jones thought she was buying a pesticide-free heather plant. When she pulled the plant out of the pot to put it into the ground, she was surprised to find a label at the bottom of the pot stating the plant was treated with a pesticide containing neonicotinoids. She thinks plants that contain pesticides should be clearly labeled in an easy to see place. Portland Press Herald photo by Gregory Rec

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Pam Jones, who lives in Kennebunk, found that out the hard way.

She uses organic soil in her garden and tries to avoid pesticides. When she purchased a heather plant recently from the Home Depot in Biddeford, she assumed it was free of neonicotinoid pesticide because there was no label on the plant indicating its presence.

It wasn't until Jones got home and took the plant out of its temporary pot that she saw the label — stuck to the bottom of the plant.

"If that's where they are putting these labels, what's the point?" she said. "When I went back to the store, the clerk said several other customers had asked about labeling as well."

Matt Harrigan, spokesman for Atlanta-based Home Depot, which has more than 2,200 stores worldwide, said the company — with guidance from the EPA — is still monitoring research on the effects of neonicotinoids on honey bees.

"In the meantime, we're one of the few retailers that has started requiring our suppliers to label neonic-treated plants so customers who believe neonics are impacting the bee population won't purchase those plants unknowingly," Harrigan said in a statement. "The fact is, most nurseries sell at least some plants treated with neonics."

Harrigan said all plants sold at Home Depot are supposed to be clearly labeled, but he couldn't speak for every store.

Lowe's, the second-largest home improvement chain, announced last year that it was phasing out the sale of all products that contain neonicotinoid pesticides within 48 months. However, products that still contain neonicotinoids may not all be labeled.

"We are currently working with growers and suppliers of live plants to eliminate the use of neonic pesticides on bee-attractive plants we sell and encouraging them to use biological pest control methods," said Steve Salazar, manager of corporate communications for Lowe's, based in North Carolina. "We plan to have plants and nursery products tagged with information highlighting bee health and encouraging customers to be mindful of pollinator health when using pesticides. The timeframe for adding the tags is being determined."

Two southern Maine retailers, Eldredge Lumber and Hardware in York and Kittery Ace Hardware, have already removed several lawn and garden products that contain neonicotinoids. The stores also have stopped carrying the widely used weed killer Roundup and is considering discontinuing other products that may have adverse environmental impacts.

"It is easy to order the stuff into the store, but almost impossible to return it to the manufacturers," said owner Scott Eldredge. "Sure, I might lose some sales, but I don't care. There are potentially less harmful alternatives, and my staff is ready to help the public make better, safer choices."

Eldredge said he hopes to eventually make his stores completely chemical-free.

Katherine Paul, associate director of the Organic Consumers Association and a Freeport resident, said many more retailers nationwide have taken steps to eliminate the pesticides, although all have different timelines and guidelines for labeling.

Some other retail chains have yet to update their policies on neonicotinoids, she said, but are facing growing pressure.

The movement away from neonicotinoids is in part a response to a study published by Environmental Science and Pollution Research that found that pesticides were a key contributing factor in the population decline of honey bees.

The Environmental Protection Agency last month issued a moratorium that restricts the use of new pesticides, but the policy does not apply to products currently on the market.

"Unfortunately, the EPA, in deference to large pesticide-makers, is slow to move on regulating toxins like neonicotinoids," Paul said. "The shift away from toxic pesticides shows the power of consumer pressure on corporations to do the right thing."

Staff Writer Eric Russell — 791-6344

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Twitter: @PPHEricRussell

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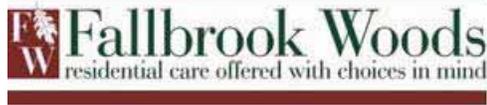


Wed, Jun 10, 2015 •

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Turf wars: Health debate accompanies Portland-area artificial fields

News

Turf wars: Health debate accompanies Portland-area artificial fields



[William Hall](#)

Tuesday, May 12, 2015 at 8:50 am

PORTLAND — Walking by the shuttered stands of Fitzpatrick Stadium, where final touches are now being made on a new artificial turf field, you might believe the adage: The grass really does grow greener on the other side of the fence.

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Photo: Ben McCanna / For The Forecaster

Caleb Johnson, a subcontractor of Northeast Turf of South Portland, smoothes freshly laid artificial turf at Fitzpatrick Stadium in Portland on Thursday, May 7.

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Photo: William Hall / For The Forecaster

"Crumb rubber," like the pellets seen here at a Yarmouth High School field and used as infill in other area artificial-turf playing grounds, may be linked to cancer, some health experts warn.

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Photo: File

In the Market

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PORTLAND
HARBORVIEW

Tony Johnson, an employee of Georgia-based Sprinturf, puts the finishing touches on the soccer lines at the Yarmouth High School turf field two years ago.



Photo: *File*

Construction of an artificial turf field at the Edward J. McMann Outdoor Athletic Complex at Morse High School in Bath in the summer of 2013.



Photo: *File*

Employees of Sports Turf International, a Scarborough company, install the turf playing field at Scarborough High School in 2006.

But some critics think recent alleged health concerns and questions about turf costs make playing grounds like Fitzpatrick, scheduled to re-open in less than a month, merely a field of dreams.

In October, NBC News aired [a report about Amy Griffin](#), a women's soccer coach at the University of Washington, who had noticed a disturbing trend. Beginning in 2009, Griffin has compiled a list of 38 soccer players struck with cancer.

All 38 had played on artificial turf, and 34 of them were goalies, who are constantly diving into the stuff.

"I've coached for 26, 27 years," she told NBC. "My first 15 years, I never heard anything about this. All of a sudden it seems to be a stream of kids (getting sick)."

Neither Griffin nor NBC claimed there was a causal link between the turf and cancer. But the coincidence has been enough to fuel a simmering debate about the safety of crumb rubber, the tiny pellets of recycled car tires used as "infill" cushioning in nearly all of the country's 11,000 artificial fields.

The rubber's composition is hard to pinpoint, but often includes toxic chemicals such as lead, other heavy metals and carbon black. Many of these are cancer-causing, and can be especially dangerous to children and teens, whose bodies are still developing.

Nevertheless, Portland has gone ahead with plans to spend \$835,000 to replace the artificial turf and surrounding running track at 6,000-seat Fitzpatrick.

The new field, including dark-blue end zones and emblazoned with a Portland High School bulldog logo, is expected to open by June 20 for the state lacrosse championship and to be hosting football and soccer this fall, according to Ethan Owens, the city's recreation and athletic facilities manager.

Nine of the 17 high schools in The Forecaster's coverage area now send their athletes to play on artificial turf fields. Two of those – Fitzpatrick and the Yarmouth High School varsity field – are replacements for man-made grass installed in 2001. At that time, the two were among the first artificial-turf playing surfaces in the state.



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Since then, turf-adopters have included Cape Elizabeth, Deering, Falmouth, Morse and Scarborough high schools, as well as The Hyde School in Bath and North Yarmouth Academy.

And as at Fitzpatrick, Portland may double down by replacing the artificial turf at Deering's Memorial Field in 2017, according to a city memo.

But opinion is divided about the fake fields.

Crumbs of evidence

School Administrative District 51 is now [considering plans for a \\$1.6 million turf field at Greely High School in Cumberland](#). Yet the proposal has been under review for six months and it's not clear when or if a decision will be made, according to Eliza Miller, chairwoman of the district's Athletic Advisory Board.

Regional School Unit 5 in 2013 [rejected a similar proposal at Freeport High School](#). So did South Portland in 2010. Morse built its \$580,000 artificial-turf field in 2013, but only after the [Bath City Council overcame three years of opposition](#), including a public referendum that repealed an earlier approval.

While most local opposition has focused on the high up-front costs of installing artificial turf, concern about the health effects of crumb rubber has prompted other regions to reconsider their use of turf.

Kennedy Catholic High School in suburban Seattle [decided not to use crumb-rubber infill](#) after the school principal viewed the NBC report. Last month, voters in Concord, Massachusetts, [nearly passed a proposed two-year moratorium](#) on the town's use of artificial turf.

The Los Angeles Unified School District and the New York City Parks Department both stopped construction of new fields with crumb rubber several years ago. The California legislature is now considering banning the use of state funds for such fields. And some municipalities have required chemical testing of their artificial-turf fields before players set foot on them.

Owens isn't worried, however.

"It's pretty clear that there are really no issues," he said in a recent interview. "I kind of find it odd that we keep hearing these reports, when it's out there pretty explicitly that there really are no troubles with the rubber."

He said the city's request for the turf replacement took a year to draft, and required the field to meet high industry standards for safety factors such as shock absorbency.

(Three turf companies submitted bids on the project; the winning bidder, Northeast Turf of South Portland, also installed the stadium's first artificial surface.)

But there was no standard set for chemical safety and no requirement for study or testing.

"I don't think we did (testing) because of the information that is out there already," Owens said. "I think we felt there was no need because we would rely on the (industry) standards and the ... studies that had previously been done."

Yarmouth's athletic director, Susan Robbins, shares Owens' confidence in the safety of artificial turf. She called the NBC report "sensationalized."

"There's absolutely no link (to cancer)," she said recently. "As a parent here, I would never put my own children at risk if I thought there was."

Like Owens, she cited scientific studies touting the safety of artificial turf. Fact sheets published by the turf industry cite dozens of them.

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But some health experts claim the studies are too limited to be useful, examining only a small number of fields and the effects of only a small number of chemicals.

And regardless of the scientific debate, these experts say, there has been no study of turf's long-term effects, simply because today's fields haven't been around very long.

In the beginning, AstroTurf

Artificial turf dates to 1966, when the first brand, AstroTurf – basically, short-pile nylon carpeting laid over concrete – was installed at the Houston Astros' indoor baseball stadium. But crumb rubber infill has been used less than 20 years.

Reflecting the uncertainty, both the federal Environmental Protection Agency and the Consumer Product Safety Commission have recently back-pedaled from claims they made more than five years ago that artificial turf is safe.

The EPA's website now states that it "is not possible to extend the results beyond the four (artificial fields studied) or to reach any more comprehensive conclusions without the consideration of additional data."

And a CPSC spokesman last month told an Atlanta reporter that "what was done in 2008 was not good enough to make a claim either way as to the safety of those fields."

Local sports experts are keeping a close watch on the potential cancer risks of turf.

"There certainly seems to be some sort of a connection. Maybe it's worth a second look, to continue the research," said Matt Gerken, head athletic trainer at the University of Southern Maine, which installed turf in 2011. "But where do you draw the line?"

"For now, we will continue to watch (the health risks) until we start to feel it's a problem. It hasn't risen to that level yet."

Gerken, who served as trainer to the USM women's soccer team for 15 years, speculated whether crumb rubber infill could be inhaled, ingested or ground into an open cut or abrasion.

"Those rubber pellets get everywhere, cleats, coolers, socks," he said. "Those things migrate."

At SAD 51, Miller said, "We've looked at the reports, and are investigating options for infill" on the proposed Greely field. School Board members and Cumberland residents have already asked questions about artificial turf's safety, she said.

Back at Fitzpatrick, Owens doesn't dismiss the cancer claims entirely.

"Like any product, you can buy the Yugo or you can buy the Cadillac," he said. "Companies that make the Cadillac (turf) put in their time, they do the research, they make sure the rubber they use is a clean rubber. The others? Well, who knows where their rubber comes from?"

Artificial turf provides a more uniform playing surface that is easier on athletes' joints, he adds. And the high price tag of the turf is offset by maintenance that is far less costly than a natural grass field's.

Still, municipalities such as Montgomery County, Maryland, estimate that the need to replace turf every eight years or so makes the long-term costs of both field types about the same.

Owens believes the bigger advantage is the heavy use turf can take. Fitzpatrick could only accommodate about 140 hours of use annually when the field was grass; in its last season of use, the turf field hosted 3,500 hours of play.

"If I was going to have this as a grass field, there would be a night and day difference," he

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said. "You'd only have varsity teams out there. You wouldn't have community use."

Last week, as workers prepared to lay down the first rolls of new turf, a visitor wondered when the project would be finished.

"It can't be soon enough," said Patricia Allen, whose children attended Portland schools and who often walks the track. "I worry a bit when I think about those rubber bits and what they could do. But I guess that's a risk we have to take."

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US EPA forced to decide this month on pesticide's fate

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Buffer zones are required around fields treated with some pesticides, including chlorpyrifos, which has been linked to neurological effects in children.

The EPA is on the clock to decide the future of a popular pesticide linked to health problems

June 11, 2015

By Brian Bienkowski (.../.../...)

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Environmental Health News

A California appeals court ruled this week that the U.S. Environmental Protection Agency has until the end of this month to decide whether or not to ban a widely used pesticide linked to a number of health problems.

The order, filed yesterday by the 9th Circuit Court of Appeals, forces the EPA's hand on the pesticide chlorpyrifos (pronounced KLOOR – pie –ra – phos), one the most commonly applied organophosphate pesticides with an estimated 10 million pounds applied annually.

While banned for more than a decade for household use, it's still used commercially on corn, soybeans, fruit and nut trees and some golf courses. In 2012 the EPA required homes and schools to have buffers to reduce exposure.

The order is in response to a lawsuit filed in 2007 by the Pesticide Action Network and the Natural Resources Defense Council calling for the EPA to cancel registration for the pesticide.

While manufacturers such as Dow Agrosciences have maintained the safety and efficiency of chlorpyrifos, scientists have expressed concern over what it does to exposed people. Various studies have linked it to birth defects, low birth weights (<http://www.ncbi.nlm.nih.gov/pubmed/15238288/>) and impaired brain development (http://www.epa.gov/ncer/events/news/2010/04_05_10_feature.html), and endocrine disruption (<http://www.ncbi.nlm.nih.gov/pubmed/9588346>).

Fetuses exposed to the pesticide while in the womb are most at risk.

The EPA has until June 30 to respond to the lawsuit. **[See yesterday's court order here.]** (<http://cdn.ca9.uscourts.gov/datastore/opinions/2015/06/10/14-72794.pdf>)

"It is time for EPA to protect children in the face of overwhelming scientific evidence that this pesticide causes brain damage in children," said Earthjustice attorney Patti Goldman, who represented the groups in the lawsuit, in a statement. "EPA has dragged its feet for far too long in the face of harm to children and workers."

An EPA report earlier this year found that chlorpyrifos poses health risks to workers who mix and apply it and also can contaminate drinking water.

"We are concerned about some workers who mix, load and apply chlorpyrifos to agricultural and other non-residential sites," the EPA wrote about the report. "We are also concerned about workers who work around areas that are treated with chlorpyrifos, even if they are not using chlorpyrifos products as part of their jobs."

If EPA intends to deny the administrative petition, "the final denial shall be issued no later than September 15, 2015," according to the court order.

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For questions or feedback about this piece, contact Brian Bienkowski at bbienkowski@ehn.org (mailto:bbienkowski@ehn.org).



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9 June **Visiting a national park? Be prepared to learn about climate change.** (<http://www.environmentalhealthnews.org/t/1762574135413031456>) The National Park Service is not only trying to reduce its own carbon footprint, but yours as well. And visitors don't seem to mind. Daily Climate (<http://www.dailyclimate.org>).

6 June **Unintended consequences.** (<http://www.environmentalhealthnews.org/ehs/news/2015/jun/honeybees-bald-eagles-epa-protection-habitat-chemicals-pesticides>) The Bald Eagle Protection Act, signed into law 75 years ago on June 8, 1940, could offer a lesson to save today's honeybees. Environmental Health News (<http://www.environmentalhealthnews.org>).

6 June **America at war with its national symbol.** (<http://www.environmentalhealthnews.org/ehs/news/2015/jun/america-at-war-with-its-national-symbol>) In pre-statehood Alaska, salmon fishermen, hunters and fur ranchers saw the eagles as competition. And Alaska's political leadership won an exemption from the Bald Eagle Act. Environmental Health News (<http://www.environmentalhealthnews.org>).

3 June **BPA still a favorite among canned good brands.** (<http://www.environmentalhealthnews.org/ehs/news/2015/jun/bpa-still-a-favorite-among-canned-good-brands>) In a survey of more than 250 brands of canned food, researchers found that more than 44 percent use bisphenol-A lined cans for some or all of their products. Environmental Health News (<http://www.environmentalhealthnews.org>).

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a-marketing-myth) Politicians of all stripes like to tout the benefits of clean coal, a catch-all phrase for a host of technologies aimed at reducing the environmental impact of coal. But while the alliteration sounds nice in a campaign speech, "clean coal" is more myth than reality.

Environmental Health News (<http://www.environmentalhealthnews.org>).

30 May **For the birds: A Pete Myers photography exhibit shows off its plumage.** (<http://www.environmentalhealthnews.org/ehs/news/bird-photography-pete-myers>) We'll get to the health and climate links in a minute. First turn your attention to the black luster of a raven's back. The iridescence of an eastern bluebird's wings. The hidden, alluring patterns within a flock of flamingos. Environmental Health News (<http://www.environmentalhealthnews.org>).

29 May **Do our bodies safely break down BPA? Fat chance, study suggests.** (<http://www.environmentalhealthnews.org/ehs/news/2015/may/bpa-endocrine-disruptors-obesity-fat-chemicals-science-fda>) A new study suggests the long-held industry assumption that bisphenol-A breaks down safely in the human body is incorrect. Instead, researchers say, the body transforms the ubiquitous chemical additive into a compound that might spur obesity. Environmental Health News (<http://www.environmentalhealthnews.org>).

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South Portland flits closer to pesticide ban



Gabor Degre | BDN

A bumblebee is seen in Jonesboro in this June 2011 file photo. *Buy Photo*

By Alex Acquisto, *The Forecaster*

Posted June 11, 2015, at 2:33 p.m.

SOUTH PORTLAND, Maine — Protect South Portland has set its sights on a new goal: eliminate the use of pesticides. City Council chambers were filled to maximum capacity by members of the grassroots group and others Monday night, many of whom spoke during the public comment portion of the meeting.

After three presentations on the dangers of using and being exposed to pesticides, and the availability of viable, organic alternatives, each councilor and every resident who spoke agreed that the use of chemicals on public and private property needs to be curtailed.

“The perfect lawn is not our goal. Our goal is the perfect life. It’s about living well,” Councilor Maxine Beecher said.

Jay Feldman, executive director of [Beyond Pesticides](#), a national coalition against the use of pesticides, was among those who presented information to the council.

“A lot of the adverse effects we suffer from today are clearly linked to pesticide exposure, among other things,” Feldman said.

“This is a critical issue in today’s world.

“We believe you, as legislators, can adopt for this community incentives through law that will ensure that organic systems are put in place at the same time that you meet community expectations,” he said.

“The bottom line is, whether we all agree, the fact is that there are proven issues with some of these products, and we have viable alternatives now that will work,” Chip Osborne of [Osborne Organics](#) in Marblehead, Massachusetts, said.

Homeowners use “80 million pounds of toxic pesticides each year in pursuit of the perfect lawn,” he said.

Transitioning from inorganic fertilizers and weed killers isn’t just about changing one’s habit, Osborne said, it’s about changing the approach entirely.

“It’s a system-based approach versus a product-based approach. It’s conceptually different. [Using organic methods] is problem solving, not symptom treating,” he said. “We’re taking a feed-the-soil approach as opposed to feed the plant.”

Mary Cerullo, associate director of Friends of Casco Bay, said the effects aren’t just seen on land, but in the water.

“About 10 years ago, we started thinking, what’s the possible impact of pesticides and herbicides on Casco Bay?” Cerullo told the council.

From 2001 to 2009, Friends of Casco Bay sampled stormwater runoff for pesticides as it flowed into Casco Bay. Their findings showed 13 coastal runoffs in southern Maine with detectable levels of pesticide.

In the public comment portion of the workshop, Rick Towle, director of parks, recreation and waterfront for the city, said that while South Portland “complies with all federal, state and local guidelines, those may or may not be enough.”

The city does not have a formal, integrated pest management program in place, Towle said, “but that doesn’t mean that the city doesn’t use best practices or follow those guidelines.”

In many ways, the city has been aware of this threat for a while, and other, very expensive precautions have been taken along the way, Councilor Claude Morgan said.

“Because the eyes of the world may be upon us, there’s a certain kind of sexiness to this work, but I think it’s also very important to remember that South Portland has been leading the way in the drudgery work for two decades,” Morgan said.

“We have been consistently digging up our grounds and completing our combined system overflow system.”

This project, Morgan said, “is all about preventing flow from getting into our bay.”

Adopting an ordinance that would curb the use of pesticides in the city would be a “very simple” effort that the city can make, “which really costs us nothing and it’s just a continuation of the slog work that we’ve been doing for decades,” he said.

All councilors expressed a desire to see an ordinance tailored to South Portland’s needs proposed in a timely manner.

“If not now, when? What more do we need to move in the right direction?” Councilor Patti Smith said.

“I’m ready to move forward as quick as we can do it,” said Morgan, who requested that city staff draft an ordinance to be examined by the council at a July workshop.

Resident Meg Braley of Beech Street said it feels like “we’re riding a wave, and it’s a very exciting wave to be on. It’s a wave of the future. I love that we are considering this and educating ourselves.”

Protect South Portland formed in 2013 to promote a citizen-initiated referendum that would have banned the flow of tar sands from Canada to South Portland through a pipeline operated by Portland Pipe Line Corp.

Although that effort narrowly failed, the City Council eventually adopted a “Clear Skies Ordinance” backed by the group that prohibits the bulk loading of crude oil, including tar sands, onto ships in the city.

<http://bangordailynews.com/2015/06/11/news/portland/south-portland-flits-closer-to-pesticide-ban/> printed on June 12, 2015

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Article published Jun 16, 2015

Spraying on track toward controversy

By [Eric Blaisdell](#)

STAFF WRITER

MONTPELIER — After a one-year hiatus, the Vermont Rail System has a permit to spray herbicides next month on the track that runs through Montpelier, much to the dismay of residents and officials in the Capital City.

Last year, the Vermont Pesticide Advisory Council, a division of the Agency of Agriculture Food and Markets, declined to allow the railroad to spray herbicide on the track from Pioneer Street in Montpelier to the Interstate 89 overpass. According to the minutes from the meeting in May 2014, several Montpelier residents expressed concerns over herbicides being used on the track and the possible health impacts. The residents wanted the railroad to use alternatives to herbicide in its effort to keep the track clear and safe for travel.

When the idea of a one-year hiatus was brought up, spokesmen for the railroad said it was possible, as the 2.5-mile section of track was sprayed in 2013, reducing the possibility of track degradation. The council then approved the hiatus, with the understanding that the railroad would work with the state and the public over the year to find alternatives.

John Snell, chairman of the city's Tree Board, volunteered to act as the public liaison for the conversations about alternatives. He said Monday those conversations never happened because the railroad never got in touch with him.

The railroad did not return a request for comment Monday.

At its meeting in April, the pesticide council again discussed spraying on the track in Montpelier. According to the draft minutes, railroad spokesman Ben Delorme told the council that a "cooperative effort" could not be achieved. When pressed by the council why the effort failed, Delorme said a suggested volunteer effort to remove weeds was not viable because of safety concerns for the volunteers working on the track. He said the railroad would also have to fund the effort for equipment and materials.

The council then approved the railroad's permit, which included spraying in Montpelier, and the permit was issued in May stating the spraying would occur in July.

Snell said he doesn't want the track to be unsafe. "But there have got to be viable alternatives to what they have been doing," he said.

Snell said if the herbicide is used, those people who live or walk in the area will have their safety in jeopardy.

Barbara Burnett lives on Barre Street about a block from the track. Burnett said Monday she is medically sensitive to chemicals and would have to live somewhere else during spraying.

She called it appalling and outrageous that the railroad could ignore the council's instructions about working with the public for alternatives.

"(The railroad) can just not do what they were told to do and then do whatever they want," she said.

Burnett said there are several vegetable gardens along the track in the city that would be hit with the herbicide. She said those who walk the bike path in the city also could be exposed to the chemicals.

Mayor John Hollar said Monday he had been in contact with Agency of Agriculture Food and Markets Secretary Chuck Ross about the issue. Hollar said the railroad is private property owned by the railroad and regulated by the state.

He said he doesn't know enough about any possible alternatives to make a suggestion for one; and he doesn't know the extent of the health risks for the herbicide. As he understands it, the herbicide to be used — Glyphosate — and the quantities used are safe.

Hollar said he would be working with the state and the railroad to look into alternatives and to see whether there is anything the city can and should do about the issue.

Secretary Ross said Monday the railroad is bound by the federal government to make sure the rails are clear. He said herbicide spraying is nothing new and is done in many places. Even so, he's hopeful the different parties can sit down for a meeting soon in an effort to find an alternative to the herbicide.

@Tagline:eric.blaisdell

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DDT Exposure in Utero and Breast Cancer

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Context: Currently no direct evidence links in utero dichlorodiphenyltrichloroethane (DDT) exposure to human breast cancer. However, in utero exposure to another xenoestrogen, diethylstilbestrol, predicts an increased breast cancer risk. If this finding extends to DDT, it could have far-reaching consequences. Many women were heavily exposed in utero during widespread DDT use in the 1960s. They are now reaching the age of heightened breast cancer risk. DDT exposure persists and use continues in Africa and Asia without clear knowledge of the consequences for the next generation.

Hypothesis: In utero exposure to DDT is associated with an increased risk of breast cancer.

Design: This was a case-control study nested in a prospective 54-year follow-up of 9300 daughters in the Child Health and Development Studies pregnancy cohort ($n = 118$ breast cancer cases, diagnosed by age 52 y and 354 controls matched on birth year).

Setting and Participants: Kaiser Foundation Health Plan members who received obstetric care in Alameda County, California, from 1959 to 1967, and their adult daughters participated in the study.

Main Outcome Measure: Daughters' breast cancer diagnosed by age 52 years as of 2012 was measured.

Results: Maternal *o,p'*-DDT predicted daughters' breast cancer (odds ratio fourth quartile vs first = 3.7, 95% confidence interval 1.5–9.0). Mothers' lipids, weight, race, age, and breast cancer history did not explain the findings.

Conclusions: This prospective human study links measured DDT exposure in utero to risk of breast cancer. Experimental studies are essential to confirm results and discover causal mechanisms. Findings support classification of DDT as an endocrine disruptor, a predictor of breast cancer, and a marker of high risk.

Dieethylstilbestrol (DES) is a synthetic estrogen, which was prescribed to pregnant women until it was banned in the United States in 1971 and is a seminal example of a transplacental carcinogen (1). The discovery that DES exposure in utero causes clear-cell carcinoma of the vagina and cervix (2) and also predicts higher risk for breast cancer (3) raises the possibility that other man-

made chemicals, particularly those that disrupt normal estrogen-related functions, could cause breast cancer in later life. Although DES (4) and other exogenous estrogenic chemicals (5, 6) have been shown to cause mammary cancer experimentally, no other in utero chemical exposures have been quantified and related prospectively to

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Abbreviations: CCR, California Cancer Registry; CERLab, Clinical and Epidemiologic Research Laboratory; CHDS, Child Health and Development Studies; CI, confidence interval; DDE, dichlorodiphenyldichloroethylene; DDT, dichlorodiphenyltrichloroethane; DDTs, DDT compounds such as the isomers *p,p'*-DDT and *o,p'*-DDT; DES, diethylstilbestrol; DMV, Department of Motor Vehicles; OR, odds ratio.

risk of breast cancer in a human population. The present study addresses this gap.

The influence of these in utero exposures in cancer risk informed an Endocrine Society scientific statement emphasizing that the timing of an exposure either to a hormone or an endocrine disruptor determines its effects (7). For this reason, human studies of adult exposure to estrogenic chemicals in relation to breast cancer risk are not sufficient (8, 9). Indeed, prior studies that investigated the association between midlife exposure to the pesticide dichlorodiphenyltrichloroethane (DDT) and breast cancer were largely negative (10).

We reported the one prior prospective and quantitative study to consider the implications of young age at DDT exposure on breast cancer risk. This study was based on incident breast cancer diagnosed before age 50 years in the mothers' generation of the Child Health and Development Studies (CHDS) pregnancy cohort over a 17-year follow-up (11). We used age in 1945, when DDT was widely introduced into the United States as a proxy for earliest age at DDT exposure to evaluate whether there was an increased susceptibility to breast cancer among women with early life exposure to DDT. We found that mothers who were exposed to DDT prior to age 14 years showed a 5-fold increase in risk of breast cancer (66th percentile of serum p,p'-DDT compared with the 33rd percentile); risk was greatest for women who were exposed even earlier, by age 4 years, and the DDT association with breast cancer was observed only for women who were exposed prior to age 14 years ($P = .02$ for interaction between p,p'-DDT and age in 1945). These findings clearly support the need to further investigate the role of early-life DDT exposure in later breast cancer risk. Other than this study, there is an absence of human breast cancer studies of in utero exposure to the DDTs (DDT compounds such as the isomers p,p'-DDT and o,p'-DDT that are found in technical DDT and also compounds that are breakdown products of DDT such as p,p'-dichlorodiphenyldichloroethylene (DDE), the most prevalent and persistent metabolite of p,p'-DDT) (12) due in part to the logistic barriers of quantitative assessment of gestational exposure coupled with follow-up of at least 50 years needed to identify breast cancer cases (13), given that the median age at diagnosis is 61 years (14).

DDT remains relevant to living populations for numerous reasons. First, most women born while DDT was extensively used worldwide are still alive today and are hence at risk for breast cancer. Second, DDT remains in active use for control of malaria in Africa and Asia in accordance with World Health Organization recommendations despite intense debate (15, 16). Third, because of its persistent presence in the environment, people worldwide con-

tinue to be exposed to DDTs that are already present (17). Environmental contamination and human exposure are greater where use was recent and where safer use, storage, and disposal are challenging (18), such as in China (19) and areas in Mexico (20, 21) and Africa (22, 23). Indeed, DDT health effects will remain relevant for the foreseeable future, given that the distribution of malaria vectors is predicted to expand with climate change (24). Melting glaciers release DDTs into arctic waters in which it is known to bioaccumulate to 1 million-fold higher concentrations in people, reaching levels found among populations with endemic malaria in tropical regions in which DDT use remains in effect (25, 26).

Here we conducted the first prospective study to relate quantitative measures of in utero DDT exposure to risk of breast cancer in daughters.

Materials and Methods

Subjects

This unique study is made possible by a 54-year follow-up of 20 754 pregnancies, resulting in 9300 live-born female offspring in the CHDS pregnancy cohort.

The CHDS was designed to examine the association between prenatal exposures and health and development over the life course for parents and children. The CHDS recruited women residing in the area of Oakland, California, who were members of the Kaiser Foundation Health Plan and received obstetric care for pregnancies between 1959 and 1967 (27). More than 98% of all eligible women enrolled. CHDS founding mothers voluntarily participated in an in-person interview and gave permission to researchers for medical record access for themselves and their children. Their blood specimens were collected at several times through pregnancy and 1–3 days after delivery. The present study was reviewed and approved by the Institutional Review Board of the Public Health Institute (Oakland, California), and we have complied with all federal guidelines governing use of human subjects.

Breast cancer cases

All members of the CHDS cohort are linked to the California Department of Motor Vehicles (DMV) files on a regular basis to determine California residence history, allowing us to update any name changes. All names registered with the DMV are used in establishing a match. Simultaneous linkage of multiple family members enhances matching. The regular DMV matching provides a history of location for each subject, which is used to determine the population at risk for cancer, corresponding with geographic surveillance by California's cancer registries.

Breast cancer cases were identified by linkage to the California Cancer Registry and the California Vital Status Records as previously described (11, 28) and by self-report during a survey of CHDS daughters conducted from 2010 to 2013. All names for each CHDS subject were submitted for cancer linkages using fixed (ie, birth date, sex, race, and name) and changeable (ie, address and patient record number) identifiers. A rigorous protocol was used to verify cases, comparing fixed vs changeable

identifiers by manual review. The California Cancer Registry (CCR) is reported to be greater than 99% complete after a lag time of about 2 years (29). We ascertained 80% ($n = 94$) of the cases via CCR linkage as of 2012 and 20% ($n = 24$) via self-report as of 2013. Due to the CCR lag time, the self-reported cases are more recently diagnosed than those from CCR. Tumor characteristics were available for 87% of CCR cases and for 50% of self-reported cases. Thus, we expect to have more complete information on tumor pathology with continuing CCR linkage.

Cases were defined as CHDS daughters with incident invasive or noninvasive breast cancer diagnosed by age 52 years, identified through surveillance and through self-report through March of 2013. There were 137 cases who met this case definition, diagnosed as of 2012. To be included in the present study, cases were required to have a maternal perinatal blood sample for measurement of DDT exposure, resulting in inclusion of 118 cases (86%). Three controls, matched on birth year and trimester of maternal blood draw, were selected at random for each case from among those who were under cancer surveillance and known to be free of breast cancer at the age of diagnosis for the matching case. Inclusion in the present study also required available data for the following variables known to be correlated with DDT exposure and potentially daughters' breast cancer: maternal lipids, age, race, early pregnancy weight, height, and history of breast cancer and whether the daughter was breast-fed, resulting in a final sample size of 103 cases (87% of those with serum samples) and 315 controls (83% of those with serum samples).

Serum assays

In 2014, we measured DDTs and serum lipids in nonfasting maternal perinatal serum samples that had been collected from 1959 through 1967. The mean age of subjects when blood was drawn was 26.9 years. We preferred to use the early postpartum samples (collected within 1–3 d after delivery) when available to conserve serum for future studies when timing within pregnancy is more critical. Early postpartum samples were available and used for most case-control strata (77.7%); third-trimester samples were used for 17.7%; second-trimester samples were used for 3.8%; and first-trimester samples were used for 0.7%. Prior work has established that organochlorine levels are consistent across all trimesters of pregnancy and soon after delivery within women (30). Serum samples had been stored at -20°C and were first thawed to prepare an aliquot of 1.5 mL for organochlorine assays. Aliquots were then shipped frozen to the laboratory of the California Department of Toxic Substances Control where they were assayed for DDTs, including *p,p'*-DDT and *o,p'*-DDT, the primary constituents of technical DDT, and the primary metabolite of *p,p'*-DDT, DDE using methods developed previously (31).

Briefly, human serum samples (1 mL) spiked with surrogate standards (tetrachloro-*m*-xylene, polychlorinated biphenyls-14, -65, and -166) were denatured with formic acid, extracted using Oasis HLB SPE cartridges (Waters Corp) and subsequently cleaned up with 33% sulfuric acid silica using an automated sample extraction system (RapidTrace; Biotage). DDT compounds (*o,p'*-DDT, *p,p'*-DDT, and *p,p'*-DDE) were analyzed on a DB-5ms column (30 m \times 0.25 mm inner diameter, 0.25 μm film thickness; Agilent Technologies) installed in an Agilent gas chromatograph-tandem mass spectrometer (7890/7000B series). Chromatographic conditions included pulsed splitless in-

jection at 250°C and helium carrier gas at 1 mL/min. The gas chromatograph temperature program started with an initial temperature of 90°C , a hold for 1 minute, a ramp of $50^{\circ}\text{C}/\text{min}$ to 150°C , a hold for 1 minute, a ramp of $8^{\circ}\text{C}/\text{min}$ to 225°C , a hold for 6.5 minutes, and a final ramp of $14^{\circ}\text{C}/\text{min}$ to 310°C , a hold for 6 minutes. The mass spectrometer was operated in electron impact ionization mode using multiple reaction monitoring, source temperature of 275°C , ionization energy of 70 eV, and mass resolution of 1.2 amu. A calibration curve, consisting of five to eight standards with concentrations ranging from 0.1 to 30 $\text{pg}/\mu\text{L}$ (DDTs) or from 0.1 to 800 $\text{pg}/\mu\text{L}$ (DDE) and an R^2 value of 0.990 or greater, was used for quantitation.

Each batch of 10 samples was analyzed using a standard quality assessment and control protocol: a laboratory method blank (HyClone bovine serum; Fisher Scientific), a matrix spike in bovine serum, and a standard reference material (1958; National Institute of Standards and Technology). Matrix spike recoveries from bovine serum for *p,p'*-DDE, *p,p'*-DDT, and *o,p'*-DDT congeners ranged from $93\% \pm 14\%$, $102\% \pm 19\%$, and $101\% \pm 12\%$, respectively. Precisions from 51 standard reference material samples were reasonable, eg, coefficients of variation were 12%, 19%, and 14% for *p,p'*-DDE, *p,p'*-DDT, and *o,p'*-DDT, respectively. The method detection limits, calculated as 3 times the SD of the concentrations in method blanks ($n = 51$), were 0.013 ng/mL *o,p'*-DDT, 0.054 ng/mL *p,p'*-DDT and 0.158 ng/mL *p,p'*-DDE. Sample order was randomly assigned within and across batches. Case-control strata were analyzed in the same batches to minimize differences due to laboratory drift. The laboratory was blind as to case or control status of the samples. Interbatch and intrabatch coefficients of variation were 15% and 5% for *p,p'*-DDT, 6% and 5% for *p,p'*-DDE, and 11% and 7% for *o,p'*-DDT, respectively. The proficiency of the laboratory is demonstrated through regular successful participation in the Arctic Monitoring and Assessment Program (32) testing rounds ($z\text{-score} < 1$).

Using 150 μL undiluted serum, total cholesterol and triglycerides were measured enzymatically on a Roche P Modular system using reagents and calibrators from Roche Diagnostics at the Clinical and Epidemiologic Research Laboratory (CERLab) at Boston Children's Hospital, which is certified by the Centers for Disease Control and Prevention/National Heart, Lung, and Blood Institute Lipid Standardization Program. For cholesterol the method combines the specificity of the enzymatic reaction with peroxidase/phenol-4-aminophenazone indicator reaction (33). Cholesterol esters are hydrolyzed by cholesterol esterase to produce free cholesterol. In the presence of oxygen and cholesterol oxidase, cholesterol is oxidized to cholest-4-en-3-one and H_2O_2 . The latter product then reacts with a dye to generate a quinoneimine dye. The intensity of the generated color is measured at 505 nm and is directly proportional to the concentration of cholesterol in the measured sample. At cholesterol concentrations of 132.8 and 280.4 mg/dL, the day-to-day reproducibility in the CERLab, reflected by coefficient of variation, is 1.7% (SD = 2.4 mg/dL) and 1.6%, respectively ($n = 693$).

Triglycerides were measured enzymatically with correction for endogenous glycerol (34). In a preliminary reaction, the endogenous glycerol is phosphorylated in the presence of glycerol kinase and ATP. The formed glycerol-3-phosphate is oxidized to generate H_2O_2 , which reacts with 4-chlorophenol to produce an oxidative product. Then in the actual assay reaction, triglycerides are hydrolyzed by lipase mixture to generate glycerol and fatty acids. Similarly to the preliminary reaction, glycerol is phos-

phorylated by the action of glycerol kinase and the generated glycerol-3-phosphate is oxidized to produce H_2O_2 . The latter product reacts with a dye to generate a colored product. The intensity of the generated color is measured at 505 nm and is directly proportional to the concentration of triglycerides in the measured sample. Triglycerides at concentrations of 84.0 and 201.8 mg/dL are determined in the CERLab with a day-to-day reproducibility of 1.8% (SD 1.6 mg/dL) and 1.7% (SD 3.5 mg/dL), respectively (n = 675).

Statistical analysis

Data analyses were performed using age-matched, conditional logistic regression. Each DDT variable (o,p'-DDT, p,p'-DDT, and p,p'-DDE) was categorized in quartiles of the logged distribution based on the control population and represented as three nominal variables in models: quartile 2, quartile 3, and quartile 4 in which quartile 1 was the reference category.

We used a likelihood ratio criterion ($P < .05$) to choose the best model from among the following nested models: 1) all three DDT compounds were entered into the model, 2) terms for one of the three compounds was deleted beginning with the compound showing the highest P values and smallest effect sizes, and 3) models with only one DDT compound included. Trends across quartiles of DDT compounds in the best model were tested using natural log-transformed continuous variables. All models were adjusted for serum total cholesterol and total triglycerides entered as natural logs, maternal age (continuous), race (African American vs non-African American), overweight in early pregnancy (coded as overweight vs not, based on a body mass index ≥ 25 kg/m²), parity (primiparous vs multiparous), maternal history of breast cancer (yes vs no), and whether the daughter was breast-fed. The final model deleted adjustment variables that had little or no influence on the DDT predictors as evidenced by less than 10% change in the DDT coefficient(s) when removed from the model. Saturated interaction models were also tested for the three DDT variables (coded as continuous log transformed variables) and for the DDT variables in the final model with each

potential confounder. These were not significant and are not reported.

Results

Distributions of study variables are shown in Table 1. There were significant correlations among the DDT variables. However, the correlation of o,p'-DDT with p,p'-DDT was higher (Spearman rank correlation coefficient 0.78) than the correlation of either of these compounds with p,p'-DDE (0.60 and 0.66, respectively). Comparison of DDT associations in nested models are shown in Table 2, in which the best model included o,p'-DDT and p,p'-DDE (model 4, Table 2). Independent of a maternal history of breast cancer, elevated maternal serum o,p'-DDT significantly predicted a nearly 4-fold increase in the daughter's risk of breast cancer (Table 3). Maternal overweight in early pregnancy was associated with a lower risk of breast cancer in daughters but with marginal statistical significance. Maternal lipids, age, race, and parity and whether the daughter was breast-fed did not confound these findings and were not significant predictors of daughters' breast cancer. No interactions were statistically significant.

Most cases in this cohort were estrogen receptor positive (83%), progesterone receptor positive (76%), and HER2-negative (74%). In human breast cell lines, DDT activates HER2, a clinically relevant protein expressed in some breast cancers (35, 36). Therefore, we evaluated whether in utero DDT exposure was associated with HER2-positive breast cancers in this cohort of women

Table 1. Maternal Variables by Daughters' Breast Cancer Status

Maternal Variables	Controls (n = 315)			Cases (n = 103)		
	Percentile			Percentile		
	25th	50th	75th	25th	50th	75th
Age, y	22	26	30	23	27	31
o,p'-DDT, ng/mL	0.27	0.46	0.78	0.32	0.52	1.06
p,p'-DDT, ng/mL	8.38	12.98	18.57	9.47	13.18	20.11
p,p'-DDE, ng/mL	29.29	42.81	57.56	30.91	43.13	58.08
Cholesterol, mg/dL	182	222	278	188	227	283
Triglycerides, mg/dL	139	183	227	136	182	227
	Percent			Percent		
History of breast cancer ^a	4.44		14	20.39		21
Primipara	29.84		94	26.21		27
African-American	25.08		79	23.30		24
Overweight (BMI \geq 25 kg/m ²)	25.08		79	17.48		18
Breast-fed her daughter	26.03		82	31.07		32

Abbreviation: BMI, body mass index.

^a $P < .0001$ for difference between controls and cases.

Table 2. DDT Results for Nested Models

	$\text{o,p}'\text{-DDT}$	$\text{p,p}'\text{-DDT}$	$\text{p,p}'\text{-DDE}$
	OR	OR	OR
Univariate models			
Model 1, $\text{o,p}'\text{-DDT}$			
Quartile 2	1.8	—	—
Quartile 3	1.6	—	—
Quartile 4	2.8 ^a	—	—
<i>P</i> trend	0.053	—	—
Model 2, $\text{p,p}'\text{-DDT}$			
Quartile 2	—	1.9	—
Quartile 3	—	1.5	—
Quartile 4	—	2.2 ^b	—
<i>P</i> trend	—	0.074	—
Model 3, $\text{p,p}'\text{-DDE}$			
Quartile 2	—	—	1.3
Quartile 3	—	—	1.1
Quartile 4	—	—	1.3
<i>P</i> trend	—	—	NS
Model 4, $\text{o,p}'\text{-DDT}$ plus $\text{p,p}'\text{-DDE}$			
Quartile 2	2.0	—	1.0
Quartile 3	1.8	—	0.7
Quartile 4	3.7 ^c	—	0.7
<i>P</i> trend	0.048	—	NS
Model 5, $\text{p,p}'\text{-DDT}$ plus $\text{p,p}'\text{-DDE}$			
Quartile 2	—	2.0	1.1
Quartile 3	—	1.7	0.8
Quartile 4	—	2.9 ^d	0.8
<i>P</i> trend	—	0.037	NS
Model 6, $\text{o,p}'\text{-DDT}$ plus $\text{p,p}'\text{-DDT}$ plus $\text{p,p}'\text{-DDE}$			
Quartile 2	1.9	1.7	1.0
Quartile 3	1.7	1.2	0.7
Quartile 4	3.5 ^e	1.4	0.6
<i>P</i> trend	NS	NS	NS

Abbreviation: NS, not significant. All models are adjusted for maternal cholesterol and triglycerides, maternal overweight in early pregnancy, and maternal history of breast cancer. *P* trend is based on continuous log-transformed DDTs. Model 4 is the best model because deletion of $\text{p,p}'\text{-DDT}$ (model 4 vs model 5) does not impact other associations, but deletion of $\text{p,p}'\text{-DDE}$ (model 1 vs model 4) decreases the point estimate for $\text{o,p}'\text{-DDT}$. Although $\text{p,p}'\text{-DDE}$ is not itself significant, it is inversely associated with daughters' breast cancer while being positively correlated with $\text{o,p}'\text{-DDT}$. NS, $P > .15$.

^a $P = .007$.

^b $P = .058$.

^c $P = .004$.

^d $P = .054$.

^e $P = .019$.

with available stage at diagnosis (73%) and available HER2 status (59%).

We found that $\text{o,p}'\text{-DDT}$ was significantly, positively associated with advanced stage at diagnosis (regional or distant disease vs local or in situ) and with the occurrence of HER2-positive tumors, independent of maternal overweight, history of breast cancer, and $\text{p,p}'\text{-DDE}$. Despite small sample sizes for these analyses, 22 advanced-stage tumors and 16 HER2-positive tumors, respectively, results were statistically significant. The estimated odds ratio (OR) for diagnosis at an advanced stage was 2.2 [95%

Table 3. Maternal Predictors of Daughters' Breast Cancer

	OR	95% CI	<i>P</i> Value
History of breast cancer (yes vs no)	6.4	2.8–14.3	<.0001
Overweight in early pregnancy (yes vs no)	0.6	0.3–1.1	.077
$\text{o,p}'\text{-DDT}$ (reference category is quartile 1)			
Quartile 2	2.0	0.9–4.3	.083
Quartile 3	1.8	0.8–4.0	.160
Quartile 4	3.7	1.5–9.0	.004
<i>P</i> trend	0.048		

Quartile cut points are given in Table 1. This table is based on a single model adjusted for variables shown and also adjusted for the maternal serum $\text{p,p}'\text{-DDE}$, total cholesterol, and total triglycerides, which were not significant predictors. Test for trend was based on log-transformed $\text{o,p}'\text{-DDT}$ entered as a continuous variable instead of quartile variables.

confidence interval (CI) 1.1–4.2, $P = .02$] for a doubling of $\text{o,p}'\text{-DDT}$. The estimated OR for a HER2-positive tumor was 2.1 (95% CI 1.0–4.8, $P = .05$) for a doubling of $\text{o,p}'\text{-DDT}$. Levels of $\text{o,p}'\text{-DDT}$ not only doubled but also tripled for women in the fourth quartile of the study compared with those in the first quartile (as seen in Table 1). The corresponding risk of advanced-stage and HER2-positive breast cancer for these women is more than 4-fold (for late stage, OR 4.6; 95% CI 1.3–16.5 for the fourth quartile of $\text{o,p}'\text{-DDT}$ vs the first quartile; for HER2 positive, OR 4.6, 95% CI 1.1–19.7). These results suggest a strong effect of in utero $\text{o,p}'\text{-DDT}$ on breast cancer stage, and HER2 status in this population, and the relevance of these findings is discussed below.

Discussion

Strengths

Exposure timing

Human and animal evidence establish the existence of developmental windows when the breast is more vulnerable to xenoestrogens, such as DDT (9). One of these windows is in utero. The present study is the first to quantify exposure to DDT in utero and link it to subsequent breast cancer risk.

Quantifying exposure

DDT was introduced in the general population in the United States in 1945 and was most heavily used worldwide in the late 1950's and 1960's (37). The CHDS enrolled pregnancies during 1959–1967, which, by coincidence, covered the years of highest DDT exposure (26,

38). Consistent with these data, the CHDS maternal serum samples, which were collected during the peak years of DDT use in the United States, show the highest levels of DDT compared with other studies of breast cancer in which samples were collected in later decades (11, 13). Thus, the present study uses unique historic samples to quantify typical in utero exposure when DDT use was at its peak. Our laboratory methods were able to quantify three DDT target compounds in all samples, including the lower concentration o,p'-DDT, a 15%–20% contaminant of technical DDT. This strength is due to state-of-the-art laboratory methods, which optimized the detection of all compounds, but is also due to collection of serum samples in the 1960's during a time period when there was high use of technical DDT.

Relevance to countries in which DDT is now banned

DDT was banned in the 1970's in the United States and western Europe (39). However, the women exposed most heavily while in utero during the 1960's are currently reaching the age of heightened breast cancer risk. Recent cases of breast cancer in daughters (F1) in the CHDS cohort represent the leading edge of birth cohorts heavily exposed to DDT when in utero. Thus, the findings of this present study are relevant to breast cancer, even in countries in which DDT is not currently used. In addition, DDT remains a global environmental contaminant due to its environmental persistence and semivolatility (25).

Relevance to countries in which DDT is still used

In those countries that continue to use DDT to control malaria, human exposure remains high (40). Thus, the findings of this study are relevant to current populations in which high in utero exposure is certainly occurring, such as in South Africa (23). The impact of DDT use on unborn generations has been recently raised as an ethical consideration (41). Our findings are relevant to this debate.

Plausibility

DDTs have been studied as possible endocrine disruptors on the basis of observed deleterious reproductive effects in wildlife (39, 42) and based on demonstrated endocrine-active effects including estrogen activity, particularly for o,p'-DDT (43, 44). Remarkably, independent of estrogen, there is likely a biological basis for the putative association of in utero DDT and HER2-positive cancers (36, 45, 46). For example, low-dose o,p'-DDT (1 nM) enhanced the tyrosine kinase activity of HER2 in human MCF-7 breast cancer cells irrespective of tamoxifen exposure or estrogen depletion of culture media (36, 46). o,p'-DDT also gave rise to increased MCF-7 foci (ab-

normal concentric piling up of cells in postconfluent cultures) (46). The effects of o,p'-DDT on tyrosine kinase activity of HER2 and MCF7 foci formation were blocked by a mononuclear antibody specific to HER2. These experimental results are consistent with the hypothesis this paper supports that o,p'-DDT can cause human mammary tumor formation that depends on the activation of HER2 (36, 46). Although this hypothesized effect of in utero DDT exposure on mammary cancer has not yet been tested experimentally in vivo, when exposure to its metabolite p,p'-DDE was initiated at weaning, the latency of HER2-positive mouse mammary tumors was shortened (47). Our nested pilot analysis also suggested that high exposure was significantly associated with advanced stage. Although no in vivo studies have evaluated this, a recent study of human breast cancer cell lines suggested o,p'-DDT caused estrogen-dependent invasion (48). Prioritizing the acquisition of tumor blocks and their immunohistochemical analysis of estrogen receptor and HER2 in the ongoing CHDS and in parallel experimental models will likely aid in resolving which receptor is the mechanistic target of in utero DDT on mammary carcinogenesis.

DES is the most well-studied perinatal xenoestrogen exposure in humans and is known to be associated with increased risk of breast cancer in both F0 (exposed in pregnancy) (49) and F1 (exposed in utero) (3). Similar to DES, we found that maternal serum p,p'-DDT was associated with an increased risk of breast cancer in CHDS mothers (F0) (11). We used birth year as a proxy for earliest age at DDT exposure and found the strongest association was observed in mothers who were initially exposed to DDT before the age of 4 years (11). The present study provides a direct, quantitative measure of exposure in utero for daughters (F1) in the CHDS and also finds an association between in utero DDT exposure and breast cancer.

Limitations

Outcome window

The present study investigates breast cancer diagnosed before age 52 years. Thus, these results do not address DDT associations with breast cancer diagnosed at a later age. One prior study of dioxin exposure to girls and women after a chemical explosion in Seveso, Italy, reported a significant association for breast cancers diagnosed within the first 20 years, which then declined over the subsequent 10 years of follow-up (50). Continuing follow-up in our cohort will be required to determine whether in utero DDT associations with breast cancer are observed for cases diagnosed in the future.

Exposure window

Whereas we have measured exposure directly relevant to fetal life, we cannot rule out a contribution of postnatal exposure. We did not observe a contribution or synergy with breast-feeding, even though this is a major maternal route of DDT exposure to offspring. However, this negative association may be partly explained by the low frequency of breast-feeding in the CHDS and the relatively small sample size.

Unmeasured confounders

We cannot rule out a contribution of other exposures that are correlated to DDT, including other unmeasured DDT metabolites. However, we were able to account for the DDTs that are present in the highest concentration in women.

Small sample

This study investigates the first cases observed in CHDS daughters. Although the sample size was adequate to observe a sizable association with in utero DDT, we are unlikely to have had the power to observe smaller associations with other risk factors or synergy among variables. To date, incomplete data on tumor pathology limits the interpretation of the correlation between DDT and tumors with more aggressive features.

Summary

We observed a sizable, statistically significant association between in utero DDT exposure and risk of breast cancer in young women and a possible association with more aggressive tumors. These findings are the first ever reported for a prospective observation of a large pregnancy cohort. Experimental studies are essential to confirm findings and discover causal mechanisms. If confirmed, these findings could lead to discovery of biomarkers and interventions for DDT-associated breast cancer. Our findings are relevant to the international debate on the costs and benefits of DDT use for malaria control.

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The point of view and conclusions expressed in this paper are those of the authors and do not necessarily represent the official position or policies of the funding agencies.

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References

- Giusti RM, Iwamoto K, Hatch EE. Diethylstilbestrol revisited: a review of the long-term health effects. *Ann Intern Med.* 1995;122:778–788.
- Herbst AL, Ulfelder H, Poskanzer DC. Adenocarcinoma of the vagina: association of maternal stilbestrol therapy with tumor appearance in young women. 1971;284:878–881.
- Palmer JR, Wise LA, Hatch EE, et al. Prenatal diethylstilbestrol exposure and risk of breast cancer. *Cancer Epidemiol Biomarkers Prev.* 2006;15:1509–1514.
- Hilakivi-Clarke L. Maternal exposure to diethylstilbestrol during pregnancy and increased breast cancer risk in daughters. *Breast Cancer Res.* 2014;16:208.
- Acevedo N, Davis B, Schaeberle CM, Sonnenschein C, Soto AM. Perinatally administered bisphenol a as a potential mammary gland carcinogen in rats. *Environ Health Perspect.* 2013;121:1040–1046.
- La Merrill M, Harper R, Birnbaum LS, Cardiff RD, Threadgill DW. Maternal dioxin exposure combined with a diet high in fat increases mammary cancer incidence in mice. *Environ Health Perspect.* 2010;118:596–601.
- Diamanti-Kandarakis E, Bourguignon J-P, Giudice LC, et al. Endocrine-disrupting chemicals: an Endocrine Society scientific statement. *Endocr Rev.* 2009;30:293–342.
- Birnbaum LS, Fenton SE. Cancer and developmental exposure to endocrine disruptors. *Environ Health Perspect.* 2003;111:389–394.
- Rudel RA, Fenton SE, Ackerman JM, Euling SY, Makris SL. Environmental exposures and mammary gland development: state of the science, public health implications, and research recommendations. *Environ Health Perspect.* 2011;119:1053–1061.
- Ingber SZ, Buser MC, Pohl HR, Abadin HG, Murray HE, Scini-

- cariello F. DDT/DDE and breast cancer: a meta-analysis. *Regul Toxicol Pharmacol*. 2013;67:421–433.
11. Cohn BA, Wolff MS, Cirillo PM, Sholtz RI. DDT and breast cancer in young women: new data on the significance of age at exposure. *Environ Health Perspect*. 2007;115:1406–1414.
 12. **Interagency Breast Cancer and Environmental Research Coordinating Committee**. Breast cancer and the environment: prioritizing prevention. Interagency Breast Cancer and Environmental Research Coordinating Committee; February 2013.
 13. Cohn BA. Developmental and environmental origins of breast cancer: DDT as a case study. *Reproductive Toxicology*. 2011;31:302–311.
 14. **National Cancer Institute**. SEER cancer statistics factsheets: breast cancer. <http://seer.cancer.gov/statfacts/html/breast.html>. Accessed May 12, 2015.
 15. Eskenazi B, Chevrier J, Rosas LG, et al. The Pine River statement: human health consequences of DDT use. *Environ Health Perspect*. 2009;117:1359–1367.
 16. Herrera-Portugal C, Ochoa H, Franco-Sanchez G, Yanez L, Diaz-Barriga F. Environmental pathways of exposure to DDT for children living in a malarious area of Chiapas, Mexico. *Environ Res*. 2005;99:158–163.
 17. **United Nations Environment Programme**. Results of the global survey on concentrations in human milk of persistent organic pollutants by the United Nations Environment Programme and the World Health Organization. Paper presented at: Stockholm Convention on Persistent Organic Pollutants, 6th Annual Meeting; March 2013; Geneva, Switzerland.
 18. van den Berg H. Global status of DDT and its alternatives for use in vector control to prevent disease. *Environ Health Perspect*. 2009;117:1656–1663.
 19. Li H, Zeng EY, You J. Mitigating pesticide pollution in China requires law enforcement, farmer training, and technological innovation. *Environ Toxicol Chem*. 2014;33:963–971.
 20. Koepke R, Warner M, Petreas M, et al. Serum DDT and DDE levels in pregnant women of Chiapas, Mexico. *Arch Environ Health*. 2004;59:559–565.
 21. Ruiz-Suárez LE, Castro-Chan RA, Rivero-Pérez NE, et al. Levels of organochlorine pesticides in blood plasma from residents of malaria-endemic communities in Chiapas, Mexico. *Int J Environ Res Public Health*. 2014;11:10444–10460.
 22. Bouwman H, Kylin H, Sereda B, Bornman R. High levels of DDT in breast milk: intake, risk, lactation duration, and involvement of gender. *Environ Pollution*. 2012;170:63–70.
 23. Whitworth KW, Bornman RMS, Archer JI, et al. Predictors of plasma DDT and DDE concentrations among women exposed to indoor residual spraying for malaria control in the South African Study of Women and Babies (SOWB). *Environ Health Perspect*. 2014;122:545–552.
 24. Rogers DJ, Randolph SE. The global spread of malaria in a future, warmer world. *Science*. 2000;289:1763–1766.
 25. Macdonald RW, Harner T, Fyfe J. Recent climate change in the Arctic and its impact on contaminant pathways and interpretation of temporal trend data. *Sci Total Environ*. 2005;342:5–86.
 26. Ritter R, Scheringer M, MacLeod M, Hungerbühler K. Assessment of nonoccupational exposure to DDT in the tropics and the north: relevance of uptake via inhalation from indoor residual spraying. *Environ Health Perspect*. 2011;119:707–712.
 27. van den Berg BJ, Christianson RE, Oechsli FW. The California Child Health and Development Studies of the School of Public Health, University of California at Berkeley. *Paediatr Perinat Epidemiol*. 1988;2:265–282.
 28. Cohn BA, Cirillo PM, Christianson RE, van den Berg BJ, Siiteri PK. Placental characteristics and reduced risk of maternal breast cancer. *J Natl Cancer Inst*. 2001;93:1133–1140.
 29. Kwong SL, Perkins CI, Morris CR, Cohen R, Allen M, Wright WE. *Cancer in California: 1988–1999*. Sacramento, CA: California Department of Health Services, Cancer Surveillance Section; 2001.
 30. Longnecker MP, Klebanoff MA, Gladen BC, Berendes HW. Serial levels of serum organochlorines during pregnancy and postpartum. *Arch Environ Health*. 1999;54:110–114.
 31. Whitehead TP, Crispo Smith S, Park J-S, Petreas MX, Rappaport SM, Metayer C. Concentrations of persistent organic pollutants in California women's serum and residential dust. *Environ Res*. 2015;136:57–66.
 32. **Centre TQT**. AMAP, Arctic Monitoring and Assessment Program. 2001. Accessed March 3, 2014.
 33. Allain C, Poon L, Chan C, Richmond W, Fu P. Enzymatic determination of total serum cholesterol. *Clin Chem*. 1974;20:470–475.
 34. Stinshoff K, Weisshaar D, Stachler F, et al. Relation between concentration of free glycerol and triglycerides in human sera. *Clin Chem*. 1977;23:1029–1032.
 35. Shen K, Novak RF. DDT stimulates c-erbB2, c-met, and STATs tyrosine phosphorylation, Grb2-Sos association, MAPK phosphorylation, and proliferation of human breast epithelial cells. *Biochem Biophys Res Commun*. 1997;231:17–21.
 36. Enan E, Matsumura F. Activation of c-Neu tyrosine kinase by α , β '-DDT and β -HCH in cell-free and intact cell preparations from MCF-7 human breast cancer cells. *J Biochem Mol Toxicol*. 1998;12:83–92.
 37. **National Institute of Occupational Safety and Health**. NIOSH Special Occupational Hazard Review: DDT. 1978;1–181. <http://www.cdc.gov/niosh/docs/1970/78-200.html>. Accessed March 27, 2015.
 38. Kutz FW, Wood PH, Bottimore DP. Organochlorine pesticides and polychlorinated biphenyls in human adipose tissue. *Rev Environ Contam Toxicol*. 1991;120:1–82.
 39. Turusov V, Rakitsky V, Tomatis L. Dichlorodiphenyltrichloroethane (DDT): ubiquity, persistence, and risks. *Environ Health Perspect*. 2002;110:125–128.
 40. Ritter R, Scheringer M, MacLeod M, Hungerbühler K. Assessment of nonoccupational exposure to DDT in the tropics and the north: relevance of uptake via inhalation from indoor residual spraying. *Environ Health Perspect*. 2011;119:707–712.
 41. Kabasenche WP, Skinner MK. DDT, epigenetic harm, and trans-generational environmental justice. *Environ Health*. 2014;13:62.
 42. Colborn T, vom Saal FS, Soto AM. Developmental effect of endocrine-disrupting chemicals in wildlife and humans. *Environ Health Perspect*. 1993;101:378–384.
 43. Nelson JA. Effects of dichlorodiphenyltrichloroethane (DDT) analogs and polychlorinated biphenyl (PCB) mixtures on 17β -(3H)estradiol binding to rat uterine receptor. *Biochem Pharmacol*. 1974;23:447–451.
 44. Kuiper GG, Lemmen JG, Carlsson B, et al. Interaction of estrogenic chemicals and phytoestrogens with estrogen receptor β . *Endocrinology*. 1998;139:4252–4263.
 45. Sternlicht MD, Sunnarborg SW, Kouros-Mehr H, Yu Y, Lee DC, Werb Z. Mammary ductal morphogenesis requires paracrine activation of stromal EGFR via ADAM17-dependent shedding of epithelial amphiregulin. *Development*. 2005;132:3923–3933.
 46. Hatakeyama M, Matsumura F. Correlation between the activation of Neu tyrosine kinase and promotion of foci formation induced by selected organochlorine compounds in the MCF-7 model system. *J Biochem Mol Toxicol*. 1999;13:296–302.
 47. Johnson NA, Ho A, Cline JM, Hughes CL, Foster WG, Davis VL. Accelerated mammary tumor onset in a HER2/Neu mouse model exposed to DDT metabolites locally delivered to the mammary gland. *Environ Health Perspect*. 2012;120:1170–1176.
 48. Pestana D, Teixeira D, Faria A, Domingues V, Monteiro R, Calhau C. Effects of environmental organochlorine pesticides on human breast cancer: putative involvement on invasive cell ability. *Environ Toxicol*. 2015;30:168–176.
 49. Titus-Ernstoff L, Hatch EE, Hoover RN, et al. Long-term cancer risk in women given diethylstilbestrol (DES) during pregnancy. *Br J Cancer*. 2001;84:126–133.
 50. Warner M, Mocarelli P, Samuels S, Needham L, Brambilla P, Es-

kenazi B. Dioxin exposure and cancer risk in the Seveso Women's Health Study. *Environ Health Perspect.* 2011;119:1700–1705.



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Settlement: EPA to Analyze Impacts of World's Two Most Widely Used Pesticides on 1,500 Endangered Species

Historic Settlement Means Harms of Atrazine, Roundup Will Be Assessed

WASHINGTON— The Environmental Protection Agency will analyze the impacts of atrazine and glyphosate — the two most commonly used pesticides in the United States — on 1,500 endangered plants and animals in the United States under the terms of a settlement reached today with the Center for Biological Diversity. The EPA will also analyze the impacts of propazine and simazine, two pesticides that are chemically similar to atrazine. It has committed to completing the assessments by June 2020.

“This settlement is the first step to reining in the widespread use of dangerous pesticides that are harming both wildlife and people,” said Brett Hartl, endangered species policy director at the Center for Biological Diversity. “Atrazine, for instance, chemically castrates frogs even in tiny doses, is an endocrine disruptor, and likely causes birth defects in people. The EPA should have banned this years ago.”

Up to 80 million pounds of atrazine are used in the United States each year. In addition to causing severe harm to endangered species, atrazine exposure may be linked to increased risks of thyroid cancer, reproductive harm and birth defects in people. A recent [study](#) showed that children whose mothers were exposed to atrazine had an increased risk of birth defects. Atrazine is the second most commonly used pesticide after glyphosate, more commonly known as Monsanto’s Roundup.

“This settlement will finally force the EPA to consider the impacts of glyphosate — widely known as Roundup — which is the most commonly used pesticide in the United States, on endangered species nationwide,” said Hartl. “With more than 300 million pounds of this stuff being dumped on our landscape each year, it’s hard to even fathom the damage it’s doing.”

Glyphosate has also been linked to the decline of many wildlife species, including the [monarch butterfly](#). The EPA has never completed any endangered species assessments of glyphosate at any point over the lifetime of this chemical on the market. The agency last evaluated the general ecological impacts of glyphosate in 1993, when approximately 10 million pounds were applied annually. The increase in use within the United States has come with the widespread adoption of herbicide-tolerant, genetically engineered crops such as corn and soy. The World Health Organization recently declared glyphosate a probable human carcinogen.

The EPA has, for decades, continued to register and allow the use of pesticides without considering their impacts to endangered species, despite the legal requirement for them to do so and the well-documented risks of pesticides to thousands of imperiled species. A series of lawsuits by the Center has forced the agency to consult on the impacts of scores of pesticides on some endangered species, primarily in California, and resulted in temporary restrictions on pesticide use in sensitive habitats.

Last year the Center entered a nationwide settlement with the U.S. Fish and Wildlife Service requiring the agency to analyze impacts on endangered species across the country from five dangerous pesticides — carbaryl, chlorpyrifos, diazinon, malathion and methomyl — that have been found to be toxic to wildlife and may pose a health risk to humans. Today’s settlement follows a similar framework and will require the EPA to begin the consultation process on these chemicals.

The Center for Biological Diversity is a national, nonprofit conservation organization with more than 900,000 members and online activists dedicated to the protection of endangered species and wild places.

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Health | Tue Jun 23, 2015 5:51am EDT

WHO agency says insecticides lindane and DDT link cancer

LONDON | BY [KATE KELLAND](#)

The insecticide lindane, once widely used in agriculture and to treat human lice and scabies, causes cancer and has been specifically linked to non-Hodgkin lymphoma, the World Health Organization said on Tuesday.

The WHO's International Agency for Research on Cancer (IARC) also said that DDT, or dichlorodiphenyltrichloroethane, probably causes cancer, with scientific evidence linking it to non-Hodgkin lymphoma (NHL), testicular cancer and liver cancer.

In a review of various agricultural chemicals, IARC's specialist panel said it had decided to classify lindane as "carcinogenic to humans" in its Group 1 category, DDT as "probably carcinogenic to humans" in its Group 2A class, and the herbicide 2,4-D as "possibly carcinogenic to humans" in its Group 2B.

It said epidemiological studies did not find strong or consistent increases in risk of NHL or other cancers from 2,4-D exposure, but there was strong evidence it induces oxidative stress, a process that can damage cells in the body, and moderate evidence it can suppress the immune system.

Lindane, which since 2009 has been banned or restricted in most countries under the Stockholm Convention on Persistent Organic Pollutants, was previously used extensively for insect control in agriculture. An exemption to the ban allows it to be used as a second-line treatment for lice and scabies.

IARC said high exposures to lindane have previously been reported among agricultural workers and pesticide applicators.

"Large epidemiological studies of agricultural exposures in the United States and Canada showed a 60 percent increased risk of non-Hodgkin lymphoma in those exposed to lindane," it said.

DDT was introduced for the control of insect-borne diseases during World War Two and was later applied widely to eradicate malaria and in agriculture.

PHOTOS OF THE DAY



Our top photos from the last 24 hours.

Although most uses of it were banned from the 1970s, IARC cautioned that DDT and its breakdown products are "highly persistent and can be found in the environment and in animal and human tissues throughout the world".

"Exposure to DDT still occurs, mainly through diet," it said, adding that DDT is still used, mainly for malaria control in parts of Africa, although under very strict conditions.

Since it was introduced in 1945, 2,4-D has been widely used to control weeds in agriculture, forestry and urban and residential settings.

IARC said occupational exposure to 2,4-D can occur during manufacturing and application, and people in the general population can be exposed through food, water, dust, or residential application, and during spraying.

(Reporting by Kate Kelland; Editing by [Raissa Kasolowsky](#))

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Norway is creating a 'bee highway' to protect pollinators

By **Rachel Feltman** June 25 at 11:36 AM

The city of Oslo [now has what it's calling a bee highway](#) — a path of flowering plants designed to keep bees well-fed as they pass through the urban area. Supporters hope that initiatives like this one can help protect bees — one third of Norway's native bee species are now endangered — and by extension protect the crops that rely on bees for pollination.

The idea is pretty simple: The Oslo Garden Society has placed flowerpots full of bee-friendly plants on roofs and balconies throughout the city, creating a route for bees to travel through without starving. [A Web site shows locals](#) where more flower coverage is needed and encourages them to plant more.

[Graphic: We all get stung by bee colony collapse]

“The idea is to create a route through the city with enough feeding stations for the bumblebees all the way,” Tonje Waaktaar Gamst of the Oslo Garden Society [told a local paper in May](#). “Enough food will also help the bumblebees withstand man-made environmental stress better.”

[Agence France-Presse reports](#) that businesses have also joined in, with one accounting firm putting up around \$50,000 to cover its terrace in flowering plants and enough beehives to house 45,000 bees.

[Why you shouldn't freak out about swarming honeybees — and how to save bees from those who do]

The [decline of the pollinating bee](#) — and the potential causes of that decline, which could include fungi, pests, lack of food and pesticide use — is a subject of much debate. But while the restriction of pesticides like [neonicotinoids](#), which some believe have an adverse effect on honeybees, may not make sense without more evidence, planting flowers is a fix that's hard to argue with.

Besides, [research suggests](#) that so-called “green spaces” in urban areas — ones with trees, grass, flowers, and animals — are beneficial to human health and wellness. So planting flowers for transient bees is really a win-win.

Those outside of Oslo can take advantage of a similar site with a global reach. [The Pollinator Partnership](#) encourages individuals to create bee-friendly environments on their property and add them to an online map.

Read More:

[Bill Nye explains how climate change works \(with emoji, obviously\)](#)

[New studies find that bees actually want to eat the pesticides that hurt them](#)

[How the White House plans to help the humble bee maintain its buzz](#)

Rachel Feltman runs The Post's Speaking of Science blog.

<http://www.komonews.com/news/local/Agriculture-department-investigating-Portland-bee-die-off-310356521.html>

Agriculture department investigating Portland bee die-off

By Associated Press Published: Jun 27, 2015 at 3:31 PM PDT

PORTLAND, Ore. (AP) - The fifth mass bee death in Portland in the past several days has state investigators on the hunt for a cause.

[The Oregonian](#) reports that dead and dying bumblebees littered the sidewalk in some parts of the city.

Oregon Department of Agriculture lead pesticide investigator Mike Odenthal says lab results from the earlier die-offs are expected next week.

He says the department is trying to find out whether humans did something to the bees with a pesticide or pollutant or whether there's something strange going on with the linden tree blossoms the pollinators had been feeding on.

Every major bee die-off reported to the agriculture department in the past few years has taken place near the trees, which are often sprayed with chemicals to control



Cause unknown in spate of Portland bee die-offs

Kelly House | The Oregonian/OregonLive By Kelly House | The Oregonian/OregonLive

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on June 26, 2015 at 5:26 PM

Corinne Fletcher stepped outside her apartment building Friday morning to find a pollinator genocide in the park that serves as her backyard.

Dead and dying bumblebees littered the sidewalk near the Market Street entrance to downtown Portland's **Pettygrove Park**. The carcasses were so thick, the Lewis & Clark College law student said, "you had to step carefully to not step on any bees."

The fifth mass bee death in Portland in the past several days has state investigators on the hunt for a cause.

Lab results from the first four die-offs are expected next week, said Mike Odenthal, lead pesticide investigator for the **Oregon Department of Agriculture**.

It's too early to say what killed the bees, but all of the die-offs share a similarity: The bees had been feeding on linden tree blossoms.

"We're trying to find out whether this is something humans did to the bees – a pesticide or pollutant or something – or is there something weird going on with the trees?" Odenthal said.

Every major bee die-off reported to the Oregon Department of Agriculture in the past few years has taken place near the trees, which are often sprayed with chemicals to control aphids.

"They don't harm the tree, but they secrete a honeydew that's considered a nuisance," said Aimee Code, pesticide program coordinator for the Xerces Society for Invertebrate Conservation.

A **high profile poisoning in 2013** of more than 50,000 bees in a Wilsonville Target superstore parking lot raised public awareness about bee deaths. A class of insecticides known as neonicotinoids were at fault in the Wilsonville incident and several subsequent Oregon bee die-offs.

The incidents spurred state and local restrictions on the use of neonicotinoids. A **statewide ban** on the use of four types of neonicotinoids on linden trees and related species took effect in February. Portland followed suit in April with a ban on the use of all neonicotinoids on city lands.

After reaching out to Portland Parks and the Xerces Society, Fletcher took Code's advice to return to the park and collect bees for state testing.

By the time she returned, she said, "a lot of them were gone."

A worker in one of the adjacent buildings told her bees in the park have been dropping dead daily for more than a month.

Mark Ross, spokesman for **Portland Parks & Recreation**, said the agency does not spray insecticides at Pettygrove Park.

Most of the dead bees found Friday appeared to be concentrated on the sidewalk just outside the park, where bees were swarming several large linden trees in full bloom.

There's little chance they died of natural causes, Code said. Mass mortality events aren't part of the bumblebee life cycle.

But it's not certain insecticides or other chemical applications are to blame, either. When stressed, lindens sometimes produce a sugar that can be dangerous to bees.

If Fletcher collects enough bees to conduct testing, lab analysts will look for substances that could have killed them. If any banned neonicotinoids show up, investigators will have to ask another question: Were the chemicals applied before or after the state's ban took effect in February?

Neonicotinoids can remain present at levels lethal to bees for months after application on a tree, Odenthal said.

"It's possible we may have had a legal application of a now-banned product before we banned it, that's causing the activity now," he said.

What to do if you spot a bee die-off?

Call The Oregon Department of Agriculture, take a photo and ask whether you should collect a sample. As Fletcher experienced in Pettygrove Park, the bodies are often swept or blown away before state investigators arrive.

Code offers another piece of advice.

"Create a habitat in your yard that is pesticide-free with many options for foraging and food sources for bees," she said.

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Jonathan Kantrowitz

Political activist, health nut

Pesticides banned on municipal playgrounds in CT

Posted on July 1, 2015 | By Jonathan Kantrowitz

[PRINT](#)

Source: *Citizens Campaign for the Environment (CCE)*

Today, the CT General Assembly passed legislation to ban pesticides on municipal playgrounds in CT, building on existing bans on CT school grounds. The new law is aimed at protecting small children, pets, and wildlife from unnecessary exposure to dangerous pesticides.

“This is an important step forward in protecting the health and well being of our most vulnerable populations,” said Louis Burch of Citizens Campaign for the Environment. “Pesticides have been shown to contribute to cancer, asthma and developmental delays, and they disproportionately hurt our children. By eliminating these poisons on public spaces where our children play, we are sparing an entire generation of youngsters from the potential health hazards associated with exposure to pesticides. This is a significant victory, and it sets a good example for other states to follow.”

The law also improves the existing parents’ notification system by requiring school districts to provide at least 24 hour electronic notification any time a pesticide application is scheduled to occur on school property.

“Providing advanced notice of pesticide applications allows parents to take precautions to protect their children from unnecessary exposure,” continued Burch. “Providing this right to know is a commonsense improvement, and we commend the legislature for taking this step.”

Connecticut established itself as a nationwide leader on this important public health issue in 2005, when it became the first state in the nation to prohibit the use of lawn care pesticides on school athletic fields serving grades K-6. That law was expanded in 2009 to include middle school fields (Grades 7 and 8). This gradual expansion represents a growing consensus among the health and science communities that chemical pesticides pose a disproportionate and undue risk to children.

“As we have recognized for many years in Connecticut, children are particularly endangered by pesticides – because these chemicals accumulate in kids’ growing bodies faster than for the rest of us,” said Rep. Andrew Fleischmann, House Chairman of the Education Committee, which drafted the 2005 and 2009 laws prohibiting pesticide use on school fields. “This measure represents a great step forward for our state, safeguarding our children from these toxic chemicals on town playgrounds – and ensuring that parents get notice when pesticides are used at public schools,” he added.

“Time and time again pesticides have been shown to have serious health and environmental consequences, and it is critical that we begin limiting their use,” said Senator Ted Kennedy, Jr., Senate Chair of the Environment Committee. “By keeping playgrounds off of playgrounds and school property, we limit their exposure to those who are most likely to become ill as a result of them. Improving our state’s notification procedures will better inform parents about pesticide and herbicide applications at their children’s schools.”

“This is an important law that will help parents protect their young children from the harmful effects of pesticides,” said Senator Danté Bartolomeo, Senate Chair of the Committee on Children. “Pesticides have been linked to serious health problems, particularly in pregnant women and children, and I am glad we have acted to limit their use. Communities such as Cheshire, one of the towns I am proud to represent, have shown us that using these toxic chemicals is not necessary to maintain public green spaces. I believe this commitment to non-toxic landscaping is an admirable goal that I would like to see adopted by more Connecticut communities.”

“We have worked long and hard to protect children from unnecessary exposure to pesticides,” said Rep. Diana Urban, House Chair of the Committee on Children. “This is a major step forward in assuring our children’s health. I often encourage parents to read the warning labels on commercial pesticides and then decide if they want them anywhere near their children. Kudos to the advocates for their tenacity and many thanks to my colleagues for their help and support, particularly my co-chair on the Children’s Committee Sen Bartolomeo”.

“After years of input and debate,” said Rep. Shaban (R), Ranking Member of the Environment Committee. “I’m pleased that we were finally able to craft a bill that focused on the main goal of the initial ban – protecting young children – while being sympathetic to the real world needs of state and municipal property managers.”

“This is a big step forward in toxins reforms for CT,” said Senator Beth Bye, Senate Chair of the Appropriations Committee. “Parents will now know when pesticides are used at their child’s schools and have the information they need to advocate for safer school grounds.”

“We know many pesticides are toxic not only to their intended targets, but to our children and wildlife as well,” said Rep. Terry Backer. “The more pesticides we can remove from the environment, particularly for ornamental use, the more children we will protect in the future.”

“We recognize that children haven’t fully developed their defenses, and that exposure to pesticides is problematic,” said State Rep. Philip Miller, House Chair of the Committee on Planning and Development. “This bill protects our vulnerable children and it forces landscapers to use sustainable practice to uphold public health by reducing those exposures.”

EPA to propose banning chlorpyrifos insecticide

Mateusz Perkowski

Capital Press

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The EPA says it plans to ban the common insecticide chlorpyrifos but may change its mind based on discussions with manufacturers.

The federal government said June 30 that it's planning to ban chlorpyrifos, a common insecticide, but may change its mind based on consultations with the chemical's manufacturer.

The U.S. Environmental Protection Agency's tentative decision to revoke all "tolerances" for residues of the insecticide on crops came in response to a request from environmental groups.

Pesticide Action Network North America and the Natural Resources Defense Council claim that exposure to the chemical causes farmworkers' children to experience long-term health problems, among other problems.

The EPA is signaling that it may take action on chlorpyrifos but "there are many opportunities for going astray and failing to protect communities from this chemical," said Paul Towers, spokesperson for PANNA.

The groups petitioned EPA to prohibit chlorpyrifos based on numerous risks in 2007, but the agency did not take final action on the request, arguing it would take time to study the issue.

The 9th U.S. Circuit Court of Appeals recently ordered the EPA to make up its mind, which led to the filing of the June 30 report in which the agency said it would propose canceling all chlorpyrifos tolerances by April 2016.

While it was initially inclined to deny the petition in favor of "additional risk mitigation action" to reduce hazards, the EPA is now "less confident" it can achieve that goal without formal regulatory proceedings, the report said.

In some watersheds, potential exposure to the chemical through drinking water and other pathways has prevented the agency from finding "that there is a reasonable certainty of no harm to people who would be drinking such water," the report said.

The EPA noted that threats to agricultural employees may also justify new restrictions on the chemical.

Before proposing the revocation, though, the agency plans to conduct an in-depth assessment to see which watersheds are most vulnerable to chlorpyrifos contamination.

The EPA also plans to negotiate with the chemical's manufacturers to potentially revise the pesticide label and avoid hazardous applications of chlorpyrifos rather than have the chemical tolerances revoked.

Towers, of PANNA, said he's concerned that any changes agreed to by manufacturers will fall short of what's necessary to protect human health.

"The proof will come months down the road," he said.





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New regulations: Chlorpyrifos labeled 'restricted use' in California effective July 1

Farm Press Staff | Western Farm Press

Jun 30, 2015

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- Contact local agriculture commissioner's office for permit requirements



California regulations have changed Chlorpyrifos to a "restricted use" pesticide. Applicators will need a permit from county agriculture commissioners to use products with Chlorpyrifos in them.

Getty Images

Chlorpyrifos is labeled effective July 1, 2015 as a restricted material in California when it is an ingredient in pesticides for use in the production of an agricultural commodity.

Applicators will need to obtain a restricted materials permit from their county agriculture commissioner if they wish to purchase, possess or apply affected chlorpyrifos products.

The California Department of Pesticide Regulations (DPR) is currently developing interim permit condition recommendations, this will be additional mitigation to the instructions users of restricted materials must follow.

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The interim permit conditions may include buffer zones near sensitive sites, GMP (good management practices) to prevent drift or offsite movement into the air and measures to reduce runoff into surface waters.

County agriculture commissioners will be notified by the DPR with a letter of the recommended interim conditions.

A [list of products](#) published by DPR includes 31 pesticides that will be affected by the new regulation.

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