

Scarborough eyes curbs on pesticides

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Posted: Wednesday, November 10, 2010 11:48 am

By Michael Kelley mkelley@keepmecurrent.com |

SCARBOROUGH - Scarborough has joined a push in Maine to restrict the use of synthetic pesticides on municipal land.

"We know it causes problems," Karen D'Andrea, chairwoman of the Town Council's Ordinance Committee, said of using synthetic pesticides. "We need to find ways to stop using it and relying on it."

The committee is reviewing a draft document, which D'Andrea said is a combination of ordinances from Brunswick and Ogunquit, two communities that already have such a measure on the books.

The purpose of the ordinance, according to a draft reviewed at an Oct. 26 meeting, is to "safeguard the health and welfare of residents in the Town of Scarborough and to conserve and protect the town's groundwater and other natural resources, while ensuring preservation and enhancement of town-owned lands."

According to D'Andrea, restrictions would only apply to outdoor municipal spaces, such as athletic fields, parks, and outside municipal buildings such as schools and Town Hall.

The restriction would essentially prevent use of pesticides not approved by the U.S. Environmental Protection Agency.

A pesticide, as defined in the draft document, "is any substance or mixture of substances intended for preventing, destroying, repelling or mitigating any pest...Herbicides, fungicides, insecticides and rodenticides are considered pesticides."

The ordinance would not regulate indoor pesticide use, or bait traps for rodent control, nor does it apply to pest control on private properties.

D'Andrea said the idea of restricting pesticide use originated several years ago, when Eddie Woodin, a Scarborough resident and well-known birder, approached her about the idea.

"I had concerns with insecticides and pesticides, and with Karen on the ordinance committee, it made sense to ask the question," Woodin said.

His biggest concern about pesticide use is its effect on birds such as robins, which feed on worms in the grass, or wildlife, such as the brown bat, which feeds the insects that pesticides target.

D'Andrea said conversations about what the town could do about regulating pesticides picked up again this summer when another resident, Marla Zando, approached her with concerns about the effects of pesticide use on her son.

In voicing her concerns to D'Andrea, Zando alerted her about what other towns were doing in regulating pesticide use.

This, D'Andrea said, gave the committee a starting point.

Scarborough is using Brunswick and Ogunquit ordinances as a model. Nearly a dozen other Maine towns are looking into adopting pesticide restrictions.

Paul Tukey, a Cumberland resident who started the SafeLawns Foundation in 2004, a nonprofit organization dedicated to promoting organic lawn care practices, said a number of states have also taken a stance on pesticide use in an effort to make life healthier for children. New York, he said, passed a law in June that eliminated pesticide use around schools statewide. Connecticut passed a similar measure back in 2005 and New Hampshire has a bill pending to do so.

"What I am seeing," he said this week, "is a much greater awareness of the toxicity of pesticides. Today's generation of mothers are much more aware and they are very concerned about what their kids are being exposed to," he said. "Additionally, there are many more reports in the media linking pesticide exposure to childhood disorders like ADHD -- attention deficit hyperactive disorder - and childhood cancers."

Tukey said the "No. 1 benefit" of an organic approach to pesticides is a reduction in the municipal budget over time.

"The goal of organic is to create a self-sustainable system, where you don't have to go out and treat it as often," he said.

He estimates, based on previous examples, switching to organic lawn care could save as much as 20 to 25 percent through the course of a five-year period. Until the soil takes to the organic use, which he said could take up to three years, the cost of land care would increase.

Town Manager Tom Hall said most of the pesticides are used at the athletic fields.

In May, the Scarborough Town Council adopted a municipal budget that allocated \$82,789 to athletic field maintenance.

According to estimates from Sports Field Inc., the Monmouth-based company contacted to do Scarborough's athletic field lawn care work, using organic products in lieu of synthetics would cost the town \$118,810, some \$36,000 more than what the town is currently spending, and \$28,000 more than the \$90,675 Sports Field has proposed the town spend for the 2011-2012 fiscal year.

The biggest cost increase is for fertilizer.

"The reason it costs more is it is not as effective and you have to do more applications," said Hall. "The cost is because you need more of it rather than the actual cost of the organic product being higher."

But, he said, "Science shows the effectiveness of organic products is becoming better and better, so we expect those price points to come down."

Hall said it is too early to determine whether using organic would be a better approach for the town, in part because the jury is still out in many of the communities that have already made the switch.

"As we have talked to other communities that have done this for the last few years, frankly, it is still too early to tell how effective it is," Hall said.

Peter Baecher, the Parks and Recreation manager for the town of Brunswick, said switching to organic pesticides, which the town opted to do through a citizen initiative four years ago, has been a success.

"It has worked out OK," Baecher said. "It's more expensive, but it has worked out pretty well."

One of the biggest challenges for Baecher's staff, which applies the organic pesticides on the town-owned property, has been the learning curve that is associated with a new system, or approach, to lawn care.

D'Andrea said the Ordinance Committee would take the topic up again at a forthcoming meeting, though a date has not been set yet.

"I think we are waiting for the new Town Council to be seated to decide who will be sitting on which committees," she said. "I hope to be back, of course, on the Ordinance Committee, but that remains to be seen until the new chair is named."

One of the most important ways to fight pesticide use, Woodin said, is to educate the public about the dangers of using them.

"[Restricting it in] town is just the tip of the iceberg. The rest of the iceberg is the residences. Do they really know what is in the applications, the chemicals that are being placed on their lawn?" he said.

D'Andrea said informing the public is important and something the ordinance committee is trying to do through its discussions on pesticides.

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"I am a big believer in education," D'Andrea said. "Education, I think, far surpasses legislation in trying to solve problems and involving the public."

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Gorham group seeks end to trail herbicide spraying

Signatures will be gathered today in an effort to get the state to forgo chemicals in battling railroad vegetation.

By [Beth Quimbyquimby@mainetoday.com](mailto:Beth_Quimbyquimby@mainetoday.com)
 Staff Writer

A group of Gorham residents is trying to persuade Maine's Department of Transportation to stop spraying herbicides along the section of the Mountain Division recreational trail in Gorham.



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[Select images available for purchase in the Maine Today Photo Store](#)

The Friends of the Rails to Trails plans to gather signatures at the polls in Gorham today in support of its effort to stop the spraying, which members say endangers the health of people and pets.

"We are saying, 'Don't do it,'" said Den Morton, a member of the group.

At issue are 5.7 miles of the Mountain Division Trail, a recreational pathway that runs alongside the Mountain Division railway. Although the rail line isn't active, the state sprays herbicides along the right of way every year or so to keep the tracks clear of vegetation as it works to reopen the rail line.

Nate Moulton, director of the MDOT's railway program, said spraying is the cheapest way to control vegetation along the 320 miles of track owned by the state, which will soon to take over another 260 miles of track in northern Maine.

Several years ago, state and rail officials looked for ways to control vegetation with steam or other methods, but they were not cost-effective, Moulton said.

He said the vegetation must be killed because it holds water and causes the track ties to rot more quickly. State forestry laws require owners of active railways to keep the track free of vegetation to prevent forest fires, Moulton said.

The MDOT contracts with RWC Inc. of Westfield, Mass., for the spraying. The Maine Board of Pesticides Control issues the spraying permit. Moulton said the formula is changed regularly to prevent the weeds from developing resistance to the chemicals.

"We use the minimum amount, which is way under (the levels set by) state law," he said.

Moulton said the department sprays herbicides around the tracks along Sebago Lake. The Portland Water District, which uses the lake as its water source and has monitored the spraying for the past two years, has found no problems, he said.

At a meeting with the Gorham residents two weeks ago, transportation officials offered a "no spray" program. The program would confine the herbicide spraying to the track ballast – the rail bed and surrounding gravel – as long as the group mows the adjacent vegetation.

Moulton said the department has such agreements with about a half-dozen property owners, including the Maine Organic Farmers and Gardeners Association in Unity.

But Morton, a Vietnam War veteran and cancer survivor, said his group, which includes a physician, two nurses and business owners, isn't willing to compromise. Morton said too much is unknown about chemicals that initially appear safe, but years later are shown to have negative health effects.

Dana Roffler of Hiram said the herbicides used on the tracks next to her property have killed trees. "Our place looks like a dead zone," Roffler said.

The pesticides board has been following the issue, said Paul Schlein, the board's public education specialist. He said the board will consider the concerns raised by the Friends of the Rails to Trails when RWC Inc.'s permit for spraying comes up for renewal in the spring.

Morton said signatures gathered on Election Day will be presented to transportation officials.

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Sun Journal

[City](#)

Lewiston schools awarded for safe pest control

By [Bonnie Washuk, Staff Writer](#)

Published May 05, 2010 12:00 am | Last updated May 05, 2010 12:00 am

LEWISTON — The Lewiston School Department has been recognized for using environmentally safe practices for pest management, minimizing the use of pesticides and insecticides.

The Maine Department of Agriculture awarded Lewiston schools an Integrated Pest Management Certification on Monday night, handing the honor to Building Maintenance Director Andre Baillargeon. It received the same award in 2005.

Lewiston school maintenance workers were praised for minimizing the use of poisons and chemicals and preventing pests from becoming a problem, "which results in a very clean, very safe, indoor healthy air," said Kathy Murray, integrated pest management specialist for the Agriculture Department.

Lewiston is only one of two school districts in Maine, and only one of 15 to 20 nationwide, to be certified, she said, adding the standards are tough. The other Maine district is Wells-Ogunquit School Department.

Pests such as mice can be a problem in schools, Murray said.

"Mice can carry bacteria, contaminate food and trigger asthma in children," she said. One way to prevent them is to keep schools clean and not allow food or crumbs, which attract pests, to remain in corners or lockers.

"In the last couple of years we've seen two mice. It used to be a weekly event," Baillargeon said. One way the mice problem was eliminated was with tighter doors and door sweeps, which were installed to promote energy efficiency. The tighter doors had a secondary benefit of keeping mice out, Baillargeon said.

Lewiston schools only use pesticides or insecticides as a last resort, and before using any, parents and faculty are notified, Murray said.

While said to be safe if used correctly, insecticides and pesticides are poisons, and some studies show they carry health risks, especially to young, developing children, Murray said. Some farmers who have used pesticides and insecticides have developed cancer, she said.

Superintendent Leon Levesque said Baillargeon has been the school department leader in finding alternatives. "Due to his efforts, we are all more aware of the impact of pesticides on people and the environment," Levesque said.

11/30/2010

Lewiston schools awarded for safe pes...

School Committee Chairman Jim Handy thanked Baillargeon for being "the Pied Piper" of environmentally sound practices.

ties general immunity from liability, he had to argue that the bleachers came within the MTCA's "public buildings exception" to immunity. This exception permits recovery for negligent "construction, operation or maintenance of any public building or the appurtenances to any public building" (14 M.R.S.A. § 8104-A(2)).

Since the bleachers were not physically affixed to, specially adapted to, or intended to be a permanent part of any building or real estate, however, they were not "fixtures" and therefore did not meet the majority's definition of "appurtenance." The majority also held the defendants immune under the MTCA's immunity for facilities used by the public in connection with public outdoor recreation (see 14 M.R.S.A. § 8104-A(2)(A)(3)).

A strongly worded dissent countered that the bleachers were functional appurtenances and the majority's fixation on fixtures was too narrow. The dissent also urged that recreation contemplates active participation, not passive observation, and that spectators are therefore not engaged in recreation.

For more on the MTCA's "building appurtenance" exception, see "Tort Claims Liability & Public Buildings III," Maine Townsman, "Legal Notes," July 2004.

For more on the MTCA's immunity for outdoor recreation, see "No Liability for Public Outdoor Recreational Facilities," Maine Townsman, "Legal Notes," July 2006. (By R.P.F.)

WINTER ROAD CLOSURES: VOTE REQUIRED BY OCT. 1

Here's a reminder to local officials responsible for winter road maintenance: Winter road closure orders may be approved only between May 1 and Oct. 1. In other words, to close a road to maintenance from November through April of the next winter, a municipality must act no later than Oct. 1.

Winter road closure orders must be approved by the municipal legislative body (the voters in a town meeting form of government) unless this authority has been delegated to the municipal officers (selectmen). The

following warrant article would accomplish the latter:

Article ___. To see if the Town will vote that the orders made by the Municipal Officers pursuant to 23 M.R.S.A. § 2953 to close roads to winter maintenance, or annul, alter or modify such orders, are and shall be a final determination.

Unlike winter road closure orders, which (again) may be approved only between May 1st and October 1st, a warrant article delegating final authority to the municipal officers may be approved at any time of year.

Winter road closure orders, by whomever made, may be operative for up to 10 years if so specified. Orders may be altered on the initiative of the municipal officers or upon the petition of seven voters at any time after one year following the original approval.

For more on closing roads to winter maintenance, see MMA's Municipal Roads Manual, available free to members at www.memun.org. (By R.P.F.)

PESTICIDE ORDINANCES – NOTICE & FILING A 'MUST'

The Maine Board of Pesticides Control has asked us to alert local officials that proposed pesticide ordinances are subject to important State notice and filing requirements.

Last year's premiere of an anti-pesticide documentary film ("A Chemical Reaction") has evidently spurred renewed local interest in regulating pesticides. Maine law authorizes pesticide ordinances (see Central Maine Power

Co. v. Town of Lebanon, 571 A.2d 1189 (Me. 1990)), but 22 M.R.S.A. § 1471-U requires the municipal clerk to (1) give the board notice and a copy of the ordinance at least seven days before the meeting of the legislative body or the public hearing at which adoption of the ordinance will be considered, and (2) notify the board within 30 days after adoption of the ordinance. Failure to notify and file a copy of the proposed ordinance with the board means the ordinance is void and unenforceable until the ordinance is readopted after the required notice and filing.

These requirements have been the law since 1989 and apply to any ordinance specifically regulating the storage, distribution or use of pesticides. "Pesticide" includes any insect, rodent, disease and weed controls, insect and animal repellants, plant growth regulators, defoliants and desiccants, disinfectants and sanitizers, wood preservatives, etc.

Contact information for the Board of Pesticides Control and a current list of ordinances are available at www.maine.gov/agriculture/pesticides.

Pesticide ordinances are of course only one of several types of ordinances that must be filed with the State – in most cases before adoption. Others include farm operations, firearms discharge, general assistance, shellfish conservation, shoreland zoning, solid waste disposal facilities, timber harvesting, and water levels and minimum flow. For full details, see "Some Ordinances Subject to State Filing & Review," Maine Townsman, "Legal Notes," December 2006. (By R.P.F.) [\[mt\]](#)




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First Maine pesticide summit aims to answer questions

By [Stephanie Grinnell](#)

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Nov 10, 2010 12:00 am

BRUNSWICK — With several Maine towns already discussing banning pesticides and a few with ordinances in place, the Maine Pesticide Summit on Nov. 20 will mark the first time there has been a gathering to discuss their use in the state.

The summit at the Unitarian Universalist Church Nov. 20 will feature Paul Tukey, who has spent years speaking about the hazards of pesticide application and encouraging use of organic alternatives.

"What makes my presentation effective is I understand these products and what they do," Tukey said.

Scarborough town councilors addressed the issue last week.

"The hearing in Scarborough (Nov. 1) was one of the most highly attended. Three-quarters of the people were concerned," Tukey said, adding most lawn care professionals feel because pesticides are approved for use by the Environmental Protection Agency, they should be able to use them. "I used to be one of them and I applied this stuff and made myself sick. That's what gave me my initial motivation."

Tukey calls pesticides "poison" and said the hazards are well known. He said children, at the very least, should be protected. He said some studies have linked pesticide exposure to attention deficit hyperactivity disorder and autism in children.

"At a minimum, let's protect kids. There's no reason to use (pesticides)," Tukey said, "because you're worried about a few dandelions."

Concerns about ridding school properties of flowering weeds come from parents of children allergic to bees, he said, adding there are "other steps you can take."

Pesticides can be inhaled or absorbed through the skin and eyes, Tukey said. When pesticides are used, less than 1 percent of the active ingredient goes to the target; the rest ends up in ground and surface water.

Tukey said the goal of the summit is to gather activists, town officials and citizens for networking and sharing information.

"I think what we really want to do is frame the issues for people and ultimately make it statewide," he said.

Several communities already have ordinances in place, including Brunswick, Ogunquit, Castine, Rockport and Camden, Tukey said, while others are in discussions to create ordinances regarding pesticide use.

"Cumberland and Falmouth are in the conversation and they are sending people to the summit," he said.

Falmouth resident Barbara DiBiase said as a private land owner, she tries not to use chemical treatments when possible, opting instead for organic alternatives. She said as a master gardener, she has used pesticides in the past but has since "tried to learn ways to manage yards without using chemicals."

DiBiase said Falmouth schools use a corn gluten fertilizer, but she said it's her understanding it will take up to three years for all the chemicals already in the ground to break down and the schools to see a change.

"Nothing is really going to give us a perfect green golf course lawn without chemicals," DiBiase said. "I personally am not supportive of

banning all pesticide use."

She said some chemicals are needed to maintain crop levels so food crops such as apples are not destroyed by pests. However, she added she is very concerned about run-off into bodies of water. DiBiase said she anticipates a change in what products are available in stores if enough people are educated about pesticides.

"I'd like to see us become more educated," DiBiase said. "I'm not looking to ban anything in Falmouth. But I would say it's on people's radar here."

Some municipalities restrict pesticide use near bodies of water while others are more comprehensive. Brunswick's ordinance allows application of only organic products on town-owned land, which is defined as "all land owned or leased by the Town of Brunswick and managed by the Town of Brunswick Parks and Recreation Department, including outdoor grounds such as parks, playing fields, conservation and open space."

However, the ordinance allows a waiver in case of "an immediate threat to human health or environmental quality, or an immediate threat of substantial property damage or loss."

Tukey said for a long time, it has been accepted that organic alternatives cost more than chemicals. He said organic applications result in the need to mow less and water less and lawns don't require dethatching because the grass doesn't grow as quickly or as thick.

"You have to take in the whole equation," he said.

DiBiase noted organic options are often less concentrated than chemical treatments and may take more time to show results.

DiBiase said she hopes the summit will help educate people as to what each town has already done as well as open a discussion on how to create awareness. She said she would like to see action taken at the state level rather than each municipality creating its own set of rules.

"But legislation won't go through unless there are benefits for both sides," DiBiase said.

The Maine Pesticide Summit takes place Nov. 20 at Unitarian Universalist Church, 15 Pleasant St., from 9:30 a.m. to 2:30 p.m. RSVP by calling 871-1810. The event is open to the public.

Stephanie Grinnell can be reached at 781-3661 ext. 123 or sgrinnell@theforecaster.net

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Assessing Bt Silage Corn in Maine

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Jemison, J., and Reberg-Horton, C. 2010. Assessing Bt silage corn in Maine. Online. Crop Management doi:10.1094/CM-2010-1022-01-RS.

Abstract

Over 90 percent of the corn grown in Maine is grown for silage, yet most research has focused on the effectiveness of *Bacillus thuringiensis* (Bt) corn as grain corn. In response to grower interest, a seven site-year-location (SYL) study was conducted across the dairy production region of Maine to evaluate the effect of Bt corn on insect feeding damage, silage corn yield, mycotoxin content in chopped silage, and forage quality. Black cutworm damage over the course of the study was generally less than 1%, and European corn borer (ECB) damage was light to moderate with stalk tunneling between 2% for Bt hybrids and 11% based on non-Bt hybrids. Although Bt significantly reduced ECB feeding in leaves and stalks, this did not lead to yield, silage mycotoxin, or forage quality differences. Based on these results, potential yield increases and reduced mycotoxins in silage would be expected only in years with greater insect pressure than that found in this study.

Introduction

Several types of transgenic silage and grain corn hybrids that express *Bacillus thuringiensis* (Bt) insecticidal proteins have been used in the USA in most states since 1996; Maine approved their use in 2006. The primary Maine pests that Bt proteins are used to control include European corn borer (*Ostrinia nubilalis*), black cutworm (*Agrotis ipsilon*), and to a lesser extent corn rootworm (*Diabrotica* sp). In previously published research, corn yield was influenced primarily by intensity of insect pest pressure, environmental conditions, and crop rotation patterns (7,12,13). While most research has shown Bt corn to be economically effective with grain corn under moderate to high pest pressure (4,6,7,10), less research has been conducted evaluating the effectiveness of Bt corn grown for silage corn. Over 90 percent of the corn grown in Maine (and much of northern New England) is grown for silage, and combined with hay it makes up the primary feed source for dairy cattle (*Bos taurus* L.).

European corn borer (ECB) overwinters in Maine. The intensity of pest pressure and the amount of damage to yield and quality from larvae tunneling in the stalk or feeding in leaf tissue varies from year to year (1). Leaf holes and stalk tunneling may also allow plant pathogen entry, possibly leading to mycotoxin concentrations toxic to cows (8,17).

Black cutworm (BCW) does not overwinter in Maine; adults moths move into Maine on storms from the south. For this reason, BCW pressure is variable from year to year, but damage can be sufficiently high to force growers to replant fields. While northern corn root worms *Diabrotica barbari* (NCR) and western corn rootworm (*Diabrotica virgifera virgifera*) (WCR) are found in Maine, the weaker and less damaging NCR is much more common. Damage is generally less than that found in the mid-Atlantic or midwestern states (9,15).

Grower decisions to adopt Bt corn are based on seed cost, yield benefit, and forage quality compared to non-Bt hybrid lines (2). No studies on the effectiveness of Bt corn in silage systems have been produced from the New England region. Based on grower interest, seven experiments were conducted in the dairy production region of Maine from 2006 through 2009 to evaluate Bt corn hybrids and their near isolines for plant damage, yield, quality, and mycotoxin content.

Field Experiments

Two to three experiments were initiated each year, but two experiments over the four years were abandoned before completion: one due to crow damage and another to poor weed control resulting from very wet soil conditions. The experimental design used in all studies was a randomized complete block with four replications. Minimum plot size was 4 rows wide and 30 feet long. Overall, we collected seven SYL of data comparing Bt corn hybrids to near-isoline hybrids from two to three companies per year. Corn was the previous crop before the start of each SYL, and most fields had been in continuous corn for at least a decade. Soils were representative of typical Maine dairy production fields. They were generally silt loam or sandy loam textural classes, with adequate soil pH, and had moderate to high phosphorus and potassium fertility. Cooperating producers applied all of the fertilizer, manure, and herbicides for the experimental fields. Fields were tested for pre-sidedress soil nitrate concentration to ensure adequate nitrogen, and all fields exceeded the Maine recommendation of 25 ppm NO₃-N (5). Planting was done as soon as environmental conditions allowed. Planting dates, hybrids used, and other related information are presented in Table 1. Seeding rate was 32,000 seeds/acre at all locations. Corn harvest was initiated in mid to late September when corn silage dry matter was approximately 30%. Each year, seed companies supplied the seed for the trials, providing hybrids that represented the top-producing lines for our growing conditions for evaluation. We also included one less-expensive non-Bt "value" hybrid familiar to growers for an additional comparison.

Data Collection

In each experiment, we assessed BCW damage at the second to third leaf stage of development (11). We took four 1/1000 acre measurements of plant stand per plot, and counted the number of plants apparently killed by BCW. When we found a dead plant, we tried to confirm that the damage was caused by BCW. While this was not always possible, data were reported as apparent BCW damage.

Additionally, shortly after silking and again at harvest, counts were taken on four additional 1/1000 acre plots to assess the number of plants with insect damage (primarily shot holes) in the leaf tissue and holes in the stalk. To assess yield and quality differences, two 1/1000 acre row lengths of corn were harvested and weighed. Eight plants were chopped, mixed, frozen in plastic bags, and shipped for moisture, forage quality [crude protein, acid detergent fiber (ADF), neutral detergent fiber (NDF), total digestible nutrients (TDN), net energy at lactation (NEL), and non-fiber carbohydrates (NFC)], and mycotoxin analysis.

While all samples from all experiments were submitted for forage analysis, after 2006, cost constraints prevented submission of samples for mycotoxin analysis, except for those from locations with the most intense pest pressure. The mycotoxin analysis tested for a suite of mycotoxins, but only vomitoxin (DON) was detected and reported.

Table 1. Experimental details for seven site-year-location (SYL) study evaluating Bt corn for silage in Maine.

Year	Location	Planting date	Brand & Hybrid	RM	Maine insects targeted by BT traits ^w	Bt events
2006	Exeter	30 May	Golden Harvest H6395	86	***	none
	Charleston	30 May	Golden Harvest H6466-CB-GT	86	ECB	Bt-11
			DKC440	91	***	none
			DKC4442	91	ECB	Mon 810
			Pioneer 38A67 ^z	94	***	none
			Pioneer 38H64	98	ECB/BCW	TC1507
			Pioneer 37D02	97	***	none
2007	Exeter ^y	25 May	Mycogen TMF 2L412	94	***	none
	Pittsfield ^x	28 May	Mycogen TMF 2L416	94	ECB/BCW	TC1507
			DKC41-63	91	***	none
			DKC41-64	91	ECB	Mon 810
			DKC41-57	91	ECB/RW	Mon 810 × Mon 88017
			Pioneer 38B85	96	***	none
			Pioneer 38B86 ^y	98	ECB/BCW	TC1507
			Pioneer 38B87	98	ECB/BCW/RW	TC1507 × DAS59122-7
DK EB90 ^z	91	***	none			
2008	Orono	15 May	Pioneer 39D80 ^z	86	***	none
	Pittsfield		Pioneer 38N85	91	***	none
	Clinton ^x		Pioneer 38N87	91	ECB/BCW/RW	TC1507 × DAS59122-7
	(only Pittsfield)		Pioneer 39D85	86	ECB/BCW	TC1507
			DKC 41-63	91	***	none
			DKC 41-64	91	ECB	Mon 810
			DKC 41-60	91	ECB/RW	Mon 810 × Mon 88017
			2009	Orono	13 May	Pioneer 39D80 ^z
Charleston	20 May	Pioneer 38H06		92	***	none
		Pioneer 38H08		92	ECB/BCW	TC1507
		DKC 41-63		91	***	none
		DKC 41-64		91	ECB	Mon 810
		DKC 41-60		91	ECB/RW	Mon 810 × Mon 88017
		Mycogen TMF 2L414		93	***	none
		Mycogen TMF 2L416		94	ECB/BCW	TC1507
Mycogen TMF 2L418	94	ECB/CW/RW	TC1507 × DAS59122-7			

^w Traits: ECB = European corn borer; BCW = Black cutworm; RW = rootworm.

^x Pittsfield site lost due to crow damage. Clinton site lost to weeds after cutworm rating was taken.

^y Hybrid included in Pittsfield location only in 2007.

^z Popular value hybrid included for comparison purposes.

Statistical Analysis

A primary goal of this project was to determine whether Bt corn would benefit growers. We were not interested in evaluating specific cultivars, but rather whether the Bt trait provided an advantage averaged over cultivars. Specific hybrid names have been provided to identify which lines were evaluated (Table 1), but yield and quality parameters are not presented by variety name. Cultivars were considered a random factor, nested within trait, which was a fixed factor. A nested experimental analysis was used, in which we

first determined whether Bt corn (across all varieties evaluated in that SYL) significantly affected the specific dependent variables of insect feeding damage, yield, and mycotoxin level. We were also able to test the consistency of effect among the different company hybrids, by making comparisons of those specific dependent variables between individual corn hybrid isolines within a SYL, and assessing how many comparisons were significantly different. In the data tables, the overall Bt effect will be presented as "trait" (comparison across all hybrids), and the individual comparisons will be presented as "hybrid(trait)." The number of individual comparisons possible within a SYL was based on the number of companies and hybrids submitted each year. As an example, in 2006, Pioneer, DeKalb, and Golden Harvest provided Bt corn hybrids and their equivalent non-Bt near isolate. We were able to make three comparisons (one comparison for each company's Bt and near-isoline hybrid). Data were also combined over all SYL to provide average values for yield, insect feeding damage, and forage quality in Bt lines compared to near isolines over the course of the study. For the purpose of assessing BCW damage, only traits with the TC-1507 Bt event were compared with their near isolate hybrids. We also included in each study a commonly used "value" hybrid to compare against the more costly Bt and near-isoline hybrids to see how often the more expensive hybrids were profitable. Statistical analyses were conducted with and without the value hybrid data included, and except for silage dry matter and neutral detergent fiber content, the results were similar.

Black Cutworm Damage

Cutworm populations never reached the 5% damage economic action threshold in these experiments (14). Likely due to the low BCW pressure (ranging from 0.1 to 1.2% across SYL), no significant hybrid(trait) comparisons were found (Table 2). In 2009, BCW damage was high enough in some areas of Maine that some producers were forced to replant fields, including a corn field planted within a quarter mile of our experimental trial. Yet, we found very low BCW populations. Based on the results found in these studies, it was not economically beneficial to purchase Bt hybrids that control BCW.

Table 2. Effect of Bt on black cutworm (BCW) and european corn borer (ECB) damage and vomitoxin (DON) concentration.

Site-year	BCW		ECB, leaf		ECB, stalk		DON	
	Trait	Hyb(t)	Trait	Hyb(t)	Trait	Hyb(t)	Trait	Hyb(t)
1. Exeter	NS	(0/3)=	**	(2/3)	**	(2/3)	NS	(0/3)
2. Charleston	NS	(0/3)	NS	(1/3)	*	(1/3)	NS	(0/3)
3. Exeter	NS	(0/5)	**	(3/5)	**	(4/5)	nd	nd
4. Pittsfield	NS	(0/4)	NS	(0/4)	NS	(0/4)	n/a	n/a
5. Orono	NS	(0/3)	**	(2/3)	**	(2/3)	NS	(0/3)
6. Orono	NS	(0/5)	**	(5/5)	**	(1/5)	NS	(0/5)
7. Charleston	NS	(0/5)	**	(5/5)	**	(1/5)	n/a	n/a

Symbols and abbreviations:

* = significant at 5% level.

** = significant at the 1% level.

= = number of direct replanned comparisons that were significant.

NS = not significant.

nd = no mycotoxin detected in any sample submitted for analysis.

n/a = not applicable (no testing done).

European Corn Borer and Corn Rootworm Activity

Many different insects cause leaf damage to corn plants, and Bt controls specific lepidopteron and coleopteron pests. We counted sites of insect feeding. We found that corn expressing Bt (trait) experienced significantly less insect feeding compared to corn without Bt in five of seven SYL, and 17 of 28

hybrid(trait) comparisons were also significantly different. Where we did not see differences, either the total amount of insect feeding damage was very low (less than 3% as was found in site-year 4-Pittsfield), or the specific insects feeding on the leaves were not susceptible to Bt, as in the case of leaf miners, Charleston location. More importantly, because of the risk of lodging, we found that in six of seven SYL, the number of tunnels in Bt corn stalks (trait) was significantly lower than non-Bt near-isolines, and 10 of 28 isolate [hybrid(trait)] comparisons were also significantly different. Approximately 2% of Bt corn stalks exhibited tunneling at harvest compared to 11% without Bt. The differences in insect damage were the most consistent findings in the study. These results support findings of Singer and Bamka (12) who also found significantly higher numbers and longer tunnels in non-Bt corn. Lastly, few NCR adults and no WCR adults were observed, so we did not evaluate root feeding damage in this study.

Silage Vomitoxin Concentration

Despite environmental conditions that were generally favorable for growth of DON in most years, silage DON concentrations were not influenced by insect related leaf feeding or stalk injury levels. In 2007, no samples submitted had detectable levels of DON. While some individual non-Bt corn samples had DON levels considered unsafe for silage (16), mean concentrations were not significantly different. The highest DON concentrations found in non-Bt and Bt corn silage were 27 and 7.4 ppm, respectively. Our results support those of Munkvold et al. (8), which showed higher mycotoxin (fumonisin) levels in corn only where additional insect larvae were added to the corn. Under natural insect levels, like those found in our study, silage mycotoxin concentrations were not higher. While it is logical that fewer entry wounds for a fungal pathogen to penetrate corn should lead to lower mycotoxin levels (17), our results did not support this.

Dry Matter Yield, Moisture Content, and Corn Silage Forage Quality

A wide range of environmental conditions were found over the seven SYL. The 2007 growing season was a fairly average production year with a cool wet spring and average heat unit accumulation through the growing season. Early planting dates and excellent growing conditions in 2008 led to above average yields for this region, while 2009 was an extremely poor corn production year with nearly daily rain and below average temperatures during June and July. Corn silage yields in these studies ranged from more than 25 tons/acre at 30% dry matter to less than 10 tons/acre primarily due to the environmental conditions. At sites where corn grew well, Bt and non-Bt corn yields were very high for this region, and conversely when conditions were poor, yields of both were poor.

Over seven SYL, Bt trait did not increase dry matter yield (Table 3). As well, the value hybrids provided equivalent yields to the Bt corn lines in all SYL.

Yield benefits attributed to Bt corn reported previously were found with corn harvested for grain (7,12). Under most conditions, growers can still harvest silage corn even with moderate levels of ECB damage. In contrast, corn grown for grain can be more difficult because harvest is delayed often at least a month later in the season compared with corn silage, creating more opportunity for lodging or ear loss. The lack of yield response to Bt in this study was likely a combination of low insect pest pressure and the lack of the harvest losses.

No differences were found in silage moisture content when Bt corn was compared to near isolines. Singer and Bamka (12) and Dillehay et al. (3) found higher moisture content in Bt grain corn, probably due to fewer holes in the stalk. When we included the value hybrid in the analysis, the Bt corn silage had between two and three percent lower moisture content in four of seven SYL than we found with the non-Bt hybrids. This appeared to be because the moisture content at harvest of the Pioneer 38D85 was among the highest in the four SYL in which it was included, despite the fact that it is considered a shorter relative maturity hybrid. It was not clear why.

Table 3. Effect of Bt on dry matter yield and dry matter content.

Site-year	Dry matter yield		Dry matter content	
	Trait	Hyb(trait)	Trait	Hyb(trait)
1. Exeter	NS	(0/3)=	NS	(0/3)
2. Charleston	NS	(0/3)	NS	(0/3)
3. Exeter	NS	(0/5)	NS	(0/5)
4. Pittsfield	NS	(0/4)	*	(1/4)
5. Orono	NS	(0/3)	NS	(0/3)
6. Orono	NS	(0/5)	NS	(1/5)
7. Charleston	NS	(0/5)	NS	(0/5)

Symbols and abbreviations:

* = significant at 5% level.

** = significant at the 1% level.

= = number of direct preplanned comparisons that were significant.

NS = not significant.

Likewise, few differences were found between Bt and non-Bt near-isoline forage quality values (Table 4). One might expect differences in forage quality between near-isoline hybrids if high levels of insect pressure affected corn growth and development. Two significant differences found between Bt corn and a near-isoline ADF values, but overall, Bt corn had similar forage quality to non-Bt corn. Over the 28 possible comparisons (including the value hybrids), four significant comparisons were found for NFC values (*data not shown*). On wet, cool years like 2009, the shorter relative maturity value hybrids would probably have had a higher grain to stover ratio, and therefore higher NFC (energy) content.

Table 4. Comparisons of Bt and non-Bt near isolate differences in corn silage forage quality parameters.

Site year	Acid detergent fiber		Neutral detergent fiber		Total digestible nutrients		Nonfiber carbohydrates	
	Trait	Hyb(t)	Trait	Hyb(t)	Trait	Hyb(t)	Trait	Hyb(t)
1. Exeter	NS	(0/3)=	NS	(0/3)	NS	(0/3)	NS	(0/3)
2. Charleston	NS	(0/3)	NS	(0/3)	NS	(0/3)	NS	(0/3)
3. Exeter	NS	(0/5)	NS	(0/5)	NS	(0/5)	NS	(0/5)
4. Pittsfield	NS	(0/4)	NS	(0/4)	NS	(0/4)	NS	(0/4)
5. Orono	NS	(0/3)	NS	(0/3)	NS	(0/3)	NS	(0/3)
6. Orono	NS	(1/5)	NS	(0/5)	NS	(0/5)	NS	(0/5)
7. Charleston	NS	(1/5)	NS	(0/5)	NS	(0/5)	NS	(0/5)

Symbols and abbreviations:

* = significant at 5% level.

** = significant at the 1% level.

= = number of direct preplanned comparisons that were significant.

NS = not significant.

Summary: Average Yield, Nutrient Content, and Mycotoxin Levels Over Seven SYL

A summary of overall effects is presented in Table 5. No differences were found with cutworm damage across the seven SYL. Overall damage was less than one percent, well below the action threshold (14). Significant differences were found in ECB leaf and stalk damage. Between three and seven times more insect feeding damage was noted in the non-Bt isolines compared to Bt corn. However the insect activity had little effect on overall yield, mycotoxin, or forage

quality. The extent of the benefit growers in Maine and growers in similar conditions in the Northeast will find from Bt field corn will most likely depend on insect activity and the environmental conditions in a given year. While little benefit was shown for Bt corn in this seven SYL study, a season with higher ECB or BCW pressure could lead to different results, particularly if corn were grown for grain.

Table 5. Average values insect feeding and corn yield and quality for Bt and non-Bt near-isoline comparisons over seven site-years.

Average insect activity	Cutworm (cut plants/acre)	ECB, leaf	ECB, stalk at silking	ECB, stalk at harvest
		(plants with apparent ECB damage/acre)		
Bt	170	4502	580	760
Non-Bt	150	12400	3560	3530
LSD (0.05)	NS	2100	800	700

Average corn values	Yield (tons/acre)	Vomitoxin (ppm)	ADF	NDF	TDN	NFC
			(percent)			
Bt	19.0	0.61	25.0	43.9	72.1	43.9
Non-Bt	19.1	1.0	24.2	43.0	71.7	44.7
LSD (0.05)	NS	NS	NS	NS	NS	NS

Acknowledgments

The authors gratefully acknowledge the assistance of Lauchlin and Miah Titus, who helped with the experiments and contacted cooperating farmers; our cooperating farmers who assisted with corn planting; and our student assistants Miles Kirby, Jeff Hake, and Stephanie Shaw for their help with the experiments.

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[Notices]

[Pages 69065-69069]

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[FR Doc No: 2010-28138]

ENVIRONMENTAL PROTECTION AGENCY

[EPA-HQ-OPP-2002-0262; FRL-8852-4]

Endosulfan: Final Product Cancellation Order

AGENCY: Environmental Protection Agency (EPA).

ACTION: Notice.

SUMMARY: This notice announces EPA's order for the cancellations, voluntarily requested by the registrants and accepted by the Agency of pesticide products containing endosulfan, pursuant to section 6(f)(1) of the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA), as amended. This cancellation order follows an August 18, 2010, Federal Register Notice of Receipt of Requests from the endosulfan registrants to voluntarily cancel their product registrations. In the August 18, 2010, notice, EPA indicated that it

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would grant the request and issue a cancellation order unless the Agency received substantive comments within the 30-day comment period that would merit its further review of these requests, or unless the registrants withdrew their requests within this period. The Agency received three comments on the notice in support of the cancellations of all endosulfan products, which included signatures from over 53,000 individuals. Upon review of these comments, EPA determined that the Agency should, nonetheless, grant the registrants' cancellation requests. The registrants did not withdraw their requests. Accordingly, EPA hereby issues in this notice a cancellation order granting the requested cancellations. Any FIFRA section 3 or 24(c) registration, distribution, sale, or use of endosulfan products subject to this cancellation order is permitted only in accordance with the terms of this order.

DATES: The use deletions and cancellations in this order are effective as provided in Unit IV.

FOR FURTHER INFORMATION CONTACT: Melanie Biscoe, Pesticide Re-evaluation Division, Office of Pesticide Programs (7508P), Environmental Protection Agency, 1200 Pennsylvania Ave., NW., Washington, DC 20460-0001; telephone number: (703) 305-7106; e-mail address: biscoe.melanie@epa.gov.

SUPPLEMENTARY INFORMATION:

I. General Information

A. Does this action apply to me?

This action is directed to the public in general, and may be of interest to a wide range of stakeholders including environmental, human health, and agricultural advocates; the chemical industry; pesticide users; and members of the public interested in the sale, distribution, or use of pesticides. Since others also may be interested, the Agency has not attempted to describe all the specific entities that may be affected by this action. If you have any questions regarding the applicability of this action to a particular entity, consult the person listed under FOR FURTHER INFORMATION CONTACT.

B. How can I get copies of this document and other related information?

EPA has established a docket for this action under docket identification (ID) number EPA-HQ-OPP-2002-0262. Publicly available docket materials are available either in the electronic docket at <http://www.regulations.gov>, or, if only available in hard copy, at the Office of Pesticide Programs (OPP), Regulatory Public Docket in Rm. S-

4400, One Potomac Yard (South Bldg.), 2777 S. Crystal Dr., Arlington, VA. The hours of operation of this Docket Facility are from 8:30 a.m. to 4 p.m., Monday through Friday, excluding legal holidays. The Docket Facility's telephone number is (703) 305-5805.

II. What action is the agency taking?

This notice announces the cancellations, as requested by registrants, of all endosulfan products registered under sections 3 and 24(c) of FIFRA. These registrations are listed in sequence by registration number in Table 1 of this unit. Note that the product names of several registration numbers were corrected in this table subsequent to the August 18, 2010, Federal Register Notice of Receipt of Requests (75 FR 51049) (FRL-8841-5) from the endosulfan registrants to voluntarily cancel their product registrations. However the registration numbers listed in the August 18, 2010, Federal Register Notice were correct and did not need to be amended in this notice.

Table 1--Endosulfan Products Subject to This Cancellation Order

Registration No.	Product name	Chemical name
11678-5.....	Thionex Endosulfan Technical.	Endosulfan.
19713-9.....	Drexel Endosulfan 2EC.	Endosulfan.
19713-319.....	Drexel Endosulfan Technical.	Endosulfan.
19713-399.....	Drexel Endosulfan 3EC.	Endosulfan.
61483-65.....	Endalfly Insecticide Cattle Ear Tag.	Endosulfan.
66222-62.....	Thionex 50W.....	Endosulfan.
66222-63.....	Thionex 3EC.....	Endosulfan.
66222-64.....	Thionex Technical.	Endosulfan.
AZ030004.....	Thionex 3EC.....	Endosulfan.
AZ980004.....	Drexel Endosulfan 3EC.	Endosulfan.
HI030001.....	Thionex 50W.....	Endosulfan.
HI030002.....	Thionex 3EC.....	Endosulfan.
HI070006.....	Thionex 3EC.....	Endosulfan.
ID030002.....	Thionex 3EC.....	Endosulfan.
ID030004.....	Thionex 3EC.....	Endosulfan.
ID980003.....	Drexel Endosulfan 3EC.	Endosulfan.
NC080001.....	Thionex 3EC.....	Endosulfan.
NV030001.....	Thionex 3EC.....	Endosulfan.
OR030007.....	Thionex 3EC.....	Endosulfan.
OR030010.....	Thionex 3EC.....	Endosulfan.
OR030012.....	Thionex 50W.....	Endosulfan.
OR030013.....	Thionex 3EC.....	Endosulfan.
OR030024.....	Thionex 3EC.....	Endosulfan.
UT030003.....	Thionex 3EC.....	Endosulfan.
WA030013.....	Thionex 3EC.....	Endosulfan.
WA030017.....	Thionex 50W.....	Endosulfan.
WA030018.....	Thionex 3EC.....	Endosulfan.
WA030024.....	Thionex 3EC.....	Endosulfan.
WA030027.....	Thionex 3EC.....	Endosulfan.
WA980012.....	Drexel Endosulfan 3EC.	Endosulfan.

Table 2 of this unit includes the names and addresses of record, in sequence by EPA company number, for all registrants of the products in Table 1 of this unit.

Table 2--Registrants of Canceled Products

EPA company No.	Company name and address
11678.....	Makhteshim Chemical Works, Ltd., 4515 Falls of Neuse Rd., Suite 300, Raleigh, NC 27609.
19713.....	Drexel Chemical Company, 1700 Channel Avenue, P.O. Box 13327, Memphis, TN 38113-0327.
61483.....	KMG-Bernuth, Inc., 9555 W. Sam Houston Pkwy., South, Suite 600, Houston, TX 77099.
66222.....	Makhteshim-Agan of North

America, Inc., 4515 Falls of
Neuse Rd., Suite 300, Raleigh,
NC 27609.

III. Summary of Public Comments Received and Agency Response to Comments

The Agency received three comments on the notice, published on August 18, 2010, that announced receipt of the requests for voluntary cancellation and opened a 30-day public comment period that ended on September 17, 2010. These comments were received from Pesticide Action Network North America (PANNA) and over 3,000 supporters, Defenders of Wildlife and over 50,000 supporters, and a private citizen. All comments support cancellation of all endosulfan pesticide products in the United States. The comments from PANNA, Defenders of Wildlife, and by extension the supporters of those organizations, request that EPA shorten the phase-out schedule for endosulfan, referring in general terms to a concern over continued risks to farmworkers, wildlife and the environment, and indigenous

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peoples in the Arctic, as well as each organization's assertion that alternatives to endosulfan are available.

The Agency appreciates the comments submitted by the public. Pursuant to the cancellation request made as part of the endosulfan Memorandum of Agreement (MOA) with endosulfan registrants, most currently approved endosulfan crop uses will end in 2 years, including over 30 crop uses plus use on ornamental trees, shrubs, and herbaceous plants. The remaining 12 crop uses will end over the following 4 years. Of these remaining uses, the last four endosulfan uses will end on July 31, 2016.

EPA expects growers currently using endosulfan to successfully transition to lower risk pest control strategies. The endosulfan phase-out schedule helps facilitate this transition by providing growers time to research and adopt lower risk alternatives. Recognizing that endosulfan affords benefits in producing certain individual crops, the phase-out schedule allows a longer phase-out period where EPA determined there are benefits of endosulfan use and/or fewer available alternatives to endosulfan.

With regard to the commenters' concern about farmworker and environmental risks, EPA is requiring new mitigation measures for many crops during the endosulfan phase-out period in addition to mitigation requirements placed on endosulfan labels in previous years. Although these additional mitigation measures are designed to reduce worker risks, restricting and phasing out all uses of endosulfan will also address risks to wildlife and the environment.

Additional mitigation required during the phase-out varies by crop and includes measures such as:

Canceling aerial use and specifying other application methods.

Extending Restricted Entry Intervals (REIs).

Extending Pre-harvest Intervals (PHIs).

Reducing maximum single and/or seasonal application rates.

Detailed information about the additional mitigation measures is provided in the Appendices to the endosulfan MOA, which can be found at docket number EPA-HQ-OPP-2002-0262-0181 on <http://www.regulations.gov>.

With regard to the commenters' concern for endosulfan contamination of subsistence foods, the Agency's human health risk assessment has determined that there are no dietary risks of concern resulting from endosulfan use for all populations including indigenous people in the Arctic.

Because of the extensive additional mitigation required for many endosulfan uses for the duration of the phase-out period, in combination with the benefits afforded by and/or limited alternatives for certain uses of endosulfan, the Agency has decided not to alter the phase-out schedule requested by the endosulfan registrants and detailed in the endosulfan MOA.

IV. Cancellation Order

Pursuant to FIFRA section 6(f), EPA hereby approves the requested cancellations of registrations identified in Table 1 of Unit II. and hereby orders that:

All endosulfan product registrations, identified in Table 1 of Unit II. are canceled for uses listed in List 1 of Unit VI. as of November 10, 2010.

All endosulfan product registrations, identified in Table 1 of Unit II. are canceled for uses listed in List 2 of Unit VI. as of

March 31, 2012.

All endosulfan product registrations, identified in Table 1 of Unit II. are canceled for uses listed in List 3 of Unit VI. as of March 31, 2013.

All endosulfan product registrations, identified in Table 1 of Unit II. are canceled for uses listed in List 4 of Unit VI. as of September 1, 2014.

All endosulfan product registrations, identified in Table 1 of Unit II. are canceled for uses listed in List 5 of Unit VI. as of March 31, 2015.

All endosulfan product registrations, identified in Table 1 of Unit II. are canceled for uses listed in List 6 of Unit VI. as of March 31, 2016.

EPA further orders that effective July 31, 2016, all section 3 registrations of endosulfan are canceled. The effective date of canceled section 3 registrations will therefore correspond with end use dates established in this order. As a matter of clarification, all FIFRA 24(c) Special Local Need registrations may remain in effect until their respective expiration dates, which will correspond with end use dates established in this order.

V. What is the agency's authority for taking this action?

Section 6(f)(1) of FIFRA provides that a registrant of a pesticide product may at any time request that any of its pesticide registrations be canceled or amended to terminate one or more uses. FIFRA further provides that, before acting on the request, EPA must publish a notice of receipt of any such request in the Federal Register. Thereafter, following the public comment period, the Administrator may approve such a request.

VI. Provisions for Disposition of Existing Stocks

Existing stocks are those stocks of registered pesticide products that are currently in the United States and that were packaged, labeled, and released for shipment prior to the effective date of the cancellation action. In any order issued in response to these requests for amendments to terminate uses, the Agency proposes to include the following provisions for the treatment of any existing stocks of the products identified or referenced in Table 1. These provisions are consistent with the requests for use deletions and requests for voluntary cancellations outlined in Unit II. of this notice:

1. For the uses in List 1 of this unit.--i. EPA prohibits the registrants' distribution, sale, and reformulation of products permitting the following uses after December 31, 2010, except sale or distribution of such products for the purposes of proper disposal, or export consistent with section 17 of FIFRA.

ii. EPA prohibits the distribution or sale of products permitting the following uses by persons other than the registrants after May 31, 2011, except sale or distribution of such products for the purposes of proper disposal, or export consistent with section 17 of FIFRA.

iii. EPA prohibits registration and use of those products that show uses listed in List 1 on the label for those same uses after July 31, 2012. The stop use date for the uses listed in List 1 of this unit must be reflected on amended product labeling. Any use of existing stocks must be consistent with the previously approved directions for use on product labeling.

List 1.--Phase-Out Group A

Almond
Apricot
Broccoli
Brussels sprouts
Carrots
Cauliflower
Celery (non-AZ)
Citrus (non-bearing)
Collard greens
Dry beans
Dry peas
Eggplant
Filbert
Kale
Kohlrabi
Macadamia
Mustard greens
Nectarine (CA only)
Plum & prune

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Poplars grown for pulp and timber
Strawberry (Annual)
Sweet potato
Tart cherry
Turnip
Walnut

Ornamental trees, shrubs, and herbaceous plants--includes boxelder, dogwood, lilac, Douglas fir (grown for ornamentals nursery stock or Christmas trees; Pacific Northwest only), elms, leatherleaf fern, pines (Austrian, jack, red, scotch, white), shade trees (except birch), shrubs, spruce (New England area only), taxus, orchids, hybrid poplars, Christmas trees Other uses that may appear on section 3 registration labels or on a 24(c) registration and are not listed above or on Lists 2, 3, 4, 5, or 6 of this unit.

2. For the uses in List 2 of this unit.--i. EPA prohibits the registrants' distribution, sale, and reformulation of products permitting the following uses after March 31, 2012, except sale or distribution of such products for the purposes of proper disposal, or export consistent with section 17 of FIFRA.

ii. EPA prohibits the distribution or sale of products permitting the following uses by persons other than the registrants after May 31, 2012, except sale or distribution of such products for the purposes of proper disposal, or export consistent with section 17 of FIFRA.

iii. EPA prohibits registration and use of those products that show uses listed in List 2 on the label for those same uses after July 31, 2012. The stop use date for the uses listed in List 2 of this unit must be reflected on amended product labeling. Any use of existing stocks must be consistent with the previously approved directions for use on product labeling.

List 2.--Phase-Out Group B

Cabbage
Celery (AZ only)
Cotton
Cucumbers
Lettuce
Stone fruits not listed in List 1 of this unit, including nectarine (non-CA), peaches, and sweet cherry
Summer melons (cantaloupe, honeydew, watermelon)
Summer squash
Tobacco

3. For the uses in List 3 of this unit.--i. EPA prohibits the registrants' distribution, sale, and reformulation of products permitting the following uses after March 31, 2013, except sale or distribution of such products for the purposes of proper disposal, or export consistent with section 17 of FIFRA.

ii. EPA prohibits the distribution or sale of products permitting the following uses by persons other than the registrants after May 31, 2013, except sale or distribution of such products for the purposes of proper disposal, or export consistent with section 17 of FIFRA.

iii. EPA prohibits registration and use of those products that show uses listed in List 3 on the label for those same uses after July 31, 2013. The stop use date for the uses listed in List 3 of this unit must be reflected on amended product labeling. Any use of existing stocks must be consistent with the previously approved directions for use on product labeling.

List 3.--Phase-Out Group C

Pear

4. For the uses in List 4 of this unit.--i. EPA prohibits the registrants' distribution, sale, and reformulation of products permitting the following uses in the state of Florida after September 30, 2014, except sale or distribution of such products for the purposes of proper disposal, or export consistent with section 17 of FIFRA.

ii. EPA prohibits the distribution or sale in the state of Florida of products permitting the following uses by persons other than the registrants after October 31, 2014, except sale or distribution of such products for the purposes of proper disposal, or export consistent with section 17 of FIFRA.

iii. EPA prohibits registration and use of those products that show uses listed in List 4 on the label for those same uses in the state of Florida after December 31, 2014. The stop use date for the uses listed in List 4 of this unit must be reflected on amended product labeling. Any use of existing stocks must be consistent with the previously

approved directions for use on product labeling.

List 4.--Phase-Out Group D

All Florida uses of:

Apple
Blueberry
Peppers
Potatoes
Pumpkins
Sweet corn
Tomato
Winter squash

5. For the uses in List 5 of this unit.--i. EPA prohibits the registrants' distribution, sale, and reformulation of products permitting the following uses after March 31, 2015, except sale or distribution of such products for the purposes of proper disposal, or export consistent with section 17 of FIFRA.

ii. EPA prohibits the distribution or sale of products permitting the following uses by persons other than the registrants after May 31, 2015, except sale or distribution of such products for the purposes of proper disposal, or export consistent with section 17 of FIFRA.

iii. EPA prohibits registration and use of those products that show uses listed in List 5 on the label for those same uses after July 31, 2015. The stop use date for the uses listed in List 5 of this unit must be reflected on amended product labeling. Any use of existing stocks must be consistent with the previously approved directions for use on product labeling.

List 5.--Phase-Out Group E

Apple
Blueberry
Peppers
Potatoes
Pumpkins
Sweet corn
Tomato
Winter squash

6. For the uses in List 6 of this unit.--i. EPA prohibits the registrants' distribution, sale, and reformulation of products permitting the following uses after March 31, 2016, except sale or distribution of such products for the purposes of proper disposal, or export consistent with section 17 of FIFRA.

ii. EPA prohibits the distribution or sale of products permitting the following uses by persons other than the registrants after May 31, 2016, except sale or distribution of such products for the purposes of proper disposal, or export consistent with section 17 of FIFRA.

iii. EPA prohibits registration and use of those products that show uses listed in List 6 on the label for those same uses after July 31, 2016. The stop use date for the uses listed in List 6 of this unit must be reflected on amended product labeling. Any use of existing stocks must be consistent with the previously approved directions for use on product labeling.

List 6.--Phase-Out Group F

Livestock ear tags
Pineapple
Strawberry (perennial/biennial)
Vegetable crops for seed (alfalfa, broccoli, Brussels sprouts, cabbage, cauliflower, Chinese cabbage, collard greens, kale, kohlrabi, mustard greens, radish, rutabaga, turnip)

List of Subjects

Environmental protection, Pesticides and pests.

[[Page 69069]]

Dated: October 28, 2010.

Richard P. Keigwin, Jr.,
Director, Pesticide Re-evaluation Division, Office of Pesticide
Programs.

[FR Doc. 2010-28138 Filed 11-9-10; 8:45 am]

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Deformed Beaks May Signal a Greater Environmental Problem

Released: 11/8/2010 4:10:45 PM

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SHARE

ANCHORAGE, Alaska – The highest rate of beak abnormalities ever recorded in wild bird populations is being seen in a number of species in the Northwest and Alaska, and scientists to this point have not been able to isolate the cause.

Black-capped Chickadees, Northwestern Crows, and other birds are being impacted by the problem, which affects their ability to feed and clean themselves and could signal a growing environmental health problem.

In birds affected by what scientists have termed “avian keratin disorder,” the keratin layer of the beak becomes overgrown, resulting in noticeably elongated and often crossed beaks, sometimes accompanied by abnormal skin, legs, feet, claws and feathers. Biologists with the U.S. Geological Survey’s Alaska Science Center published their findings in this month’s issue of *The Auk*, a Quarterly Journal of Ornithology.

“The prevalence of these strange deformities is more than ten times what is normally expected in a wild bird population,” said research biologist Colleen Handel with the USGS, “We have seen effects not only on the birds’ survival rates, but also on their ability to reproduce and raise young. We are particularly concerned because we have not yet been able to determine the cause, despite testing for the most likely culprits.”

The disorder, which has increased dramatically over the past decade, affects 6.5 percent of adult Black-capped Chickadees in Alaska annually. Beak deformities in this species were first observed in the late 1990s and biologists have since documented more than 2,100 affected individuals. Increasing numbers of other species have also been observed with beak deformities throughout Alaska, British Columbia, and Washington. An estimated 17 percent of adult Northwestern Crows are affected by avian keratin disorder in coastal Alaska.

Beak deformities in birds can be caused by many different factors, including environmental contaminants, nutritional deficiencies, and bacterial, viral, fungal or parasitic infections. In

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the past, other large clusters of beak deformities have been associated with environmental pollutants such as organochlorines in the Great Lakes region and selenium from agricultural runoff in California. These biological discoveries were the first indication that something was wrong in the ecosystem and led to efforts that ultimately corrected the problem.

"We're seeing ecologically unique species affected across a wide range of habitats. The scope of this problem raises concern about environmental factors in the region," said USGS wildlife biologist Caroline Van Hemert.

The increasing occurrence of deformities in multiple bird species with broad geographic distribution suggests that avian keratin disorder is spreading and may be an indication of underlying environmental health problems. Additional studies by the USGS will continue to investigate why so many birds are currently affected in Alaska and the Pacific Northwest. Current research is focused on understanding the disease and potential causes of the disorder.

"[Epizootic of beak deformities among wild birds in Alaska: An emerging disease in North America?](#)" and "[Beak deformities in Northwestern Crows: Evidence of a multispecies epizootic](#)," are available in this month's printed issue of [The Auk, a Quarterly Journal of Ornithology](#).

Visit the Alaska Science Center's [photo gallery of beak deformities](#) for additional pictures.

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###





NEWS

GM mosquito wild release takes campaigners by surprise

Katherine Nightingale

11 November 2010 | EN | ES |

Experts in the safety of genetically modified (GM) organisms have expressed concern over the release of GM mosquitoes into the wild on the Cayman Islands, which was publicised internationally only last month — a year after their initial release.

The trial of the OX513A strain of the dengue-carrying *Aedes aegypti* mosquito, developed by UK biotechnology company Oxitec, was carried out on Grand Cayman island by the Cayman Islands' Mosquito Research and Control Unit (MRCU) in 2009, followed by a bigger release between May and October this year. Together they represent the first known release of GM mosquitoes anywhere in the world.

Unpublished results of the trials, showing that the GM male mosquitoes competed with wild males, were presented at the American Society of Tropical Medicine and Hygiene annual meeting in the United States, last week (4 November).

The male GM mosquitoes mate with normal females to produce larvae that die unless the antibiotic tetracycline is present. In tetracycline's absence an enzyme accumulates to a toxic level, killing the larvae. The developers hope the strategy could be combined with other mosquito control methods to reduce transmission in dengue-prone areas.

Ricarda Steinbrecher, a geneticist and co-director of EcoNexus — a UK-based non-profit research organisation — expressed surprise that the trials had occurred, saying that they had not been mentioned at the fifth meeting of the Parties to the Cartagena Protocol on Biosafety — which addresses international safety issues relating to GM organisms — in Nagoya, Japan, last month.

She described the lack of publicity surrounding the trials as "worrying, both from the scientific perspective as well as public participation perspective".

Steinbrecher said that until a full, long-term environmental assessment of the Cayman trials has been carried out, the recently announced Malaysian trials of the same strain should not go ahead.

Just over three million male mosquitoes were released in the Cayman Islands this year. Oxitec sent the GM eggs to the islands, which are a British overseas territory, and they were hatched and grown at the MRCU.

Angela Harris, senior researcher at MRCU, told *SciDev.Net* that her unit consulted with several Cayman Islands' government departments beforehand.

"Currently there is a draft biosafety bill, and despite the fact that this bill has not yet been implemented we carried out a risk analysis and review of the trial as if this bill was already in place."

She said that there had been a newspaper article and public consultation within the Cayman Islands.



GM mosquitoes were released on the islands last year — but only publicised last month
[Flickr/lyng883](#)

Luke Alpey, research director at Oxitec, said an extensive risk analysis was carried out and "we did lots of engagement work in Cayman, but no special effort either to spread the word internationally or not to [do so]". On the sidelines of a press conference in London today he said that he had not wanted to publicise the trial until the results were known. He did not know what the Nagoya meeting was, he said. An environmental assessment of the trial site is now being carried out.

Alpey said that the experiment complied with the Cartagena Protocol because prior informed consent was obtained from the Cayman government.

John Marshall, of Imperial College London, who has argued that the Cartagena Protocol needs overhauling to deal with the special demands of GM insects, said: "Because the mosquitoes aren't going to spread to other countries, it's a national issue. I think Oxitec has done everything they needed to do."

The wild mosquito population in a 16-hectare urban area is believed to have been reduced by about 80 per cent. The next step for Oxitec, said Alpey, is to test the strategy in conjunction with other mosquito control methods.

Kathy Jo Wetter, a researcher with the ETC Group (Action Group on Erosion, Technology and Cooperation), a Canada-based organisation that promotes the socially responsible development of technologies, said ETC was unaware of the release.

"Oxitec considers its trial 'successful' just days after the experiment has ended," she said. "But unintended impacts on the environment cannot be known, and Oxitec's unproven technology could make things worse in the long term. There is no possibility of recall if something goes wrong — who takes responsibility in that case?"

"Extreme techno-fixes require extreme precaution," she added.

Alpey said they are waiting for approval for the release of GM mosquitoes in Brazil, Panama and the United States.

See below for a video of rearing and release of Oxitec's GM mosquitoes in the Cayman islands by the Mosquito Research and Control Unit (Grand Cayman):



Additional reporting by Mićo Tatalović



Antibacterial agent could cause pregnancy problems

Filed under [Health](#), [Research](#) on Thursday, November 4, 2010.

GAINESVILLE, Fla. — A chemical found in everything from antibacterial soaps and lotions to socks and toothpaste may disrupt an enzyme that plays an important role in pregnancy, [University of Florida](#) researchers say.

Thought to be harmless, triclosan gives many soaps and lotions their antibacterial oomph and is found in hundreds of popular products. But a team of UF researchers led by [Margaret O. James](#) has discovered that the chemical hinders an enzyme linked to the metabolism of estrogen. The researchers' findings are reported in the November print issue of the journal *Environment International*.

In pregnancy, this enzyme, called estrogen sulfotransferase, helps metabolize estrogen and move it through the placenta into the developing fetus. There, the estrogen plays a crucial role in brain development and the regulation of genes.

"We suspect that makes this substance dangerous in pregnancy if enough of the triclosan gets through to the placenta to affect the enzyme," said James, a professor and chairwoman of [medicinal chemistry](#) in the [UF College of Pharmacy](#). "We know for sure it is a very potent inhibitor. What we don't know is the kinds of levels you would have to be exposed to to see a negative effect.

"We know it is a problem, but we don't know how much of a problem. We need to move forward and do additional studies."

In pregnancy, the placenta basically serves as a developing baby's in-womb survival kit. Almost everything the fetus gets from its mother — namely food and oxygen — comes through the placenta. It also creates important hormones, such as progesterone and estrogen.

Aside from the role it plays in the fetus, estrogen also affects how much oxygen the baby gets from the mother, said [Charles Wood](#), a professor and chairman of [physiology and functional genomics](#) in the [UF College of Medicine](#) and a co-author of the study. All of the oxygen a baby gets from its mother flows through the mother's uterine artery. Without enough estrogen, this artery can constrict, decreasing blood flow.

"If you don't make enough estrogen you can, we think, starve the baby of enough oxygen," Wood said.

Estrogen is also involved in signaling the uterus to contract during labor. But maintaining the right levels of the hormone during pregnancy is a delicate balance, Wood says. Too much estrogen could send the mother's body into premature labor. Too little could hinder the flow of oxygen. Both instances could affect how the baby's brain develops.

This is one of the reasons scientists are concerned about the pregnancy-related effects of chemicals such as triclosan.

"Some of these (chemicals) can go and combine with estrogen receptors and mimic estrogen or keep estrogen off its receptors or change the metabolism of estrogen, which is what we are looking at with triclosan," Wood said.

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In April 2010, the [Food and Drug Administration](#) decided to take a closer look at triclosan after several studies found links to problems with hormone regulation and other possible negative health effects. Other studies have shown that the chemical, which cannot be broken down by bacteria, stays in the environment long after it is used.

“Triclosan is a material that is present in the environment and everyone has low levels. If you use products with triclosan, you will likely have higher levels,” said Bruce Hammock, a professor of entomology at the [University of California-Davis](#) who studies triclosan. “It has some real benefits but it is certainly not risk-free.”

More studies are needed before researchers can conclude what effects triclosan really has on human health, James said.

“The triclosan is incorporated into household products because it inhibits bacterial growth,” James said. “But the bad thing is it has this unexpected side effect of inhibiting this important enzyme in the body. At this point we don’t know if the levels people are exposed to are high enough to cause an adverse effect.”

-30-

Credits

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NEW APPROACHES NEEDED TO GAUGE SAFETY OF NANOTECH-BASED PESTICIDES

10-4-10

CORVALLIS, Ore. – Nanotechnology is about to emerge in the world of pesticides and pest control, and a range of new approaches are needed to understand the implications for public health, ensure that this is done safely, maximize the potential benefits and prevent possible risks, researchers say in a new report.

In a study published today in the International Journal of Occupational and Environmental Health, scientists from Oregon State University and the European Union outline six regulatory and educational issues that should be considered whenever nanoparticles are going to be used in pesticides.

"If we do it right, it should be possible to design nanoparticles with safety as a primary consideration, so they can help create pesticides that work better or are actually safer," said Stacey Harper, an assistant professor of nanotoxicology at Oregon State University. Harper is a national leader in the safety and environmental impacts of this science that deals with particles so extraordinarily small they can have novel and useful characteristics.

"Unlike some other applications of nanotechnology, which are further along in development, applications for pesticides are in their infancy," Harper said. "There are risks and a lot of uncertainties, however, so we need to understand exactly what's going on, what a particular nanoparticle might do, and work to eliminate use of any that do pose dangers."

A program is already addressing that at OSU, as part of the Oregon Nanoscience and Microtechnologies Institute.

The positive aspect of nanotechnology use with pesticides, researchers say, is that it might allow better control and delivery of active ingredients, less environmental drift, formulations that will most effectively reach the desired pest, and perhaps better protection for agricultural workers.

"If you could use less pesticide and still accomplish the same goal, that's a concept worth pursuing," Harper said.

But researchers need to be equally realistic about the dangers, she said. OSU labs have tested more than 200 nanomaterials, and very few posed any toxic concerns – but a few did. In one biomedical application, where nanoparticles were being studied as a better way to deliver a cancer drug, six out of 40 evoked a toxic response, most of which was linked to a specific surface chemistry that scientists now know to avoid.

"The emergence of nanotechnology in the pesticide industry has already begun, this isn't just theoretical," said David Stone, an assistant professor in the OSU Department of Environmental and Molecular Toxicology. "But pesticides are already one of the most rigorously tested and regulated class of compounds, so we should be able to modify the existing infrastructure."

One important concern, the researchers said, will be for manufacturers to disclose exactly what nanoparticles are involved in their products and what their characteristics are. Another issue is to ensure that compounds are tested in the same way humans would be exposed in the real world.

"You can't use oral ingestion of a pesticide by a laboratory rat and assume that will tell you what happens when a human inhales the same substance," Stone said. "Exposure of the respiratory tract to nanoparticles is one of our key concerns, and we have to test compounds that way."

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Source

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[David Stone](#),
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Nanoparticles

Search

Future regulations also need to acknowledge the additional level of uncertainty that will exist for nano-based pesticides with inadequate data, the scientists said in their report. Tests should be done using the commercial form of the pesticides, a health surveillance program should be initiated, and other public educational programs developed.

Special assessments may also need to be developed for nanoparticle exposure to sensitive populations, such as infants, the elderly, or fetal exposure. And new methodologies may be required to understand nanoparticle effects, which are different from most traditional chemical tests.

"These measures will require a coordinated effort between governmental, industry, academic and public entities to effectively deal with a revolutionary class of novel pesticides," the researchers concluded in their report.

About the OSU College of Agricultural Sciences: The college contributes in many ways to the economic and environmental sustainability of Oregon and the Pacific Northwest. The college's faculty are leaders in agriculture and food systems, natural resources management, life sciences and rural economic development research.



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Pesticides

Smoking them out

Tobacco extracts protect plants from pests and pathogens

Nov 18th 2010 | from PRINT EDITION

THERE are, as Paracelsus put it, no poisons—only poisonous doses. That is certainly true of nicotine. The amount in a puff from a cigarette acts as a pleasant stimulus. The amount in a packet of 20, injected in one go, would kill you.

The Victorians understood this and regularly used nicotine as a lethal poison—not for people (except in the minds of a few crime novelists) but for insects. The invention of modern, synthetic insecticides has more or less killed that practice off. But Cedric Briens of the University of Western Ontario is thinking of reviving it, and is also asking whether tobacco has any other pesticidal properties that might be exploited by the hard-pressed horticulturalist.

To find out, Dr Briens and his colleagues at Canada's agriculture ministry ground up dried tobacco leaves using a blender and a sieve. They then heated the result in a pressurised, oxygen-free environment to distil out what they could in the form of a treacly oil. They tested this oil on 11 species of fungus and four types of bacterium that are common agricultural problems. They also tried it on the larvae of Colorado beetles, a notorious pest of potatoes.

As they report in *Industrial and Engineering Chemistry Research*, the researchers found that several pestilential organisms were affected by the oil. Specifically they discovered that *Pythium ultimum*, a fungus that attacks aubergines, peppers, lettuces, tomatoes and cucumbers as seedlings, *Clavibacter michiganensis*, a bacterium that kills young plants and deforms fruits, and *Streptomyces scabies*, a second bacterium, which causes potatoes to develop revolting scabs and for which no treatment currently exists, all stopped growing in the presence of the oil. The beetle larvae, too, were killed—though that was no surprise, since the oil contained a lot of nicotine.

What was a surprise was that removing this nicotine did not diminish the oil's effectiveness against bacteria and fungi, and made it only marginally less effective against beetle larvae. The crude oil killed all of the larvae whereas the nicotine-free stuff left a fifth of them alive after two days. Clearly, there are other pesticides at work, and finding what they are is the next task. Meanwhile tobacco has proved itself a more useful substance than even the Victorians realised. Can its rehabilitation be far off?

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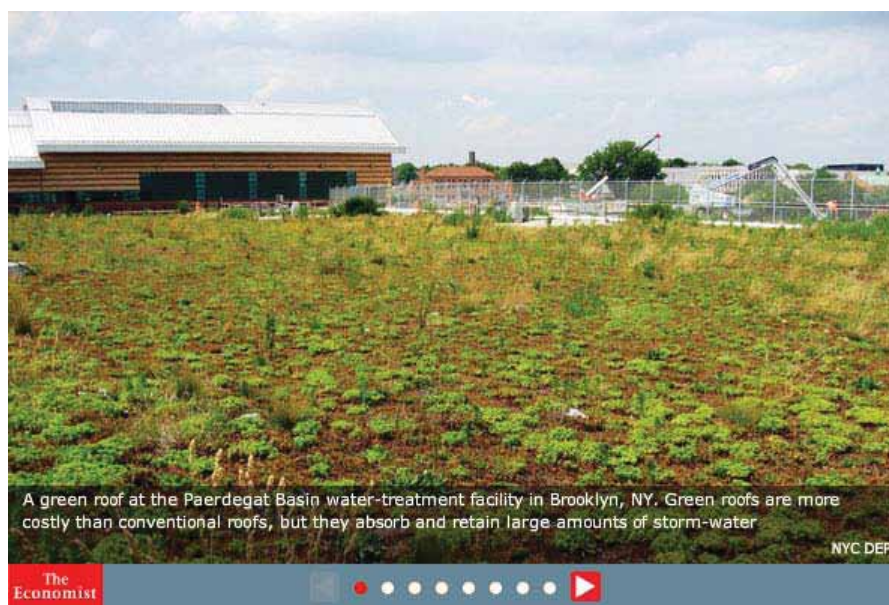
The
Economist

Water-saving in the north-east

Trees grow in Brooklyn

A natural form of relief for overworked city sewers

Nov 11th 2010 | NEW YORK AND PHILADELPHIA



LIKE other post-industrial areas in the city, New York's Gowanus neighbourhood is getting stylish. But those who venture there after a heavy rainstorm might rethink their plans to buy that loft. When the city's ageing sewerage system is overwhelmed, untreated storm-water and sewage flood into local waterways, including the Gowanus Canal. The resulting whiff is sure to keep property prices at a level starving Brooklyn artists can afford.

New York has a serious sewer problem. The city spills more than 27 billion gallons (102 billion litres) of untreated overflow into its harbour each year, according to Riverkeeper, a local advocacy group. And New York is not alone. Nearly 800 American cities rely on decrepit systems that collect storm-water run-off, industrial waste and human sewage in the same pipes. Usually these pipes take waste water to treatment plants. But any overflow is released into rivers and streams.

Time, erosion and increasingly erratic weather have made this a national issue. The Environmental Protection Agency (EPA), the federal body in charge of monitoring water standards, says the country needs to invest \$300 billion over the next 20 years to update or

replace existing sewer infrastructure. But except for the money for improvements set aside in the 2009 stimulus bill—a not-ungenerous \$6 billion—the federal government has left states to their own devices. Some cash-strapped cities have decided to get creative.

New York recently unveiled a grand plan to clean up its waterways. Instead of spending billions on new tanks and pipes (ie, “grey infrastructure”), which take years to build and never quite address the problem, the city intends to invest in “green infrastructure”, such as roofs covered with vegetation, porous pavements and kerbside gardens. The scheme involves a fundamental shift in approach: instead of treating rainfall as waste to be whisked away as quickly as possible, New York will let it sink usefully into the ground: thereby helping to make the city greener, improve air quality, raise property values, increase jobs and lower water and energy costs, according to studies by the EPA and others.

This is no unfunded pipe-dream. The city is already required to spend \$6.8 billion over 20 years to meet harbour-quality standards. The greener plan would cost government a third less, with \$2.9 billion for tunnels and tanks and \$1.5 billion for green innovations. New buildings would also have to meet run-off regulations.

This is a way of achieving more than one thing with tax dollars, says Carter Strickland, a deputy commissioner in New York’s Department of Environmental Protection. Unlike a sewage works or a new pipeline, which take years to build and which no one wants nearby, green infrastructure projects offer benefits the moment the first tree is planted or a rain barrel is installed. “Isn’t it nice?” observes Mr Strickland as he shows off one of the city’s 30 pilot projects, a little roadside garden deep in Brooklyn, with a tree and some flowers. It is indeed, and it can capture nearly 1,000 gallons of storm-water that would otherwise pour into a nearby drain.

Green-infrastructure ideas are also taking root in places as far apart as Kansas City, Milwaukee, Portland and Washington, DC. In California, where droughts make salvaging rainwater especially wise, a new statewide green building code will take effect on January 1st 2011. But the most comprehensive scheme so far comes from Philadelphia, which is seeking EPA approval for its 25-year, \$2 billion approach to “green” at least a third of the city’s impervious cover. If approval is granted, this will be the first plan that officially meets federal clean-water guidelines.

The city has gone some way towards meeting its green goals. In 2006 it began regulating the way new constructions manage storm-water on its property. The city’s water department has adjusted its rate structure, levelling the highest charges at the biggest polluters (eg, car parks) instead of the biggest water consumers. The idea is to prod the private sector to improve its environmental record.

Green-infrastructure plans face some obstacles. They are often at the mercy of local zoning and building codes, and many cities are reluctant to change. Yet David Beckman at the National Resources Defence Council is optimistic. “Usually we’re plaintiffs,” he says, “but here we’re collaborators, working with the city.” Finally cities are finding ways to handle storm-water that needn’t involve holding one’s nose.

United States

PERSPECTIVE ON PESTICIDE RESIDUES IN FRUITS AND VEGETABLES



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PESTS AND OUR FRUITS AND VEGETABLES

Farmers who choose to provide fruits and vegetables to increasingly large numbers of consumers recognize particular insects, mites, weeds, nematodes, disease-causing organisms, and vertebrates as competitors that may lower the quality and yield of their produce. Managing pests for crop protection has been a continual challenge wherever agriculture has been practiced. The ageless competition between insects and humans was described by Forbes in an Illinois State Laboratory Bulletin in 1915 as follows:

“The struggle between man and insects began long before the dawn of civilization, has continued without cessation to the present time, and will continue, no doubt, as long as the human race endures. It is due to the fact that both men and certain insect species constantly want the same things at the same time. Its intensity owing to the vital importance to both, of the things they struggle for, and its long continuance is due to the fact that the contestants are so equally matched. We commonly think of ourselves as the lords and conquerors of nature, but insects had thoroughly mastered the world and taken full possession of it long before man began the attempt.”

The widespread introduction of synthetic organic pesticides into crop protection in the 1940s allowed reduction of pest abundance and pest damage to levels that were not previously possible. Plant breeding, fertilization, irrigation, and pesticide technologies are characteristics of the world's most productive agriculture in spite of the continuing presence of pests. Since 1900 Americans spend 50% less of their income to feed themselves (Food Marketing Institute 1994). A National Academy of Sciences estimate (NRC 1991) of disposable income of a typical American family indicated that approximately 10% is used to purchase food, lower than any other country (CAST 1992). These data prompt the suggestion that a major benefit of pesticide use is an abundant supply of nutritious produce.

Pests do not distinguish whether fruits and vegetables are produced in conventional or organic agriculture. When pests threaten the farmer's ability to market produce for profit, pesticides may be a means to protect the food for human consumption.

PESTICIDE REGULATION IN CROP PROTECTION

All aspects of pesticide use in modern agriculture are highly regulated. That doesn't make the process perfect, but pesticide regulation is a very transparent process to both scientists and the public. The first pesticide registration laws in 1910 were primarily aimed at protecting consumers from ineffective products and deceptive labeling. The laws regulating pesticide use are based upon two laws. In 1938 the Federal Food, Drug and Cosmetic Act (FFDCA) that enabled enforcement of tolerances was passed. The Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) was first passed in 1947. It established procedures for registering pesticides with the U.S. Department of Agriculture and established labeling provisions and tolerances.

FIFRA was rewritten in 1972 when it was amended by the Federal Environmental Pesticide Control Act (FEPCA). The law has been amended numerous times since 1972, including some significant amendments in the form of the Food Quality Protection Act (FQPA) of 1996.

PESTICIDE SAFETY EVALUATION AND RISK CHARACTERIZATION

Toxicologists conduct carefully designed and controlled studies to reveal the nature and extent of potential toxic effects of pesticides in humans. Hazard Identification or safety evaluation studies reveal the inherent toxicological properties of chemicals. Further characterization of qualitative and quantitative responses to the pesticide is defined by Dose-Response Relationships. Safety evaluation studies are guided by the fundamental tenet of toxicology that there is a dose level for any chemical that will not produce a response.

The importance of a threshold “no effect level” of exposure is explicitly described by Health Canada (2008) as follows: “Most responses elicited by a substance, including acute toxicity, chronic toxicity, neurotoxicity, irritation, developmental toxicity, and reproductive toxicity are considered threshold in nature. Endpoints [Responses] that have been observed to lack a threshold response (e.g. genetic toxicity, carcinogenicity) are assumed to result in an increase in risk at any level of exposure and hence are subject to different risk assessment methodologies.”

The experimental dose level at which no adverse effects are observed is the No Observed Adverse Effect Level (NOAEL; mg chemical/kg body weight laboratory animal). The lowest dose at which adverse effects were observed in a particular study is the LOAEL. An adverse effect is “a change in morphology, physiology, growth, development, or lifespan of an organism which results in impairment of functional capacity to compensate for additional stress or increase in susceptibility to the harmful influences of other environmental influences (International Programme on Chemical Safety, 1994).”

Evaluation of the toxicological database for a particular pesticide will identify NOAELs associated with different tests. NOAELs associated with short-term (acute) dietary exposures related to the potential consumption of fruits and vegetables containing pesticide residues are used in the comparative data reported here.

PESTICIDE RESIDUE TOLERANCES

Before EPA can register a pesticide for crop protection, it must grant a tolerance. A tolerance is the maximum amount of a pesticide that can be on a raw product when it is used and still be considered safe. Tolerances are based upon use of the pesticide product in accord with good agricultural practices. Tolerances are established under conditions that maximize the potential for residues. Controlled field trials use the maximum rate permitted on the label, the maximum

number of applications, and the minimum pre-harvest interval (the number of days between the last application and harvest). The FFDCA requires EPA to establish these residue tolerances based upon the specific uses of a pesticide product.

The 1996 FQPA amended the FIFRA and the FFDCA. Among other changes, FQPA established a health-based standard (“a reasonable certainty of no harm”) for pesticide residues in food to assure protection from unacceptable pesticide exposures. Actual crop residues of registered pesticides are almost always well below established tolerances, exceptions representing trace residues resulting from drift, carry-over soil residues from previous applications, or rarely illegal pesticide use.

PESTICIDE DATA PROGRAM OF THE U.S. DEPARTMENT OF AGRICULTURE

Fruits and vegetables that are marketed following use of pesticides in conventional or organic crop protection may contain trace levels of residues. The amounts are too small to be listed among Food Facts on ingredient labels, but many can be measured by sensitive analytical procedures available in regulatory, university, and industry laboratories. By law, they must be less than tolerances and, in practice, pesticide residues are usually much less than that regulatory standard.

In 1991, the United States Department of Agriculture (USDA) was charged with designing and implementing a program to collect data on pesticide residues in food. Responsibility for this program was given to the USDA Agricultural Marketing Service (AMS), which began operating the Pesticide Data Program (PDP) in May 1991. The data produced by PDP are reported in an annual summary. Those measurements can be used to estimate consumer exposure and the relationship of those exposures to science-based standards of safety. The reasonable certainty of no harm to human health can be applied to any of the trace pesticide residues in produce.

EWG SHOPPER'S GUIDE DOESN'T DELIVER

An Environmental Working Group Public Affairs June 1, 2010, press release proclaims that “Environmental Working Group delivers the sixth edition of its Shopper’s Guide to Pesticides with updated information on 49 fruits and vegetables and their total pesticide load.” The claim and the content of the Shopper’s Guide can not be used to reliably rank fruits and vegetables based upon how much residue is present on produce, the common-sense determinant of risk. The Shopper’s Guide simply doesn’t deliver!

The EWG claims to use “a detailed description of the criteria EWG used to develop these rankings...” based upon PDP data from 2000-2008. With respect to methodology the EWG reports:

Contamination was measured in 6 different ways:

1. Percent of samples tested with detectable pesticides
2. Percent of samples with two or more pesticides
3. Average number of pesticides found on a single sample
4. Average amount (level in parts per million) of all pesticides found
5. Maximum number of pesticides found on a single sample
6. Total number of pesticides found on the commodity

“Crops were ranked based on a composite score from all categories. The goal is to include a range of different measures of pesticide contamination to account for uncertainties in the science. All categories were treated equally.” Repeated attempts to engage EWG representatives in discussion of how composite scores are calculated have been unsuccessful. They claim that the methods are proprietary. Doubtless EWG recognizes that “THE POWER OF INFORMATION” carries an obligation to inform.

The claim that the Shoppers’ Guide shows the fruits and vegetables with the most and least pesticides is erroneous and not supported by published EWG Methodology or personal correspondence with staffers. The PDP database 2000-2008 and the ranking system used by EWG can not distinguish produce based upon “most and least pesticides”. The list is not about potential dose as it is so widely touted to be by EWG and others. They define likelihood of exposure based upon the number of times a residue at any level is detected as a produce residue. However, dose, the fundamental determinant of risk, is not synonymous with their definition.

The Shopper’s Guide based upon counting the numbers of residues on fruits and vegetables may simplify Dr. Weil’s shopping since he opts for organic fruits and vegetables, but what about the usefulness of the Guide for persons who propose to use it to reduce their “pesticide load”?

If the EWG Shopper’s Guide gives meaningful information to consumers to guide their selection of fruits and vegetables, then using the guide to reduce pesticide exposure should produce a meaningful benefit.

OUR METHODOLOGY

We asked, “What is the extent of human exposure resulting from consumption of fruits and vegetables that contain trace pesticide residues relative to no observed adverse effect levels (NOAELs) of exposure established in well-designed, safety evaluation studies?” An extreme case example was prepared to illustrate the relationship between consumption of produce containing a high pesticide residue and the no effect level of that residue in consumers. This example utilizes 14 of the 49 types of produce on EWG’s list. Since consumption varies with age and gender, both were considered regarding serving sizes for each group of consumers. An extreme case example was built using the following information:

1. The highest pesticide residue for the food in ppm (µg/g) was selected from the PDP database, 2000-2008. (If a dietary NOAEL was not assigned by USEPA to that residue based upon lack of any short term toxicity, the second highest residue pesticide with a dietary NOAEL was chosen for the example in the Table.)
2. The dietary NOAEL from the Registration Eligibility Decision or other US EPA documents is expressed in mg/kg body weight/day.
3. Consumer specific body weights (kg) were assigned based upon USEPA estimates.
4. The age and gender-specific average serving size for children (2y-5y; 20 kg or 44 lbs), teens, and adult females and males from USDA Foods Commonly Eaten in the U.S. (1994-1996)
5. The Number of Servings equivalent to the NOAEL was determined using the following calculation:

$$\text{Equivalent Servings} = \text{NOAEL} \times \text{Body Weight} \times 1000 / (\text{residue ppm} \times \text{serving size})$$

6. The residues listed in the Table are the highest ones found during 2000-2008. They are each less than the specific tolerances for the respective pesticides--maximum safe levels of pesticide permitted on produce. When the residue levels are transformed to potential exposures based upon average servings equivalent to the No Effect Level of exposure, a common sense safety factor is clearly demonstrated. As shown in the Table, consumption of hundreds to thousands of average servings are required to represent *no effect levels* of pesticide exposure at the very highest residues measured for each pesticide in each crop.

CONCLUSION

Shoppers are urged to take a careful look at the EWG classification scheme. It is determined by the number of residues (not amount) occurring in produce in the USDA Pesticide Data Program samples. EWG and uncritical media transform the EWG numbers into a notion of potential consumer exposure. For the residues that occurred in the highest amounts of all in the USDA's PDP data from 2000-2008, hundreds to thousands of servings of fruits or vegetables in a single day are required of children, teens and adults to represent a dosage equivalent to the NOAEL! When it comes to exposure, the Shopper's Guide doesn't deliver!

No Effect levels of pesticide exposure can be assigned to produce at any position in the EWG ranking system from number 1 to 49. It is groundless to suggest that the Shopper's Guide can be used to meaningfully predict risk. The testing that is used to identify the inherent hazards of pesticides also yields a measure of exposure that is not associated with any detectable adverse effects (toxicity). The pesticide exposures that result from consumption of hundreds to thousands of servings of produce with the very highest residues measured represent ***no effect levels of exposure***.

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Robert Krieger is an educator and a Fellow in The Academy of Toxicological Sciences who maintains an active research program concerning the fate of chemicals, particularly pesticides, in plants, animals and people. He holds a BS in chemistry from Pacific Lutheran University (1967) and a Ph D from Cornell University (1970) where he studied pesticide science, biochemistry, and physiology. Very interested in how people perceive chemicals as a threat to health and environmental quality. Research concerns methods and techniques to measure human pesticide exposures in residential and agricultural environments. He is currently the Director of the Personal Chemical Exposure Program, Department of Entomology, University of California, Riverside, where he is a Cooperative Extension Toxicologist.

**Servings of Fruits and Vegetables Equivalent to a NOAEL Dose
at the Highest Reported Residues, USDA: Pesticide Data Program, 2000-2008**

Commodity	Highest PDP Residue	Residue in parts-per-million (µg/g) ^c	NOAEL Dose (mg/kg-bw/day) ^d	Consumer	Body weight (kg-bw)	Servings Equivalent to the NOAEL ^e
Apple	Thiabendazole	7.0	10	Child (2-5y)	20	154
				Teen (12-19)	40	298
				Woman	50	529
				Man	70	571
Blueberry	Carbaryl ^b	1.7	1.1	Child (2-5y)	20	175
				Teen (12-19)	40	233
				Woman	50	219
				Man	70	306
Carrot	Linuron	0.33	25	Child (2-5y)	20	56,117
				Teen (12-19)	40	86,580
				Woman	50	99,681
				Man	70	151,515
Celery	Chlorothalonil ^b	0.9	31	Child (2-5y)	20	98,413
				Teen (12-19)	40	91,852
				Woman	50	123,016
				Man	70	133,951
Cherry ^a	Tebuconazole	1.3	3	Child (2-5y)	20	669
				Teen (12-19)	40	888
				Woman	50	836
				Man	70	1,171
Kale ^a	Permethrin	8	25	Child (2-5y)	20	1,838
				Teen (12-19)	40	2,500
				Woman	50	2,332
				Man	70	3,265
Lettuce	Azoxystrobin ^b	2.2	67	Child (2-5y)	20	11,713
				Teen (12-19)	40	13,687
				Woman	50	10,877
				Man	70	15,227
Nectarine	Formetanate Hydrochloride ^b	0.74	0.65	Child (2-5y)	20	338
				Teen (12-19)	40	395
				Woman	50	314
				Man	70	439
Peach	Carbaryl ^b	1.9	1.1	Child (2-5y)	20	176
				Teen (12-19)	40	206
				Woman	50	263
				Man	70	318
Pear ^a	Thiabendazole ^b	2.9	10	Child (2-5y)	20	851
				Teen (12-19)	40	1,140
				Woman	50	1,071
				Man	70	1,499
Potato	Chlorpropham	11	250	Child (2-5y)	20	6,494
				Teen (12-19)	40	5,981
				Woman	50	7,379
				Man	70	12,626
Spinach ^a	Permethrin	13	25	Child (2-5y)	20	2,564
				Teen (12-19)	40	3,344
				Woman	50	3,205
				Man	70	4,487
Strawberry	Captan	5.1	10	Child (2-5y)	20	1,508
				Teen (12-19)	40	1,743
				Woman	50	2,042
				Man	70	2,640
Sweet Bell Pepper	Acephate	1.8	0.5	Child (2-5y)	20	1,111
				Teen (12-19)	40	855
				Woman	50	817
				Man	70	845

^a When serving sizes were not found in Foods Commonly Eaten in the U.S. (1994-1996), USDA National Nutrient Database for Standard Reference was used.

^b If a dietary NOAEL was not assigned by USEPA to the highest residue based upon lack of any short term toxicity, the second highest residue pesticide with a dietary NOAEL was chosen for the example in the Table

^c The highest residue found in USDA PDP, 2000-2008

^d Dietary NOAEL obtained from Reregistration Eligibility Decision or other US EPA documents.

^e Equivalent Serving = $\frac{\text{NOAEL} \times \text{Body Weight} \times 1000}{(\text{mg/kg-bw/day}) \quad (\text{kg}) \quad 1000} \div \frac{(\text{ppm} \times \text{Serving Size})}{(\mu\text{g/g}) \quad (\text{g})}$

BROUGHT TO YOU BY
THE ALLIANCE FOR FOOD AND FARMING

Should I be worried about Pesticide Residues?

Health experts and scientists say produce, grown either conventionally or organically, is safe to eat for you and your children. Not only are conventionally and organically grown fruits and vegetables safe and nutritious, Americans should be consuming more of these, not less, if they hope to reduce their risk of cancer, heart disease, diabetes, and obesity.

Putting Residues in Perspective

The nation's leading toxicologists agree— the mere "presence" of pesticide residue does not mean that the food is harmful in any way.

Farmers who grow fruits and vegetables and feed them to their own families, want to be sure their products are safe. To demonstrate just how safe it is to eat any fruit or vegetable, even if a pesticide residue is present, we reached out to Dr. Robert Krieger, head of the University of California, Riverside Personal Chemical Exposure Program. Dr. Krieger has provided us with information on how much of 14 produce items a man, a woman or a child could eat and still not consume enough pesticide residues to reach a level where an adverse effect could be observed. For purposes of creating a "worst case scenario" Dr. Krieger calculated the numbers using the highest pesticide residue found on 14 popular produce items tested through the USDA's Pesticide Data program.

Use the calculation tool below to see how many servings a man, woman, teen or child could consume and still not have any adverse effects from pesticide residues.

Calculate

DOWNLOAD DR. ROBERT KRIEGER'S FULL REPORT AND ANALYSIS

The Alliance for Food and Farming is a non-profit organization comprised of both organic and conventional farmers

November 15, 2010

Former EPA Administrator Johnson Joins Chemical Company Board

By ELANA SCHOR of [Greenwire](#)

Former U.S. EPA Administrator Stephen Johnson yesterday joined the board of directors of garden chemicals giant Scotts Miracle-Gro Co.

Johnson served as EPA's assistant administrator in the Office of Prevention, Pesticides, and Toxic Substances before taking the helm of the agency for the last five years of the George W. Bush administration. A career scientist, he had been at the agency since 1979 after first working in laboratories at biotech companies.

Johnson's tenure as EPA administrator was not without controversy. He tried to block state efforts to regulate greenhouse gases -- a move that prompted some senators to call for his resignation. And in 2008, four labor unions representing EPA staffers wrote an open letter to Johnson, accusing him of ignoring the agency's own rules for professional conduct when promoting Bush administration environmental policies.

Johnson's election to the Scotts board is effective immediately, according to a news release issued yesterday, and provides the company with a high-profile Washington presence to match its \$3 billion-plus in annual revenues.

"We are committed to a culture of regulatory compliance and to protecting our environment, and Steve's appointment to our Board reinforces that point," Scotts CEO Jim Hagedorn said in a statement.

Scotts sells lawn fertilizers and other chemical-based garden products in addition to running a residential garden care service ranked as the second-largest in the United States. The company also markets Monsanto Co.'s Roundup herbicide in the United States and much of Europe.

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