

Maine Board of Pesticides Control

**Miscellaneous Pesticides Articles
April 2015**

(identified by Google alerts or submitted by individuals)

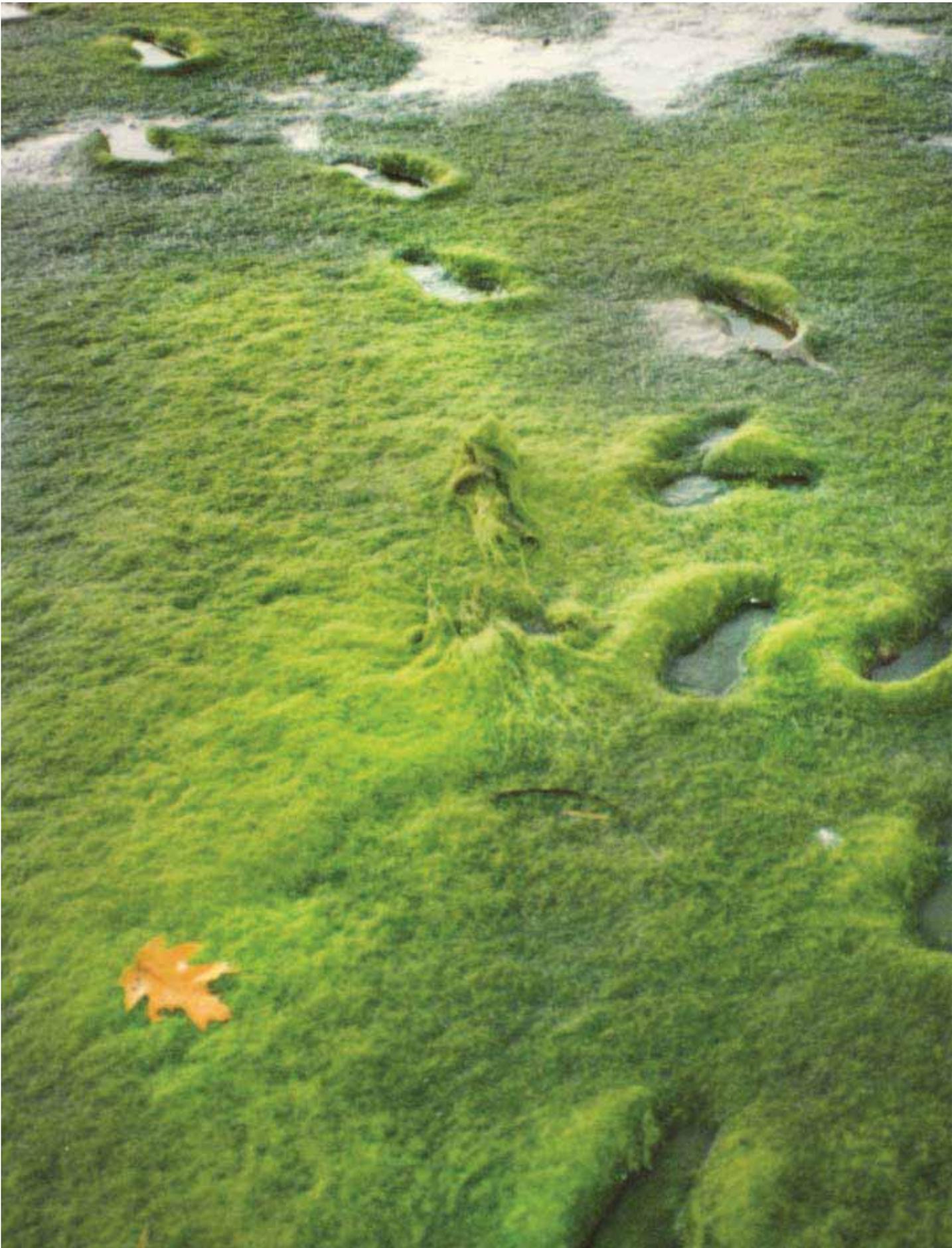
Maine Voices: Fertilizing for a ‘perfect’ lawn harms coastal waters, mudflats, marine life

SOUTH PORTLAND — Unlike Bob Mann of Lawn Dawg Inc. (“Maine Voices: Healthy lawns nurtured with synthetic fertilizers filter pollutants,” Dec. 19), we at Friends of Casco Bay applaud the town of Ogunquit’s innovative ordinance that bans the application of synthetic fertilizers and pesticides on private property. Not only do lawn chemicals have the potential [...]

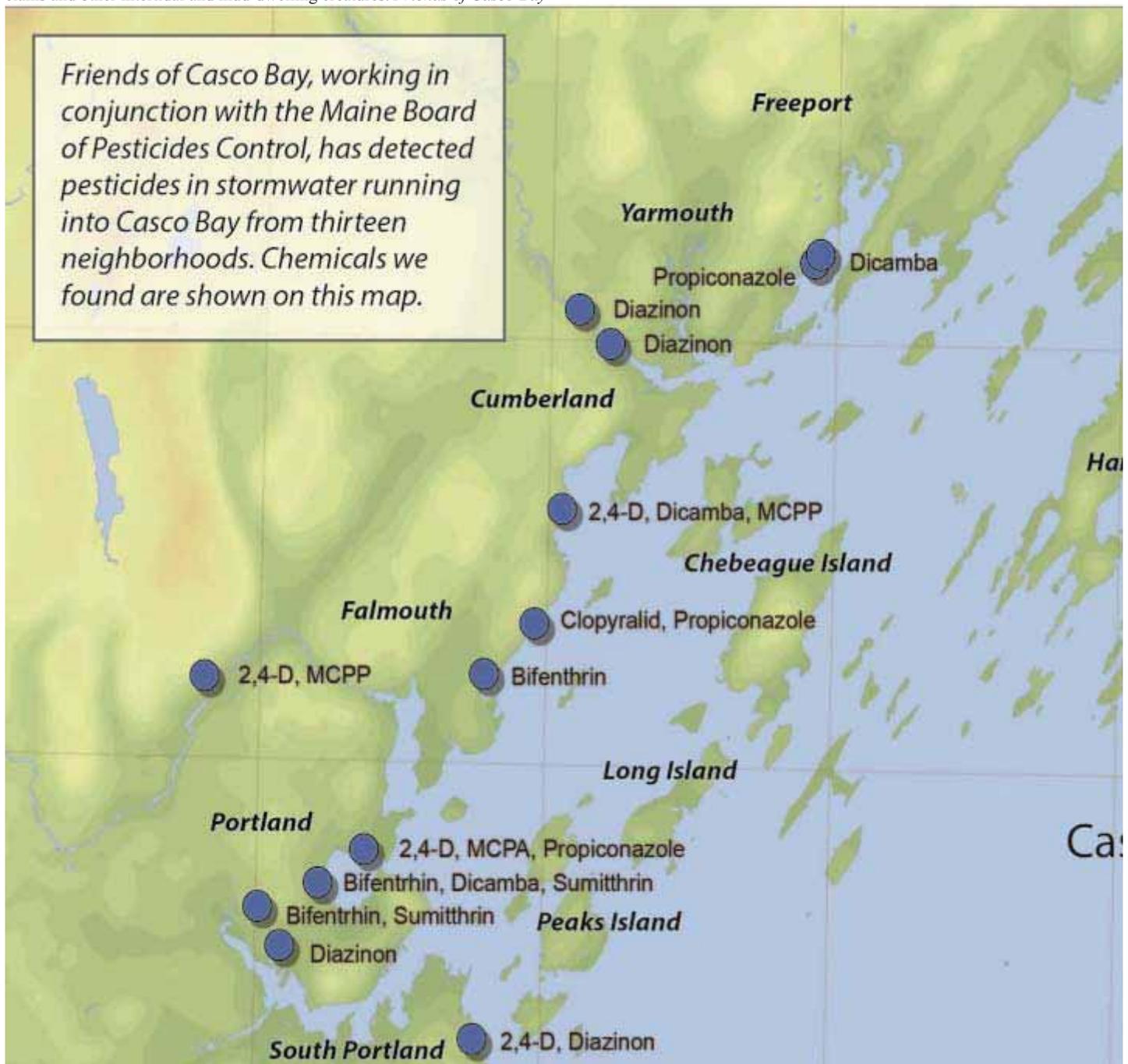
BY CATHY RAMSDELL SPECIAL TO THE PRESS HERALD

SOUTH PORTLAND — Unlike Bob Mann of Lawn Dawg Inc. (“[Maine Voices: Healthy lawns nurtured with synthetic fertilizers filter pollutants](#),” Dec. 19), we at Friends of Casco Bay applaud the town of Ogunquit’s innovative ordinance that bans the application of synthetic fertilizers and pesticides on private property. Not only do lawn chemicals have the potential to harm children and pets, but pesticides and fertilizers (whether synthetic or organic) can also threaten marine life as well.

We have sampled rainwater as it flowed into Casco Bay, in several coastal communities. We found pesticides in stormwater in 13 neighborhoods from South Portland to Brunswick. We detected pesticides, such as 2, 4-D, Dicamba and MCPP, common herbicides in weed and feed products.



The footprints of Casco Baykeeper Joe Payne sink into large mats of green algae in a cove in Falmouth. Fed by nitrogen from fertilizer, algae can smother clams and other intertidal and mud-dwelling creatures. *Friends of Casco Bay*



Friends of Casco Bay

ABOUT THE AUTHOR

Cathy Ramsdell is executive director of Friends of Casco Bay in South Portland.

Mann asserts that licensed applicators evaluate a lawn before applying pesticides, instead of spraying chemicals over an entire area. From that statement, we should be able to infer that lawn care providers are doing a soil test on each property, waiting for the lab results and then tailoring specific formulations of chemicals according to each property's need. That is certainly different

from the four-times-a-year applications of lawn chemicals that we observe happening in our neighborhoods.

While licensed applicators must demonstrate their knowledge of integrated pest management procedures in order to be certified by the state, in practice, it is all too rare that we observe most large-scale companies assessing the individual needs of a particular property before treatment. When product is applied that isn't needed, plants won't absorb it, and the excess remains in the soil, where it can be moved by rainwater, to wreak havoc downstream.

Smart decisions about what is needed based on soil testing help minimize unnecessary applications. The educated consumer will buy and apply only what is needed for their particular lawn, and in doing so, both save money and help protect the marine environment.

Mainers – and their lawn care providers – buy over 5.7 million pounds of pesticide and fertilizer combinations each year for their lawns and gardens. They're fertilizing not only their yards but also the ocean.

Of great concern to those of us who value our coastal waters is nitrogen-rich fertilizer. All living things require nitrogen, but too much nitrogen is not good; in the ocean, excess nitrogen is a major pollutant. Sampling by our staff and a dedicated corps of volunteer Citizen Stewards has found excess nitrogen in water samples all around Casco Bay.

Nitrogen promotes leafy, green growth on land; it does the same in the ocean. Nitrogen fertilizes seaweeds, stimulating the growth of large mats of green algae, making scenic coves slick with green slime that can smother clams and other intertidal and mud-dwelling creatures.

Too much nitrogen also stimulates the growth of large blooms of phytoplankton, the microscopic plants at the base of the ocean food web. Marine animals can't consume all of these tiny plants. When the blooms die off, their decomposition removes life-giving oxygen from the water. Less oxygen can lead to fish kills and "dead zones" unable to support a diversity of marine life, leading to conditions that tend to favor jellyfish and bacteria.

Nitrogen is the leading cause of coastal acidification in Casco Bay. Decaying phytoplankton blooms release carbon dioxide, which can make seawater and mudflats inhospitable to marine life. In Casco Bay, we are already seeing clam flats where the mud is too acidic to support healthy beds of soft-shell clams, Maine's third largest fishery.

A monoculture lawn requires lots of chemicals to sustain it. A “perfect” green lawn is less healthy than a lawn of diversified vegetation, with clover, a mix of grasses such as fescues, ryegrass and even (gasp) dandelions.

What is most important is not to overwater and to adjust the lawn mower to its highest setting possible so that grass is not cut too short. Better yet, limit your lawn and replace grass with a good density of native plants of ground cover, shrubs and trees.

For more information, go to yardscaping.org or cascobay.org and click on [Our Work/BayScaping](#) to find fact sheets on “Does your lawn care professional BayScape?” and “BayScaping: Seasonal tips for green yards to keep Casco Bay blue.”

Fri, Jan 09, 2015 •



Light Snow, 22°F

SEARCH

Sign up for our newsletter!



Bath • Harpswell • Topsham • Brunswick • Cumberland • North Yarmouth • Falmouth • Freeport • Portland • Cape Elizabeth • Scarborough • South Portland • Chebeague Island • Yarmouth



- [Home](#)
- [News](#)
- [Sports](#)
- [Opinion](#)
- [Police Beat](#)
- [Calendar](#)
- [Obits](#)
- [Lifestyle](#)
- [Contact](#)
- [Classifieds](#)
- [Advertise](#)
- [Privacy](#)

Aldrin 1-light Swing Arm Wall Lamp
[More info](#)
 overstock.com

CHOOSE THE PRODUCT THAT'S PERFECT FOR YOU!
 USE OUR EXPERT RATINGS.

ConsumerReports
[Learn more >](#)

Harpswell pesticide ban may not be ready for March vote

News

Harpswell pesticide ban may not be ready for March vote



[Peter L. McGuire](#)

Thursday, January 8, 2015 at 8:30 am

HARPSWELL — A vote on a pesticide ban may be pushed off until next year, as proponents of the measure scramble to change language in the proposed ordinance ahead of Town Meeting in March.

Share

[E-mail this story](#) [Print this story](#) [Save this story](#)

Sponsor



0

Like

0

Tweet

0

8+1

<p>In the Market</p> <p>Cozy Up in a Play Tent! By Island Treasure Toys - 01/08</p>	<p>Dining</p> <p>LIVE MUSIC. Every Thursday and Friday! By The Daniel - 01/08</p>
<p>Project Mgmt Software</p> <p>Try it Free for 30 Days- Start Now! Automate Business Processes & More.</p>	<p>Paint Nite @ Coast Bar + Bistro By The Daniel - 01/08</p> <p>Our tempting specials for the week start today! By The Great Impasta - 12/29</p>
<p>Paintsicles Craft Idea! By Island Treasure Toys - 01/07</p> <p>Ride a Rody today! By Island Treasure Toys - 01/02</p> <p>Huge end-of-year Sale By Visibility - 12/30</p> <p>New Year's Eve Ideas for Kids! By Island Treasure Toys - 12/29</p>	<p>Medicare Supplement Plans Medigap Options for (65 & older). Compare Plans & Prices for 2015.</p>

[MORE >](#)

"Since the primary thing about a good use of pesticides is how it is used, it would seem like the best thing to do is the education first, and put the pesticide ordinance off until next year," Planning board member Burr Taylor said at a meeting Wednesday.

Taylor's remarks followed a presentation by Henry Jennings, executive director of the Maine Board of Pesticide Control, who noted possible legal complications with the town's proposed ordinance.

Because the board takes a neutral stance on town ordinances, Jennings said he could not offer guidance for ordinance drafters.

The ordinance, proposed and drafted by the Conservation Commission, would prohibit the use of any pesticides within town limits, with the aim of protecting the health of residents and Harpswell's marine environment and groundwater.

A number of exceptions, including water treatment and indoor pesticide use, are included. The ban would not extend to commercial agriculture, bug repellent, swimming pool supplies, and paint products, among others.

But, Jennings noted, the ordinance also makes a reference to "restricted" pesticides, which could have a regulatory connotation drafters didn't intend. Under federal law, restricted pesticides are those that only licensed applicators can use, he said.

Other aspects of the ordinance, like its definition of "pest," could also lead to complications, Jennings told the board.

In response to questions from board members, Jennings said pesticides are harmful to marine organisms, but there is little evidence to support the contention they have widespread impact on the marine ecosystem.

The dilution power of the ocean is so intense that water-soluble substances quickly dissipate, he said, although other materials could remain in sediment.

The MBPC is currently testing 20 intertidal sites around the state to determine possible pesticide impact, he told the board, but so far results from other parts of the country have been inconclusive.

"If you're going to ask me what's my gut on this, I'd say there's no science out there right that is a smoking gun, but that's why we're looking at it," Jennings said.

There are 20 communities in Maine that have pesticide-control ordinances in place, but very few are as comprehensive as Harpswell's proposed outright prohibition.

Jeff Gillis, owner of WellTree, a Brunswick-based tree-care company that occasionally uses pesticides, said outside the meeting that the ordinance should be revised for clarity.

"I understand the spirit of what they're trying to accomplish," Gillis said, "but there are a lot of details to work out."

Commission Chairwoman Mary Ann Nahf acknowledged that the draft ordinance needs some work before it is ready to be presented to voters.

"Our attempt with this was to come up with a workable way (to ban pesticides)," Nahf said, "but I guess we're still kind of groping right now."

Town Planner Carol Eyerman said the draft ordinance should be revised by the Conservation Commission before coming back to the Planning board. The document could be ready for a public hearing sometime in February, she said.

Peter L. McGuire can be reached at 781-3661 ext. 100 or pmcguire@theforecaster.net. Follow him on Twitter [@PeteL_McGuire](https://twitter.com/PeteL_McGuire).

0 Comments The Forecaster Login

Sort by Best Share Favorite

Start the discussion...

Be the first to comment.

ALSO ON THE FORECASTER

Maine's highest court rejects Freedom of Access Act appeal by Falmouth gadfly

14 comments • 10 days ago

TF PGGMLG — What is this guy costing the taxpayers? Maybe he should be sued by the citizens of this town for interfering with its day ...

Falmouth residents formally challenge sports pub plan

4 comments • 2 days ago

MINI PKM — Shocking news! The people of a subdivision don't want development on a parcel that was slated for development. I'd bet they ...

WHAT'S THIS?

Brunswick council will screen police requests for surplus military equipment

5 comments • a day ago

TF ERP — If the police will "respond to domestic terror attacks", with military equipment, they should have to demonstrate that they have ...

Letter: Column illustrates what's wrong with parties

1 comment • 4 days ago

TF Ted — "There are avid Republicans, Democrats, and Greens, who feel their political loyalty is to support their party and not necessarily to do ...

Subscribe Add Disqus to your site Privacy



More in News

- Baking is in his blood: South Portland's Carlos Garcia honors a family tradition
Bath home 'probably a total loss' after fire
Scarborough panel identifies 48 properties worth preserving
Harpswell pesticide ban may not be ready for March vote
Bath council OKs High Street traffic change, mulls events policy
Lawsuit concern delays Brunswick Landing improvement funds
Cape Elizabeth Bottle Shed sorting solution comes up empty
Brunswick council will screen police requests for surplus military equipment
Refinements all around at South Portland High School
Cape Elizabeth Recycling Center traffic changes to take effect Jan. 21

Business Search
Search:
Recent bizMembers:
The Forecaster
The Maine Table
Falmouth Hearing Aids
The Daniel
Autowerkes Maine
Visibility

Popular

Greely boys overcome foul start, race past York

CUMBERLAND—You couldn't have a worse first quarter than the one the Greely boys' basketball team produced Thursday evening»

Bath losing 1 independent bookstore, gaining another

BATH — When she opens her bookstore next month on Front Street, Julie Shea wants her customers to feel free to share their»

Baking is in his blood: South Portland's Carlos Garcia honors a family tradition

Carlos Garcia bakes all night, six nights a week at the South Portland bakery, Mainly Grains Bakers, that he and his wife,

[Listen Live](#) ▶[On-Air Schedule](#)[NHPR Events](#)[Community Calendar](#)[Contact](#)[DONATE](#)

The Exchange
[Federal Debt: How Worried Should We Be?](#)



Word Of Mouth
[1.20.15: Fact Checking The SOTU, Digital Hoarding, & The Baby Blanket Standard](#)



[Weather Information](#)

The Salt

12:48 PM TUE JANUARY 20, 2015

How Your Food Gets The 'Non-GMO' Label

Originally published on Tue January 20, 2015 2:41 pm



(http://mediad.publicbroadcasting.net/p/shared/npr/styles/x_large/nprshared/201501/378417975.jpg)

Demand is growing for GMO-free labels on food products, according to the Non-GMO Project, one of the principal suppliers of the label.

Robyn Beck AFP/Getty Images

Demand for products that don't contain genetically modified organisms, or GMOs, is exploding.

Now many food companies are seeking certification for products that don't have any genetically modified ingredients, and not just the brands popular in the health food aisle. Even [Cheerios](http://harvestpublicmedia.org/content/original-cheerios-now-free-gmo-ingredients#.VJBo8zHF_pU) (http://harvestpublicmedia.org/content/original-cheerios-now-free-gmo-ingredients#.VJBo8zHF_pU), that iconic cereal from General Mills, no longer contains GMOs.

"We currently are at over \$8.5 billion in annual sales of verified products," says Megan Westgate, executive director of the [Non-GMO Project](http://www.nongmoproject.org/) (<http://www.nongmoproject.org/>), an independent organization that verifies products.

To receive the [label](http://www.npr.org/blogs/thesalt/2014/02/28/283460420/why-the-non-gmo-label-is-organic-s-frenemy) (<http://www.npr.org/blogs/thesalt/2014/02/28/283460420/why-the-non-gmo-label-is-organic-s-frenemy>), a product has to be certified as containing ingredients with less than 1 percent genetic modification. Westgate says that's a realistic standard, while totally GMO-free is not. She says natural foods stores began the process of defining a standard, involving other interested players along the way, including consumers. Now, General Mills is just one of the big food companies selling non-GMO products.

Sales of food labeled as non-GMO ballooned to over \$3 billion in 2013, [according](http://www.wsj.com/articles/the-gmo-fight-ripples-down-the-food-chain-1407465378) (<http://www.wsj.com/articles/the-gmo-fight-ripples-down-the-food-chain-1407465378>) to *The Wall Street Journal*.

"Interestingly, with all of this traction in the natural sector," Westgate says, "we're increasingly seeing more conventional companies coming on board and having their products verified."

But how does a company get into the non-GMO game? It might call [FoodChain ID](http://www.foodchainid.com/) (<http://www.foodchainid.com/>), a company in Fairfield, Iowa, that can shepherd a firm through the process. It's one of the third-party auditors that certifies products for the Non-GMO Project.

"We start looking at ingredients, and we identify what are all the ingredients," says David Carter, FoodChain ID's general manager. "And of course, the label itself doesn't always identify all of those. So we need to be sure that we have a list of all the processing aids, the carriers and all the inputs that go into a product."

Next, FoodChain ID figures out where each ingredient and input came from. If there's honey in cookies, for example, the company will have to show that the bees that make the honey aren't feeding near genetically modified corn. When there's even the smallest risk that an ingredient could contain a modified gene, DNA testing is in order.

FoodChain ID has a lab where a machine can extract the DNA from ingredient samples in order to analyze it. If that test finds no evidence of GMOs, the ingredient can go in the cookies. Carter says he can barely keep up with the number of inquiries coming in from companies that want certification.

"The demand is now very, very high, and it has been for probably over a year in particular," Carter says.

To date, FoodChain ID says it has verified 17,000 ingredients from 10,000 suppliers in 96 countries.

It may take hundreds of dollars for some products to get a non-GMO label, depending on how many ingredients are already verified as being GMO-free and how many are not.

But even with the rising demand, non-GMO products make up a small fraction of the marketplace. More than [90 percent](http://harvestpublicmedia.org/content/acres-genetically-modified-corn-nearly-doubled-decade#.VJBbTHF_pU) (http://harvestpublicmedia.org/content/acres-genetically-modified-corn-nearly-doubled-decade#.VJBbTHF_pU) of corn and soybeans grown in the U.S. contains genetically modified traits. And those two crops are ubiquitous in processed foods like packaged cookies. Still, if the current trend continues, it seems likely that more farmers will consider planting non-GMO crops.

Various companies sell non-GMO seeds, but they can be more difficult to find. Plant breeder Alix Paez hopes his central Iowa seed company, Genetic Enterprises International, can help fill that market niche.

"We are a very small company," Paez says, "so our strategy is to find niche markets for farmers that are looking for non-GMO products."

Farmers pay a premium for seeds that are genetically modified to withstand pests, or [engineered](http://www.npr.org/blogs/thesalt/2014/01/24/265687251/soil-weedkillers-and-gmos-when-numbers-don-t-tell-the-whole-story) (<http://www.npr.org/blogs/thesalt/2014/01/24/265687251/soil-weedkillers-and-gmos-when-numbers-don-t-tell-the-whole-story>) to tolerate popular herbicides, making it easier for farmers to use those chemicals to kill weeds. Paez and his wife, Mary Jane, hope to develop seeds that can achieve the same yields without those expensive, patented traits. This past season, they grew test plots on a farm in Boone County, Iowa, which they harvested this fall with an ancient red Massey Ferguson combine.

Paez studies the effectiveness of each hybrid seed variety. It's slow and meticulous work. But the careful data collection is key to determining whether a new, non-GMO hybrid can be competitive in the marketplace.

"One of the main things is yield," Paez says. "Stand-ability, consistent performance,

disease tolerance — things like that."

If these seeds make the grade, farmers could potentially save some money. And their grain might fetch a premium, especially as demand for [non-GMO animal feed](#) (<http://www.npr.org/blogs/thesalt/2014/02/26/283112526/chickens-laying-organic-eggs-eat-imported-food-and-its-pricev>) grows. Because the only way to end up with non-GMO certified meat is to raise animals on non-GMO feed.

Amy Mayer is a reporter based at Iowa Public Radio in Ames, Iowa. This story comes to us from [Harvest Public Media](#) (<http://harvestpublicmedia.org/>), a reporting collaboration focusing on agriculture. A [version](#) (<http://harvestpublicmedia.org/article/how-your-food-gets-%E2%80%98non-gmo%E2%80%99-label>) of this post originally ran on the Harvest website.

Copyright 2015 Iowa Public Radio. To see more, visit <http://www.iowapublicradio.org> (<http://www.iowapublicradio.org>).

0 Comments NHPR

Login ▾

Sort by Oldest ▾

Share Favorite



Be the first to comment.

[Subscribe](#)

[Add Disqus to your site](#)

[Privacy](#)



REGISTER | LOG IN

Home | Conservation | Corn | Crop Chemicals | Equipment | Fertilizer | Issues | Marketing | Precision Ag | Seed | Soybeans | Tillage

Weather



HOME > CROP CHEMICALS > EPA REGISTERS NEW INSECTICIDE THAT'S SAFER FOR BEES

EPA registers new insecticide that's safer for bees

Source: Environmental Protection Agency

Jan 21, 2015

SHARE

Tweet

g+

Recommend

7

COMMENTS 0

More About: [Micronutrients](#), [Corn Production](#), [Best Practices](#), [Fungicides](#), [Insecticides/Pesticides](#), [Farm Programs](#), [Application](#), [Biotechnology](#), [Seed Treatments](#)



Photo: Joe Raedle, Getty Images News

The EPA is registering a new insecticide, flupyradifurone, that is safer for bees. It is expected to be an alternative to more toxic products including certain pyrethroid, neonicotinoid, organophosphate and avermectin insecticides.

As an insecticide, flupyradifurone is unusual

in that laboratory-based studies indicate that the compound is practically non-toxic to adult honeybees. Studies show no adverse effect on overall bee colony performance or overwintering ability when compared to untreated colonies.

EPA's decision meets the rigorous Food Quality Protection Act standard of "reasonable certainty of no harm" to

human health. On the basis of protective and conservative human health and ecological risk assessments for the uses of the pesticide, EPA confirmed the safety of the use for the public, agricultural workers and wildlife. EPA coordinated its evaluation with our counterparts in Canada and Australia.

This decision was one of the first to incorporate newly required bee studies and involved evaluating the largest number of bee-related studies ever for the registration of a new chemical. EPA reviewed 437 studies including 38 different tests on bees to analyze the potential exposure and effects of flupyradifurone. These included evaluation of the sublethal effects of pesticides on all life stages of bees, as well as effects on colony health in field studies. The field studies examined pollinator-attractive crops while bees were actively foraging after the crops had been treated through various application methods (seed, soil and foliar) to demonstrate very high exposure.

Flupyradifurone is registered for a large number of crops such as citrus, cotton, potatoes and many others to protect against piercing and sucking insects such as aphids, whiteflies, thrips, and psyllids, all of which have become increasingly resistant to other pesticides and are difficult to control. The registration of flupyradifurone will provide

Advertisement



Newsletter Signup

Sign-up to receive our free newsletters

- Corn and Soybean Digest Extra - (Weekly)** [View Sample](#)
- Corn E-Digest - (Monthly)** [View Sample](#)
- Soybean E-Digest - (Monthly)** [View Sample](#)
- Crop News Weekly - (Weekly)** [View Sample](#)
- Farm Industry News Now - (Weekly)** [View Sample](#)

E-MAIL*

COUNTRY* United States

Enter your email above to receive messages about offerings by Penton, its brands, affiliates and/or third-party partners, consistent with Penton's [Privacy Policy](#).

SUBSCRIBE

growers across the U.S. with a new pest resistance management tool that presents an effective countermeasure to resistance development. No residential uses have been proposed.

More information on this regulatory action can be found at www.regulations.gov, Docket ID: EPA-HQ-OPP-2013-0226-0044.

To learn more about EPA's actions to protect pollinators, visit our [Pollinator Protection website](#).

SHARE Tweet Recommend 7

Discuss this Article 0

NAME:

[Sign In](#) or [register](#) to use your Corn and Soybean Digest ID

EMAIL:

YOUR COMMENT: *

SUBMIT COMMENT

Related Articles

[Bee Threat at Planting](#) 21

[EU Fails to Ban Neonicotinoid Pesticides, Support Bee Health](#) 5

[EPA registers Enlist Duo herbicide](#) 4

[EPA Pesticides Application Permit Plans are "Too Optimistic"](#) 1

[Controlling Corn Insects More Beneficial With Higher Commodity Prices](#) 2

Advertisement

Continuing Education Courses

NEW COURSE



Current Status of Herbicide Resistance in Weeds.

Accredited for 2 hours/CCA Soil & Water credits. The 2,000 member...



Spray Drift Management

Keeping crop protection chemicals on the crop for which they are intended has been a...

[View All Courses](#)

Advertisement



NATIONAL FARM MACHINERY SHOW
FEBRUARY 11-14, 2015
Kentucky Exposition Center | Louisville, KY

Connect With Us

Advertisement

Get Stacked



with the Granular Advantage from **AMVAC**



Corn & Soybean Digest

Like 2,299

PubMed

[Abstract](#)

FASEB J. 2015 Jan 28. pii: fj.14-260901. [Epub ahead of print]

Developmental pesticide exposure reproduces features of attention deficit hyperactivity disorder.

[Richardson JR](#)¹, [Taylor MM](#)², [Shalat SL](#)², [Guillot TS 3rd](#)², [Caudle WM](#)², [Hossain MM](#)², [Mathews TA](#)², [Jones SR](#)², [Cory-Slechta DA](#)², [Miller GW](#)².

Author information

Abstract

Attention-deficit hyperactivity disorder (ADHD) is estimated to affect 8-12% of school-age children worldwide. ADHD is a complex disorder with significant genetic contributions. However, no single gene has been linked to a significant percentage of cases, suggesting that environmental factors may contribute to ADHD. Here, we used behavioral, molecular, and neurochemical techniques to characterize the effects of developmental exposure to the pyrethroid pesticide deltamethrin. We also used epidemiologic methods to determine whether there is an association between pyrethroid exposure and diagnosis of ADHD. Mice exposed to the pyrethroid pesticide deltamethrin during development exhibit several features reminiscent of ADHD, including elevated dopamine transporter (DAT) levels, hyperactivity, working memory and attention deficits, and impulsive-like behavior. Increased DAT and D1 dopamine receptor levels appear to be responsible for the behavioral deficits. Epidemiologic data reveal that children aged 6-15 with detectable levels of pyrethroid metabolites in their urine were more than twice as likely to be diagnosed with ADHD. Our epidemiologic finding, combined with the recapitulation of ADHD behavior in pesticide-treated mice, provides a mechanistic basis to suggest that developmental pyrethroid exposure is a risk factor for ADHD.-Richardson, J. R., Taylor, M. M., Shalat, S. L., Guillot III, T. S., Caudle, W. M., Hossain, M. M., Mathews, T. A., Jones, S. R., Cory-Slechta, D. A., Miller, G. W. Developmental pesticide exposure reproduces features of attention deficit hyperactivity disorder.

© FASEB.

KEYWORDS: ADHD; dopamine receptor; dopamine transporter; impulsivity; pyrethroid

PMID: 25630971 [PubMed - as supplied by publisher]

[LinkOut - more resources](#)[PubMed Commons](#)[PubMed Commons home](#)

YardScaping: An IPM Success Story

One of the big questions whenever a grant is awarded is whether the project will become sustainable after initial funding runs out. Although the hope is that every project will go on to be self-sustaining, that is unfortunately not always the reality. However, many projects do see continued success, and one such shining example is Maine's YardScaping Partnership.

In 2004, the EPA's Office of Pesticide Programs provided \$35,000 towards the Maine Board of Pesticides Control (BPC) \$160,000 project entitled, *YardScaping: Minimizing Reliance on Pesticides by Example Using Demonstration, Outreach, and IPM Training*. The project, led by BPC's Gary Fish, had the goal of addressing the rapidly increasing use of yard care pesticides, rising more than seven-fold between 1995 and 2007, with run-off confirmed in Maine's Casco Bay seven times between 2001 and 2009.

This confirmation of fertilizer and pesticide run-off raised concern among state agencies and other environmental stewardship organizations. The partnership sought to change the mindset of homeowners from pursuing lawns with a carpet of green grass to pursuing healthy yards grown without the excessive use of pesticides, fertilizers and water.

The project proposed to establish a beautiful, highly visible, low input landscape demonstration site in Maine's largest city, Portland, which would serve as an attention-grabbing "advertisement" of how homeowners can minimize reliance on pesticides and still grow attractive gardens and turf. The YardScaping Gardens were designed to be a showcase for trees, shrubs, and perennials that can make Maine gardens more sustainable and help gardeners and landscapers reduce their reliance on fertilizers, pesticides, and irrigation water.

The gardens, as well as the messages displayed on signage throughout, were intended to demonstrate and explain how Integrated Pest Management (IPM) strategies, such as choosing low-maintenance plants adapted to Maine's climate, protecting beneficial insects, accepting some weeds, using spot treatments and minimizing reliance on pesticides can make for desirable landscapes.

The YardScaping Gardens at Back Cove had their grand opening in 2011, after ten years of planning, meetings, grant writing, fundraising, and planting. The two-and-a-half acres donated by the City of Portland along the shore of Back Cove showcase appropriate plantings in urban to rural settings in a beautiful, homeowner-doable way, and serve as a model for municipalities across the state.



This project was a success due to the more than 30 businesses, organizations and agencies from around the state. Most of the work on the gardens has been done by volunteers from those organizations and from many of the neighborhoods that surround the cove. Volunteers continue to donate their time to maintain the gardens, with special focus on removing weeds by hand and mulching.

The gardens have seen such success that they have been recognized several times, with the "Friend of Casco Bay" award from Friends of Casco Bay, the "Gold Leaf Award for Outstanding Landscape Beautification Activities" from the International Society of Arboriculture and most recently from the Mayor of Portland.



Mayoral Proclamation

On November 1, 2014, the Mayor of Portland issued a proclamation honoring the hard-working volunteers who dedicated their time to build and maintain the gardens. The award-winning gardens continue to inspire the residents of Portland towards environmental stewardship through sustainable landscaping.

The success of the YardScaping Partnership is reflected in the overall changes in attitude shown by the landscaping, lawn care and golf course associations in Maine. The Maine Landscape and Nursery Association now offers a Sustainable Landscaping certification and the Maine Golf Course Superintendents Association has been encouraging its member courses to seek Audubon International certification. Phosphorus has been removed from lawn fertilizers and a definite shift has occurred in many lawn care companies, that they now offer a more tailored approach to pest management.

Maine's YardScaping Partnership hopes a smartphone guided tour of the YardScaping Gardens at Back Cove will inspire many gardeners to practice IPM and plant more sustainable landscapes.

For more information, please visit:
www.yardscaping.org

[CURRENT ISSUE \(/CONTENT/CURRENT\)](#) [ARCHIVE \(/CONTENT\)](#) [NEWS & MULTIMEDIA \(/MULTIMEDIA\)](#) [FOR AUTHORS \(/SITE/AU1](#)

[ABOUT PNAS \(/SITE/ABOUTPNAS/INDEX.XHTML\)](#) [COLLECTED ARTICLES \(/SITE/MISC/COLLECTEDPAPERS.XHTML\)](#) [BROWSE BY TC](#)

[EARLY EDITION \(/CONTENT/EARLY/RECENT\)](#)

Proceedings of the National Academy of Sciences

www.pnas.org

[Home \(/\)](#) > [Early Edition \(/content/early/recent\)](#) > [Clint J. Perry, doi: 10.1073/pnas.1422089112](#)



Rapid behavioral maturation accelerates failure of stressed honey bee colonies

Clint J. Perry ([/search?author1=Clint+J.+Perry&sortspec=date&submit=Submit](#))^{a,b,1},

Eirik Søvik ([/search?author1=Eirik+S%C3%B8vik&sortspec=date&submit=Submit](#))^{a,c,1},

Mary R. Myerscough ([/search?author1=Mary+R.+Myerscough&sortspec=date&submit=Submit](#))^d, and

Andrew B. Barron ([/search?author1=Andrew+B.+Barron&sortspec=date&submit=Submit](#))^{a,2}

Author Affiliations

Edited by Gene E. Robinson, University of Illinois at Urbana–Champaign, Urbana, IL, and approved January 21, 2015 (received for review November 18, 2014)

[Abstract](#) [Authors & Info](#) [SI \(/content/early/2015/02/04/1422089112/suppl/DCSupplemental\)](#)

[Metrics](#) [Related Content \(/content/early/2015/02/04/1422089112.abstract/?tab=related\)](#)

[PDF \(/content/early/2015/02/04/1422089112.full.pdf+html\)](#)

[PDF + SI \(/content/early/2015/02/04/1422089112.full.pdf+html?with-ds=yes\)](#)

Significance

Honey bee colony death rates are unsustainably high. While many stressors have been identified that contribute to this problem, we do not know why colonies transition so rapidly from a state of apparent health to failure. It is well known that individual bees react to nutritional and pathogen stresses by foraging precociously: our study explains how colony failure arises from the social responses of individual bees to stress. We used radio tracking to monitor performance of bees and found that workers who begin foraging prematurely perform very poorly. This compounds the stresses on the colony and accelerates failure. We suggest how colonies at risk can be identified early, and the most effective interventions to prevent failure.

Abstract

Many complex factors have been linked to the recent marked increase in honey bee colony failure, including

pests and pathogens, agrochemicals, and nutritional stressors. It remains unclear, however, why colonies frequently react to stressors by losing almost their entire adult bee population in a short time, resulting in a colony population collapse. Here we examine the social dynamics underlying such dramatic colony failure. Bees respond to many stressors by foraging earlier in life. We manipulated the demography of experimental colonies to induce precocious foraging in bees and used radio tag tracking to examine the consequences of precocious foraging for their performance. Precocious foragers completed far fewer foraging trips in their life, and had a higher risk of death in their first flights. We constructed a demographic model to explore how this individual reaction of bees to stress might impact colony performance. In the model, when forager death rates were chronically elevated, an increasingly younger forager force caused a positive feedback that dramatically accelerated terminal population decline in the colony. This resulted in a breakdown in division of labor and loss of the adult population, leaving only brood, food, and few adults in the hive. This study explains the social processes that drive rapid depopulation of a colony, and we explore possible strategies to prevent colony failure. Understanding the process of colony failure helps identify the most effective strategies to improve colony resilience.



behavioral development (</search?fulltext=behavioral+development&sortspec=date&submit=Submit&andorexactfulltext=phrase>)
 temporal polyethism (</search?fulltext=temporal+polyethism&sortspec=date&submit=Submit&andorexactfulltext=phrase>)
 colony collapse disorder (</search?fulltext=colony+collapse+disorder&sortspec=date&submit=Submit&andorexactfulltext=phrase>)
 compartment model (</search?fulltext=compartment+model&sortspec=date&submit=Submit&andorexactfulltext=phrase>)
 RFID (</search?fulltext=RFID&sortspec=date&submit=Submit&andorexactfulltext=phrase>)

Footnotes

¹C.J.P. and E.S. contributed equally to this work.

²To whom correspondence should be addressed. Email: andrew.barron@mq.edu.au (<mailto:andrew.barron@mq.edu.au>).

Author contributions: C.J.P., E.S., and A.B.B. designed research; C.J.P., E.S., M.R.M., and A.B.B. performed research; C.J.P., E.S., and M.R.M. analyzed data; and C.J.P., E.S., M.R.M., and A.B.B. wrote the paper.

The authors declare no conflict of interest.

This article is a PNAS Direct Submission.

This article contains supporting information online at www.pnas.org/lookup/suppl/doi:10.1073/pnas.1422089112/-/DCSupplemental.

Don

Help P
service
the PN
(<http://>
comm
specia
celebr

Artic

Art

Ex

Sa

© Re

/about

Shar

f (/

titl

doi

tw (

titl

doi

g+





GMO APPLES

Genetically modified apples approved



7 HOURS AGO • JANE FYKSEN AGRI-VIEW CROPS EDITOR

The U.S. Department of Agriculture's Animal and Plant Health Inspection Service has decided to deregulate two apple varieties genetically engineered to resist browning. Service officials found that the genetically modified apples are unlikely to pose a plant-pest risk to agriculture and other plants in the United States. They also completed an environmental assessment, finding that deregulation is not likely to have a significant impact on the human environment either.

The genetically modified varieties, developed by Okanagan Specialty Fruits, will be marketed as Arctic Granny and Arctic Golden. Okanagan Specialty Fruits is currently engaging in a voluntary food-safety-assessment consultation with the U.S. Food and Drug Administration regarding its Arctic-brand apples.

USDA's deregulation of Arctic apples means they can now be grown for commercial production and eventually sold in stores. There are presently no GMO apples in the marketplace, nor will there be in the upcoming 2015 apple-harvest season.

USDA declared in its review that Arctic apples are just like any other apple except for their non-browning trait. Arctic apples offer the same nutrition benefits as non-GMO apples. Browning is a natural process that happens when an apple is exposed to oxygen. Arctic apples do not include genes from other species but use apple-to-apple biotechnology to silence — or “turn off” — the gene in apples that causes browning.

The U.S. Apple Association — usapple.org — supports advancements from technology, including genetics and genomics research. Benefits are seen as quality, new varieties, new aromatic flavor profiles, improved pest resistance and enhanced nutrition.

The association supports consumer choice in apples. Consumers will be able to decide whether to try these new, “non-browning” apples, and ultimately, the marketplace will determine whether there is a demand for them. The company that developed Arctic apples asserts its Arctic brand will be clearly marketed and sold under the Arctic label, allowing consumers to make informed purchase decisions. Visit okspecialityfruits.com for more Arctic brand information.

According to USDA, even Arctic apples will over time age, turn brown and rot just like any other fruit. They are, however, genetically engineered to produce less of the substance that causes browning; thus when they're sliced or bruised, the apple flesh retains its original color longer.

As a non-GMO low-browning alternative, many varieties of apples currently available in stores

are low-browning, the association said. There are also simple methods to slow the browning process, such as lightly coating sliced or cut apples with Vitamin C-fortified apple juice.

Food and Water Watch Executive Director Wenonah Hauter said USDA's first approval of an aesthetically improved genetically engineered food will expand the reach of GMO products into the produce aisle, which currently only offers a small number of GMO foods.

"The USDA has neglected to look at the full range of risks from these apples," Hauter said. "In its environmental assessment, the USDA glossed over the possibility of unintentional effects associated with the technology used to engineer these apples, potential economic impacts on the U.S. and international apple market, effects of potential contamination for non-GMO and organic apple growers, and the impact of the non-browning gene silencing, which also can weaken plant defenses and plant health."

USDA, however, stated that its final decision can only be based on its analysis of the potential for the genetically engineered plant to pose a plant-pest risk to agriculture or other plants.

"This apple was produced using a relatively new method of genetic engineering, known as RNA interference," Hauter said. "This technology uses RNA to silence a target gene, but mounting evidence has shown that meddling with the genes could have unintended effects within the plant and also on organisms that eat the plant. The particular gene targeted by this technology allows the apples to be sliced without turning brown, which could mislead consumers into thinking they are eating fresh apples when they might be eating apples on the verge of rotting. Browning is an important indicator to consumers in determining the freshness of an apple or apple slice.

"The silenced gene is also heavily involved in a plant's natural defense against pests and pathogens, which could lead to trees that are less healthy than non-GMO apples and rely on more chemical treatments to ward off pests and disease.

"This GMO apple is simply unnecessary. Apple browning is a small cosmetic issue that consumers and the industry have dealt with successfully for generations."

Visit www.aphis.usda.gov/biotechnology/news to view the final environmental assessment on these modified apples.

THE CONVERSATION

February 18 2015, 5.58am EST

Flower pharmacies help bees fight parasites

AUTHOR



Leif Richardson

USDA NIFA Postdoctoral
Research Fellow at
University of Vermont



A bumble bee foraging for nectar and pollen at a turtlehead plant that produces the compound catalpol, which reduced bee parasite load. Leif Richardson, CC BY-NC-ND

Search for information on 'self-medication,' and you'll likely find descriptions of the myriad ways that we humans use drugs to solve problems. In fact, the consumption of biologically active molecules — many of which come from plants — to change our bodies and minds seems a quintessentially human trait.

But plants feature prominently in the diets of many animals too. A growing body of research suggests some animals may derive medicinal benefit from plant chemistry, and perhaps even seek out these chemicals when sick. Chimpanzees eat certain leaves that have parasite-killing properties. Pregnant elephants have been observed eating plant material from trees that humans use to induce labor. You may have even seen your pet dog or cat eat grass — which provides them no nutrition — in what's believed to be an effort to self-treat nausea by triggering vomiting.

In my research, I've looked at how bumble bees are affected by these kinds of biologically active compounds. With colleagues, I've found that certain plant chemicals naturally present in nectar and pollen can benefit bees infected with pathogens. Bees may even change their foraging behavior when infected so as to maximize collection of these chemicals. Could naturally occurring plant chemicals in flowers be part of a solution to the worrying declines of

wild and managed bees?

Why do plants make these chemicals?

On top of the compounds plants make to carry out the 'primary' tasks of photosynthesis, growth and reproduction, plants also synthesize so-called secondary metabolite compounds. These molecules have many purposes, but chief among them is defense. These chemicals render leaves and other tissues unpalatable or toxic to herbivores that would otherwise chomp away.

Many studies of coevolution center on plant-herbivore interactions mediated by plant chemistry. An 'arms race' between plants and herbivores has played out over long time scales, with the herbivores adapting to tolerate and even specialize in toxic plants, while plants appear to have evolved novel toxins to stay ahead of their consumers.

Herbivores may experience benefits, costs or a combination of both when they consume plant secondary metabolites. For example, monarch butterfly larvae are specialized herbivores of milkweeds, which contain toxic steroids called cardenolides. While monarchs selectively concentrate cardenolides in their own bodies as defense against predators such as birds, they may also suffer slowed growth rate and increased risk of mortality as a consequence of exposure to these toxic compounds.

Interestingly, secondary metabolites are not only found in leaves. They're also present in tissues whose apparent function is to attract rather than repel – including fruits and flowers. For example, it has long been known that floral nectar commonly contains secondary metabolites, including non-protein amino acids, alkaloids, phenolics, glycosides and terpenoids. Yet little is known of how or whether these chemicals affect pollinators such as bees.

Could secondary metabolites influence plants' interactions with pollinators, just as they affect interactions with herbivorous consumers of leaf tissue? Similar to other herbivores, could bees also benefit by consuming these plant compounds? Could secondary metabolite consumption help bees cope with the parasites and pathogens implicated in declines of wild and managed bees?



For monarch larvae, swamp milkweed is both kitchen cupboard and medicine cabinet. Leif Richardson, CC BY-NC-ND

[Click to enlarge](#)



Plant compounds decrease parasites in bees

With colleagues in the labs of Rebecca Irwin at Dartmouth College and Lynn Adler at University of Massachusetts, Amherst, I investigated these questions in a new study. We found that a structurally diverse array of plant secondary metabolite compounds found in floral nectar can reduce parasite load in bumble bees.

Bees could use some reliable self-remedies. Daniel Krieg, CC BY

[Click to enlarge](#)



Bumble bees in the lab colony. Leif Richardson, CC BY-NC-ND

[Click to enlarge](#)

In a lab setting, we infected the common eastern bumble bee (*Bombus impatiens*) with a protozoan gut parasite, *Crithidia bombi*, which is known to reduce bumble bee longevity and reproductive success. Then we fed the bees daily either a control sucrose-only nectar diet or one containing one of eight secondary metabolite compounds that naturally occur in the nectar of plants visited by bumble bees in the wild.



A bee consumes an experimental nectar solution containing plant chemicals. Leif Richardson, CC BY-NC-ND

[Click to enlarge](#)

After one week, we counted parasite cells in bee guts. Overall, a diet containing secondary metabolites strongly reduced a bee's disease load. Half the compounds had a statistically significant effect on their own. The compound with the strongest effect was the tobacco alkaloid anabasine, which reduced parasite load by more than 80%; other compounds that protected bees from parasites included another tobacco alkaloid, nicotine, the terpenoid thymol, found in nectar of basswood trees, and catalpol, an iridoid glycoside found in nectar of turtlehead, a wetland plant of eastern North America.

We expected that bees might also incur costs when they consumed these compounds. But we found that none of the chemicals had an effect on bee longevity. Anabasine, the compound with the strongest anti-parasite benefit, imposed a reproductive cost, increasing the number of days necessary for bees to mature and lay eggs. Despite this delay, however, there were no differences in ultimate reproductive output in our experiment.

This research clearly demonstrates that wild bees can benefit when they consume the secondary metabolites naturally present in floral nectar. And bees' lifetime exposure to these compounds is likely even greater, since they also consume them in pollen and as larva.



The author studying nectar chemistry effects on bees in a field experiment. Adrian Carper, CC BY-NC-ND

[Click to enlarge](#)

In other research, we've uncovered evidence that some of the compounds with anti-parasite function are sought after by bees when they have parasites, but not when they are healthy. At least in some contexts – including a field experiment with wild bees naturally infected with *Crithidia bombi* – bumble bees make foraging choices in response to parasite status, similar to other animals that self-medicate.

Rx for struggling bee populations?

So what about practical applications: could this research be leveraged to help declining bee populations? We don't know yet. However, our findings suggest some interesting questions about landscape management, pollinator habitat gardening and farm practices.

In future work, we plan to investigate whether planting particular plants around apiaries and farms would result in healthier bee populations. Are native plants important sources of medicinal compounds for bees with which they share long evolutionary histories? Can farms that depend on wild bee pollinators for delivery of the 'ecosystem service' of pollination be better managed to support bee health?

Delivery of nectar and pollen secondary metabolites to diseased bees is likely not the only tool necessary to promote long-term sustainability of these ecologically and economically important animals. But it appears that this could be at least part of the solution. Agriculture may come full circle, acknowledging that in order to benefit from an ecosystem service delivered by wild animals, we must consider their habitat requirements.

Portland Press Herald

Maine Gardener: Leading the charge against invasive plants

The state names biologist Nancy Olmstead to coordinate the battle.

By Tom Atwell

For the first time ever, the state of Maine has an employee whose sole charge is to control invasive plants.

Nancy Olmstead was hired last year as the invasive plant biologist for the Maine Natural Areas Program in the Department of Agriculture, Conservation and Forestry.

“Invasive plants can overrun our natural areas, out-compete native plants and diminish habitat quality for native species,” she said in a recent interview. “If we don’t take action, our vitally important areas, like salt marshes and flood plains, could be taken over.”

Non-native plants cause all sorts of problems. For example, new research has shown that invasive Japanese barberry provides ideal habitat for white-footed mice, which are a host for the deer tick that causes Lyme disease, she said. Other research has found that invasive common and Japanese buckthorn plants release chemicals that threaten native amphibians – especially worrying as amphibians around the world are facing what scientists have termed an “extinction crisis.”

Compared to other states, Maine is both ahead and behind in its fight against invasives, Olmstead said.

Ahead because our colder temperatures have prevented many invasive plants from reaching Maine thus far. Beyond that, many of Maine’s forests were never cut down for farmland; Olmstead explained that invasives often grown on old farm sites, brought by settlers who planted the nonnative plants they were familiar with from home.

Where Maine is behind is that the state lacks a Do Not Sell list for invasive plants. Maine nurseries may legally still sell such invasive plants such as Japanese barberry and burning bush (popular for its bright red fall color).

One of Olmstead’s first tasks in her new job is to create such a list – she’s working on that now. “It’s just a long road,” she said. “In every other New England state they have that list.”

While such a list would regulate sales, though, Mainers would likely not be required to remove the burning bush plant, say, that has grown in their yard for generations, Olmstead said. (She added that she would not be opposed to friends and family gently nudging homeowners to remove such plants.)

Maine does have one invasive-plant list with the power of law; it regulates aquatic plants. The Department of Environmental Protection works to keep boaters from dispersing aquatic invaders – even a bit of stem or leaf can hitch a ride on a recreational boat and then quickly spread throughout Maine waters.

Olmstead, who studied ecology and environmental sciences at Cornell, worked for the Nature Conservancy, taught labs and other classes at Bowdoin College and completed a field naturalist program at the University of Vermont, does battle with invasives in her off hours, too. At her home, a corner lot in Portland that is mostly lawn with some lilacs, forsythia and a beautiful silver maple, she is “working to get rid of multiflora roses,” she said. “I don’t have any flowering bittersweet vines, but I do have to pull tiny sprouts that come up. And I have a big shrubby honeysuckle that it is going to be a monumental task to get rid of.”

She encouraged other Maine gardeners to do likewise. They can do significant work to help the state fight invasives, she said, suggesting that while they are trapped inside by all the snow, they read the Cooperative Extension’s advisory native plant brochure (available at umaine.edu/publications/2500e) and dream about what to plant in the spring. Any native tree, shrub or perennial that Maine home gardeners plant from that list could provide habitat for native wildlife and keep invasive plants from finding a place to root.

Another of Olmstead’s early assignments is to launch and then administer an online mapping tool called iMapInvasives. Nine states and the Canadian province of Saskatchewan are involved in the project (so far), which keeps track of invasive plant species by watershed and by county. The maps are online at imapinvasives.org, and experts with specific knowledge will be able to log in and add information.

“We want to grow the database by bringing in people from other agencies and land trusts,” Olmstead said. “We not only want to follow the distribution of invasive plants on the landscape, but to keep track of treatment efforts at different locations to see if they work.”

Though the task is daunting, Olmstead is optimistic that Maine can one day control – if not eliminate – invasive plants. One instance that gives her hope is that some areas of Kennebec County have no invasive Asiatic bittersweet, and she is finding that “if people monitor and control it, they can keep it out.” That said, the task is harder in southern Maine, she noted, because once an area is cleared of invasives, that nice clearing is like an invitation for new invasives to move in.

Speaking personally, I heard some potentially good news on the invasives front at the New England Grows trade show in Boston earlier this month. Lisa Tewksbury, of the University of Rhode Island Biological Control Lab, said that the moth *Hypena opulanta* may be able to help eradicate swallow-wort, an invasive plant that has been showing up in coastal areas throughout New England, including in Maine. The swallow-wort vine, a close relative of milkweed, can strangle native plants (including rare ones), and is almost impossible to eradicate by such methods as digging up or removing the pods. Worse, the swallow-wort confuses (at risk) Monarch butterflies, who lay their eggs on its leaves instead of on milkweed, which is their primary food source. But the monarch caterpillars can’t eat the swallow-wort, so they starve.

Tewksbury said the University of Rhode Island has received permission to release the moth on an island near Woods Hole, Massachusetts, as part of a study. The hope is that it will make short work of swallow-wort, because it breeds quickly – going through five generations a year – and has a very limited diet: Its favorite food is the swallow-wort. If the experiment proves effective, the moth could be released elsewhere in a few years, perhaps in Maine.

TWO GOOD RESOURCES ON INVASIVES

THE UNIVERSITY OF MAINE COOPERATIVE EXTENSION has a website with superb information about the right plants to grow in Maine – and the ones to avoid. Included is a link to 23 extension bulletins on native plants useful in the Maine landscape and 23 invasive plants. You can also find a list of nurseries that sell

native plants. Go to umaine.edu/gardening/ and click on Home Gardening Information, then [Plants for the Maine Landscape](#).

FOR INFORMATION about the state program, go to maine.gov/dacf/mnap and click on Invasive Species.

MAINE INVASIVE SPECIES NETWORK FIFTH ANNUAL MEETING

WHERE: The Bank of Maine Ice Vault, 203 Whitten Road, Hallowell

WHEN: 8:30 a.m.-3:30 p.m. Wednesday

HOW MUCH? Free

INFO: umaine.edu/invasivespecies. Registration required.

About the author

Tom Atwell is a freelance writer gardening in Cape Elizabeth and can be contacted at 767-2297 or at tomatwell@me.com.

Portland Press Herald Meet: Nancy McBrady, top advocate for Maine's wild blueberries

She says her background as a lawyer will help her stick up for the tiny berry with a big taste.

By Mary Pols Staff Writer

mpols@pressherald.com | [@MaryPols](https://twitter.com/MaryPols) | 207-791-6456

February 22, 2015

Meet Nancy McBrady, the new executive director of the Wild Blueberry Commission of Maine. McBrady replaced David Bell, who had been in the job for 18 years, and she has the distinction of being the first woman to hold the job since the commission was founded in 1971. We called her up to talk about her transition from high-powered Preti Flaherty attorney to the champion of the Maine wild blueberry.

She'll advocate for the commission before state and federal lawmakers, help bring grant money to the industry, and work closely with the University of Maine Cooperative Extension on research and development issues. And, yes, we did ask how she consumes her wild blueberries.

STEALTH STAFFER: Her new position was announced this month, but McBrady, a native of Lewiston and a graduate of the University of Maine School of Law, said she started last fall by attending a joint meeting between the U.S. and Canadian wild blueberry boards before she was officially named to the post.

Then she dove right into an intense application process for a grant from the Maine Department of Agriculture, Conservation and Forestry. Why so under the radar? She and the commission were too busy for press releases. (They got the \$50,000 grant, earmarked for marketing efforts.)

"It just wasn't a priority," McBrady said. "But now that the smoke has cleared ..."

LEAVING THE LAW: At Preti Flaherty, McBrady practiced environmental, land use and municipal law for seven years. "I will not and do not miss the billable hour," McBrady said, laughing. She took a week off after leaving the firm, spending most of it reading (she can definitely recommend Andy Weir's "The Martian").

But she's grateful for her legal background. "I have a lot to learn with respect to the USDA, but I have an understanding of how the Clean Water and Clean Air acts work, as well as the state statutes," she said. All of which she's looking forward to translating into an agricultural perspective.

Maine wild blueberries, one of the state's most important crops – 86 million pounds are produced annually – are technically wild, but growers have increased yields through cultivation, including bringing in massive numbers of bees to pollinate the blueberries. Direct sales of the tiny, fragile berries amount to \$173 million annually, according to the commission.

A WOMAN IN CHARGE: Is it meaningful to be the first woman to hold this position? McBrady doesn't put her gender front and center, but she said she'd be happy if she brings a new perspective or "zeal" to the job. "The blueberry business in Maine is predominantly male, but it is also a family business," she said. "There are so many multi-generational families, and everyone has been incredibly welcoming to me."

HOW DO YOU LIKE THEM BERRIES?: Naturally, McBrady is a fan, although she's been a traditionalist in terms of how she likes them. "Honestly, I think raw and fresh in the summertime come August," she said. "But probably blueberry cheesecake would be a close second." Since landing her new job, she's been exploring the frozen wild blueberry. "I am probably not dissimilar to a lot of Mainers who don't know what a special and intensive business it is," she said. "I was so surprised to learn that 99 percent of the crop is frozen."

At home in Cumberland, she's been learning how adaptable the frozen berries are, especially where blenders are involved. "I am definitely a smoothie maven at the moment." She's also "keen" to have some blueberry cocktails but that won't happen for a little while.

BLUEBERRIES, BUT NOT FOR SAL: McBrady is expecting her first child this spring, a daughter, but she will not be naming her Sal. Shall we lay bets on how many copies of Robert McCloskey's classic she gets at her baby shower? McBrady did see something at Sherman's on Exchange that will likely end up on that baby's bedroom wall. "They have a 'Blueberries for Sal' poster that I am buying," she said. As for being pregnant when she accepted the job? The commission "didn't bat an eyelash," she said. "I just knew that meant all good things."

CHALLENGES AHEAD: The Maine wild blueberry business has quadrupled its yield since 1980. McBrady's job is to keep that forward momentum going despite challenges such as threats from invasive species and problems plaguing the colonies of pollinators brought in to the state every spring. Declining funding for research and development is also a concern.

"The University of Maine and the Cooperative Extension are the backbone" of what the Wild Blueberry Commission of Maine does, providing an "invaluable service" in terms of scientific research, she said. "This is a really special private-public relationship we have." So, her advocacy may take her to Washington, D.C., but it will always keep her rooting for the team at home.



Oregon bans use of bee-killing insecticides on linden trees

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

Email the author | Follow on Twitter

on February 27, 2015 at 5:18 PM, updated February 27, 2015 at 5:23 PM

A state rule established Friday bans the use of four types of bee-killing insecticides on linden trees and related species.

The rule, enacted at the request of the Oregon Department of Agriculture, makes it illegal to spray lindens, basswood trees and their relatives with any product containing dinotefuran, imidacloprid, thiamethoxam or clothianidin. The four chemicals are all neonicotinoids, a class of insecticides that has been identified as a major contributor to the collapse of bee colonies around the world.

They've also been implicated in seven major bee die-offs in Oregon since June 2013, when **50,000 bees dropped dead in a Wilsonville Target** supermarket parking lot after workers sprayed dinotefuran on trees the bees swarmed.

Bee advocates say the event is the most massive bee die-off on record.

"The vast majority of those die-offs were not the result of label violations," said Aimee Code, pesticide program coordinator for the **Xerces Society**. "That means legal insecticide use was causing bee kills. I think Oregon really saw a need and addressed it."

Invertebrate advocates lauded the Department of Agriculture for "stepping up on the issue" with Friday's rule, while stressing that linden trees aren't the only plants treated with neonicotinoids. For example, nearly all corn seed used in the U.S. is coated with the insecticides.

"This is a small step, but it's a great one," said Lori Ann Burd, environmental health director for the **Center for Biological Diversity**.

Burd noted that dramatic incidents like the Wilsonville die-off bring the attention to neonicotinoids' effects, but lower-level exposure to the chemicals is behind the worldwide bee population crash.

"Bees who are exposed to even tiny levels experience hits to their neurological function," she said. "They can't find their way back to the hive, they have less foraging success, they can't communicate effectively, and they can't fight off wasps. Those are the impacts that are really significant on the population scale."

After the Wilsonville incident and in the midst of worldwide concerns about declining pollinator numbers, the state launched a **task force** to look at protections for pollinators. The group came out with a range of recommendations including increased outreach and education about bees and support for bee habitat research, but stopped short of prioritizing state restrictions on neonicotinoid use.

Friday's ruling takes a step in that direction. Those who break the rules could lose their authority to apply pesticides.

They could also face a civil penalty or other legal action.

As evidence tying neonicotinoids to colony collapse disorder mounts, state and federal regulators are increasingly taking action to limit the insecticides. One notable action is the U.S. Fish and Wildlife Service's decision to **ban the use of neonicotinoids on national wildlife refuges** by 2016.

-- Kelly House

khouse@oregonian.com

503-221-8178

@Kelly_M_House

© 2015 OregonLive.com. All rights reserved.

Rutland Herald

This is a printer friendly version of an article from www.rutlandherald.com

To print this article open the file menu and choose Print.

[Back](#)

Article published Mar 12, 2015

Exterminator fined \$70,000 in banned pesticide case.

By [Gordon Dritschilo](#)

Staff Writer

A local exterminator has been given one of the biggest fines in state history for pesticide violations.

The Vermont attorney general's office announced Wednesday that Cary Buck of AAA Accredited Pest Control in North Clarendon agreed to pay a \$70,000 fine and permanently surrender his pesticide license after spraying homes for bedbugs using chemicals not approved for indoor use.

"I'm retired anyway," Buck said when reached at home Wednesday night. "I'm 63 years old. ... I've got plenty of assets. We've got plenty of investments. There's plenty of other things I can do — I used to sell cars."

Buck said he was not facing any lawsuits over the contaminations and declined to comment further.

Assistant Attorney General Diane Zamos said the negotiated settlement forestalled the need for an administrative hearing in the professional conduct case.

She said it was one of the biggest fines the state Agency of Agriculture, Food & Markets has ever levied in a pesticide case.

Zamos said 45 different properties were affected, and the state Department of Health said 14 of those properties were so seriously contaminated that the state required assistance from the federal Environmental Protection Agency to clean them up.

She said several factors went into determining the fine, which could have gone as high as \$275,000.

"We did not go to a hearing, which saved time and expense," she said. "He lost his livelihood. He had forfeited his business assets."

State officials said that in 2012 and 2013, Buck used a pesticide called chlorpyrifos in his bedbug treatments despite the fact it had been banned for indoor use by the EPA since 2001.

The state become involved after a call from a family who was concerned about how their house smelled after the treatment. The chemical was present in such high concentrations that a state official said the family was "very fortunate" they did not occupy the building after the spraying.

Chlorpyrifos is a neurotoxin whose effects can include memory loss and numbness, with particular danger to children and pregnant women. There have been no official reports that anyone became sick as a result of the spraying.

@Tagline:gordon.dritschilo

@rutlandherald.com

Portland may further limit use of pesticides

 [pressherald.com/2015/03/17/portland-may-further-limit-pesticides/](https://www.pressherald.com/2015/03/17/portland-may-further-limit-pesticides/)

By Kelley Bouchard Staff Writer | @KelleyBouchard | 207-791-6328

Portland officials are talking about passing an ordinance that would further limit or ban the city's use of pesticides and possibly extend it to private use.

They're following in the footsteps of several other Maine communities, including Ogunquit, which recently passed an ordinance that restricts pesticide use but includes many exemptions.

Meanwhile, more than 700 Portland residents have signed a petition encouraging the city to stop spraying the broad-spectrum herbicide glyphosate, known commercially as Roundup, near schools and along sidewalks in residential neighborhoods. The petition has been submitted to the City Council's Transportation, Sustainability & Energy Committee, which is scheduled to take up the issue at 5:30 p.m. Wednesday.

"I'm surprised to see there are other communities that are ahead of us in eliminating or scaling back the use of pesticides and I'm open to how we can do that," said Councilor Jon Hinck, committee vice chairman.

Twenty-four municipalities have pesticide-control ordinances registered with the state Board of Pesticides Control, including Lebanon, Waterboro, Standish, Wells and Brunswick, according to a memo from the city's lawyers. The laws ban or regulate the type, method or oversight of pesticide application.

Ogunquit is the only town to extend its ordinance to private property, but it's not an outright ban. It allows pesticides permitted in certified organic farming, as well as those in pool chemicals, pet supplies, disinfectants, insect repellents, swimming pool supplies, aerosol products, paints and stains. Restricted pesticides also may be used to kill noxious or invasive plants, such as poison ivy, and to address a health and safety threat, such as disease-carrying insects.

While the Portland committee will discuss the possibility of banning private use of pesticides, Hinck said it would be difficult to enforce. Hinck said Portland's ordinance likely would focus on reducing or eliminating municipal use and educating the public to reduce residential or commercial use.

"It would be great if more residents of Portland shared the interest in reducing or eliminating pesticide use," Hinck said.

The committee and a growing number of Portland residents are concerned about the impacts of pesticides on people, pets and the environment, including soil, groundwater, lakes, streams and Casco Bay.

Glyphosate, in particular, is a biodegradable herbicide that's "safe" when used correctly, but it can cause kidney, lung and reproductive problems when breathed in or absorbed through the skin as a result of large or long-term exposures, according to the U.S. Environmental Protection Agency.

"My concern is the cumulative effect of all pesticides used in our community," said Paul Drinan, a Munjoy Hill resident who signed the petition targeting glyphosate and Roundup, which is made by Monsanto.

In 2000, Drinan co-founded the Portland Pesticide Watch, which succeeded in pushing the city's parks and public works departments to curb their pesticide use, according to Jeff Tarling, city arborist.

"We're not only trying to reduce our pesticide use, but also looking at how we manage some of our open

spaces,” Tarling said.

While there’s no formal written policy, the city no longer uses herbicides on lawns in city parks and at public schools, Tarling said.

The Rose Circle at Deering Oaks now features newer varieties that are naturally disease- and bug-resistant. And some fields have been planted with wildflowers and beneficial grasses that don’t have to be mowed.

But the city and its contractors still use glyphosate each year as a cost-effective way to kill weeds along sidewalks and on traffic islands, and other pesticides for a variety of other purposes.

“We’re looking at the ordinance in Ogunquit to see if any part of it would be pertinent to Portland,” Tarling said.

“We’re really revisiting our pesticide use and seeing how we can further reduce it.”

Share

[Read or Post Comments](#)

Were you interviewed for this story? If so, please fill out our [accuracy form](#).

[Send questions/comments to the editors](#).





Assessment of Chronic Sublethal Effects of Imidacloprid on Honey Bee Colony Health

Galen P. Dively, Michael S. Embrey, Alaa Kamel, David J. Hawthorne, Jeffery S. Pettis

Published: March 18, 2015 • DOI: 10.1371/journal.pone.0118748

Abstract

Here we present results of a three-year study to determine the fate of imidacloprid residues in hive matrices and to assess chronic sublethal effects on whole honey bee colonies fed supplemental pollen diet containing imidacloprid at 5, 20 and 100 $\mu\text{g}/\text{kg}$ over multiple brood cycles. Various endpoints of colony performance and foraging behavior were measured during and after exposure, including winter survival. Imidacloprid residues became diluted or non-detectable within colonies due to the processing of beebread and honey and the rapid metabolism of the chemical. Imidacloprid exposure doses up to 100 $\mu\text{g}/\text{kg}$ had no significant effects on foraging activity or other colony performance indicators during and shortly after exposure. Diseases and pest species did not affect colony health but infestations of *Varroa* mites were significantly higher in exposed colonies. Honey stores indicated that exposed colonies may have avoided the contaminated food. Imidacloprid dose effects was delayed later in the summer, when colonies exposed to 20 and 100 $\mu\text{g}/\text{kg}$ experienced higher rates of queen failure and broodless periods, which led to weaker colonies going into the winter. Pooled over two years, winter survival of colonies averaged 85.7, 72.4, 61.2 and 59.2% in the control, 5, 20 and 100 $\mu\text{g}/\text{kg}$ treatment groups, respectively. Analysis of colony survival data showed a significant dose effect, and all contrast tests comparing survival between control and treatment groups were significant, except for colonies exposed to 5 $\mu\text{g}/\text{kg}$. Given the weight of evidence, chronic exposure to imidacloprid at the higher range of field doses (20 to 100 $\mu\text{g}/\text{kg}$) in pollen of certain treated crops could cause negative impacts on honey bee colony health and reduced overwintering success, but the most likely encountered high range of field doses relevant for seed-treated crops (5 $\mu\text{g}/\text{kg}$) had negligible effects on colony health and are unlikely a sole cause of colony declines.

Citation: Dively GP, Embrey MS, Kamel A, Hawthorne DJ, Pettis JS (2015) Assessment of Chronic Sublethal Effects of Imidacloprid on Honey Bee Colony Health. PLoS ONE 10(3): e0118748. doi:10.1371/journal.pone.0118748

Academic Editor: Nicolas Desneux, French National Institute for Agricultural Research (INRA), FRANCE

Received: December 1, 2014; **Accepted:** January 20, 2015; **Published:** March 18, 2015

This is an open access article, free of all copyright, and may be freely reproduced, distributed, transmitted, modified, built upon, or otherwise used by anyone for any lawful purpose. The work is made available under the Creative Commons CC0 public domain dedication

Data Availability: All relevant data are available through the following Figshare DOIs: <http://dx.doi.org/10.6084/m9.figshare.1284680>; <http://dx.doi.org/10.6084/m9.figshare.1284679>; <http://dx.doi.org/10.6084/m9.figshare.1284678>; <http://dx.doi.org/10.6084/m9.figshare.1284677>; <http://dx.doi.org/10.6084/m9.figshare.1284676>; <http://dx.doi.org/10.6084/m9.figshare.1284675>; <http://dx.doi.org/10.6084/m9.figshare.1284674>; <http://dx.doi.org/10.6084/m9.figshare.1284673>; <http://dx.doi.org/10.6084/m9.figshare.1284672>; <http://dx.doi.org/10.6084/m9.figshare.1284671>; <http://dx.doi.org/10.6084/m9.figshare.1284667>.

Funding: Funded primarily by a Cooperative Agreement with the USDA-ARS Bee Research Laboratory. Partial funding by the Maryland Agricultural Experiment Station. Funding for Open Access provided by the UMD Libraries Open Access Publishing Fund. D.J.H. received support from the National Socio-Environmental Synthesis Center (SESYNC) - National Science Foundation (NSF) award DBI-1052875. The funders had no role in study design, data collection and analysis, decision to publish, or preparation of the manuscript.

Competing interests: The authors have declared that no competing interests exist.

Introduction

Honey bee (*Apis mellifera*) colony losses and declines in native pollinators have caused much concern worldwide [1–7]. In the United States, annual surveys conducted since the appearance of the syndrome known as colony collapse disorder (CCD) in 2006 continue to show consistent losses of colonies exceeding 30%, although the incidence of CCD has declined in recent years [8–10]. These losses threaten the economic viability of the beekeeping industry and have serious implications to pollination services for both cultivated and wild plants [11,12]. The consensus among bee scientists is that honey bee colony declines are the result of multiple stressors, working independently, in combination, or synergistically to impact honey bee health. Many stress factors have been identified, including parasitic mites (predominantly *Varroa destructor*), pathogens (viruses and *Nosema* spp.), interaction between mites and viruses, poor nutrition, pesticide exposure, management stress, and loss of foraging habitat [13–17]. While the specific causal pathways and relative contribution of these stressors are still unknown, beekeepers and many scientists assert that the extensive use of pesticides has had negative impacts on the health of honey bees and other pollinators.

Fruit and vegetable intake and their pesticide residues in relation to semen quality among men from a fertility clinic

Y.H. Chiu¹, M.C. Afeiche², A.J. Gaskins^{1,3}, P.L. Williams^{3,4},
J.C. Petrozza⁵, C. Tanrikut⁶, R. Hauser^{2,3}, and J.E. Chavarro^{1,3,7,*}

¹Department of Nutrition, Harvard T.H. Chan School of Public Health, Boston, MA 02115, USA ²Department of Environmental Health, Harvard T.H. Chan School of Public Health, Boston, MA 02115, USA ³Department of Epidemiology, Harvard T.H. Chan School of Public Health, Boston, MA 02115, USA ⁴Department of Biostatistics, Harvard T.H. Chan School of Public Health, Boston, MA 02115, USA ⁵Vincent Department of Obstetrics and Gynecology, Massachusetts General Hospital, Boston, MA 02114, USA ⁶Department of Urology, Massachusetts General Hospital, Boston, MA 02114, USA ⁷Channing Division of Network Medicine, Department of Medicine, Brigham and Women's Hospital and Harvard Medical School, Boston, MA 02115, USA

*Correspondence address. 665 Huntington Avenue, Boston, MA 02115, USA. Tel: +1-617-432-4584; Fax: +1-617-432-2435; E-mail: jchavarr@hsph.harvard.edu

Submitted on November 4, 2014; resubmitted on January 9, 2015; accepted on February 3, 2015

STUDY QUESTION: Is consumption of fruits and vegetables with high levels of pesticide residues associated with lower semen quality?

SUMMARY ANSWER: Consumption of fruits and vegetables with high levels of pesticide residues was associated with a lower total sperm count and a lower percentage of morphologically normal sperm among men presenting to a fertility clinic.

WHAT IS KNOWN ALREADY: Occupational and environmental exposure to pesticides is associated with lower semen quality. Whether the same is true for exposure through diet is unknown.

STUDY DESIGN, SIZE, DURATION: Men enrolled in the Environment and Reproductive Health (EARTH) Study, an ongoing prospective cohort at an academic medical fertility center. Male partners ($n = 155$) in subfertile couples provided 338 semen samples during 2007–2012.

PARTICIPANTS/MATERIALS, SETTING, METHODS: Semen samples were collected over an 18-month period following diet assessment. Sperm concentration and motility were evaluated by computer-aided semen analysis (CASA). Fruits and vegetables were categorized as containing high or low-to-moderate pesticide residues based on data from the annual United States Department of Agriculture Pesticide Data Program. Linear mixed models were used to analyze the association of fruit and vegetable intake with sperm parameters accounting for within-person correlations across repeat samples while adjusting for potential confounders.

MAIN RESULTS AND THE ROLE OF CHANCE: Total fruit and vegetable intake was unrelated to semen quality parameters. High pesticide residue fruit and vegetable intake, however, was associated with poorer semen quality. On average, men in highest quartile of high pesticide residue fruit and vegetable intake (≥ 1.5 servings/day) had 49% (95% confidence interval (CI): 31%, 63%) lower total sperm count and 32% (95% CI: 7%, 58%) lower percentage of morphologically normal sperm than men in the lowest quartile of intake (< 0.5 servings/day) (P , trend = 0.003 and 0.02, respectively). Low-to-moderate pesticide residue fruit and vegetable intake was associated with a higher percentage of morphologically normal sperm (P , trend = 0.04).

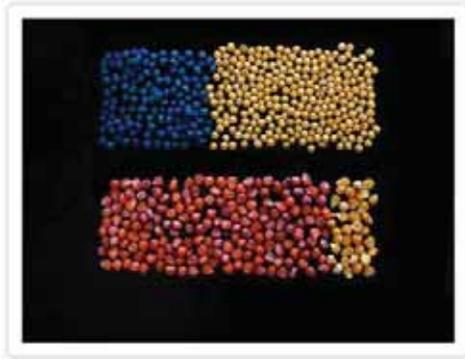
LIMITATIONS, REASONS FOR CAUTION: Surveillance data, rather than individual pesticide assessment, was used to assess the pesticide residue status of fruits and vegetables. CASA is a useful method for clinical evaluation but may be considered less favorable for accurate semen analysis in the research setting. Owing to the observational nature of the study, confirmation is required by interventional studies as well.

WIDER IMPLICATIONS OF THE FINDINGS: To our knowledge, this is the first report on the consumption of fruits and vegetables with high levels of pesticide residue in relation to semen quality. Further confirmation of these findings is warranted.

STUDY FUNDING/COMPETING INTEREST(S): Supported by National Institutes of Health grants ES009718, ES022955, ES000002, P30 DK046200 and Ruth L. Kirschstein National Research Service Award T32 DK007703-16. None of the authors has any conflicts of interest to declare.

Key words: fruits and vegetables / pesticide / semen quality

PENNSTATE



Use of a class of insecticides, called neonicotinoids, increased dramatically in the mid-2000s and was driven almost entirely by the use of corn and soybean seeds treated with the pesticides. Image shows treated soybean seeds (blue), versus untreated soybean seeds at the top and treated corn seeds (red) versus untreated corn seeds at the bottom.

Image: Ian Grettenberger, Penn State

Rapid increase in neonicotinoid insecticides driven by seed treatments

by Sara LeJeunese
April 2, 2015

UNIVERSITY PARK, Pa. -- Use of a class of insecticides, called neonicotinoids, increased dramatically in the mid-2000s and was driven almost entirely by the use of corn and soybean seeds treated with the pesticides, according to researchers at Penn State.

"Previous studies suggested that the percentage of corn acres treated with insecticides decreased during the 2000s, but once we took seed treatments into account we found the opposite pattern," said Margaret Douglas, graduate student in entomology. "Our results show that application of neonicotinoids to seed of corn and soybeans has driven a major surge in the U.S. cropland treated with insecticides since the mid-2000s."

According to Douglas, research suggests that neonicotinoids may harm pollinators. The European Union suspended neonicotinoid use on bee-attractive crops and the U.S. Environmental Protection Agency is expediting their review.

After discovering that neonicotinoid seed treatments were not explicitly documented in U.S. government pesticide surveys, the researchers synthesized available information to characterize the widespread use of these insecticides. First they compiled pesticide data from two public sources -- the U.S. Geological Survey and the U.S. Department of Agriculture -- that both reported aspects of neonicotinoid use, but did not estimate seed treatment use specifically. Using these data, together with information from insecticide product labels, the team estimated the percentage of land planted in corn and soybeans in which neonicotinoid-treated seeds have been used since these products were introduced in the mid-2000s. They corroborated their results with information from the U.S. Environmental Protection Agency and DuPont Pioneer, a major seed supplier.

The team found that in 2000, less than 5 percent of soybean acres and less than 30 percent of corn acres were treated with an insecticide, but by 2011, at least a third of all soybean acres and at least 79 percent of all corn acres were planted with neonicotinoid-coated seed, constituting a significant expansion in insecticide use. The researchers also found that the vast majority of neonicotinoids are used on crops, rather than in other arenas such as people's homes or gardens, or in turf grass and

ornamental settings. The results will appear today (Apr. 2,) in Environmental Science & Technology.

“Adoption of neonicotinoid insecticides by seed companies and farmers has been very rapid and does not appear to relate well to a corresponding risk from insect pests,” said John Tooker, associate professor of entomology. “This pattern suggests that neonicotinoids are often being used as an ‘insurance policy’ against uncertain insect attack, rather than in response to a documented pest threat.”

According to Douglas, the results inform an ongoing debate that is driven by detection of neonicotinoids in the environment and their possible negative effects on non-target animals, including wild and managed pollinators.

“Regulators, seed companies, farmers and the public are weighing the costs and benefits of neonicotinoid use,” she said. “This debate has been happening in a void of basic information about when, where and how neonicotinoids are used. Our work is holding up a mirror so that this conversation can be informed by basic facts about neonicotinoid use.”

In the future, the researchers plan to better document the prevalence of secondary insect pests targeted by seed treatments. They also will explore the unintended effects of neonicotinoid seed treatments on predatory insects that help to suppress insect pests. Finally, they are studying alternative management practices for early-season insect pests, for instance, using cover crops to reduce pest pressure and foster predatory insects.

The USDA’s Northeast IPM Center supported this research.

CONTACTS:

A'ndrea Elyse Messer, aem1@psu.edu
Work Phone: 814-865-9481

Last Updated April 03, 2015



Newsroom

News Releases By Date

EPA Takes Action to Protect the Public from an Unregistered Pesticide / EPA issues order to stop the sale of BioStorm and NanoStrike

Release Date: 03/30/2015

Contact Information: Dawn Harris Young, (404) 562-8421 (Direct), (404) 562-8400 (Main), harris-young.dawn@epa.gov

ATLANTA - The U.S. Environmental Protection Agency (EPA) has issued an order to Nano Defense Solutions, Inc. in Saint Augustine, Fla. to stop the sale of "BioStorm" and "NanoStrike." BioStorm and NanoStrike are products that are being marketed by the company for use in sites that include hospitals and athletic facilities.

The company claims in advertisements and brochures that BioStorm and NanoStrike use silver nanoparticle as an active ingredient and that these products are highly effective against bacteria, viruses, fungi, algae and yeasts. The company also makes unsubstantiated efficacy claims that "BioStorm and NanoStrike are designed to swiftly eradicate all microorganisms and keep surfaces free of colonization for up to a full year". Such public health claims can only be made on products that have been properly tested and are registered with the EPA.

Under federal pesticide law, products that contain a pesticide as an active ingredient or claim to kill or repel bacteria or germs are considered pesticides and must be registered with the EPA prior to distribution or sale. The Agency will not register a pesticide until it has been determined that it will not pose an unreasonable risk when used according to the label directions.

The EPA is committed to ensuring that products making public health claims in the marketplace meet stringent effectiveness and safety standards, since the public cannot readily determine with the naked eye the effectiveness and safety of antimicrobial pesticides. Due to potential human health implications if the pesticides are not effective or meet our safety standards, the EPA continues to place a priority on actions regarding non-complying pesticides.

For additional information about pesticides, visit: <http://www.epa.gov/pesticides/>.

Connect with EPA Region 4 on Facebook: www.facebook.com/eparegion4

And on Twitter: @EPASoutheast

[Receive our News Releases Automatically by Email](#)

Last updated on 4/3/2015

 [Search this collection of releases](#) | or [search all news releases](#)

 [Get news releases by email](#)

 [View selected historical press releases from 1970 to 1998 in the EPA History website.](#)

Recent additions

- 04/02/2015 [EPA Settlement with Jefferson County, Mo., Property Owner Results in Watershed Restoration](#)
- 04/02/2015 [Compliance with environmental laws protects air, land, and water in communities across Alaska, Idaho, Oregon, Washington](#)
- 04/01/2015 [EPA Awards Undergraduate Fellowship to Western Carolina University Student to Further the Environmental Workforce](#)
- 04/01/2015 [Baylor, Univ. of North Texas Students Win EPA Fellowship Grant](#)
- 04/01/2015 [Louisiana Tech Student Wins EPA Fellowship Grant](#)

Menu



Pollinator Protection

April 2015 Letter to Registrants Announcing New Process for Handling New Registrations of Neonicotinoids

As part of EPA's ongoing effort to protect pollinators, the Agency has sent letters to registrants of neonicotinoid pesticides with outdoor uses informing them that EPA will likely not be in a position to approve most applications for new uses of these chemicals until new bee data have been submitted and pollinator risk assessments are complete. The letters reiterate that the EPA has required new bee safety studies for its ongoing registration review process for the neonicotinoid pesticides, and that the Agency must complete its new pollinator risk assessments, which are based, in part, on the new data, before it will likely be able to make regulatory decisions on imidacloprid, clothianidin, thiamethoxam, and dinotefuran that would expand the current uses of these pesticides.

Read the letter that was sent to individual registrants of neonicotinoid pesticides with outdoor uses:

- [April 2015 Letter to Registrants Announcing New Process for Handling New Registrations of Neonicotinoids \(PDF\)](#) (3 pp, 523 K)

You will need Adobe Reader to view some of the files on this page. See EPA's [About PDF](#) page to learn more.

Last updated on April 3, 2015



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

OFFICE OF CHEMICAL SAFETY
AND POLLUTION PREVENTION

APR 02 2015

To: Registrants of Nitroguanidine Neonicotinoid Products

Subject: New and Pending Submissions for Outdoor Uses of Products Containing the Nitroguanidine Neonicotinoids Imidacloprid, Dinotefuran, Clothianidin or Thiamethoxam

Dear Registrant:

You are receiving this letter because your company has submitted an application for a new outdoor use and/or holds registrations for products containing imidacloprid, dinotefuran, clothianidin or thiamethoxam that have use directions for outdoor application.

I. Background

EPA is committed to developing a robust and science-based understanding of the implications of the use of nitroguanidine neonicotinoid pesticides. To that end, as you know, EPA has required that the registrants of these pesticides submit data (pollinator hazard and exposure) to inform this issue. EPA will specifically receive data on potential impacts of a pesticide on developing bees (larvae, pupae), oral exposures and data which examine potential adverse effects on honey bee colonies. These data are being generated now under the Registration Review program for this class of pesticides. The Registration Review schedule for these chemicals has been accelerated.

Separately, the Agency is also in receipt of a number of new use registration applications for these same pesticides. In the absence of the new studies, the Agency does not believe it has sufficient information to support a determination that new outdoor uses will meet the FIFRA registration standard for the pesticides imidacloprid, clothianidin, thiamethoxam and dinotefuran. EPA believes that until the data on pollinator health have been received and appropriate risk assessments completed, it is unlikely to be in a position to determine that such uses would avoid "unreasonable adverse effects on the environment" as required under FIFRA to support further regulatory expansion of these pesticides in outdoor settings. Affected actions include:

- New or Modified Uses (including crop group expansion requests)
- Changes to Existing Use Patterns (ex. adding aerial or soil application or significant formulation changes)
- Experimental Use Permits
- New Special Local Needs Registrations

Accordingly, until EPA receives and assesses the outstanding pollinator health data, EPA is unlikely to be in a position to grant any submitted registration action that involves a request with one of these pesticides for a new outdoor use or use expansion. However, EPA acknowledges that the merits of individual actions may differ and that, for example, a pest management need could arise during this interim period that would support the issuance of an emergency exemption request under FIFRA section 18. EPA will assess such requests by relying on currently available information and risk mitigation strategies. This announcement does not preclude the approval of products that are identical or substantially similar to existing uses (i.e., “me-too” products).

II. Products affected

This letter applies to any future submissions or submissions that are currently under review in the Agency for outdoor use(s) (excluding “me-too applications/products and FIFRA section 18 submissions that are consistent with EPA regulations) for pending and existing products containing the active ingredients imidacloprid, thiamethoxam, clothianidin, or dinotefuran.

III. What you need to do

For your registered nitroguanidine neonicotinoid products with a pending new outdoor use/expansion and/or any pending nitroguanidine neonicotinoid registrations with a new outdoor use, EPA requests that registrants withdraw or modify those impacted actions (where applicable by deleting the outdoor new use) by April 30, 2015. If your company does not have any pending outdoor use applications (excluding “me-too applications/products or FIFRA section 18 submissions) then no action is needed.

A. Address

For impacted actions that can be modified by deleting the pending outdoor use, you may send the revised cover letter and CD/DVD containing the revised label(s) by courier service to the Document Processing Desk address listed below by April 30, 2015.

Personal/Courier Service Deliveries (e.g., FedEx)

The following address should be used for resubmissions that are hand-carried or sent by courier service Monday through Friday, from 8:00 AM to 4:30 PM, excluding Federal holidays.

Document Processing Desk
Office of Pesticide Programs (7505P)
U.S. Environmental Protection Agency
Room S-4900, One Potomac Yard
2777 South Crystal Drive
Arlington, VA 22202-4501
ATTENTION: Resubmission/Revision to a Nitroguanidine Neonicotinoid

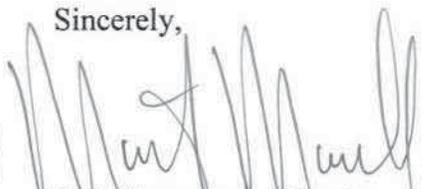
B. Email withdrawal request to Product Manger

For pending affected actions with the EPA, it is requested that the registrants email the withdrawal request directly to the product's Product Manager (PM) by April 30, 2015.

For imidacloprid, clothianidin and thiamethoxam -- please direct your email to Venus Eagle, PM01: eagle.venus@epa.gov. For dinotefuran -- please direct your email resubmission to Mark Suarez, PM07: suarez.mark@epa.gov.

EPA considers the completion of the new pollinator risk assessments for these chemicals to be an agency priority. Following that review, the agency expects to be in a position to make determinations under FIFRA Section 3 for new outdoor use applications for products containing imidacloprid, dinotefuran, clothianidin and thiamethoxam. Updates to this position, and EPA's assessments will be added to the Registration Review docket for each chemical. If you have any questions about this letter, please feel free to call Susan Lewis at (703) 305-8009 or Meredith Laws at (703) 308-7038.

Sincerely,

B-1  ACTING

Jack Housenger, Director
Office of Pesticide Programs

What's killing the bees?



Contributed photo

John O'Meara of New Sweden.

By John O'Meara, Special to the BDN

Posted April 06, 2015, at 7:09 a.m.

After a long, hard winter, there is nothing that welcomes spring more than the healthy buzz of a hive of bees.

Keeping bees healthy in Maine, or anywhere for that matter, has its challenges. In recent years, the age-old problems facing beekeepers have gotten significantly worse. According to The Bee Informed Partnership, an organization supported by the U.S. Department of Agriculture, roughly 20 to 40 percent of all beehives have died each winter since 2006. For many beekeepers, more acceptable winter losses would be in the range of 15 percent. Parasitic mites, extreme weather and exposure to insecticides all take their toll on bees.

Tony Jadczak, Maine's state bee inspector, works to keep Maine's bees healthy. He checks hives across the state for disease and parasites, and educates beekeepers and aspiring beekeepers about management techniques that keep beehives alive.

He also keeps roughly 100 of his own hives in 10 bee yards near the Kennebec River. Last year Jadzac lost about 12 percent of his hives through the winter. This year, he expects to lose double that and said losses will be high across New England given the tough winter.

Explaining that bees can run out of stored honey or be unable to access their feed in prolonged cold snaps, Jadczyk said that bees are going hungry more often than last winter: "Starvation is far more pronounced."

The image of bees starving and dying throughout Maine can't just be blamed on our tough winter, however.

Another culprit is a parasitic mite that feeds on the bodily fluids of bees. Although the reddish mites appear tiny to the naked eye, they would be equivalent to a fist-sized creature sucking a human's blood, according to Jadczyk.

"Imagine three or four of those on you. You would become anemic pretty quickly," he said.

High levels of varroa mites in a hive stresses the bees and eventually leads to the hive's collapse.

Not only do mites kill their hosts, they also carry viruses that make the bees sick. And even if the mites are killed, the viruses carried by the mites might kill the hive weeks later. Jadczyk has seen some beeyards in Maine with 80 percent losses.

In 2014, there were 909 beekeepers registered with the state. Together, they had about 10,000 hives. In addition, 83,00 hives were brought into the state for pollination of crops like apples and blueberries. The good news is that more and more people are keeping bees in Maine, despite the challenges.

Longtime beekeepers like Lincoln Sennett of Albion also generally agree that the biggest challenge facing any beekeeper is varroa mites. Sennett started keeping bees as a hobby with his grandfather 35 years ago. Now he has been running a commercial beekeeping operation for 20 years, moving roughly 2,000 hives from Georgia to Maine in the spring in time for pollination of apples and blueberries.

This may be a tough year for survival of bees in Maine. "Survival rates will probably be worse this year in Maine due to the long periods of cold weather without breaks for bees to take cleansing flights during the winter," Sennett said, noting that survival rates would be quite different between beekeepers who migrate with their hives and those that stay up north all winter.

"It is a little early to tell how hives fared this winter in Maine since many hives are also lost in March," he said.

Varroa mites can be controlled. There are both synthetic and organic treatments that will kill varroa mites. However, the mites have developed a resistance to two of the synthetic controls commonly used in decades past. "The good new is that we have not seen any resistance to organic controls," said Jadczyk.

Also, some strains of bees (Russian for example) have a natural ability to control the mites. Russian bees are better at grooming the mites off of themselves. Another strain, called SMR (suppressed mite reproduction), is able to prevent varroa mites from reproducing.

Some beekeepers use sticky traps to help control varroa mites. Since some mites accidentally fall off the bees, a sticky trap at the bottom of the hive — with a screen above it so the bees do not get caught — will eliminate a portion of the small parasites. Many beekeepers have spent countless hours counting the mites on special sticky traps, working with a magnifying glass and a strong light to establish measurable mite population numbers.

Losses might be high this winter, but beekeepers are both hard-working and persistent. Despite all the challenges, and despite the fact that some hives will come up empty this spring, thousands of hives will continue to dot the fields and farms of Maine.

John O'Meara lives in New Sweden. He started beekeeping in 1990. Although he has not kept bees for the last three years, he and his children are starting again with bees in the spring of 2015.

LEARN MORE ABOUT WRITING FOR HOMESTEAD.

Homestead is about people who are leading more meaningful lives by being connected to nature and the land. The BDN wants you to share your insight and experiences.

Tell us stories about the culture of self-reliant Mainers, the ingenuity of their enterprises, and how they live in connection to their homes, land, animals and community.

<http://bangordailynews.com/2015/04/06/news/parasitic-mites-and-cold-snaps-are-making-life-hard-for-maine-bees-but-they-can-survive/> printed on April 6, 2015

Newsroom

2015 News Releases

EPA Responds to Incident that Leaves Four People Ill on St. John; EPA Working with U.S. Virgin Islands Government on Ongoing Investigation

Release Date: 03/23/2015

Contact Information: Mary Mears (212) 637-3673; mears.mary@epa.gov

(Monday, March 23, 2015) The EPA is working closely with the U.S. Virgin Island government to investigate an incident reported to the U.S. Virgin Islands government and EPA on March 20, 2015. On March 20, 2015, paramedics responded to a call that four people in a family staying at the Sirenusa Condominium Resort in Cruz Bay, St. John became very ill. Family members were subsequently hospitalized.

The EPA is looking into whether the family was made ill by a pesticide called methyl bromide, which may have been used to fumigate a room at the resort on March 18, 2015. The use of methyl bromide in the U.S. is restricted due to its acute toxicity. Only certified applicators are allowed to use it in certain agricultural settings and is not authorized for use in dwellings. Health effects of acute exposure to methyl bromide are serious and include central nervous system and respiratory system damage.

"Pesticides can be very toxic and it is critically important that they be applied properly and used only as approved by EPA," said Judith A. Enck, EPA Regional Administrator. "Protecting people's health in the U.S. Virgin Islands is of paramount importance. The EPA is actively working to determine how this happened and will make sure steps are taken to prevent this from happening to others at these vacation apartments or elsewhere."

The EPA is continuing to work with the U.S. Virgin Islands government and others to gather information and will ensure that appropriate steps are taken if it determines any environmental regulations or laws were violated.

For more information about EPA's pesticide program and its requirements, visit <http://www.epa.gov/pesticides/>. For more information on methyl bromide, visit <http://www.epa.gov/region2/methyl-bromide.pdf>.

15-017

[Receive our News Releases Automatically by Email](#)

Last updated on 4/6/2015

 [Search this collection of releases](#) | or [search all news releases](#)

 [Get news releases by email](#)

 [View selected historical press releases from 1970 to 1998 in the EPA History website.](#)

Recent additions

- 04/06/2015 [EPA Honors 2015 Energy Star Partners of the Year for Leadership on Energy Efficiency, Acting on Climate](#)
[/ The agency recognizes 128 partners in 33 states including DIRECTV, Staples, and Verizon](#)
- 04/02/2015 [EPA Settlement with Jefferson County, Mo., Property Owner Results in Watershed Restoration](#)
- 04/02/2015 [Compliance with environmental laws protects air, land, and water in communities across Alaska, Idaho, Oregon, Washington](#)
- 04/01/2015 [EPA Awards Undergraduate Fellowship to Western Carolina University Student to Further the Environmental Workforce](#)
- 04/01/2015 [Baylor, Univ. of North Texas Students Win EPA Fellowship Grant](#)

BANGOR DAILY NEWS

Calais man gets year of probation, fined \$5,000 for lying about pesticide sales

By [Judy Harrison](#), BDN Staff

Posted April 06, 2015, at 2:14 p.m.

BANGOR, Maine — A Calais man convicted of making a false statement to federal agents in connection with the illegal use of a pesticide in Canada that killed hundreds of lobsters more than five years ago was sentenced Monday in U.S. District Court to a year of probation.

Clyde Eldridge, 65, owner of local feed and pet store C&E Feeds, also was ordered to pay a \$5,000 fine.

[Eldridge waived indictment in November](#) and admitted that he lied in 2010 when questioned by U.S. Environmental Protection Agency officials as part of an investigation into the illegal use of cypermethrin on the New Brunswick side of Passamaquoddy Bay in the previous year. The pesticide application [killed hundreds of lobsters](#) off Deer Island and Grand Manan in November and December 2009, according to a previously published report.

Cypermethrin is a synthetic insecticide used to control many pests, including moth pests of cotton, fruit and vegetable crops, according to information posted online by the Extension Toxicology Network. In aquaculture operations, it is used to treat infestations of sea lice, a parasitic crustacean that can weaken fish and expose them to infection and disease.

The pesticide is banned in Canada but not in Maine, where it can be used with prior permission from state officials. The use of pesticides in or near the ocean has long been a concern to Maine lobster fishermen who fear that it could harm the state's lobster industry.

In April 2013, Kelly Cove Salmon Ltd. pleaded guilty in New Brunswick to using the banned pesticide in Canadian waters and was fined \$500,000 in Canadian currency, which at the time was equal to about \$490,000 in U.S. dollars. Kelly Cove Salmon is a subsidiary of [Cooke Aquaculture](#), which is based in Blacks Harbour, New Brunswick, and is the largest aquaculture firm in Maine.

On Sept. 23, 2010, two EPA special agents assisting Environment Canada in the case asked Eldridge to identify anyone to whom he had sold cypermethrin and whether he had kept records of the sales, according to a press release issued by the U.S. attorney's office when Eldridge entered his guilty plea. Eldridge told investigators he sold different amounts of cypermethrin to different people and that he did not keep track of the sales, prosecutors said.

The investigation revealed, however, that Eldridge sold cypermethrin on 10 or 11 occasions to a regional production manager employed by Kelly Cove Salmon, and that on each occasion, Eldridge made a note of the quantity picked up by the manager, according to the press release.

Eldridge later told investigators that he knew at the time that the person buying the pesticide was doing so on behalf of Cooke Aquaculture, according to court documents.

Court documents did not detail why Eldridge lied to investigators or why Kelly Cove Salmon used the pesticide illegally.

Moore said U.S. federal prosecutors did not have information about what quantity of the pesticide Eldridge sold to Kelly Cove Salmon. According to an agreed statement of facts accepted in New Brunswick Provincial Court at the time of the Canadian firm's plea, Kelly Cove Salmon purchased 72 gallons of cypermethrin "from a specialized supplier" in 2009.

Eldridge faced up to 5 years in prison and a fine of up to \$250,000.

The investigation was conducted by the EPA's Criminal Investigation Division and Environment Canada.

BDN writer Bill Trotter contributed to this report.

<https://bangordailynews.com/2015/04/06/news/down-east/calais-man-gets-year-of-probation-fined-5000-for-lying-about-pesticide-sales/> printed on April 7, 2015

A Word With the Boss: State apiarist warns of harsh winter's effects on Maine's hives

pressherald.com/2015/04/09/a-word-with-the-boss-maines-beekeepers-have-friend/

By Edward D. Murphy Staff Writer | 207-791-6465

Bees have been having a rough time of it. In addition to a long-standing infestation of deadly mites, hives were subjected to a particularly cold winter this year and blueberry growers and other farmers will have to import thousands of out-of-state hives to pollinate their crops. Overseeing that process and encouraging Maine beekeepers is the job of Tony Jadczyk, the state apiarist and bee inspector.

Jadczyk started beekeeping as a teenager, taking over about 12 hives that had been tended by his grandfather and uncles. He was first attracted to the insects by warnings from his parents to “stay away from the bees. You don’t say that to small boys.”



Tony Jadczyk, state apiarist and bee inspector, says he’s seen a big resurgence in Maine’s hobby beekeepers, with 10,000 hives in 2014. Everything about bees fascinates him. Joe Phelan/Staff Photographer

Tony Jadczyk, UP CLOSE

WHAT WAS YOUR FIRST JOB? I was a short order cook on the New Jersey Turnpike Marriott’s in

college.

WHAT KEEPS YOU UP AT NIGHT ABOUT YOUR INDUSTRY? This winter, on those freezing cold nights, I'd lay there and say, "We're losing them tonight." And also when the bears are picking on the hives.

WHAT DO YOU DO ABOUT THAT? For the bears, we erect bear fences, but some of the bears will go through them. We take whatever actions we can.

WHAT KIND OF BUSINESS ADVICE DO YOU HAVE FOR OTHERS? For people who are considering getting into the business, I'd say grow slowly. Don't mortgage the house and get into it at a commercial level without experience. Work for a good beekeeper for a while and the bee clubs all have mentoring programs. If all else fails, raise chickens.

Related Headlines

- [A Word With the Boss: Explore all of our Q&As](#)

Search photos available for purchase: [Photo Store](#) →

Q: What was it about bees that interested you?

A: It just fascinated me, everything about them, swarming, the way they work, all those smells and activities, it's almost mesmerizing.

Q: We hear a lot about declines in hive populations over the winter. How was it this year?

A: This winter was extremely difficult. Even with good healthy hives, there was a lot of loss around the state. The bees eat more honey when they're cold. They eat honey and shiver to keep warm.

I'm hearing more and more from beekeepers who are losing substantial numbers of their hives. I would say, the midsized beekeepers are losing anywhere between 30 and 75 percent. The bees fared better in the southern part of the state, but losses were higher than normal elsewhere. It was largely weather-related, but the mites were also out of control. April is tough because it's the turnover of the hives – they're starting to brood up and the bees that went into winter at the end of their lives are going to die off at a higher rate. We call it spring dwindle. Also, last year, the hives started bringing in pollen by March 10. We'll see if they get it in by April 10 this year.

Q: Why is winter so hard for the bees?

A: We need good flying weather for the bees to get pollen and they need water too. There's also a lot of dysentery among the bees this year because they couldn't take cleansing flights (when they fly away from the hive to defecate). That didn't really occur. March was pretty tough because this March was brutal.

Q: Are the bees affected by heavy snow?

A: The snow is actually good, because when the hives are buried, they're insulated. But we had a really cold snap in January before the snow fell. In December, it was pretty good and they took cleansing flights then, but they really needed it February and March. Their metabolism is ramping up and they have to cleanse themselves. A number of hives that actually starved to death had honey in the hives. Because they start to brood and they need to keep that part of the hive around 92 degrees for the brooding, they won't abandon the brood to (eat) the honey.

Q: How bad is the mite problem?

A: The varroa mite is the major problem globally. The only place left relatively clean is Australia. They have a strict quarantine there. We have geneticists working on lines of bees that show some tolerance or resistance. We're using miticides and there are management techniques that can keep mites at bay. The goal is to have to the last brood in late summer or fall to be relatively mite-free. It's easier said than done, but that's the key to success. I tell the beekeepers to think of it as chemotherapy, where everything has a side effect.

Q: What about bringing in bees for pollination?

A: We're bringing in more bees, primarily to pollinate the blueberries. When I was hired in '83, about 11,000 hives were brought in. As the blueberry crop has grown, we've brought in more bees – last year we brought in 83,000 hives. We also use them for cranberries and other crops. Guys in California want to bring them here now; I told them they need to bring a snowplow. They have to get the bees out of farm areas (because farmers are spreading pesticides), but there's nowhere to put them now.

Q: Do you think they'll be brought in later than most years?

A: We're kind of anticipating that this year. Beekeeping is farming, and one of the reasons the bees are migratory is because of winters like this. Our bees have gone out to California to help with the almonds (crops) and some are in Florida now. Quite a few are in Georgia now, too. We have resident migratory beekeepers and nonresident migratory beekeepers and most of the bees that service Maine are nonresident.

Q: How do you make sure the bees from out of state don't bring diseases or more mites?

A: We have reciprocal agreements with states that issue health certificates for their bees. I issue permits for Maine – I look at a percentage of bees and issue a health certificate basically saying this is what I see.

Q: What else does your job involve?

A: The job entails regulatory functions, licensing and permitting, writing out health certificates and a lot of education, particularly this time of year, at clubs or bee schools. Now and then, I get involved in a little research, collaborating with the USDA (U.S. Department of Agriculture) and primarily lately looking at mite controls.

When I was hired by Maine in 1983, I was hired to work with beekeepers and get a beekeeping industry going. American foulbrood (disease) was going around. It's called foulbrood because it has a terrible odor about it, so much of those first years on the job was trying to clean up that disease. The focus switched in 1985 due to the introduction of the honey bee tracheal mite. We had to kill the hives that had that parasite. That only lasted a little while, but within a few years, we lost about a million hives in the U.S. It was pretty devastating. Then the varroa mite was found in '87 in the U.S. We've been dealing with this thing for about 25 years or so now. When we hear about catastrophic bee loss, it's directly related to this parasite.

Q: What's the overall state of beekeeping in Maine?

A: There's a tremendous resurgence in hobby beekeepers. In 1984, we had 802 registered beekeepers and a little more than 10,000 hives and in 2014, we finally got back to that number. We hit rock bottom in 2003 with 5,000 hives. With more tools to control the mites, the success rate has gone up.

Q: How often have you been stung?

A: I really couldn't tell you, but I would have to say thousands of times. It still hurts, but I don't swell up and itch and burn or have an allergic reaction. I get more irritated by a mosquito or black fly bite. Yellow jackets

are different, but I'm pretty much immune to honey bee venom.

Q: Do you like honey?

A: Oh, yeah. I use it in tea and it's great on ice cream or plain yogurt. My favorite is wildflower, which is a nice, mild honey. I love it, just like the bears.

Share

[Read or Post Comments](#)

Were you interviewed for this story? If so, please fill out our [accuracy form](#).

[Send questions/comments to the editors](#).



The Bangor Daily News uses your location to provide local content and weather. [Learn more](#)

Bangor Daily News MEDIA PARTNERS

[Pine Tree Watchdog](#)

[Maine Hockey Journal](#)

[The Maine Campus](#)

[The Free Press](#)

[BDN Maine](#)

[Search](#)

The University of Maine student newspaper since 1875

[Donate](#)

The Maine Campus

TODAY 64° 41°
 TUESDAY 59° 41°
 CURRENTLY: 57°
 7-DAY FORECAST



[News](#) [Opinion](#) [Style](#) [Sports](#) [Archives](#) [Print Edition](#)

Last updated: [Monday, April 13, 9:24 a.m.](#)

STYLE & CULTURE |

New Spuds: UMaine researchers release three new potato varieties

By Lauren Abbate

Posted on April 12, 2015, at 10:17 p.m.

Maine may not lead the nation in potato production, but as the state's largest cash crop, a partnership between the University of Maine and the Maine Potato Board (MPB) is determined to make sure Maine potato growers of every scale have access to some of the highest quality seeds in order to sustain a bountiful harvest.

[Email This Post](#) [Twitter](#)
[Reddit](#) [Facebook](#)
[Digg](#)
 Tell us what you think!

Over the last year and a half, through funding from the MPB and research development from UMaine, three new varieties of potatoes have been developed and released into the market.

"The University has the research and development capability and commitment for developing new potato varieties, from the lab to the field, which takes years," Don Flannery, MPB executive director, said in a press release. "They understand what the growers and the industry are looking for and need. We in turn, the MPB, have the capacity to promote the varieties and maintain the quality of seed required for the integrity of the variety and the market."

The three varieties, Caribou Russet, Sebec and Easton were each developed over a period of 10 to 12 years through a series of cross-pollinations in greenhouse and laboratory research at UMaine and then field tested at UMaine's Aroostook Research Farm in Presque Isle.

The process of developing a new variety of potato starts with research and ends with commercialization, to do so Porter said that a number of constituencies must be involved in the process. Through the Maine Potato Board, researchers have access to growers and market producers who can identify a problem they have been having with existing varieties of potatoes.

"There are many challenges in growing potatoes so there are many problems that we need to be helping to solve. As a Land Grant University, part of what we do is serve the state and serve components of the economy that are important to the people of Maine," chief researcher of UMaine's breeding program, Dr. Greg Porter, said. "Plus to actually go from research to commercialization you need to have people that are in business, people that are involved in the industry to support your research products, and make investments in them."

From that point, science takes over, and researchers in the School of Food and Agriculture can begin to use cross-pollination methods to combine the best characteristics of existing potato varieties in order to hopefully provide a solution to the problems growers in the field are facing.

Porter, who grew up on a Maine potato farm, believes that this is one of the areas where as a public Land Grant university, UMaine can fulfill its mission to the people of Maine who rely on the potato industry for their livelihoods.

"Potatoes are naturally something I've been very interested in since I was small. I have a long history, my family still is in the potato industry so I still have a connection to the potato farming community," Porter said. "But I have a training in science, I'm interested in the challenge of solving problems, so when the potato industry started having problems with a new virus that was hurting their potato crop, they were looking for solutions. It's really exciting to me as a scientist to be able to look into the science, what is available to solve the problem and to immediately start adapting our research program, so that we will be producing new varieties."

According to Porter, there are a number of characteristics that determine a variety of potato's quality. From color, to internal texture, to disease resistance, to yields, each potato variety has unique characteristics that make it desirable.

"People think of potatoes as maybe the potato they bake, or the potato they have in the restaurants wrapped in foil, but there are all kinds of different colors and flavors and things that you can produce," Porter said.

What the researchers job is then to do, is to cross-pollinate two varieties of potatoes that have different desirable qualities in order to create a new variety that solves a spectrum of problems growers and producers have been encountering with existing varieties.

The Caribou Russet, released last month, is a cross between a Silverton Russet and a Reeves Kingpin. The resulting cross is a high yielding variety with potential for large-scale French-fry production markets, with a consistent white-flesh interior that lacks the appearances of "hollow heart" that some French-fry varieties have. Porter said that this variety also has potential for small-scale markets looking to provide consumers a high quality baking or mashing potato.

Search

Search for:

The Maine Campus Job Board



Job Keyword Search:



[Technology Delivery Manager, Deb...](#)
Falmouth, ME

[Management Trainee - York/Sanfor...](#)
York, ME, ME

[Paralegal/Legal Secretary](#)
Eliot, ME

[>> View more Jobs](#)





The Bangor Daily News uses your location to provide local content and weather. [Learn more](#)

Bangor Daily News MEDIA PARTNERS

[Pine Tree Watchdog](#)

[Maine Hockey Journal](#)

[The Maine Campus](#)

[The Free Press](#)

[Search](#)

"We see this as being a variety that can compete with Atlantic for yield and quality but it has very low incidences of those internal defects. So we see it as being really potentially valuable for our seed growers," Porter said.

As far as naming the new varieties goes, Porter has stuck with the tradition of naming potatoes varieties after geographic places. The Caribou Russet is named after the northern town of Caribou, Maine that sustains a large potato farming community. The Easton was named after the town of Easton, Maine where the state's largest French-fry processing plant is located. For the Sebec variety, Porter paid homage to the "beautiful" Sebec Lake.

These three varieties are now in the commercialization phase of the variety release, and the MPB is working to get growers in possession of these new seeds in order to establish the varieties into the market.

"We are already fielding questions from growers around the country as well as in Maine. This partnership is truly advantageous for the industry," Flannery said.

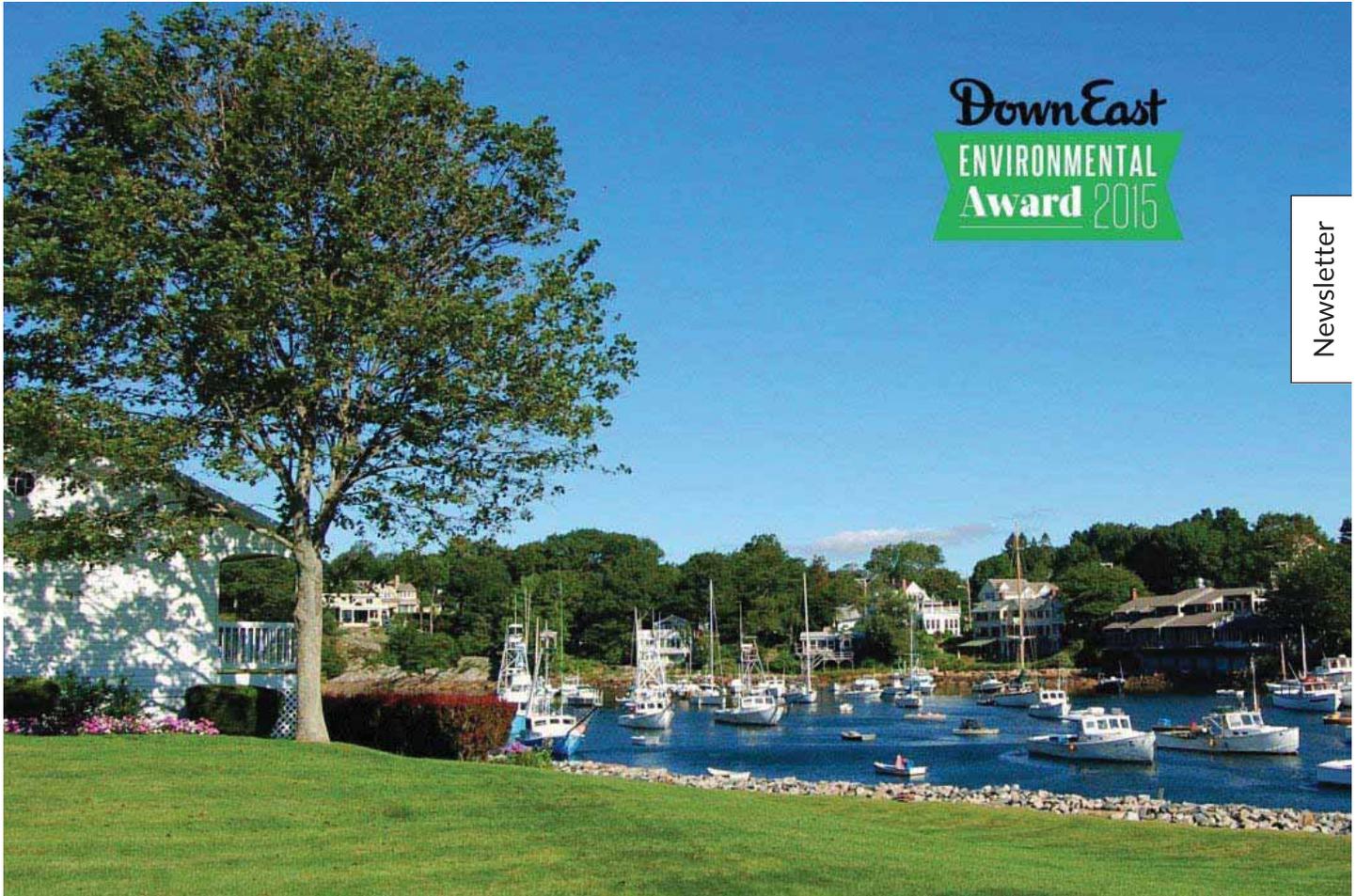
The partnership is currently working on releasing several new varieties that are aimed at small-scale consumer markets. One variety in particular is a cross between a red-skinned and a yellow-skinned potato, which Porter believes will be valuable for fresh markets, or roadside produce stands.

"We're trying to service both large scale market, that would make potatoes that would go into the baking potato type sector, to the larger scale markets that produce potato chips, or produce French fries, but we're also looking for unique things — specialty varieties that can be grown and consumed by gardeners and organic roadside stand operations that sell directly to consumers," Porter said.

This entry was posted on Sunday, April 12th, 2015, 10:17 pm. You can follow any responses to this article through the [RSS](#) feed.

« [Holocaust Awareness events offer students new perspectives on the past](#)
[A Foot in Both Worlds](#) »

OGUNQUIT LEADS THE WAY



It is not a stretch to say that the American organic movement has its roots in M Rachel Carson was a well-established summer resident of the Boothbay Harbor when her book, *Silent Spring*, first warned the nation about the dangers of over pesticides in 1962. And the rich food scene Mainers enjoy today largely owes its existence to the Maine Organic Farmers and Gardeners Association, which began advocating for pesticide-free, locally grown foods way back in 1971, when such were considered eccentric, even subversive.

No doubt some property rights advocates and the lawn chemical industry will apply the “subversive” label to Ogunquit’s precedent-setting lawn pesticides ban, passed in November. But it is precisely because the ordinance aims to protect all residents from toxic chemicals that the editors of *Down East* are proud to award the 33rd *Down East* Environmental Award to the town of Ogunquit.

By Virginia M. Wright

On a spring afternoon four years ago, Bill and Judy Baker arrived at their home on Ontio Hill in Ogunquit to find a yard worker spraying their lawn with a pesticide. The problem was, they hadn't hired a landscaper. "He'd made a mistake," Bill Baker recalls. "He was supposed to be spraying a neighbor's property."

Concerned, the Bakers researched the effects of common lawn and garden products, and they didn't like what they found. "Some chemicals seemed hurtful to birds, animals, and people, not just pests," Baker says. "We felt they might be a problem for our town. The Bakers contacted Mike Horn, chairman of the Ogunquit Conservation Commission, and learned they were not alone.

"People were coming to us, saying, 'We choose not to use pesticides, but our neighbor is spraying stuff, and it's coming into our town,'" says Horn, whose commission was the driving force behind a then-new ordinance banning pesticides and chemical fertilizers on town-owned land. "We decided that our next project would be expanding our ordinance to include private property."

So it was that the seed was planted for a trailblazing town-wide ban on pesticides passed by Ogunquit voters in November. Ogunquit is the first community in Maine and the second in the United States to prohibit the use of synthetic insect killers, weed killers, and fertilizers on all land — private and public — throughout its jurisdiction (Takoma Park, Maryland, banned cosmetic lawn pesticides in 2013). "Ogunquit has shown itself to be a leader on this issue nationally," says Jay Feldman, the executive director of Beyond Pesticides, a Washington, D.C., organization founded in 1981 as a clearinghouse for information on pesticides and an advocate for safer lawn and building management practices. "Mike led an extraordinary process. The commission went to great lengths to address the issue and educate themselves."

At just 4.2 square miles and a population of around 1,200, Ogunquit is the most densely settled town in York County, and almost wholly built on its natural — and manicured — beauty. On any given summer day, the town fairly bursts at its seams as an estimated 16,000 people crowd its picturesque village, sandy beach, and Marginal Way, a spectacular mile-long oceanside promenade. Welcoming them are roughly 40 restaurants and 75 hotels, motels, inns, and B&Bs. To prohibit lawn-beautifying products routinely used across the country by businesses and homeowners is no small matter here.

“ Ogunquit is the first community in Maine and the second in the United States to prohibit the use of synthetic insect killers, weed killers, and fertilizers on all land — private and public ”

But Ogunquit, with its vibrant artistic community and LGBT-friendly atmosphere, is well known for its open-minded, progressive attitudes. The Conservation Commission has been encouraging businesses and residents to promote Ogunquit as a "green" town since 2007, when Meadowmere Resort displayed a flag announcing its new green business certification from the Maine Department of Environmental Protection (the resort earned it by adopting a number of green practices, from installing a solar hot water system to eliminating aerosol spray products in housekeeping). Today, 11 Ogunquit lodging properties and restaurants display DEP's EnviroLeader logo — more than any other community.

The pesticide ban is not just about bragging rights, of course. Two years ago, the Conservation Commission obtained a \$100,000 grant to monitor bacterial contamination in the Ogunquit River. While only trace amounts of pesticides and fertilizers were found, the study underscored one of the commission's biggest concerns: "We're bounded on three sides by water," Horn says. "Everything that goes down to the sea, and those chemicals eventually end up on our beaches and in our river." Last summer, a yard worker inadvertently illustrated that point when he fertilized a lawn just before a rainstorm. The rain washed the fertilizer to the shoreline, temporarily turning the sand and rocks a brilliant green. "People were alarmed," says Bill Baker, now a Conservation Commission member himself.

To educate the public before the vote, the commission offered several workshops. Feldman and Beyond Pesticides board member Tom Osborne, a natural turf management expert, spoke about the links between common pesticides and cancers, endocrine disruption, and other abnormalities. Critical support, says Horn, came from John Bochart, a longtime organic gardener and the lawn and garden manager at Eldredge Lumber and Hardware, which has stores in York, Kittery, and Portland. In 2013, with owner Scott Eldredge's encouragement, Bochart banished neonicotinoids, a class of insecticides implicated in the collapse of honeybee colonies, from his stores' shelves. This year, Eldredge will stop selling Roundup, the world's top-selling herbicide, whose ingredients have been linked to birth defects in the embryos of laboratory animals.

