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

JANET T. MILLS
GOVERNOR

AMANDA E. BEAL
COMMISSIONER

BOARD OF PESTICIDES CONTROL

October 3, 2025

9:00 AM Board Meeting

Join the meeting in person in Room 101, Deering Building, 90 Blossom Lane, Augusta
Or
Join the meeting now
Meeting ID: 292 598 215 856
Passcode: uF9Dx6iT

Dial in by phone
+1 207-209-4724,,113816955# United States, Portland

Phone conference ID: 113 816 955#

AGENDA

1. Introductions of Board and Staff

   Welcome Jose Gayoso, Manager of Compliance!
   Congratulations to Amanda Couture on being promoted to Manager of Pesticide Programs!
   Congratulations to District 3 Pesticide Inspector, Heidi Nelson, on her retirement!

2. Minutes of July 18, 2025, Board Meeting

   Presentation By: Alex Peacock, Director
   Action Needed: Amend and/or Adopt

3. Rodenticides: Toxicological Overview

   An overview of the different active ingredients in rodenticides and their modes of action.

   Presentations By: Doug Van Hoewyk, Ph.D., Pesticide Toxicologist
   Action Needed: None, Discussion

ALEXANDER PEACOCK, DIRECTOR
90 BLOSSOM LANE, DEERING BUILDING

PHONE: (207) 287-2731
WWW.THINKFIRSTSPRAYLAST.ORG

4. LD 356: Resolve, Directing the Board of Pesticides Control to Prohibit the Use of Rodenticides in Outdoor Residential Settings

An overview of current rodenticide regulations in Maine and with the EPA. A look at what other states have done concerning rodenticide regulations.

Presentations By: Alex Peacock, Director
Action Needed: None, Discussion

5. LD 1323: An Act to Prohibit the Use of Neonicotinoid Pesticides and the Use and Sale of Neonicotinoid-treated Seeds

Resolve, Directing the Board of Pesticides Control to Evaluate the Impact of Neonicotinoids on Pollinators, Humans, and the Environment. Update on current activities conducted by staff to satisfy this legislative directive.

Presentation By: Alex Peacock, Director & Doug Van Hoewyk, Ph.D., Pesticide Toxicologist
Action Needed: None; Discussion

6. LD 1697: An Act to Increase Penalties to Deter Violations of the Laws Regarding Improper Pesticide Use

Overview of bill and proposed rule adoptions. Preview of draft penalty matrix.

Presentation By: Alex Peacock, Director
Action Needed: None; Discussion

7. Board Enforcement Case Pre-Review Background Summary

The BPC Enforcement Protocol requires that the Board be alerted to repeat offenders. This case involves Trugreen Lawncare of Westbrook and includes an unauthorized application at the wrong property, failure to have a positive property identification system in place, pesticide applications during high winds, false reporting in the pesticide activity log, and employee exposure to pesticides.

Presentation By: Alex Peacock, Director
Action Needed: Discussion/Directive

8. Other Old and New Business

a. Variance Permit for CMR 01-026, Chapter 29, Damariscotta Mills Consulting Inc., Dock Road, Alna, ME.
b. Variance Permit for CMR 01-026, Chapter 29, Damariscotta Mills Consulting Inc., Head Tide Road, Alna, ME.
c. Variance Permit for CMR 01-026, Chapter 29, Damariscotta Mills Consulting Inc., Midcoast Conservancy, Musquash Pond Preserve, Jefferson, ME.
d. Variance Permit for CMR 01-026, Chapter 29, Damariscotta Mills Consulting Inc., Chamberlain, ME.
e. Variance Permit for CMR 01-026, Chapter 29, Parterre Ecological, Staples Street Park, Biddeford, ME.
f. Variance Permit for CMR 01-026, Chapter 29, New England Spray Technologies, Rotary Park, Kennebunk, ME.
g. Variance Permit for CMR 01-026, Chapter 29, Legacy Woodlot Services, Unity, ME.
h. Variance Permit for CMR 01-026, Chapter 29, Lynch Landscaping, Vassalboro, ME
i. EPA Releases Documents on Genetically Engineered Mosquitoes for Public Comment and Peer Review
j. EPA Updates Aquatic Life Benchmarks for Registered Conventional and Antimicrobial Pesticides

9. Schedule of Future Meetings

The next scheduled Board meeting date is November 14, 2025, at the Deering Building, Room 101, Augusta

Future Meetings: December 12, 2025, January 14, 2025 (ATS)

Adjustments and/or Additional Dates?

10. Adjourn

NOTES

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

Board meeting date (e.g., if the meeting is on a Friday, the deadline would be Tuesday at 8:00 AM). Any information received after the deadline will be held over for the next meeting.

- During rulemaking, when proposing new or amending old regulations, the Board is subject to the requirements of the APA (Administrative Procedures Act), and comments must be taken according to the rules established by the Legislature.

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

JANET T. MILLS
GOVERNOR

AMANDA E. BEAL
COMMISSIONER

BOARD OF PESTICIDES CONTROL

July 18, 2025

9:00 AM Board Meeting

Join the meeting in person in Room 101, Deering Building, 90 Blossom Lane, Augusta
Or
Join the meeting now
Meeting ID: 279 233 101 582 3
Passcode: uK6ou3qf

Dial in by phone
+1 207-209-4724,,338771344# United States, Portland
Find a local number
Phone conference ID: 338 771 344#

AGENDA

1. Introductions of Board and Staff
   a. Board: Adams, Bohlen, Carlton, Fanning, Gray, Neavyn,
   b. Assistant Attorney General: Carey Gustanski
   c. Staff: Boyd, Brown, Couture, Leibowitz, Peacock, Richard, Saucier, Van Hoewyk

2. Minutes of June 6, 2025, Board Meeting

   Presentation By: Alex Peacock, Director
   Action Needed: Amend and/or Adopt
   - **Carlton/Bohlen: Moved and seconded to adopt June 6, 2025 minutes as amended**
   - **In favor: Unanimous**

3. Licensure requirements for State of Maine Employees making pesticide applications in Laboratory settings

Government employees who apply pesticides as part of their duties require commercial applicator licensing. Staff are seeking clarity on the exemption within commercial category 10: Demonstration and Research Pest Control for individuals who conduct only laboratory-type research.

Presentation By: Alex Peacock, Director
Action Needed: Discussion/Action

- Peacock informed the board about a potato testing lab using a sprouting agent in Presque Isle. Employees there only have private licenses when a commercial applicator license is required. An exemption could be made, but it would need to be done through rulemaking.
- Adams clarified that private applicators cannot take the category 10 exam.
- Bohlen did not believe the language allowed for an exemption and Adams agreed not to change it.
- Peacock agreed to inform the lab that they need a commercial applicator.

4. <u>LD 356: An Act to Require Notification of Certain Outdoor Pesticide Applications</u>

Resolve, Directing the Board of Pesticides Control to Prohibit the Use of Rodenticides in Outdoor Residential Settings

Presentations By: Alex Peacock, Director
Action Needed: None, Discussion

- Peacock explained the rulemaking procedure for the new bill that passed restricting the use of rodenticides in outdoor residential settings. The board discussed the complaint that informed the bill's creation and the subsequent three sessions that refined it into the passed bill. Peacock mentioned that the original version required more strict notification policies before it was amended and Adams added that if the pesticide use is within five feet of the building, they are not required to notify.
- Gray pointed out that restricting one rodenticide could lead to people using a less effective rodenticide, which would require them to use more.
- Bohlen discussed the difficulty of changing the behavior of unregulated pesticide users. Peacock mentioned the use of extra signage in stores where general-use rodenticides are sold. Boyd suggested that mandatory pamphlets be given with the purchase of rodenticides that highlight the risk of rodenticide use.
- Peacock also mentioned that commercial applicators are not required to retrieve the bait boxes they put out when a service is canceled.
- Bohlen asked what other states are doing to minimize the damage of misused rodenticide. Peacock said that Vermont has implemented the extra signage at rodenticide displays to educate the unregulated community instead of taking the tools away. Adams added that if rodenticide is too restricted, the rodent population would rise.

- Van Hoewyk asked what city planners are focused on in terms of the rodent population. Bohlen mentioned that plans are centered less on toxicology and more on rodent control. Management of trash and food availability is important in controlling the rodent population, but that is hard to do in an urban setting. This year's Rodent Academy was brought up as a great resource for public input and for learning about what other states are doing. VanHoewyk asked if a resistance to rodenticides has been noticed in rats. Peacock informed him that it has been recognized, and that is why a second generation of rodenticides were created.

5. LD 1323: An Act to Prohibit the Use of Neonicotinoid Pesticides and the Use and Sale of Neonicotinoid-treated Seeds

Resolve, Directing the Board of Pesticides Control to Evaluate the Impact of Neonicotinoids on Pollinators, Humans, and the Environment.

Presentation By: Alex Peacock, Director & Doug Van Hoewyk, Ph.D., Pesticide Toxicologist
Action Needed: None; Discussion

- Peacock started the discussion by outlining what the board is required to do with the new LD 1323 being passed. The board is required to complete studies of impact, toxicity, crop protection from pests, and alternatives to neonicotinoids. VanHoewyk has started to investigate studies of treated seeds, but that will most likely need to be contracted out.
- Gray started a discussion on the alternatives to neonicotinoid pesticides and the disadvantages of removing a pesticide completely from a farmer's toolbox. The ability to change pesticides during crop rotation to combat resistance is critical in farming. Gray and Bohlen discussed ways to gather information from farmers on neonicotinoid use. VanHoewyk brought up studies done in Europe and Iowa, where neonicotinoids have been banned.
- The board agreed that experts will be needed while evaluating the impact of neonicotinoids. Boyd reminded the board that public feedback was also requested for the study.
- The first report is due January 15th, 2026, and the final report is due in 2027.

6. LD 1697: An Act to Increase Penalties to Deter Violations of the Laws Regarding Improper Pesticide Use

Overview of bill and proposed rule adoptions.

Presentation By: Alex Peacock, Director
Action Needed: None; Informational purposes

- Peacock informed the board of the increased cost of violation charges. It will require rulemaking on state-restricted-use pesticides. Peacock suggested using penalty matrices from Massachusetts and Vermont as references.

- Carlton started a discussion on the best way to communicate the change in violation charges to applicators. Boyd informed the board that the change had already been announced in the Board of Pesticide Control's monthly update.

7. Rulemaking Update & Overview

The first session of the 132nd Maine State Legislature has resulted in three pesticide-related bills being passed. These bills are LD 356: An Act to Require Notification of Certain Outdoor Pesticide Applications, LD 1323: An Act to Prohibit the Use of Neonicotinoid Pesticides and the Use and Sale of Neonicotinoid-treated Seeds, and LD 1697: An Act to Increase Penalties to Deter Violations of the Laws Regarding Improper Pesticide Use. Staff will provide an overview of the rulemaking process.

Presentation By: Karla Boyd, Policy & Regulations Specialist
Action Needed: None; Informational purposes

- Boyd led a discussion on policy and rulemaking involved in the three pesticide-related bills recently passed.
- Discussion around LD 356 involved defining what is considered a residential landscape in Chapter 10. Gray brought up the complication of migrant housing on farms when defining this phrase.
- Discussion also involved drone applications and whether additional rules were needed. Gray brought up how drones evolve quickly and recommended requirements around the FAA ruling.
- Boyd talked about restricted-use chemicals and the updated list of banned products by the EPA.
-

8. Other Old and New Business
   a. EPA Announces Proposed Registration of New Active Ingredient Trifludimoxazin
      - VanHoewyk informed the board that Trifludimoxazin is practically non-toxic with low toxicity to bees and fish. It is considered PFAs in Maine, but not in the EPA. The half-life is 14-15 days.
   b. EPA Updates Maps to Protect Endangered Species and Provide Flexibility to Farmers
   c. City of Hallowell Landcare Management Ordinance
   d. City of Camden Revised Ordinance
   e. Amended FY22-25 Cooperative Agreement Guidance Memo
      - Peacock informed the board that the Cooperative agreement is on hold, but the current agreement has been extended with an amendment to follow the five pillars. Peacock estimated $359,000 for our funds.

9. Schedule of Future Meetings

The next scheduled Board meeting date is October 3, 2025, at the Deering Building, Room 101, Augusta

Future Meetings: November 14, December 12, 2025

Adjustments and/or Additional Dates?

- A side discussion was had about what type of meeting should be held on Friday, October 3, 2025

10. Adjourn
    - **Carlton/Gray: Moved and seconded to adjourn at 11:07 AM**
    - **In favor: Unanimous**

NOTES

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

maine
BOARD OF PESTICIDES CONTROL
DEPARTMENT OF AGRICULTURE, CONSERVATION & FORESTRY

Rodenticides: modes of toxicity and their impact on non-target animals

Doug Van Hoewyk, PhD. Toxicologist. Maine Board of Pesticide Control

doug.vanhoewyk@maine.gov

www.thinkfirstspraylast.org

Overview: Categories, active ingredients, and registered products

Anti-coagulants Rodenticides (AR)	**1st Gen. Anti-Coag**	Registr. #
	Chlorophacinone	
	Diphacinone	
	Warfarin	
	2nd Gen. Anti-Coag	
	Bromadiolone	
	Difethialone	
	difenacoum	fewest
	brodifacoum	
NON-AR	**Other**	
	Zinc phosphide	
	Bromethalin	most
	cholecalciferol	
	strychnine	

Registered products range from about 1-190.

Toxicological overview

1st Gen. Anti-Coag	rat LD_{50}	Registr. #
Chlorophacinone		
Diphacinone		
Warfarin		
2nd Gen. Anti-Coag		
Bromadiolone		
Difethialone		
difenacoum		fewest
brodifacoum	Most toxic	
Other		
Zinc phosphide		
Bromethalin		most
cholecalciferol	least toxic	
strychnine		

LD50 values range from 0.2 – 40 mg/kg body weight

ACUTE TOXICITY CATEGORIES FOR PESTICIDE PRODUCTS

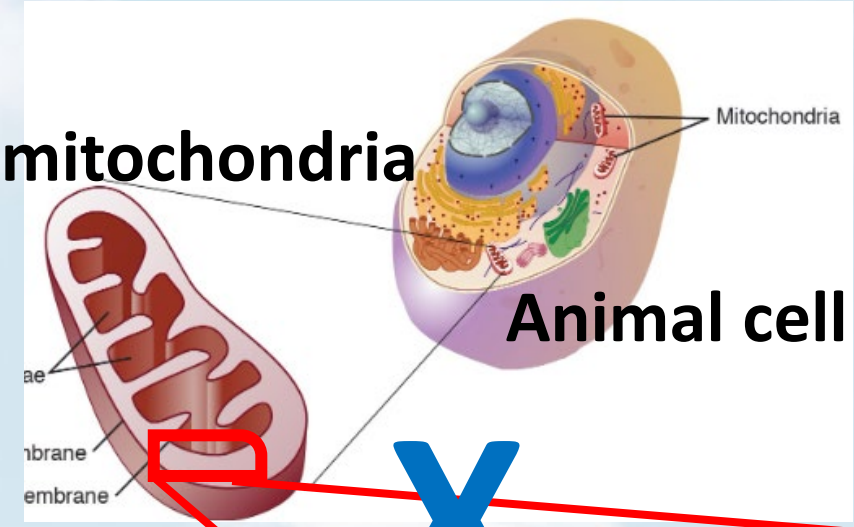
Hazard Indicators	I	II	III	IV
Oral LD_{50}	Up to and including 50 mg/kg	>50 thru 500 mg/kg	>500 thru 5,000 mg/kg	>5,000 mg/kg

For comparison

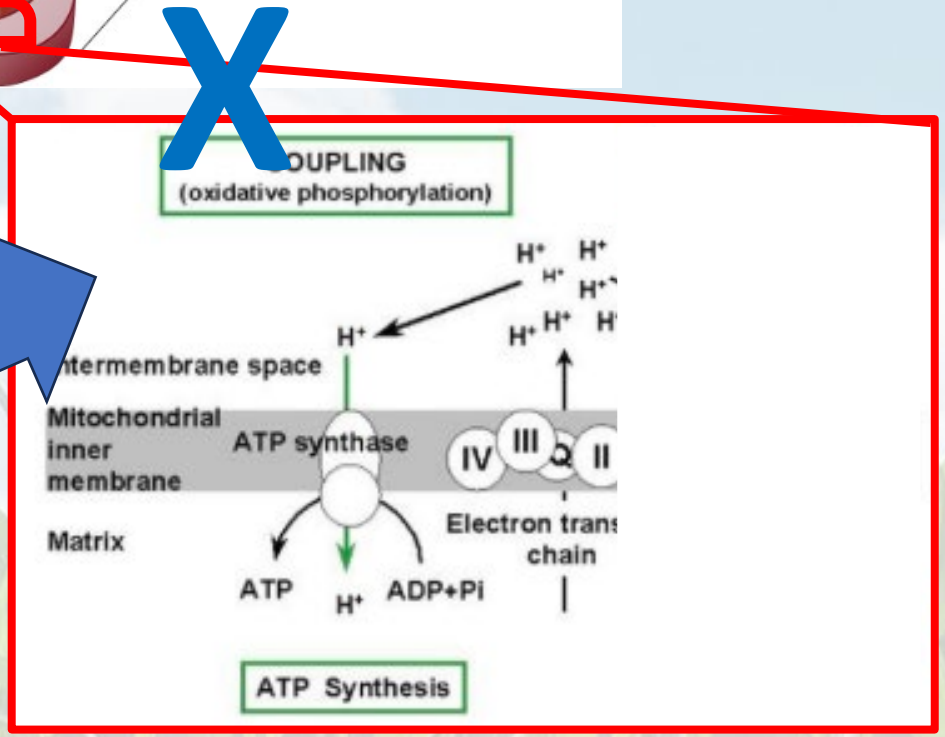
	rat (mg/kg)
cyanide	3.6
DDT	87
aspirin	250
table salt	3000

Non-AR: Zinc phosphide- mitochondrial inhibitor

1st Gen. Anti-Coag	rat
Chlorophacinone	
Diphacinone	
Warfarin	
2nd Gen. Anti-Coag	
Bromadiolone	
Difethialone	
difenacoum	
brodifacoum	
Other	
Zinc phosphide	
Bromethalin	
cholecalciferol	
strychnine	



Mitochondria make cellular energy (ATP) so cells can work survive.



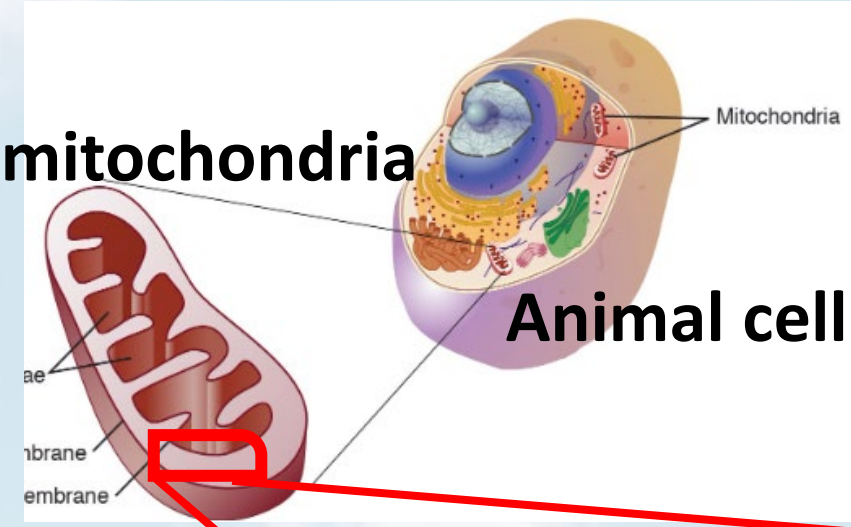
$$Zn_3P_2 + 6\ H_2O \rightarrow 2\ PH_3 + 3\ Zn(OH)_2$$

Zinc phosphide

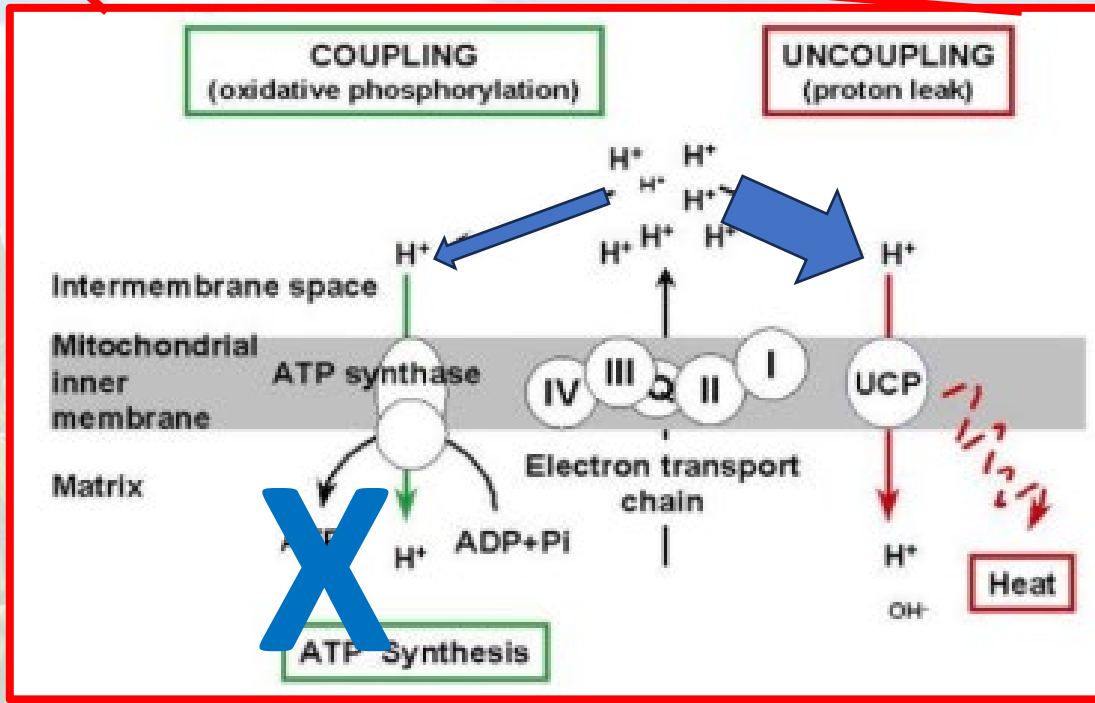
Phosphine gas

Non AR: Bromethalin- a mitochondrial uncoupler

1st Gen. Anti-Coag	rat
Chlorophacinone	
Diphacinone	
Warfarin	
2nd Gen. Anti-Coag	
Bromadiolone	
Difethialone	
difenacoum	
brodifacoum	
Other	
Zinc phosphide	
Bromethalin	
cholecalciferol	
strychnine	

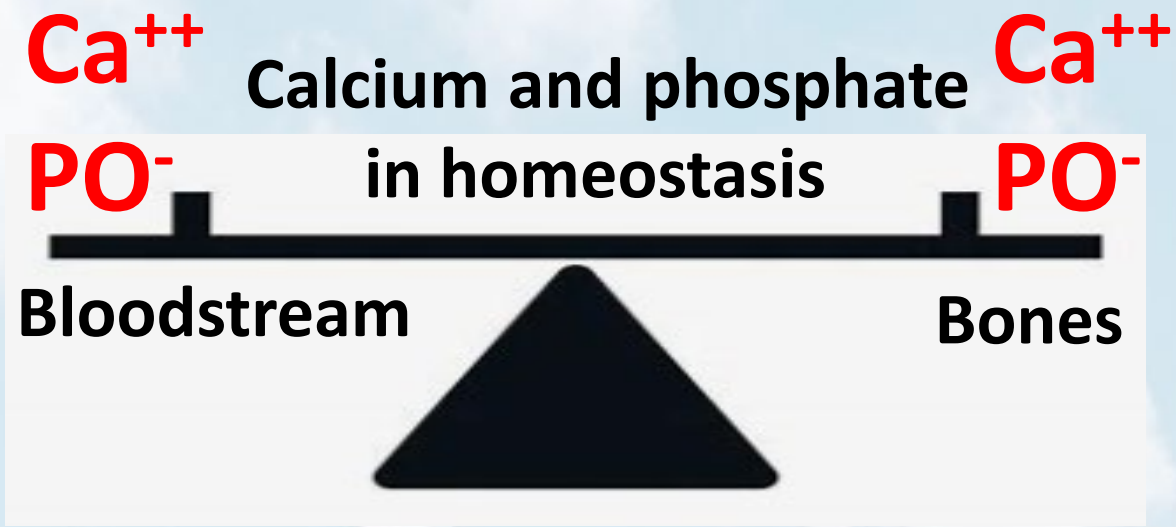


Mitochondria make cellular energy (ATP) so cells can work and survive.



Non AR: Cholecalciferol- an electrolyte perturber

1st Gen. Anti-Coag	rat
Chlorophacinone	
Diphacinone	
Warfarin	
2nd Gen. Anti-Coag	
Bromadiolone	
Difethialone	
difenacoum	
brodifacoum	
Other	
Zinc phosphide	
Bromethalin	
cholecalciferol	
strychnine	



Increased concentration of these ions in blood causes renal failure.

Anti-coagulants: An overview

1st Gen. Anti-Coag	LD50 rat	metabolism	depuration	persistence	bioaccumulation	Secondary poisoning
Chlorophacinone		faster	faster	lower	lower	less risky
Diphacinone						
Warfarin						
2nd Gen. Anti-Coag						
Bromadiolone		slower	slower	greater	greater	more risky
Difethialone						
difenacoum						
brodifacoum						

Anti-coagulants: mode of action

	LD50 rat
1st Gen. Anti-Coag	
Chlorophacinone	
Diphacinone	
Warfarin	
2nd Gen. Anti-Coag	
Bromadiolone	
Difethialone	
difenacoum	
brodifacoum	

- These toxins disrupt blood clotting by targeting the function on Vitamin K.
- Nonfunctional Vitamin K thins the blood and results in hemorrhaging
- Mortality is a result of cardiovascular dysfunction and other associated comorbidities (*e.g.* renal, liver, and other organ failure).

Wildlife exposure: Secondary poisoning

Occurs when predatory animals consume prey that have ingested rodenticides, *e.g.* secondary anti-coagulants.

- **The New England Wildlife Center reports ~100-200 cases of secondary poisoning annually.**
- **A 2012-2016 study in Massachusetts autopsied 94 hawks:**
  - **96% of hawks contained at least 1 rodenticide**
  - **50% contained 3 or more rodenticides**
  - **18% of hawks had rodenticide concentrations associated with toxicosis.**
- **The same authors performed a follow-up study in 43 hawks; 100% of hawks contained rodenticides; more than 90% had at least two rodenticides.**

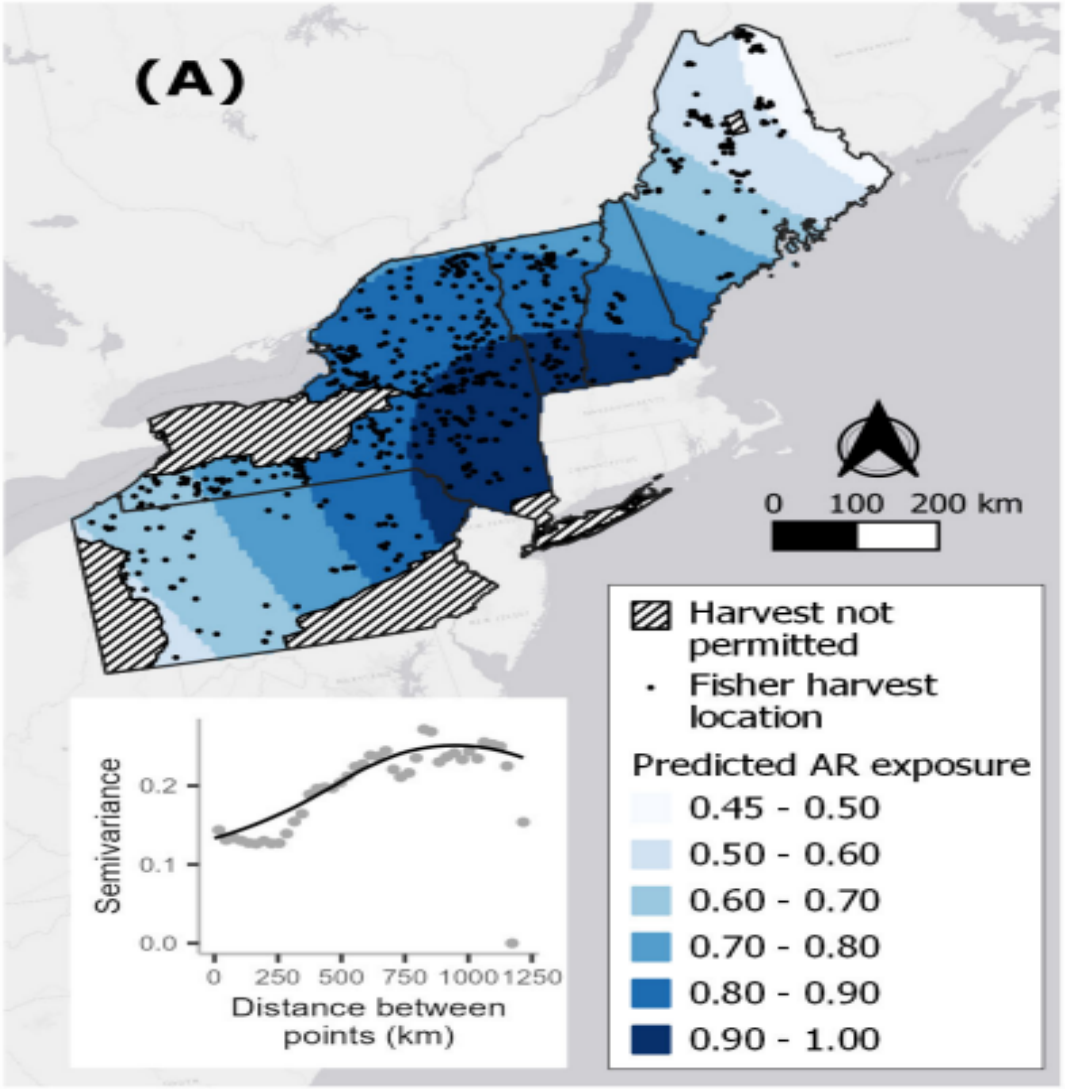
- **The Maine Department of IFW performed a limited sampling of rodenticides in 2024. This study detected rodenticides in bears (4 out of 4 individuals) and hawks (4 out of 6).**

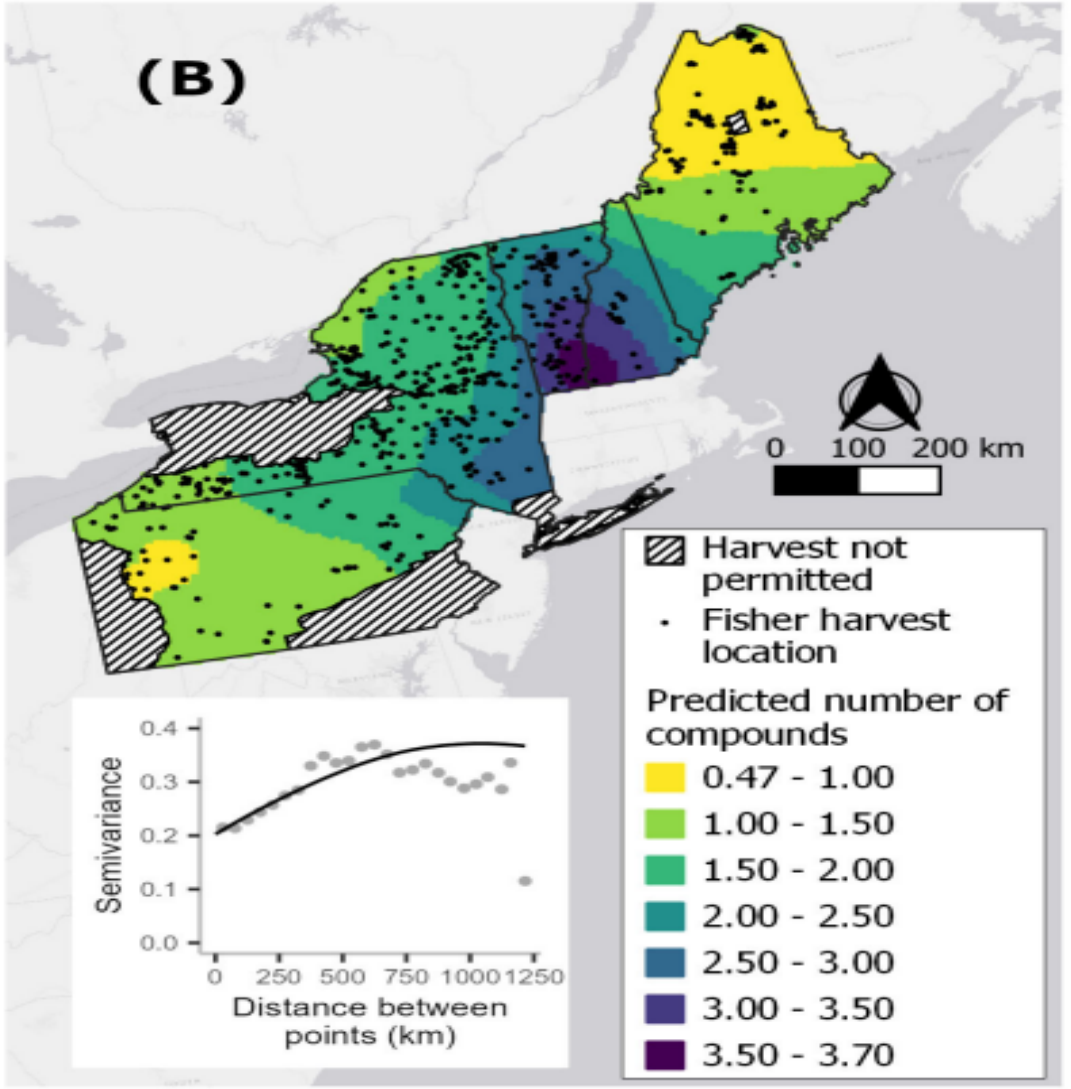
- **A study examining 303 eagles from across the country identified rodenticides in 82% of individuals, which attributed to 4% of the mortalities (n=12).**

- **In California, more than 80% of all bears, bobcats, mountain lions, and fishers contained at least one rodenticide. In contrast, rodenticides were detected in only 8% of wild pigs (n=137) and were not detected in any deer (n=37).**

Drivers of anticoagulant rodenticide exposure in fishers (*Pekania pennanti*) across the northeastern United States

PUBLISI
DOI 10





Unanswered Question: are rodenticide detections in wildlife caused by secondary poisonings lethal, and driving factors in local population decline?

If they are not always lethal, do they impact their physiology and survival rates?

And if so, to what extent?

Red fox with mange

SCIENTIFIC REPORTS

OPEN

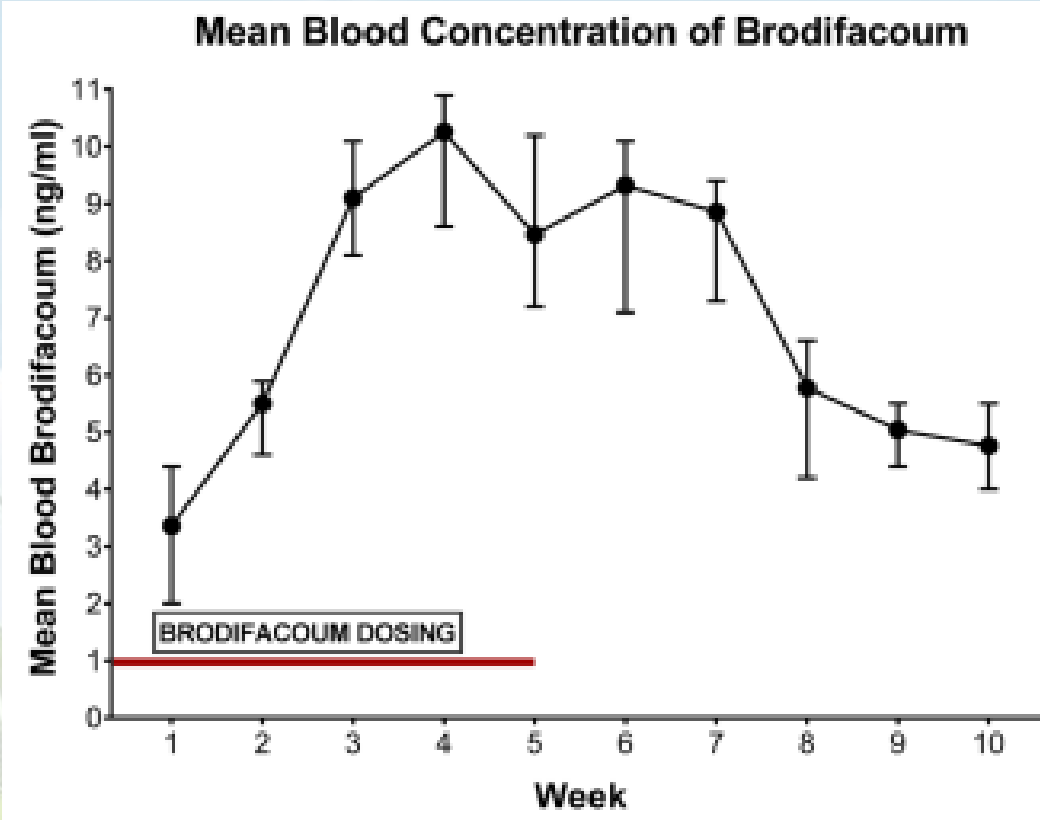
Effects of Low-level Brodifacoum Exposure on the Feline Immune Response

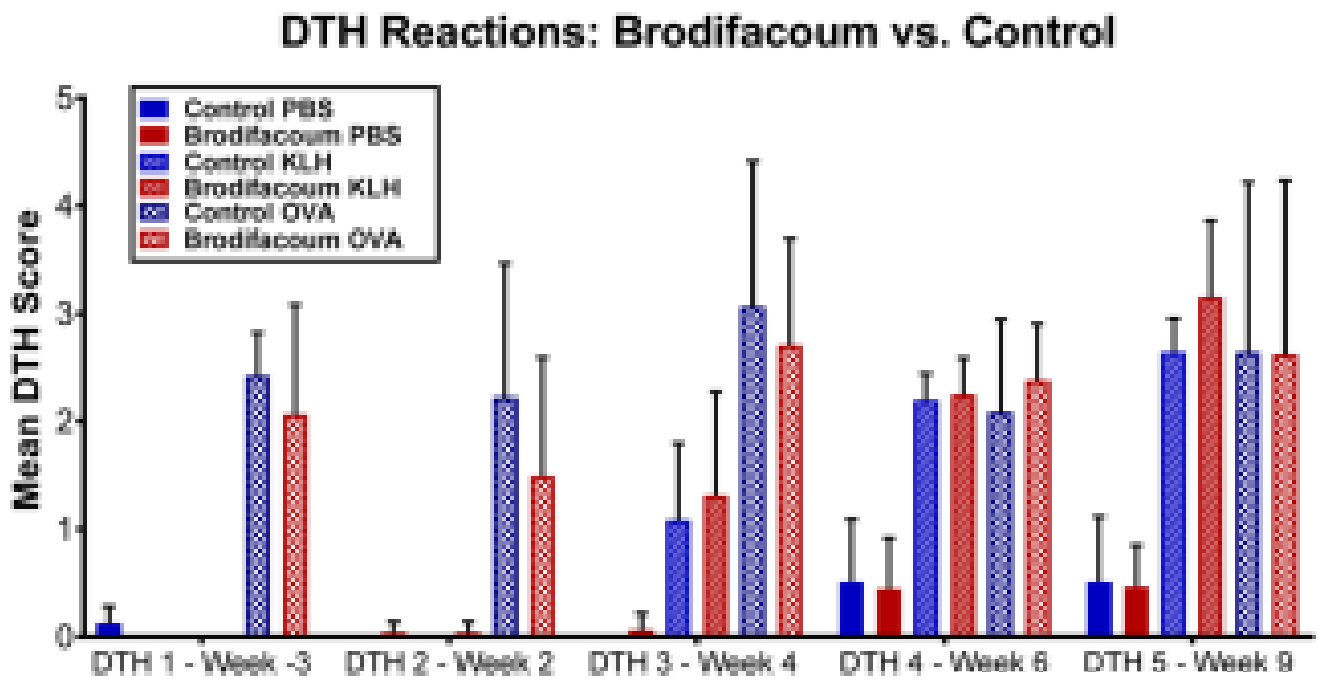
Received: 18 December 2017
Accepted: 11 May 2018
Published online: 25 May 2018

Jennifer H. Kopanke[1], Katherine E. Horak[2], Esther Musselman[1], Craig A. Miller[1], Kristine Bennett[1], Christine S. Olver[1], Steven F. Volker[2], Sue VandeWoude[1] & Sarah N. Bevins[2]

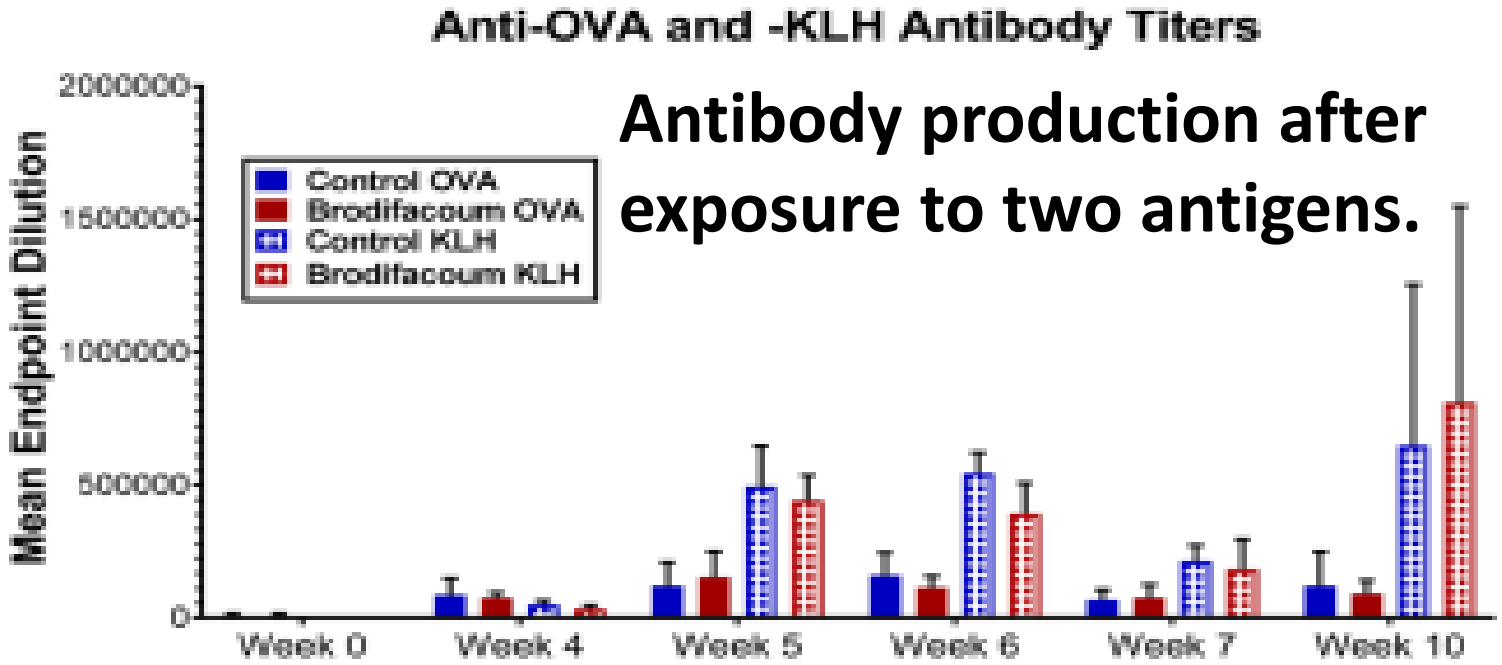
Research Question: does brodifacoum impair the immune response in felines

Methods: Cats ate one-brodifacoum contaminated rodent a week for 6 weeks. This dosage is~ 1/50th of a lethal dose in cats. The dosage is ecologically and physiologically relevant.





Conclusion: brodifacoum does not impair the immune system in cats, and is not likely to increase the incidence of mange in wild felines.



Antibody production after exposure to two antigens.

maine

BOARD OF PESTICIDES CONTROL

DEPARTMENT OF AGRICULTURE, CONSERVATION & FORESTRY

Questions and Comments?

Doug Van Hoewyk, PhD. Toxicologist. Maine Board of Pesticide Control

doug.vanhoewyk@maine.gov

www.thinkfirstspraylast.org

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

JANET T. MILLS
GOVERNOR

AMANDA E. BEAL
COMMISSIONER

Memorandum

To: Board of Pesticides Control
From: Alexander Peacock, Director
Subject: Rodenticides: Regulatory Overview

October 3, 2025

Maine's 132nd Legislature recently passed L.D. 356, a Resolve, Directing the Board of Pesticides Control to Prohibit the Use of Rodenticides in Outdoor Residential Settings.

Sec. 1. Board of Pesticides Control to prohibit use of rodenticides.
Resolved: That the Department of Agriculture, Conservation and Forestry, Board of Pesticides Control shall prohibit the use of rodenticides, including rodenticidal baits, in outdoor residential settings. A certified applicator as defined under the Maine Revised Statutes, Title 22, section 1471-C, subsection 4 is exempt from the prohibition under this section. The board shall submit a report with an update on the prohibition under this section to the Joint Standing Committee on Agriculture, Conservation and Forestry no later than January 15, 2026. The joint standing committee may submit a bill to the Second Regular Session of the 132nd Legislature relating to the subject matter of the report.

§1471-C. Definitions

4. Certified applicator. "Certified applicator" means any person who is certified pursuant to section 1471-D and authorized to use or supervise the use of any pesticides.

§1471-D. Certification and licenses

1. Certification required; commercial applicators and spray contracting firms. Certification is required for commercial applicators and spray contracting firms as follows.
A. No commercial applicator may use or supervise the use of any pesticide within the State without prior certification from the board, provided that a competent person who is not certified

ALEXANDER PEACOCK, DIRECTOR
90 BLOSSOM LANE, DEERING BUILDING

PHONE: (207) 287-2731
WWW.THINKFIRSTSPRAYLAST.ORG

may use such a pesticide under the direct supervision of a certified applicator; and [PL 1983, c. 819, Pt. A, §42 (NEW).]

B. No spray contracting firm may use or supervise the use of any pesticide within the State without prior certification from the board. [PL 1985, c. 122, §2 (AMD).]
[PL 1985, c. 122, §2 (AMD).]

2. Certification required, private applicators. No private applicator shall use or supervise the use of any limited or restricted use pesticide without prior certification from the board, provided, that a competent person who is not certified may use such a pesticide under the direct supervision of a certified applicator.
[PL 1975, c. 397, §2 (NEW).]

2-A. Certification required; government pesticide supervisor.

Maine registrations: Total 197

FGARs: 38
Warfarin 4
Diphacinone 28
Chlorophacinone 6

SGARs: 62
Brodifacoum 14
Bromadiolone 36
Difenacoum 2
Difethialone 10

Non-anti-coagulant: 97
Bromethalin 67
Cholecalciferol 12
Zinc Phosphide 18

EPA Rodent Control Pesticide Safety Review

https://www.epa.gov/rodenticides/rodent-control-pesticide-safety-review

Overview

Eleven rodenticide active ingredients can be divided into three categories:

- First-generation anticoagulants: warfarin, chlorophacinone, and diphacinone.
- Second-generation anticoagulants: brodifacoum, bromadiolone, difenacoum, and difethialone.
- Non-anticoagulants: bromethalin, cholecalciferol, strychnine and zinc phosphide.

All the anticoagulants interfere with blood clotting, and death can result from excessive bleeding. Second-generation anticoagulants are especially hazardous for several reasons. They

are highly toxic, and they persist a long time in body tissues. The second-generation anticoagulants are more likely to be toxic in a single feeding than earlier products, but since time-to-death is several days, rodents can feed multiple times before death, leading to carcasses containing residues that may be many times the lethal dose. Predators or scavengers that feed on poisoned rodents may consume enough to be harm.

The non-anticoagulants have differing ways of affecting pests:

- Bromethalin is a nerve toxicant that causes respiratory distress.
- Cholecalciferol is vitamin D3, which in small dosages is needed for good health in most mammals, but in massive doses is toxic, especially to rodents.
- Strychnine is a neurotoxin that acts as an antagonist of glycine receptors, resulting in uncontrollable muscle contractions. A lethal dose can cause convulsions that lead to rapid asphyxiation and death.
- Zinc phosphide causes liberation of toxic phosphine gas in the stomach.

Consumer Products

To minimize the possibility of children and pets being exposed to mouse and rat poisons, EPA requires consumer products:

- Be sold with bait stations that securely contain the poison.
- More protective bait stations that offer resistant to tampering by children, pets, and/or to weathering are available and required for applications made around children, pets, or outdoors.
- Contain block or paste poison bait. Loose bait forms are no longer permitted.

Rodenticide manufacturers may no longer sell consumer products:

- With more than one pound of poison.
- Containing four pesticides that pose the greatest risk to non-target wildlife (called second generation anticoagulants – brodifacoum, bromadiolone, difenacoum, and difethialone). Baits containing these poisons may still be used in homes by pest control professionals.

Non-target wildlife and pets can also be poisoned if they eat rodents that have consumed certain poisons.

EPA Actions

In November 2022, EPA issued proposed interim decisions (PIDs) for 11 rodenticides undergoing registration review. EPA is proposing mitigation measures to protect human health and mitigate ecological risk to non-target organisms, including potential effects on federally listed endangered and threatened (i.e., listed) species. The PIDs cover three first generation anticoagulant rodenticides (FGARs), four SGARs and four non-anticoagulant rodenticides. Strychnine (the 11th rodenticide) was not part of the 2008 RMD but is now included as part of EPA's registration review of the rodenticide group.

These PIDs propose additional mitigation measures based on findings in the 2020 draft human

health and ecological risk assessments (DRAs) and feedback submitted during the DRAs' public comment period. These mitigation measures are intended to reduce exposure to non-target organisms, such as mammals and birds that may inadvertently consume rodenticides through their prey or animals that may have consumed the rodenticide directly. EPA is proposing:

- Classifying all SGARs, strychnine and zinc phosphide products as restricted use pesticides (RUPs).
- Classifying as RUPs all FGAR, bromethalin and cholecalciferol products sold in packages larger than one pound. By limiting the sale and use of these products to people trained and certified to use them, this proposed mitigation measure is expected to limit exposure non-target organisms.
- FGARs, bromethalin and cholecalciferol sold in packages of less than one pound to still be available for use by consumers.

In addition, EPA is proposing the following to help ensure proper use:

Requiring additional personal protective equipment (PPE) for occupational handlers using products that are loose formulations;

- Prohibiting refillable bait stations for consumer-sized products and prohibiting consumer-sized zinc phosphide products;
- Prohibiting spot and broadcast application of some rodenticide products in turf, lawns, parks, golf courses, campsites and other recreation areas;
- Restricting the method, timing and location of spot, broadcast and below-ground applications of chlorophacinone and diphacinone in cropped areas, rangeland and pastureland;
- Post-application search, collection and disposal of carcasses of target pests or non-target animals, cleanup of bait moved from its original placement location, and reporting of dead and dying non-target organisms; and
- Requiring registrants to develop, implement and maintain rodenticide stewardship plans that include development of education and outreach materials intended for product users and make these plans available on their websites.

EPA Rodenticide Strategy, November 2024

5.2.1 Changes Since the Draft BE

In the mitigation strategy in the draft BE, there were three sections: *Rodenticide PID Proposed Mitigation Measures, ESA Pilot Memo Proposed Mitigation Measures,* and *Updated Listed Species Mitigation Measures for this Draft Rodenticide Strategy.* The Agency outlined mitigation measures it was considering to reduce exposure to listed species and their CH side-by-side with the mitigation measures that EPA was considering in the PIDs to protect human health and non-listed non-target species under registration review activities. However, in this final BE and strategy, EPA is only identifying measures to avoid predicted J/AM to listed species. Any mitigation proposed to address ecological risk concerns identified through the registration

review process under FIFRA will be addressed in registration review. There were multiple comments received related to PID mitigation measures. Those comments will be addressed in a response to comments document that is anticipated with the next registration review milestone.

For clarity, the following mitigation measures were removed from this final BE because they were proposed in conjunction with the PID for implementation nationally through product labeling updates and will therefore be addressed in registration review instead of this final strategy:

• Restricted use classification

• Packaging FGARs, bromethalin, and cholecalciferol products for consumer use in quantities of one pound or less in ready-to-use non-refillable bait stations

• Broad national product labeling updates to prohibit broadcast and spot for turf, lawns, golf courses, campsites, and other recreation areas.

5.2.2 Listed Species Mitigation Measures for this Final Rodenticide Strategy

The final effects determinations indicate that mitigation measures would be applicable for 78 listed species and five CHs to avoid or further minimize exposure from this group of 11 rodenticides collectively. In other words, not all rodenticides and uses have the same predictions of the potential likelihood of future J/AM determinations. The following is a suite of measures that EPA has identified from which it expects to choose when identifying measures to reduce exposure to listed species and their CH for a specific active ingredient, use site, and application method (*i.e.*, bait station, in-burrow, and broadcast).

1. Restrict the use of bait stations to only those that exclude listed species by size or behavior. Beyond the standard bait stations now in use, custom bait stations for the exclusion of listed species (primarily mammals) could be used within their ranges. An example is the bait station recommended by the state of California in PRESCRIBE for use within the range of the SKR. This mitigation is intended to reduce the potential for primary exposure.

2. Prohibition of broadcast and below-ground in-burrow applications in locations where needed to protect listed species such as a “pesticide sensitive area” within the USFWS designated range of listed species. This mitigation is intended to reduce the potential for primary exposure to specific listed species.

3. Prohibition of broadcast and below-ground in-burrow application within and beyond the range and/or critical habitat for species that have the potential to consume rodenticides via secondary consumption. This mitigation is intended to reduce the potential for secondary exposure.38

4. Restricting bait station placement to within five feet of man-made structures in areas with listed mammals that are small enough to enter bait stations. This mitigation measure would reduce the likelihood that bait stations will be placed in the species habitat. This mitigation measure is intended to reduce the potential for primary exposure.

5. Prohibiting application directly to water. This prohibition is already included on many labels39 and would not apply to conservation uses (*i.e.*, island eradication). This measure would ensure that rodenticides do not enter water bodies, which are not an approved use site. This mitigation measure is intended to reduce the potential for primary exposure.

6. Mandatory or advisory post-application follow-up statements for carcass search, collection, and disposal within the species' range and/or designated critical habitat. This mitigation measure could be used for all active ingredients and use patterns. For below-ground in-burrow applications made in fields and other non-structural use sites, users would need to monitor open burrows at specific times depending on the toxicity characteristics of the active ingredient (*e.g.,* how quickly the rodenticide causes mortality could be considered). This mitigation measure is intended to address secondary exposure by reducing rodenticide exposures of predators and scavengers with a high potential for secondary poisoning.

7. Post-application follow-up statements for bait-spill or bait kick-out. Removing spilled bait or bait that has been ejected from a burrow or disturbed by an animal is intended to reduce primary exposure by removing rodenticide bait at the soil surface.

8. Prohibiting use in areas or at times of the year when listed secondary consumers might be exposed (*i.e.*, if species are active or in the area). USFWS determined this measure was needed to protect listed species in the previous biological opinions for the rodenticide products Rozol Prairie Dog Bait and Kaput-D Prairie Dog Bait. This measure would reduce exposure to predators and scavengers and is intended to reduce the potential for secondary exposure.

9. Covering the burrow hole after applications made in fields and other non-structural use sites for appropriate species that live in closed burrow systems (*i.e.*, pocket gopher). This mitigation measure is intended to reduce exposure to primary consumers that might enter the burrow. This would not apply to all target species and would depend on their behavior. This measure would not apply to target species that live in open burrow systems (*i.e.*, Norway rat).

States with Rodenticide Restrictions:

California – FGARs & SGARs
Connecticut - SGARs
South Carolina - SGARs
Vermont - SGARs

Conclusion:

To solicit stakeholder input, BPC staff have developed an anonymous survey to help determine the impacts of potential restrictions on the use of rodenticides. The survey is attached.

LAW WITHOUT GOVERNOR'S SIGNATURE

JUNE 8, 2025

CHAPTER 47

RESOLVES

STATE OF MAINE

IN THE YEAR OF OUR LORD

TWO THOUSAND TWENTY-FIVE

S.P. 142 - L.D. 356

Resolve, Directing the Board of Pesticides Control to Prohibit the Use of Rodenticides in Outdoor Residential Settings

Sec. 1. Board of Pesticides Control to prohibit use of rodenticides. Resolved: That the Department of Agriculture, Conservation and Forestry, Board of Pesticides Control shall prohibit the use of rodenticides, including rodenticidal baits, in outdoor residential settings. A certified applicator as defined under the Maine Revised Statutes, Title 22, section 1471-C, subsection 4 is exempt from the prohibition under this section. The board shall submit a report with an update on the prohibition under this section to the Joint Standing Committee on Agriculture, Conservation and Forestry no later than January 15, 2026. The joint standing committee may submit a bill to the Second Regular Session of the 132nd Legislature relating to the subject matter of the report.

Rodenticide Stakeholder Survey, September 2025

In 2025, the 132nd legislature passed LD 356 Resolve, Directing the Board of Pesticides Control to Prohibit the Use of Rodenticides in Outdoor Residential Settings (PL 2025 c. 47, https://legislature.maine.gov/legis/bills/display_ps.asp?LD=356&snum=132). This bill asks the BPC to prohibit the use of rodenticides in outdoor residential settings unless applied by a certified applicator. The bill goes into effect on September 25, 2025.
The Board is interested in hearing from affected parties prior to entering rulemaking. If your business will be affected by the restriction or prohibition of rodenticides, please fill out the survey below. This information will remain anonymous and only the answers to questions will be shared at the public board meetings. Answers must be in by October 31st, 2025 to be considered.

This survey will ask several questions about different types of anticoagulants, including first-generation anticoagulants, second-generation anticoagulants, and products that are not anticoagulants. An explanation for these types can be found below or on EPA's website (https://www.epa.gov/rodenticides/restrictions-rodenticide-products).

First-generation anticoagulants (FGAR) are much more toxic when feeding occurs on several successive days rather than on one day only. Chlorpophacinone, diphacinone and warfarin are first-generation anticoagulants that are registered to control rats and mice in the United States.

Second-generation anticoagulants (SGAR) were developed to control rodents that are resistant to first-generation anticoagulants. Second-generation anticoagulants also are more likely than first-generation anticoagulants to be able to kill after a single night's feeding. These compounds kill over a similar course of time but tend to remain in animal tissues longer than do first-generation ones. Due to these risks, second-generation anticoagulant rodenticides no longer are registered for use in products geared toward consumers and are registered only for the commercial pest control and structural pest control markets. Second-generation anticoagulants registered in the United States include brodifacoum, bromadiolone, difenacoum, and difethialone.

Other rodenticides that currently are registered to control mice include bromethalin, cholecalciferol, and zinc phosphide. These compounds are not anticoagulants.

For more information on the differences between FGARS, SGARS, and other rodenticides, visit the National Pesticide Information Center: https://npic.orst.edu/factsheets/rodenticides.html

Below is the language for the resolve that passed in 2025:

S.P. 142 - L.D. 356 Resolve, Directing the Board of Pesticides Control to Prohibit the Use of Rodenticides in Outdoor Residential Settings (see full text here: https://legislature.maine.gov/legis/bills/display_ps.asp?LD=356&snum=132)

When you submit this form, it will not automatically collect your details like name and email address unless you provide it yourself.

* Required

1. Do you or your company apply rodenticides? *

- ◯ Yes
- ◯ No

2. Do you or your company register rodenticides for use in the State of Maine? *

- ◯ Yes
- ◯ No

3. Does your company sell and/or distribute rodenticides in Maine? *

- ◯ Yes
- ◯ No

4. If First Generation Anticoagulant Rodenticides, FGARs, become state-restricted-

use pesticides, will it have a negative impact on your company? *

- ◯ Yes
- ◯ No

5. If Second Generation Anticoagulant Rodenticides, SGARs, become state-restricted-use pesticides, will it have a negative impact on your company? *

- ◯ Yes
- ◯ No

6. Should it be required that all outdoor use of rodenticides be confined to tamper-resistant bait boxes? *

- ◯ Yes
- ◯ No

7. Should it be required that all tamper-resistant bait boxes be anchored when used outdoors? *

- ◯ Yes
- ◯ No

8. Should it be required that all outdoor bait boxes be labeled with the name and contact information of the pest management professional or other individual responsible for maintaining them? *

- ◯ Yes

- ◯ No

9. Should the use of rodenticides outdoors be restricted to certified applicators only? *

- ◯ Yes
- ◯ No

10. What would the fiscal impact be to your company or business if all or some types of rodenticides were categorized as "restricted-use" under Maine law? (definitions for restricted and limited use can be found in Chapter 40: Maine Restricted and Limited Used Pesticides https://www.maine.gov/dacf/php/pesticides/laws.shtml) *

- ◯ None
- ◯ <$10,000
- ◯ $10,000-$50,000
- ◯ $50,000-$100,000
- ◯ >$100,000

11. Given that the Board must make policy or rulemaking changes to implement this resolve, what additional feedback would you like to provide to the Board? *

Enter your answer

TOMCAT®

DIRECTIONS FOR USE

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

READ THIS LABEL: Read this entire label and follow all use directions and use precautions. Use only for the sites, pests and application methods described on this label.

USE RESTRICTIONS:

This bait station may be used in indoor areas accessible to children, consistent with all use restrictions. **DO NOT USE THIS PRODUCT OUTDOORS OR IN AREAS ACCESSIBLE TO PETS.**

For control only of house mice. This bait station can only be refilled with the block baits sold with this station. TOMCAT MOUSE KILLER III must be used in buildings with all use restrictions and other requirements indicated on this label. Do not place this bait station or stored block baits in any area where there is a possibility of contaminating food or surfaces that come into direct contact with food. Store block bait refills out of reach of children and pets.

SELECTION OF TREATMENT AREAS: Determine areas where house mice will most likely find and consume the bait. Generally, these areas are along walls, by gnawed openings, in corners and concealed places.

APPLICATION DIRECTIONS:

While wearing gloves, place one block of bait in the bait station. See additional GRAPHICS AND TEXT. Place the bait station at highest point of activity along a wall or in corner where mice or their signs have been seen. If additional units are to be used, place bait stations at 8 to 12 foot intervals. While wearing gloves, replace bait in bait station when bait is consumed or contaminated. Maintain an uninterrupted supply of fresh bait for at least 15 days or until signs of mouse activity cease in infested areas.

Follow-up: Wearing gloves, collect and properly dispose of any leftover bait or carcasses. To discourage reinfestation, eliminate food, water and harborage as much as possible. If reinfestation does occur, repeat treatment.

PRECAUTIONARY STATEMENTS

Hazards to Humans and Domestic Animals

CAUTION: Bait contents harmful if swallowed. Keep away from children, domestic animals and pets. Any person who retrieves carcasses or unused bait following application of this product must wear gloves.

USER SAFETY REQUIREMENTS: As soon as possible, wash hands thoroughly after applying bait and before eating, drinking, chewing gum, using tobacco, or using the toilet.

FIRST AID

HAVE LABEL WITH YOU WHEN OBTAINING TREATMENT ADVICE

IF SWALLOWED:

- Call a poison control center, doctor, or 1-877-854-2494 immediately for treatment advice.
- Have person sip a glass of water if able to swallow.
- Do not induce vomiting unless told to do so by the poison control center or doctor.

IF ON SKIN:

- Wash with plenty of soap and water.

TREATMENT FOR PET POISONING

If an animal eats this bait, call a veterinarian at once.

NOTE TO PHYSICIAN OR VETERINARIAN

Contains the nerve poison bromethalin. This product is not an anticoagulant type rodenticide. For humans or animals ingesting bait and/or showing poisoning signs (such as muscle tremors, loss of hind limb use, or seizures for animals), limit absorption by either emesis or gastric lavage. Sublethal symptoms, if present, would be the result of cerebral edema and should be treated accordingly through administration of an osmotic diuretic and corticosteroid.

ENVIRONMENTAL HAZARDS

This product is extremely toxic to fish, birds and other wildlife. Dogs, cats and other predatory and scavenging mammals and birds might be poisoned if they feed upon animals that have eaten this bait. Do not apply directly to water.

STORAGE AND DISPOSAL

Do not contaminate water, food or feed by storage or disposal.

Pesticide Storage: Store only in original container in a cool, dry place inaccessible to children and pets.

Pesticide Disposal and Container Handling: Nonrefillable Container. Do not reuse or refill container except as described in the Directions For Use.

If Empty: Place in trash or offer for recycling if available.

If Partly Filled: Call your local solid waste agency for disposal instructions. Never place unused product down any indoor or outdoor drain.

WARRANTY: To the extent consistent with applicable law, seller makes no warranty, expressed or implied, concerning the use of this product other than indicated on the label. Buyer assumes all risk of use and/or handling of this material when such use and/or handling is contrary to label instructions.

111617/01-03

Available Exclusively From:

MOTOMCO

3699 Kinsman Blvd., Madison, WI 53704 U.S.A

www.motomco.com

LOADING BAIT INTO STATION

1

REMOVE BAIT CARTRIDGE FROM BOTTOM OF STATION

With your left hand push tab up.

While still holding tab, squeeze prongs of bait cartridge and pull away from station.

2

LOAD BAIT

Place bait into cartridge.

Push cartridge into station until it clicks into place.

0 48745 32360 2

608TB-8

DIRECTIONS FOR USE

It is a violation of Federal law to use this product in a manner inconsistent with its labeling.
READ THIS LABEL: Read this entire label and follow all use directions and use precautions. Use only for sites, pests, and application methods described on this label.

IMPORTANT: Do not expose children, pets, or nontarget animals to rodenticides. To help to prevent accidents:
1. Store unused product out of reach of children and pets.
2. Apply bait in locations out of reach of children, pets, domestic animals and nontarget wildlife, or in tamper-resistant bait stations. These stations must be resistant to destruction by dogs and by children under six years of age, and must be used in a manner that prevents such children from reaching into bait compartments and obtaining bait. If bait can be shaken from bait stations when they are lifted, units must be secured or otherwise immobilized. Stronger bait stations are needed in areas open to hoofed livestock, raccoons, bears, or other potentially destructive animals, or in areas prone to vandalism.
3. Dispose of product container and unused, spoiled, or unconsumed bait as specified on this label.

Bait stations are mandatory for outdoor, above-ground use. Tamper-resistant bait stations must be used wherever children, pets, non-target mammals, or birds may have access to the bait placement location.

USE RESTRICTIONS: This product may only be used to control the following rodent pests in and around man-made structures: House mouse (*Mus musculus*), Norway rat (*Rattus norvegicus*), Roof rat (*Rattus rattus*), Cotton rats* (*Sigmodon hispidus*), Eastern harvest mouse* (*Reithrodontomys humuli*), Golden mouse* (*Ochrotomys nuttalli*), Polynesian rat* (*Rattus exulans*), Meadow vole* (*Microtus pennsylvanicus*), White-throated woodrat* (*Neotoma albigula*), Southern plains woodrat* (*Neotoma micropus*), and Mexican woodrat* (*Neotoma mexicana*). This product must be used in and within 100 feet of man-made structures constructed in a manner so as to be vulnerable to commensal rodent invasions and/or to harboring or attracting rodent infestations. Examples of such structures include homes and other permanent or temporary residences, food processing facilities, industrial and commercial buildings, trash receptacles, agricultural and public buildings, transport vehicles (ships, trains, aircraft), docks and port or terminal buildings and related structures around and associated with these sites. Fence and perimeter baiting, beyond 100 feet from a structure as defined above, is prohibited. This product must not be applied directly to food or feed crops.

Burrow baiting with TOMCAT All-Weather Bait Chunx is prohibited.

Do not place near or inside ventilation duct openings. Do not contaminate water, food, feedstuffs, food or feed handling equipment, or milk or meat handling equipment or surfaces that come into direct contact with food. When used in USDA inspected facilities, this product must be applied in tamper-resistant bait stations.

Do not sell this product in individual containers holding less than 4 pounds of bait.

SELECTION OF TREATMENT AREAS: Determine areas where rats, mice or meadow voles* will most likely find and consume the bait. Generally, these areas are along walls, by gnawed openings, in corners and concealed places, between floors and walls, or in locations where rodents or their signs have been seen. Protect bait from rain and snow. Remove as much alternative food as possible.

APPLICATION DIRECTIONS:
RATS: Apply 3 to 16 one-ounce bait blocks per placement in infested areas. Space placements at intervals of 15 to 30 feet in infested areas. Maintain an uninterrupted supply of fresh bait for 10 days or until there no longer are signs of new feeding by rats.

When baiting sewers, securely attach one end of wire to each block and the other end to a stationary structure such as the bottom step of a manhole ladder or a sewer grate. Allow just enough wire for the block to rest on manhole benching. If benching is not present, suspend each block a few inches above the high water mark or secure block on a board supported by opposing steps of the ladder. Securing blocks in this manner will reduce chances that they will be removed by rats or water. Use 3 to 16 blocks per manhole, depending upon the apparent intensity of rat activity. Maintain an uninterrupted supply of fresh bait for at least 10 days or until there are no signs of new feeding by rats.

MOTOMCO FARM & HOME

TOMCAT®

All-Weather
BAIT CHUNX®

KILLS RATS, MICE & MEADOW VOLES*

PEANUT FLAVORED
MOLD RESISTANT • MOISTURE RESISTANT

ACTIVE INGREDIENT: Diphacinone (CAS #82-66-6):	0.005%
OTHER INGREDIENTS:	99.995%
TOTAL	100.000%

KEEP OUT OF REACH OF CHILDREN
CAUTION

See side panels for First Aid and additional precautionary statements.

STORAGE AND DISPOSAL

Do not contaminate water, food or feed by storage or disposal.
Pesticide Storage: Store only in original container in a cool, dry place inaccessible to children and pets. Keep containers closed and away from other chemicals.
Pesticide Disposal: Dispose of wastes resulting from the use of this product in trash or at an approved waste disposal facility.
Container Handling: Nonrefillable container. Do not reuse or refill this container. **[Plastic:]** Offer for recycling or reconditioning; or puncture and dispose of in a sanitary landfill; or incineration. In most states, burning is not allowed.

WARRANTY: To the extent consistent with applicable law, seller makes no warranty, expressed or implied, concerning the use of this product other than indicated on the label. Buyer assumes all risk of use and/or handling of this material when such use and/or handling is contrary to label instructions.

EPA REG. NO. 12455-80-3240
EPA EST. NOs. 12455-WI-1^{K}, 12455-WI-2^{P}, 12455-WI-3^{W}
Superscript is the first letter of the lot number.

Available Exclusively From:
MOTOMCO
3699 Kinsman Blvd.
Madison, WI 53704 U.S.A.
www.motomco.com
MADE IN USA

Net Weight:
4 lbs (1.8kg)

The World Leader In Rodent Control Technology®

DIRECTIONS FOR USE (Continued from other panel)
APPLICATION DIRECTIONS (Continued from other panel)

MICE AND MEADOW VOLES*: Apply 1 block per typical placement in infested areas. Space placements at 8 to 12 foot intervals. Two blocks may be needed at points of very high activity. Maintain an uninterrupted supply of fresh bait for at least 15 days or until signs of mouse or meadow vole* activity cease.
FOLLOW-UP: Replace contaminated or spoiled bait immediately. Using waterproof gloves, collect and dispose of all dead, exposed animals and leftover bait. To prevent reinfestation, limit sources of rodent food, water, and harborage as much as possible. If reinfestation does occur, repeat treatment. Where a continuous source of infestation is present, establish permanent bait stations and replenish as needed.

PRECAUTIONARY STATEMENTS

Hazards to Humans and Domestic Animals
CAUTION: Harmful if swallowed. Keep away from children, domestic animals and pets.
All handlers (including applicators) must wear shoes plus socks, and gloves. Any person who retrieves carcasses or unused bait following application of this product must wear waterproof gloves.

User Safety Requirements
Follow manufacturer's instruction for cleaning/maintaining PPE. If no such instructions for washables, use detergent and hot water. Keep and wash PPE separately from other laundry. Remove PPE immediately after handling this product. Wash the outside of gloves before removing. As soon as possible, wash hands thoroughly after applying bait and before eating, drinking, chewing gum, using tobacco or using the toilet and change into clean clothing.

FIRST AID

HAVE LABEL WITH YOU WHEN OBTAINING TREATMENT ADVICE

If Swallowed
- Call a poison control center, doctor, or 1-877-854-2494 immediately for treatment advice.
- Have a person sip a glass of water if able to swallow.
- Do not induce vomiting unless told to do so by the poison control center or doctor.

NOTE TO PHYSICIAN
If swallowed, this material may reduce the clotting ability of the blood and cause bleeding. If ingested, administer Vitamin K_1 intramuscularly or orally. Repeat as necessary based on monitoring of prothrombin times.

TREATMENT FOR PET POISONING
If animal eats bait, call veterinarian or 1-877-854-2494 at once.
NOTE TO VETERINARIAN
Anticoagulant Diphacinone: For animals ingesting bait and/or showing poisoning signs (bleeding or elevated prothrombin times), give Vitamin K_1.

ENVIRONMENTAL HAZARDS
This product is extremely toxic to mammals, birds and other wildlife. Dogs, cats and other predatory and scavenging mammals and birds might be poisoned if they feed upon animals that have eaten this bait. Do not apply directly to water, or to areas where surface water is present or to intertidal areas below the mean high water mark. Do not contaminate water when disposing of equipment wash water or rinsate.

***Not permitted for use against the following species in California: Cotton rat, Eastern harvest mouse, Golden mouse, Polynesian rat, Meadow vole, White-throated woodrat, Southern plains woodrat, and Mexican woodrat**

052417/09-15

FIRST AID

HAVE LABEL WITH YOU WHEN OBTAINING TREATMENT ADVICE

IF SWALLOWED:

- Call a poison control center, doctor, or 1-877-854-2494, or 1-800-858-7378** immediately for treatment advice.
- Have person sip a glass of water if able to swallow.
- Do not induce vomiting unless told to do so by the poison control center or doctor.

IF ON SKIN OR CLOTHING:

- Take off contaminated clothing. Rinse skin immediately with plenty of water for 15–20 minutes.
- Call a poison control center or doctor for treatment advice.

IF IN EYES:

- Hold eye open and rinse slowly and gently with water for 15–20 minutes.
- Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye.
- Call a poison control center, doctor, or 1-877-854-2494 immediately for treatment advice.

** Also call this number for information on health concerns and pesticide incidents.

NOTE TO PHYSICIAN

If swallowed or absorbed through the skin, this material may reduce the clotting ability of the blood and cause bleeding. If ingested, administer Vitamin K_1 intramuscularly or orally. Repeat as necessary based on monitoring of prothrombin times.

TREATMENT FOR PET POISONING

If animal eats bait, call veterinarian at once.

NOTE TO VETERINARIAN

Anticoagulant Bromadiolone: For animals ingesting bait and/or showing poisoning signs (bleeding or elevated prothrombin times), give Vitamin K_1. If needed, check prothrombin times every 3 days until values return to normal (up to 30 days). In severe cases, blood transfusions may be needed.

DIRECTIONS FOR USE

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

READ THIS LABEL: Read this entire label and follow all use directions and use precautions. Use only for sites, pests, and application methods described on this label.

IMPORTANT: Do not expose children, pets, or nontarget animals to rodenticides. To help to prevent exposure:

1. Store unused product out of reach of children and pets.
2. Apply bait in locations out of reach of children, pets, domestic animals and nontarget wildlife, or in tamper-resistant bait stations. These stations must be resistant to destruction by dogs and by children under six years of age, and must be used in a manner that prevents such children from reaching into bait compartments and obtaining bait. If bait can be shaken from bait stations when they are lifted, units must be secured or otherwise immobilized. Stronger bait stations are needed in areas open to hoofed livestock, raccoons, bears, or other potentially destructive animals, or in areas prone to vandalism.
3. Dispose of product container and unused, spoiled, or unconsumed bait as specified on this label.

Bait stations are mandatory for outdoor, above-ground use. Tamper-resistant bait stations must be used wherever children, pets, non-target mammals, or birds may have access to the bait placement location.

USE RESTRICTIONS: This product may only be used to control the following rodent pests in and around man-made structures: House mouse (*Mus musculus*), Norway rat (*Rattus norvegicus*), Roof rat (*Rattus rattus*), Cotton mouse (*Peromyscus gossypinus*), Cotton rat* (*Sigmodon hispidus*), Deer mouse (*Peromysus maniculatus*), Eastern harvest mouse* (*Reithrodontomys humuli*), Golden mouse* (*Ochrotomys nuttalli*), Polynesian rat* (*Rattus exulans*), Meadow vole* (*Microtus pennsylvanicus*), White-footed mouse (*Peromyscus leucopus*), White-throated woodrat* (*Neotoma albigula*), Southern plains woodrat* (*Neotoma micropus*), and Mexican woodrat* (*Neotoma mexicana*). This product must be used in and within 100 feet of man-made structures constructed in a manner so as to be vulnerable to commensal rodent invasions and/or to harboring or attracting rodent infestations. Examples of such structures include homes and other permanent or temporary residences, food processing facilities, industrial and commercial buildings, trash receptacles, agricultural and public buildings, transport vehicles (ships, trains, aircraft), docks and port or terminal buildings and related structures around and associated with these sites. Fence and perimeter baiting, beyond 100 feet from a structure as defined above, is prohibited. This product must not be applied directly to food or feed crops.

587CB-9

CONTRAC®

ALL-WEATHER BLOX™

KILLS RATS, MICE, AND MEADOW VOLES*

Kills Warfarin Resistant Norway Rats

Norway rats, roof rats, and house mice may consume a lethal dose in one night's feeding with first dead rodents appearing four or five days after feeding begins.

ACTIVE INGREDIENT:	
Bromadiolone (CAS #28772-56-7):	0.005%
OTHER INGREDIENTS†:	99.995%
†Contains Denatonium Benzoate TOTAL	100.000%

KEEP OUT OF REACH OF CHILDREN
CAUTION

See side panels for First Aid and additional precautionary statements.

STORAGE AND DISPOSAL

Do not contaminate water, food or feed by storage or disposal.

Pesticide Storage: Store only in original container in a cool, dry place inaccessible to children and pets. Keep containers closed and away from other chemicals.

Pesticide Disposal: Wastes resulting from the use of this product may be placed in trash or delivered to an approved waste disposal facility.

Container Handling: Nonrefillable container. Do not reuse or refill this container. **[Plastic:]** Offer for recycling or reconditioning; or puncture and dispose of in a sanitary landfill; or by incineration. In most states, burning is not allowed.

WARRANTY: To the extent consistent with applicable law, seller makes no warranty, expressed or implied, concerning the use of this product other than indicated on the label. Buyer assumes all risk of use and/or handling of this material when such use and/or handling is contrary to label instructions.

NET WEIGHT: 18 lbs (8.2 kg)

EPA REG. NO. 12455-79

EPA EST. NO. 12455-WI-1

Manufactured by:

Bell LABORATORIES, INC.

3699 Kinsman Blvd.
Madison, WI 53704 U.S.A.
www.belllabs.com

MADE IN USA

DIRECTIONS FOR USE (Continued from other panel)

Burrow baiting with Contrac All-Weather Blox is prohibited.

Do not place near or inside ventilation duct openings. Do not contaminate water, food, feedstuffs, food or feed handling equipment, or milk or meat handling equipment or surfaces that come into direct contact with food. When used in USDA inspected facilities, this product must be applied in tamper-resistant bait stations. Do not broadcast bait. Do not use this product in sewers.

Do not sell this product in individual containers holding less than 16 pounds of bait.

SELECTION OF TREATMENT AREAS: Determine areas where rats, mice, or meadow voles* will most likely find and consume the bait. Generally, these areas are along walls, by gnawed openings, in corners and concealed places, between floors and walls, or in locations where rats, mice, or meadow voles*, or their signs have been seen. Protect bait from rain and snow. Remove as much alternative food as possible.

APPLICATION DIRECTIONS:

RATS: Place 3 to 16 bait blocks (at intervals of 15 to 30 feet) per placement in infested areas. Maintain an uninterrupted supply of fresh bait for at least 10 days or until signs of rat activity cease.

MICE AND MEADOW VOLES*: Place 1 block per placement. Space placements at 8- to 12-foot intervals in infested areas. Two blocks may be needed at points of very high activity. Maintain an uninterrupted supply of fresh bait for at least 15 days or until signs of mouse or meadow vole* activity cease.

FOLLOW-UP: Replace contaminated or spoiled bait immediately. Wearing gloves, collect and dispose of all dead, exposed animals and leftover bait. To prevent reinfestation, limit sources of rodent food, water, and harborage as much as possible. If reinfestation does occur, repeat treatment. Where a continuous source of infestation is present, establish permanent bait stations and replenish as needed.

0 30835 40049 2

PRECAUTIONARY STATEMENTS

HAZARDS TO HUMANS AND DOMESTIC ANIMALS

CAUTION: Harmful if swallowed or absorbed through the skin. Keep away from children, domestic animals and pets. Do not get in eyes, on skin or on clothing.

All handlers (including applicators) must wear: shoes plus socks, and waterproof gloves. Any person who retrieves carcasses or unused bait following application of this product must wear gloves.

User Safety Requirements

Follow manufacturer's instruction for cleaning/maintaining PPE. If no such instructions for washables, use detergent and hot water. Keep and wash PPE separately from other laundry. Remove PPE immediately after handling this product. Wash the outside of gloves before removing. As soon as possible, wash hands thoroughly after applying bait and before eating, drinking, chewing gum, using tobacco or using the toilet and change into clean clothing.

ENVIRONMENTAL HAZARDS

This product is extremely toxic to fish, birds and other wildlife. Dogs and predatory and scavenging mammals and birds might be poisoned if they feed upon animals that have eaten this bait. Do not apply this product directly to water or to areas where surface water is present or to intertidal areas below the mean high water mark. Runoff also may be hazardous to aquatic organisms in water adjacent to treated areas. Do not contaminate water when disposing of equipment wash water or rinsate.

***Not permitted for use against the following species in California: Cotton rat, Eastern harvest mouse, Golden mouse, Polynesian rat, Meadow vole, White-throated woodrat, Southern plains woodrat, and Mexican woodrat.**

Product Code: CB4051

090415/09-15

ALERT: RODENT BAITS

NEW REQUIREMENTS FOR USE OF MICE OR RAT BAITS

BAITS USED TO CONTROL MICE, RATS, AND MEADOW VOLES ARE PESTICIDES AND MUST BE USED PROPERLY.

SGARs

THE STATE OF SOUTH CAROLINA RESTRICTS THE SALE AND USE OF SECOND GENERATION ANTI-COAGULANT RODENTICIDES TO LICENSED PESTICIDE APPLICATORS.

BRODIFACOUM
BROMADIOLONE
DIFENACOUM
DIFETHIALONE

FOR RETAIL SALE TO AND USE ONLY BY CERTIFIED APPLICATORS OR PERSON UNDER THEIR DIRECT SUPERVISION AND ONLY FOR THOSE USES COVERED BY THE CERTIFIED APPLICATOR'S CERTIFICATE.

SCAN ME

PESTICIDE REGULATION
Regulatory Services

ALWAYS READ AND FOLLOW LABEL DIRECTIONS FOR USE

SGAR Information

Learn More >>

Territory Map

Learn More >>

Forms

Learn More >>

Frequently Asked Questions

Learn More >>

ALERT: RODENT BAITS

REQUIREMENTS FOR USE OF MICE OR RAT BAITS

BAITS USED TO CONTROL MICE, RATS, AND MEADOW VOLES ARE PESTICIDES AND MUST BE USED PROPERLY.

IMPROPER USE CAN RESULT IN POISONING OF CHILDREN, PETS, DOMESTIC ANIMALS, OR WILDLIFE.

IT IS ILLEGAL TO USE THESE BAITS OUTDOORS WITHOUT A BAIT STATION!

ALWAYS READ AND FOLLOW LABEL DIRECTIONS FOR USE

INDOORS

PLACE BAIT WHERE CHILDREN, PETS, DOMESTIC ANIMALS, AND WILDLIFE CANNOT REACH THE BAIT.

OUTDOORS

BAITS MUST BE PUT INTO A TAMPER RESISTANT BAIT STATION

THE VERMONT AGENCY OF AGRICULTURE, FOOD AND MARKETS INVESTIGATES REPORTS OF PESTICIDE MISUSE.
INCIDENTS CAN BE REPORTED TO 802-461-7160

VERMONT
AGENCY OF AGRICULTURE, FOOD & MARKETS

maine
BOARD OF PESTICIDES CONTROL
DEPARTMENT OF AGRICULTURE, CONSERVATION & FORESTRY

Neonicotinoids: potential health and environmental risks

Doug Van Hoewyk, PhD. Toxicologist. Maine Board of Pesticide Control

doug.vanhoewyk@maine.gov

www.thinkfirstspraylast.org

IN DEPTH | ENVIRONMENTAL SCIENCE

European bee study fuels debate over pesticide ban

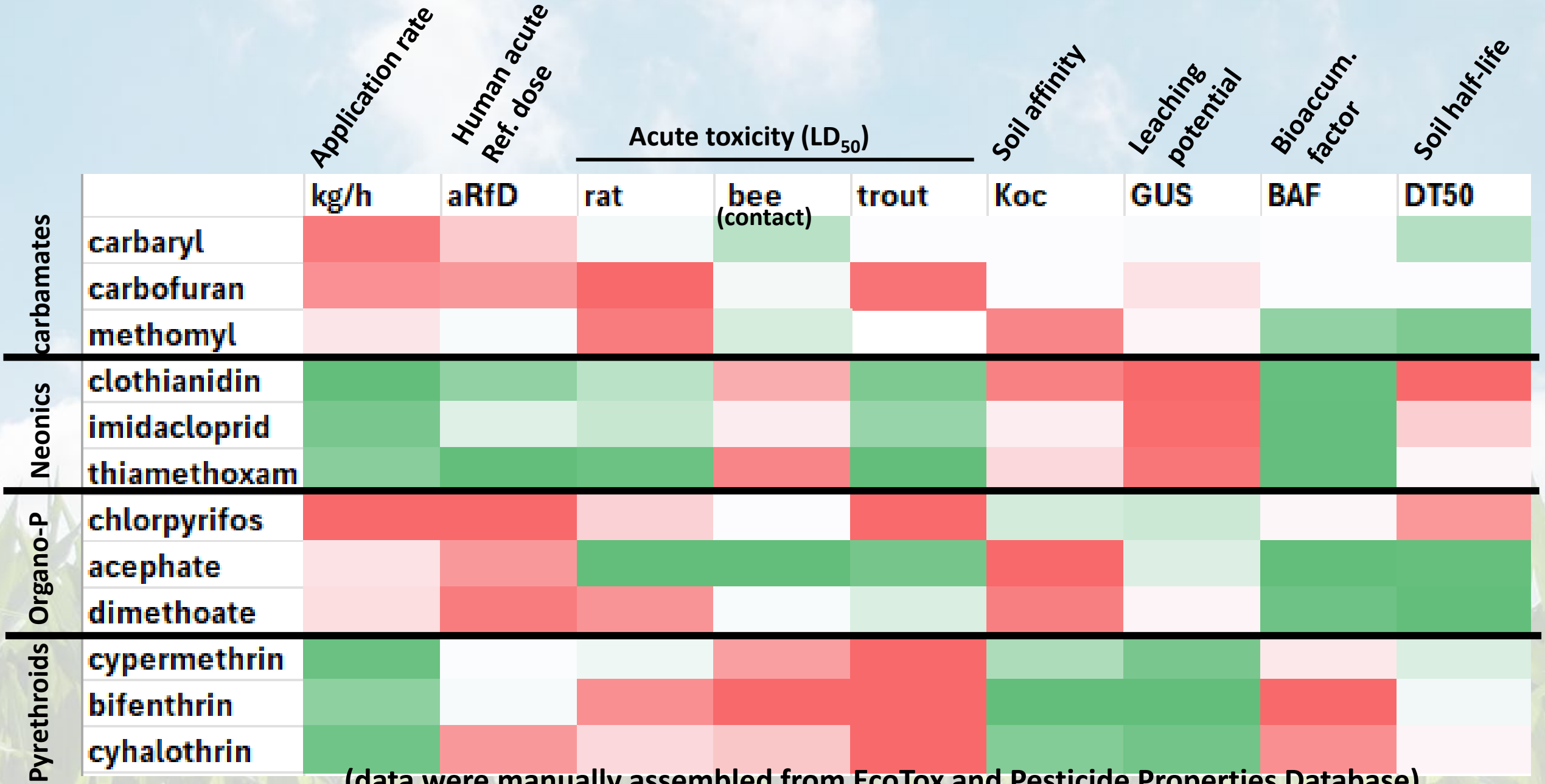
Neonicotinoids harm domesticated bees and wild cousins in study, but leave some honey bee colonies unaffected.

ERIK STOKSTAD Authors Info & Affiliations

SCIENCE · 30 Jun 2017 · Vol 356, Issue 6345 · p. 1321 · DOI: 10.1126/science.356.6345.1321

"We learn again: It's complicated," says biologist Tjeerd Blacquière

Insecticides have varying and contrasting risks



(data were manually assembled from EcoTox and Pesticide Properties Database)

Risk Quotient is calculated to *estimate potential* risk

RQ= exposure/toxicity

RQ= max application rate per hectare/LD_{50} in rats *1,000,000 (kg-mg conversion)

	Raw value risk quotient	Log tranformed RQ (log)
carbaryl	4435	3.6
carbofuran	176000	5.2
methomyl	12000	4.1
clothianidin	20	1.3
imidacloprid	91	2.0
thiamethoxam	69	1.8
chlorpyrifos	8296	3.9
acephate	419	2.6
dimethoate	6833	3.8
cypermethrin	80	1.9
bifenthrin	1296	3.1
cyhalothrin	208	2.3

Possible unintended consequences of a neonicotinoid ban: Corn

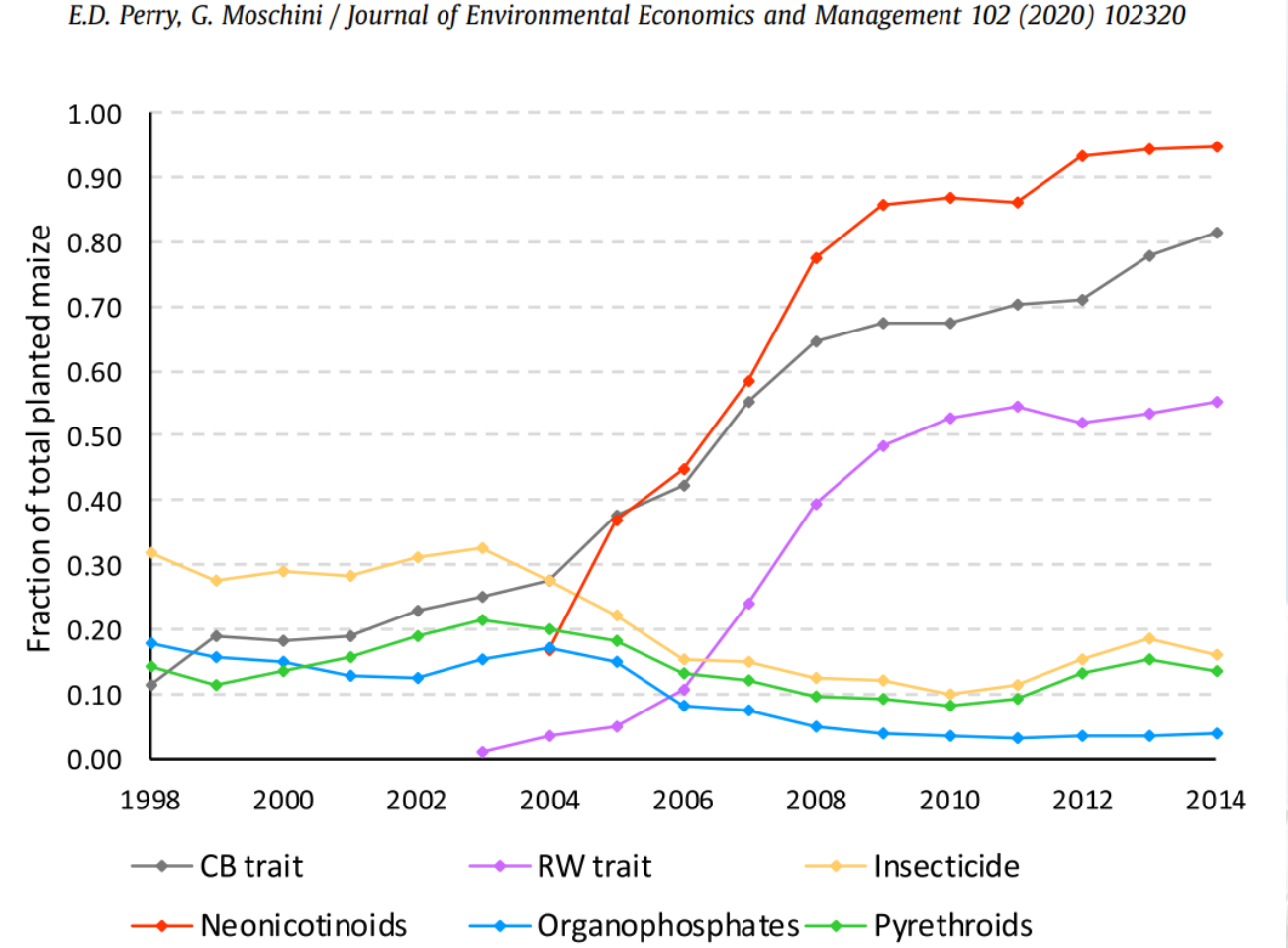


Table 5

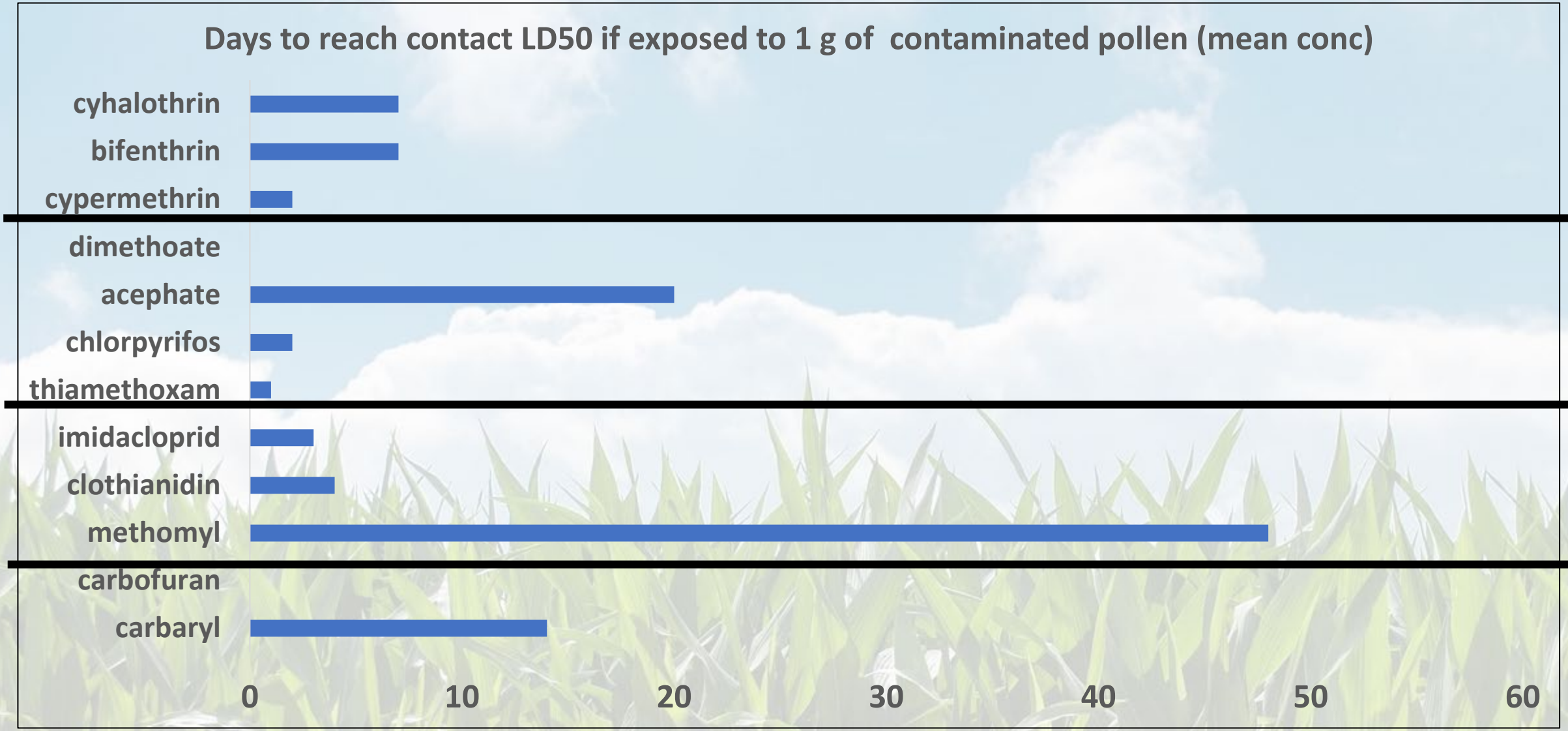
Predicted impacts of a NeoST ban: Insecticide use and hazard quotients in 2014.

Corn

	Baseline	NeoST Ban	Change (%)
Organophosphate Adoption[a]	0.04	0.10	174.7%
Pyrethroid Adoption[a]	0.13	0.21	54.9%
Category I Insecticide Adoption[a]	0.05	0.11	106.9%

Various methods exist to assess the risk of pesticide residues in honey bees.

(These data are from Sanchez-Bayo and Goka, 2014. Estimates reflect environmentally relevant exposures in the field).



Risk of neonicotinoids to honey bees in Maine

Pollinator Ecology and Management 2018 Research

Exposure of Honey Bee (*Apis mellifera* L.) Colonies to Pesticides in Pollen, A Statewide Assessment in Maine

Francis A. Drummond,[1,2,5] Elissa S. Ballman,[1] Brian D. Eitzer,[3] Brianne Du Clos,[4] and James Dill[2]

[1]School of Biology and Ecology, University of Maine, 5722 Deering, Orono, ME 04469, [2]Cooperative Extension, University of Maine,

Bees are most frequently exposed to fungicides and herbicides, but insecticides pose greatest risk.

Insecticides detected in pollen at 9 of 32 sites.

Neonicotinoids detected in pollen at 2 out of 32 sites.

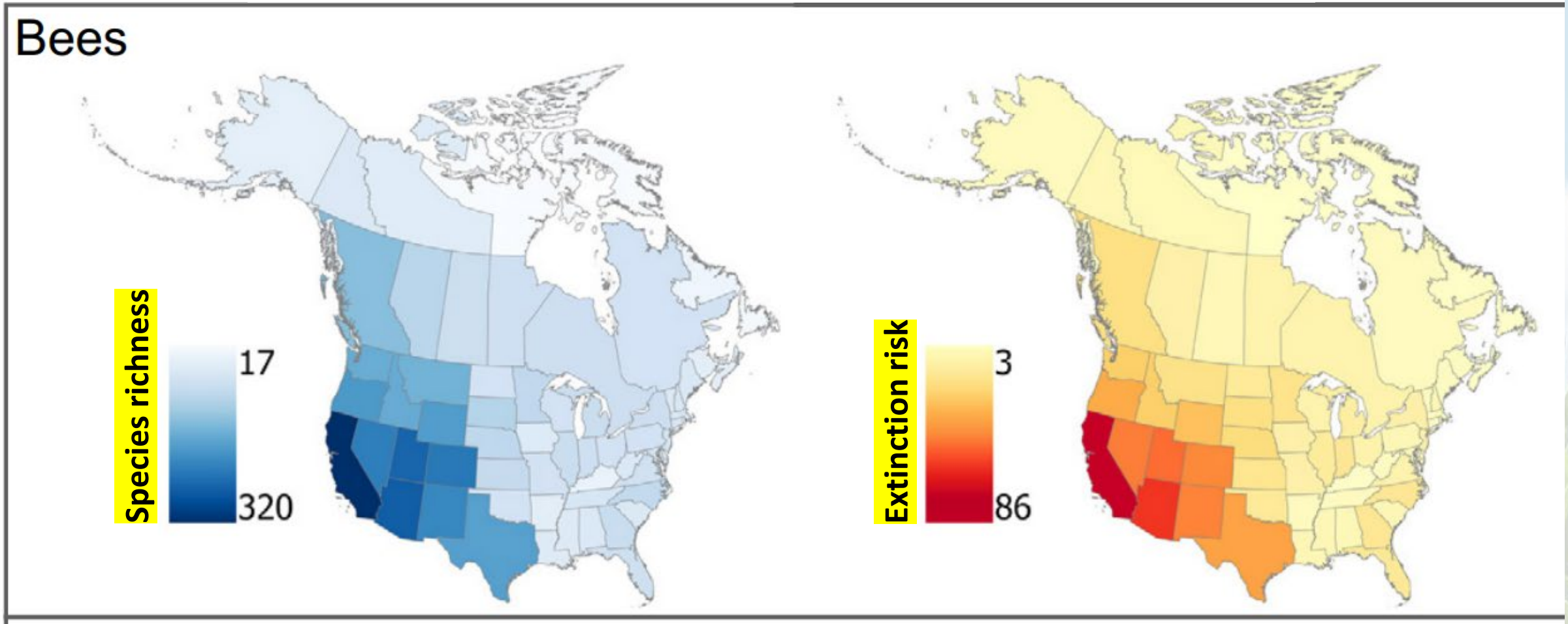
Only one site has a risk quotient at a level of concern (phosmet in apple orchard).

Exposure predicted by land use (blueberries followed by conifer forest)

PNAS RESEARCH ARTICLE | ECOLOGY

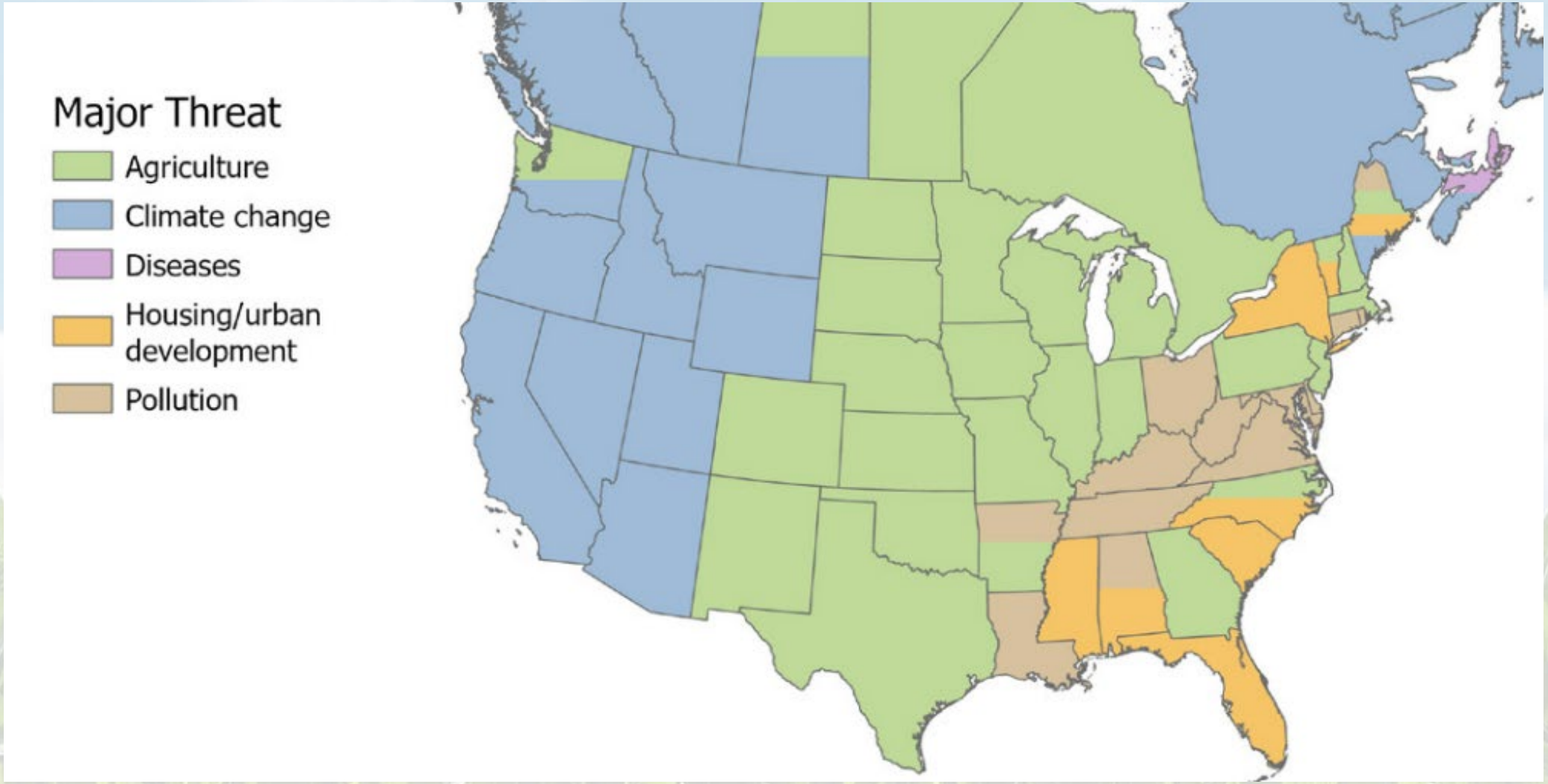
2025

Elevated extinction risk in over one-fifth of native North American pollinators



PNAS RESEARCH ARTICLE | ECOLOGY

Elevated extinction risk in over one-fifth of native North American pollinators



insects

2017

Article

Bee Community of Commercial Potato Fields in Michigan and *Bombus impatiens* Visitation to Neonicotinoid-Treated Potato Plants

Amanda L. Buchanan, Jason Gibbs †, Lidia Komondy and Zsofia Szendrei *

Department of Entomology, Michigan State University, East Lansing, MI 48824, USA;

No significant difference in bee visitations between treated and untreated potato fields.

- **# of trips/day**
- **Length of time/trip**

Environmental Entomology, 47(2), 2018, 378–387
doi: 10.1093/ee/nvy023
Advance Access Publication Date: 2 March 2018
Research

Exposure of Honey Bee (*Apis mellifera* L.) Colonies to Pesticides in Pollen, A Statewide Assessment in Maine

Francis A. Drummond,[1,2,5] Elissa S. Ballman,[1] Brian D. Eitzer,[3] Brianne Du Clos,[4] and James Dill[2]

[1]School of Biology and Ecology, University of Maine, 5722 Deering, Orono, ME 04469, [2]Cooperative Extension, University of Maine, Orono, ME 04469, [3]Department of Analytical Chemistry, The Connecticut Agricultural Experiment Station, 123 Huntington Street, New Haven, CT 06511, [4]Department of Wildlife, Fisheries, and Conservation Biology, University of Maine, 5755 Nutting, Orono, ME 04469, and [5]Corresponding author, e-mail: fdrummond@maine.edu

Subject Editor: Gloria DeGrandi-Hoffman

Received 21 November 2017; Editorial decision 30 January 2018

Abstract

In 2015, we conducted a statewide assessment of honey bee exposure to pesticides with assistance of volunteer beekeepers. Pollen trapping was conducted at 32 sites in the spring, summer, and early fall. Apiary locations ranged from unmanaged natural landscapes to managed agricultural or urban landscapes. Pollen samples at each site were aggregated over the collection dates and chemical residue analysis was conducted on each pollen sample for 190 pesticides and metabolites using HPLC/MS. Twenty-five different residues were detected for an average of 2.9 detections per site. Detections were dominated by fungicides, but risk, calculated as: ppb residue concentration/ LD_{50}, was mostly due to insecticides. Beekeeper perceived land-use in the vicinity of each apiary was associated with significant differences in the number of detections and residue concentrations, agricultural landscapes greater than nonagricultural. However, there was no significant difference in oral or contact risk quotients due to land-use type. The landscape composition surrounding apiaries, derived with GIS, determined pesticide exposure for honey bees when total detections, log pesticide residue concentration, and log contact risk quotients were used as measures. Partial least squares explained 43.9% of the variance in pesticide exposure due to landscape composition. The best predictors describing pesticide exposure were: area (ha) of blueberry, coniferous forest, and urban/developed land cover types. Maine is the most forested state in the United States (as determined by % land area forested, 93%) and a negative exponential decay was observed between land area in conifer forest and the number of pesticide detections per apiary.

Key words: risk quotient, pollen trapping, citizen science, landscape analysis

Honey bees (Hymenoptera: Apidae, *Apis mellifera* L.) are exposed to a variety of pesticides in agricultural, residential, and rural settings (Mullin et al. 2010, Stoner and Eitzer 2013). Many of these pesticides are known to be highly toxic to honey bees (Greigsmith et al. 1994, Mineau et al. 2008, Johnson et al. 2010, Zhu et al. 2014, Kiljanek et al. 2016). Those that are not acutely toxic can still have detrimental impacts on honey bee colony health. Sublethal doses of pesticides can affect foraging and grooming ability, immunology, and parasite load (Desneux et al. 2007, Vidau et al. 2011, James et al. 2012, Wu et al. 2012, Sandrock et al. 2014, Schmehl et al. 2014, Doublet et al. 2015, Sánchez-Bayo et al. 2016). Honey bee colonies have been declining by 30% or more over the last several years (Lee et al. 2015, Seitz et al. 2016) and pesticides are thought to contribute to this decline.

However, much of the focus on pesticide exposure has been concentrated on exposure and risk assessment of neonicotinoid insecticides on honey bees. This is not surprising due to the low concentrations that are biologically active in honey bees (≤50 ppb, Yang et al. 2008) and also because of their ubiquitous presence in many geographic regions. Lu et al. (2016), in Massachusetts, found at least one neonicotinoid present in 73% of their pollen samples and 57% contained imidacloprid. A study in France revealed that half of all pollen samples tested positive for imidacloprid (Chauzat et al. 2006). Toxicology and acute and chronic effects of several neonicotinoids has been intensively studied (Guez et al. 2001, Suchail et al. 2001, Iwasa et al. 2004, Nguyen et al. 2009, Cresswell 2011, Henry et al. 2012, Di Prisco et al. 2013, Dively et al. 2015).

While many studies have investigated the effects of individual and simultaneous exposures of 2–3 pesticides on honey bees, multiple exposures to several pesticides may be a more realistic exposure scenario (Mullin et al. 2010). This is a complex undertaking not only due to the number of simultaneous pesticides that a colony can be

exposed to, but also due to the variety of exposure routes involved in a colony. A number of honey bee colony constituents can be and have been tested for pesticides to estimate exposure including the bees themselves, wax, honey, and pollen (Al Naggar et al. 2015). Pollen trapping has been a common route of exposure explored since residues on pollen brought into a hive can be linked directly to what bees are being exposed to while foraging (Chauzat et al. 2006, Stoner and Eitzer 2013, Lu et al. 2016). Pollen is an important food source for bees and therefore pesticide levels in pollen can have a direct negative effect on the bees feeding on it, especially the brood (Brodschneider and Crailsheim 2010). Because the honey bee is such an important beneficial insect, contact, and oral LD_{50}'s are required for registration of pesticides in the United States. The U.S. EPA has compiled these LD_{50} values in their ecotoxicity database (US EPA). Indices of risk to exposure are critical in assessing continued health of honey bee populations (Alix et al. 2014). A risk factor for honey bees can be calculated by measuring the amount of pesticide that bees are exposed compared to their associated LD_{50} values (Stoner and Eitzer 2013, Ostiguy and Eitzer 2014). These risk factors can help beekeepers understand the risk their bees are facing in different environments (Stoner and Eitzer 2013), although synergy, and effects of multiple modes of action are not currently addressed by this approach.

Although pesticide exposure assessments for honey bees have been conducted in several states and countries (Chauzat et al. 2006, Škerl et al. 2009, Drummond et al. 2012, Pettis et al. 2013, Stoner and Eitzer 2013), there is no baseline data for pesticide exposure to honey bees in Northern New England. This study examines pesticide exposure in pollen in Maine. We designed an assessment representing common ecosystems ranging from natural relatively undisturbed landscapes to residential and agricultural landscapes across the state of Maine. It was our goal to compare exposure rates among ecosystems within Maine and also to compare our findings in Maine to agricultural or nonagricultural landscapes previously reported from other regions in the United States.

Materials and Methods

Assessment

During the winter of 2015, beekeepers throughout Maine were solicited to volunteer their time and colonies to assist in trapping pollen throughout the state. We initially selected beekeepers who had at least two colonies and represented a diversity of geographic regions in the state and a diversity of landscapes within which their apiaries were embedded. However, poor overwintering success in many apiaries across the state necessitated finding additional volunteers just prior to the spring. A total of 26 volunteers/sites were involved in this project. In addition, colonies located in six lowbush blueberry fields were sampled season long by the Drummond laboratory, for a total of 32 sites (Fig. 1).

Each volunteer beekeeper was requested to describe the surrounding land use in the foraging radius of their apiary (ca. 3.2 km). The volunteers were provided with a front entrance pollen trap (Anatomic Front Mount Pollen Trap, Fig. 2), instructions for use, and collecting cups. Tape was suggested for use by beekeepers to provide a good seal around the edges of the pollen trap (Fig. 2). Instructions were to collect pollen from a single colony for a week in the spring (May–June), summer (July–August), and fall (September–October) during a period of warm sunny weather. Collected pollen was stored in the beekeepers freezers until collecting the final sample. Pollen from the three collection periods was sent overnight via Fed-Ex to the University of Maine where each site's pollen samples were aggregated over the three sample dates.

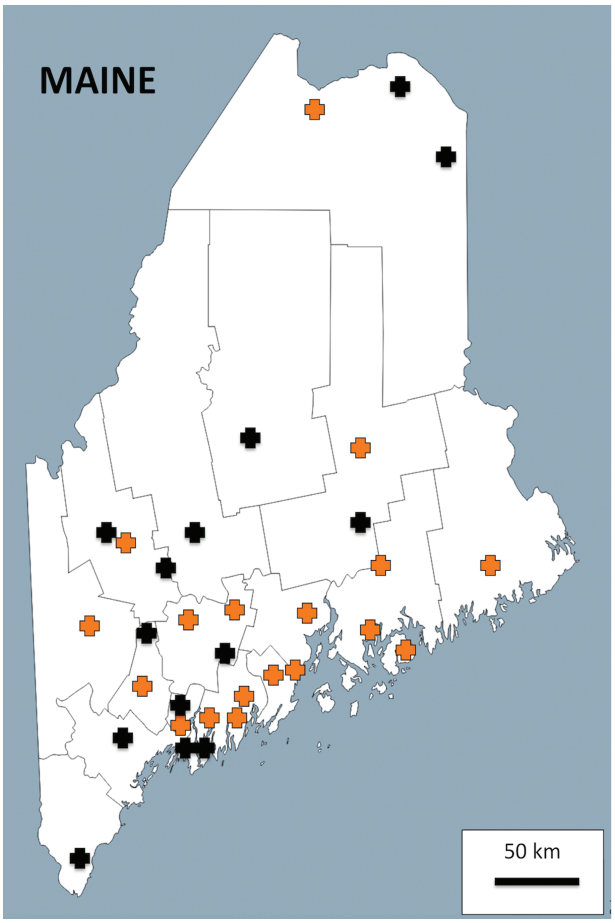


Fig. 1. Locations of honey bee colony apiary sites in 2015. Orange symbols represent the locations of agricultural sites and black symbols, nonagricultural sites.

Analytical Chemistry

The 32 pollen samples were sent to the Connecticut Agriculture Experiment Station where Dr. Brian Eitzer ran a screen for 166 different pesticides and metabolites using HPLC and mass spectrometry with a modified QuEChERS (for Quick, Easy, Cheap, Effective, Rugged and Safe) procedure (Stoner and Eitzer 2013). The analytical procedures that we followed are not sensitive to pyrethroids unless detections are at high levels. Therefore, pyrethroid detections are probably under estimated in our study. The detection limits for the compounds that were included in our screen mostly ranged from 0.5 to 2 ppb, but some were as high as 10–30 ppb (Stoner and Eitzer 2013). In brief, 5 g pollen was spiked with 100 ng of isotopically labeled (d-4) imidacloprid (Cambridge Isotope Laboratories) as an internal standard. They were then combined with water to a total mass of 15 g. Next 15 ml of acetonitrile, 6 g magnesium sulfate, and 1.5 g sodium acetate were added. After shaking and centrifuging, 10 ml of the supernatant was combined with 1.5 g magnesium sulfate, 0.5 g PSA, 0.5 g C-18 silica, and 2 ml toluene. The samples were shaken and centrifuged and 6 ml of the supernatant was concentrated to 1 ml for instrumental analysis. Samples were analyzed using a Dionex 3000 LC interfaced to a Thermo Velos Pro Mass Spectrometer using an Agilent SB-C18-RRHD-2.1 mm × 150 mm 1.8 µ column and on a Agilent 100 LC interfaced to a Thermo

Fig. 2. Front entrance pollen trap that was distributed to volunteers and used by the University of Maine research team.

Exactive Mass spectrometer using a Hypersil Giold aQ-C-18 2.1 mm × 100 mm 1.9 µ column. Both instruments used a gradient elution program. The Velos Pro was operated in an MS/MS mode and was the primary quantitation instrument while the Exactive used the high resolution mass spectrometry data for confirmation of pesticide residues. The average quantitation limit (QL) for all compounds and metabolites ranged between 0.5 and 20 ppb. Hundred and fifty-three of the compounds had a QL of less than 5ppb with 88 compounds at 1 ppb or less.

Exposure and Risk Metrics

After the pollen residue results were obtained, a summary of the pesticide exposure by site was conducted. Concentration over the season for each site was expressed as ppb residue. Other measures used for assessment of exposure were the number of pesticide residue detections per site, and the diversity of exposure derived as the Shannon diversity index using concentration of each detection at each site.

We quantified risk by hypothesizing exposure through contact with the outside body of the bee (based upon the contact LD_{50}) and also through feeding on contaminated pollen (based upon the oral LD_{50}). To calculate contact and oral risk quotients, lethal dose 50th percentile values (LD_{50}) were compiled based upon available literature and public databases: Helson et al. 1994, Nauen et al. 2001, Stoner and Eitzer, 2013, US EPA 2008, US EPA ECOTOX Database, and Agritox. We calculated a bee colony's risk quotient by dividing the concentration of each pesticide quantified in trapped pollen for a given hive/site by the contact and/or oral LD_{50} estimated for honey bees. If LD_{50} values differed among literature sources, the value provided by the EPA ECOTOX Database was used; if more than one LD_{50} value was reported in this database, the lowest value was used (Table 1). The LD_{50} value for the parent compound was used, unless information specific to a metabolite was available. Oral and contact LD_{50} values reported in terms of µg/bee were converted to ppb relative to body weight (ng pesticide per g bee) by multiplying each value by a factor of 10,000; this is an approximate equivalent to 1,000 ng per µg ÷ mean bee weight of 0.1 g (Page and Metcalf 1984). Therefore, a risk quotient of 1.0 suggests that, on average, the exposure level either by a contact or oral pathway will result in 50% mortality to honey bee populations. Risk quotients greater than 1.0 represent a high colony expectation of acute mortality. Based upon these risk quotients, we assessed risk both at the individual pesticide compound level and also additively across all pesticides detected, a total colony risk. The total colony risk assumes that effects due to pesticides are additive and this is most likely not the case based upon several studies showing synergy. However, feel that this is acceptable as we use total colony risk only as a relative means of comparison among geographic locations and not as an absolute estimate of potential mortality.

Statistical Analysis

A general linear model, using data representing each apiary site as a stratum, was used to determine if differences existed between contact and oral risk quotients. Linear regression was used to assess if a constant ratio in difference between contact and oral risk quotients existed. In all cases, logarithmically transformed risk quotients were used in our analyses to meet the assumptions of homoscedasticity and normality. General linear models were also used to test if estimated proximate land-use type determined by the volunteer beekeepers (i.e. wild blueberry, other agriculture, and nonagriculture) and geographic location in the state (represented by latitude, longitude, and the interaction of the two coordinates) determined pesticide and metabolite concentration, contact risk quotient, and oral risk quotient. We relied upon the beekeepers to use there own methods of quantifying the land-use type composition about their apiaries, although we did tell them to confine their assessment to a 3.2 km radius of their apiary. The radius was described as an average foraging distance from the hive for worker bees (Drummond et al. 2012). The dependent variables were logarithm transformed (base 10) to meet the assumptions of the analyses of variance (Zar 2010). Poisson regression was used to test the effect of land-use type on the mean number of pesticide and metabolite detections and the Shannon diversity index (Shannon 1948) of pesticide contamination in trapped pollen. To test the hypothesis that apiary sites close in geographic distance are more likely to be exposed to similar measures of pesticide exposure (# detections, ppb, diversity, oral, and contact risk quotients), we used a Mantel test. The geographic distance matrix was a squared Euclidean distance and the pesticide exposure matrix with the 5 pesticide exposure measures (defined above) used a Sorenson similarity metric. Both asymptotic and randomization tests were performed (PC-ORD, version 6, McCune and Mefford 1999).

To determine the effects of the GIS digital landscape (MELCD 2004) surrounding each apiary on pesticide exposure, landscape

Table 1. Pesticide residues in trapped pollen in Maine, 2015[a,b]

Pesticide group	Chemical name	Mean pollen concentration ppb/hive (s.d.)[c]	Mean pollen concentration detected apiaries only ppb/hive	Apiaries detected	Contact LD_{50} (ppb)	Oral LD_{50} (ppb)	LD_{50} Source[d]
Fungicide	**Carbendazim**	**1.6 (4.3)**	**4.9**	**11**	5.00E+05	5.00E+05	1
	Propiconazole	**3.4 (13.1)**	**12.6**	**9**	2.50E+05	1.00E+06	1,2
	Pyraclostrobin	**11.5 (122.3)**	**47.7**	**8**	1.00E+06	7.31E+05	1,2
	Boscalid	27.8 (145.8)	183.6	5	2.00E+06	2.00E+06	1,2
	Thiabendazole	3.8 (70.1)	42.0	3	4.00E+04	3.40E+05	2
	Thiophanate-methyl	6.0 (110.9)	66.0	3	1.00E+06	1.00E+06	1
	Cyprodinil	147.9 (3408.3)	2440.0	2	8.00E+06	8.00E+06	1
	4-Hydroxychlorothalonil	3.2 (15.6)	53.0	2	1.81E+06	1.81E+06	1[e]
	Azoxystrobin	0.1 (na)	0.9	1	2.00E+06	3.00E+05	1,2
	Difenconazole	0.5 (na)	18.0	1	1.00E+06	2.00E+06	1
	Fludioxonil	496.9 (na)	16400.0	1	1.00E+06	1.00E+06	1
	Propamocarb	0.1 (na)	0.7	1	na	na	na
Herbicide	**Atrazine**	**1.9 (12.5)**	**6.5**	**10**	9.70E+05	9.70E+05	3
	Pendimethalin	**0.8 (2.5)**	**3.3**	**8**	4.98E+05	4.98E+05	1
	Diuron	0.9 (6.9)	5.0	6	1.00E+06	1.00E+06	1
	Metolachlor	0.2 (0.6)	0.9	6	1.10E+06	1.50E+06	3
	Hexazinone	3.6 (47.0)	29.9	4	na	na	na
	Metribuzin	0.1 (na)	3.4	1	6.04E+05	2.00E+06	1,2
	Metalaxyl	0.1 (na)	0.6	1	1.00E+06	2.50E+05	1
	Sethoxydim	1.5 (na)	51.0	1	1.00E+05	1.00E+05	1
	Simazine	0.6 (na)	21.0	1	9.67E+05	9.67E+05	1
Insecticide	Phosmet	85.6 (1066.3)	706.5	4	1.06E+04	3.70E+03	1
	Carbaryl	1.8 (19.5)	19.6	3	1.10E+04	2.31E+03	1
	Acetamiprid	0.8 (na)	27.0	1	8.10E+04	1.45E+05	1,2
	Indoxacarb	0.1 (na)	3.7	1	1.06E+04	3.70E+03	1

[a]Bolded pesticides comprise five most frequently detected.
[b]Sources for honey bee LD_{50} values are provided in methods, na means not available.
[c]Standard deviation in parentheses, na means not applicable because only 1 detection from 32 apiaries.
[d]Sources for honey bee LD50 values: 1 = US EPA, 2 = AGRITOX, 3 = Stoner and Eitzer (2013).
[e]LD_{50} for Chlorothalonil.

composition was examined using a statewide map developed to assess bee habitat across Maine (Groff et al. 2016). This digital land cover has 5 m spatial resolution and seven land cover types: nonblueberry agriculture, wild blueberry field, coniferous forest, deciduous/mixed forest, emergent wetland, urban/developed, and wetland/open water. The proportion of these seven land cover types in the estimated foraging area (3.2 km radius, Drummond et al. 2012) around each of the 32 sites was calculated using an ArcGIS-derived Python script (ArcGIS version 10.2, Esri, Redlands, CA, United States; Python 2.7, Python Software Foundation, https://www.python.org/; Kaszas 2012). The area of each cover class (km^2) was then used in latent structure projection or partial least squares (Wold 1966) to model the effect of surrounding landscape on pesticide exposure. All land cover types (n = 7) were used for the predictor matrix and all exposure metrics (number detections, diversity, log (ppb), log (contact risk)) were used for the dependent matrix. Our estimate of oral risk quotient was not used in the analysis since it was highly correlated to the contact risk quotient and did not add any additional power in preliminary modeling trials. The model was fit with the statistical software JMP (2015) using the NIPALS algorithm and van der Voet's T^2 test was used to assess the number of extracted factors to include in the model (van der Voet 1994).

Results

In our assessment in 2015, 25 pesticides or their metabolites were detected in pollen at the 32 sites (Table 1). There were 94 total residue detections (total number detections across all pesticides, i.e. many detections were the same pesticide) or 2.9 detections per site. The average of the mean (per hive) concentration of all pesticides detected in pollen samples aggregated over the entire spring—fall season per site was 32.04 ± 102.37 (SD) ppb (parts per billion). There were 5 sites (15.6%) that had no pesticides detected.

Detections by pesticide class can be seen in Fig. 3a. Fungicides and herbicides constituted the majority of the detections, while insecticides only comprised 9.6% (of all detections (Table 1, n = 94). The top five pesticides detected (in terms of frequency of detections) are also shown in Table 1. The fungicide, carbendazim was the most commonly detected pesticide, however, thiophanate-methyl rapidly breaks down to form carbendazim—so the presence of carbendazim could also be from use of thiophanate-methyl. The other most frequently detected pesticides are the herbicide, atrazine; the fungicide, propiconazole; the fungicide, pyraclostrobin; and the herbicide, pendamethalin. Of these, propiconazole is a common fungicide used in wild blueberry production almost exclusively for the control of mummy berry disease (incited by the fungus, *Monilinia vaccinii-corymbosi*), formulated as Orbit and Tilt. When exposure was assessed in terms of concentration (ppb) and not detections, a slightly different picture emerges. Fungicides make up the majority of exposure with herbicides almost being imperceptible and insecticides about 11% of the total residue concentration (Fig. 3).

In our study, risk was measured as the exposure concentration (ppb) of a specific pesticide or metabolite in pollen divided by the concentration that is expected to kill 50% of the exposed worker bees (oral or contact LD_{50}). Risk quotients 1.0 or greater should be

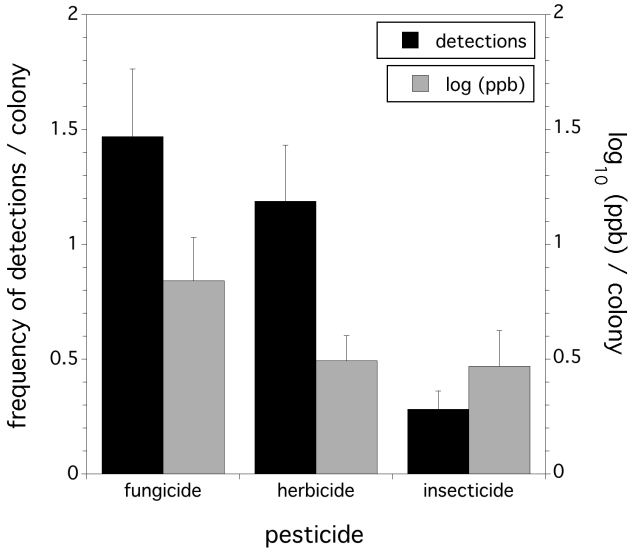


Fig. 3. Frequency of detections and concentrations (log10 (ppb)) per colony of insecticides, fungicides, and herbicides in the 2015 honey bee hive assessment in Maine.

of concern because we would expect 50% or more bees exposed to that level to die. A Risk Quotient of 0.2 suggests crudely (assuming the dose–mortality response is linear), that the level of exposure to that particular pesticide is expected to kill 10% of the colony work force (0.5 × 0.2 = 0.1). Therefore, a risk quotient of 0.2 might also be considered a significant risk to the beekeeper. Figure 4 shows that both contact and oral risk is due to exposure, almost entirely to insecticides. This is important to realize, considering that Fig. 3 shows that detections and concentrations of pesticide residues in pollen were primarily represented by herbicides and fungicides.

Overall, oral risk quotients were numerically higher than contact risk quotients (oral = 0.025 ± 0.019 vs contact = 0.009 ± 0.007). Figure 4 shows that for both contact (Fig. 4A) and oral (Fig. 4B) risk quotients, insecticides constitute almost all the risk proportionately, despite fungicides and herbicides constituting most of the pesticide detections and concentrations of residues in pollen (Fig. 3). Figure 5A and B depict the colony frequency distributions of logarithm transformed oral and contact risk quotients. Considerable orders of magnitude variation in risk quotients can be seen for both oral and contact exposure. A general linear model stratified by apiary site did not provide evidence that mean risk differed by oral compared to contact exposure ($F_{(1,24)}$ = 0.3174, P = 0.578). We found a linear relationship between oral and contact risk quotients (intercept = −0.631 ± 0.182, slope = 0.8531 ± 0.042, P < 0.0001). This regression suggests that very little difference in the ratio between oral and contact risk coefficients exists across the range of contact risk quotients (−6.22 to −0.208). There is a tendency for oral risk quotients to be less than contact below −4.0 and higher than contact risk quotients above −4.0. Table 1 shows that, on average, detections and concentrations of insecticides were very low, resulting in low potential risk, despite insecticides making up the majority of oral risk in the 2015 pollen samples.

We assessed whether the number of detections and diversity of pesticide exposure (Shannon diversity index) was determined by average foraging distance within the estimated beekeeper proximal land-use type (i.e. wild blueberry, other agriculture, and nonagriculture) as defined by the beekeepers' knowledge of their sites through a written description. Diversity of trapped pollen pesticide contamination

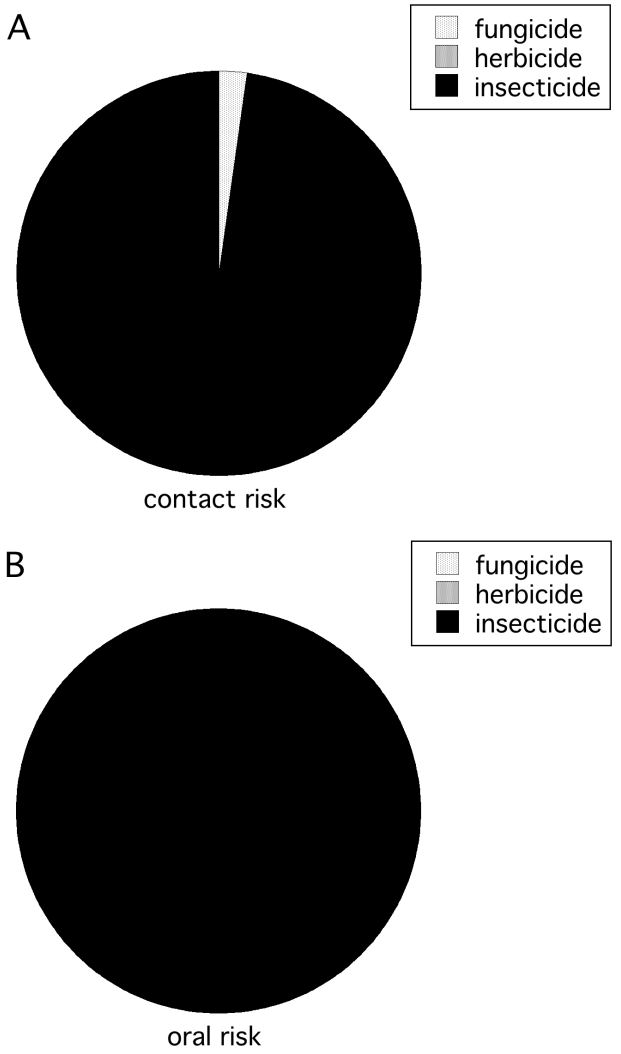


Fig. 4. Proportional risk by pesticide type due to contact (A) and oral risk (B) exposures throughout Maine in the 32 apiaries.

was not determined by land-use ($\chi^2_{(2)}$ = 3.854, P = 0.146). However, the number of detections was determined by land-use ($\chi^2_{(2)}$ = 29.108, P < 0.001). Figure 6 shows the mean number of detections by beekeeper-assessed land-use type and the ranking of the means by single degree of freedom contrasts. When concentration and risk quotient were summarized by the beekeeper-assessed land-use (Fig. 7), the concentration of pesticide residues in pollen (Fig. 7A) was significantly greater in wild blueberry and other agricultural areas by an order of 1.5 magnitude difference ($F_{(2,29)}$ = 6.094, P = 0.006). Risk quotients (Fig. 7B), both contact and oral were not significantly different between landscape types with both separate analysis of variance or when risk quotients were analyzed together with a multiple analysis of variance (P > 0.10); although, a trend in increasing average risk quotient in agricultural land-use types compared to nonagricultural land-use types can be seen. Pesticides that were unique (>2 detections) to agricultural land-use types were four; the fungicide thiophanate-methyl (Topsin M, among others, three detects), the insecticide phosmet (Imidan, four detects), the herbicide metolachlor (Bicep, six detects), and the fungicide pyraclostrobin (Insignia, eight detects). There were no pesticides or metabolites detected in nonagricultural areas, but not found in agricultural areas. We did not find any pattern in logarithm ppb concentrations, log contact

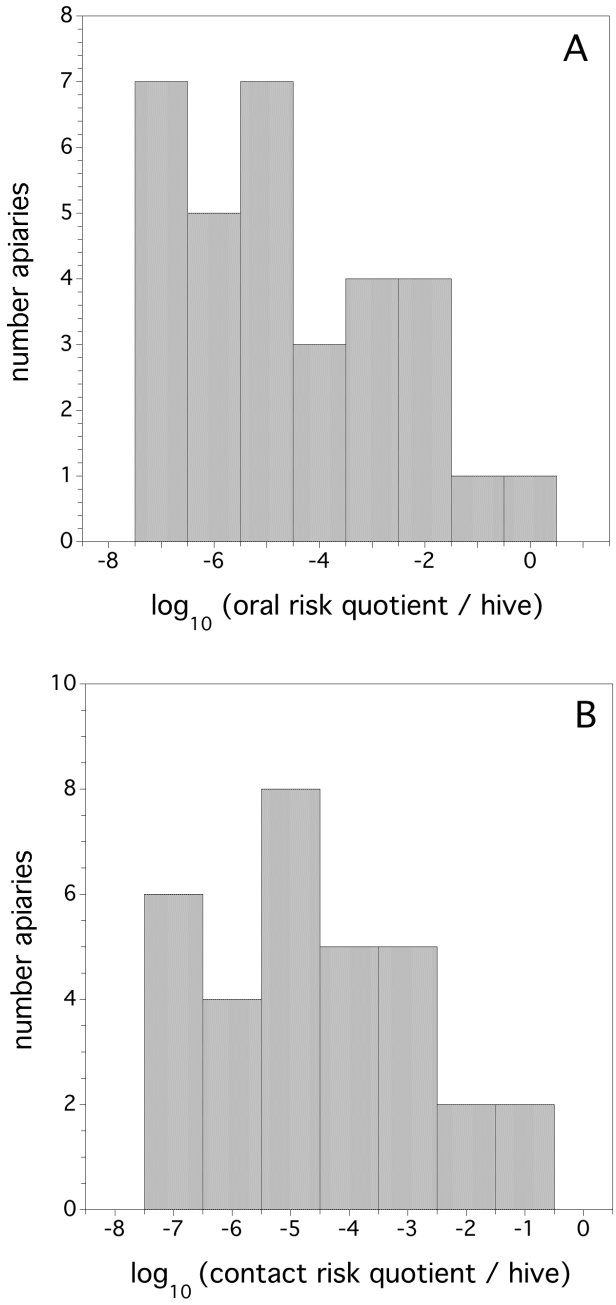


Fig. 5. Frequency distribution of log transformed oral risk quotients (A) and contact risk quotients (B) across all 32 apiary sites.

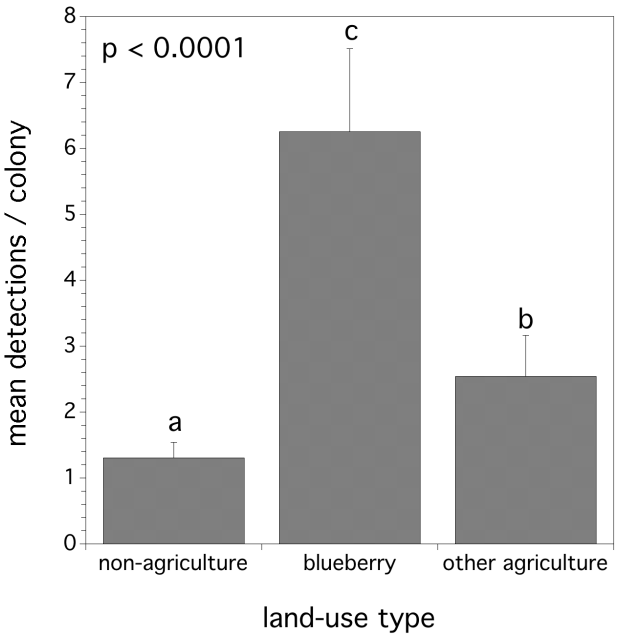


Fig. 6. Mean number of pesticide and/or metabolite detections per apiary for each of the three land-use types suggested as foraging habitat around an apiary by the beekeepers. Bars with the same letters are not significantly different (Poisson regression, single degree of contrast comparisons). Error bars are standard errors.

risk quotients, or log oral risk quotients (residuals from land-use general linear model above) across latitude or longitude. However, a trend was exhibited ($F_{(1,22)}$ = 2.639, P = 0.109) in oral risk quotient across latitude, possibly decreasing from southern Maine to northern Maine. We did not find a significant correlation between geographic distance between apiaries and similarity in exposure and risk (P > 0.05 with both an asymptotic approach and a randomization approach (n = 999)).

Landscape composition of the honey bee foraging area about each apiary determined by GIS analysis of each apiary site explained 43.93% of the variance in pesticide exposure according to a two-factor partial least squares model. The most important predictors describing pesticide exposure were the area (ha) of blueberry, coniferous forest, and urban/developed land cover types. The mean of the coefficients for the three pesticide exposure measures are (blueberry: 0.359 ± 0.097 (se); coniferous forest: –0.170 ± 0.091; urban/developed: –0.173 ± 0.019). A positive coefficient suggests that as land area of that GIS-derived landscape type increased, so did pesticide exposure in pollen. A negative coefficient represents the opposite relationship. Therefore, more exposure is expected when the apiary is within 2 miles of a large area of blueberry land cover and less within 3.2 km of a large area of coniferous forest. Figure 8A–C depicts the landscape predictions in exposure as measured by the number of detections, total logarithm (ppb) concentration, and logarithm contact risk quotient compared to the observed pollen samples. In all three cases (a–c), significant relationships are represented between the observed measures and the model predictions (detections: slope = 0.700 ± 0.095, P < 0.0001, r^2 = 0.687; log (ppb): slope = 0.406 ± 0.102, P = 0.0006, r^2 = 0.380; log (contact risk quotient): slope = 0.211 ± 0.0.085, P = 0.021, r^2 = 0.177). It is also apparent that in all three of our measured exposure measures, the model predictions underestimate the observed measures. Figure 8D shows, as an example, the relationship between the land cover area in conifer forest ($\log_{10}$ transformed) within 3.2 kms of the sampled apiary sites and the number of total pesticide detections in sampled pollen ($F_{(1,30)}$ = 10.969, P = 0.002, r^2 = 0.243).

Discussion

This study is one of the first in the United States that provides a baseline pesticide exposure to honey bees statewide, not pertaining specifically to agricultural landscapes, although Stoner and Eitzer (2013) did assess five locations in Connecticut over several years from 2007 to 2010. It is important to note that our estimates of pesticide exposure and risk to honey bees are only a relative measure of exposure and most likely underestimate the total seasonal exposure in Maine. This is because we only pollen trapped for three 1-week periods during the spring, summer, and fall. Future studies

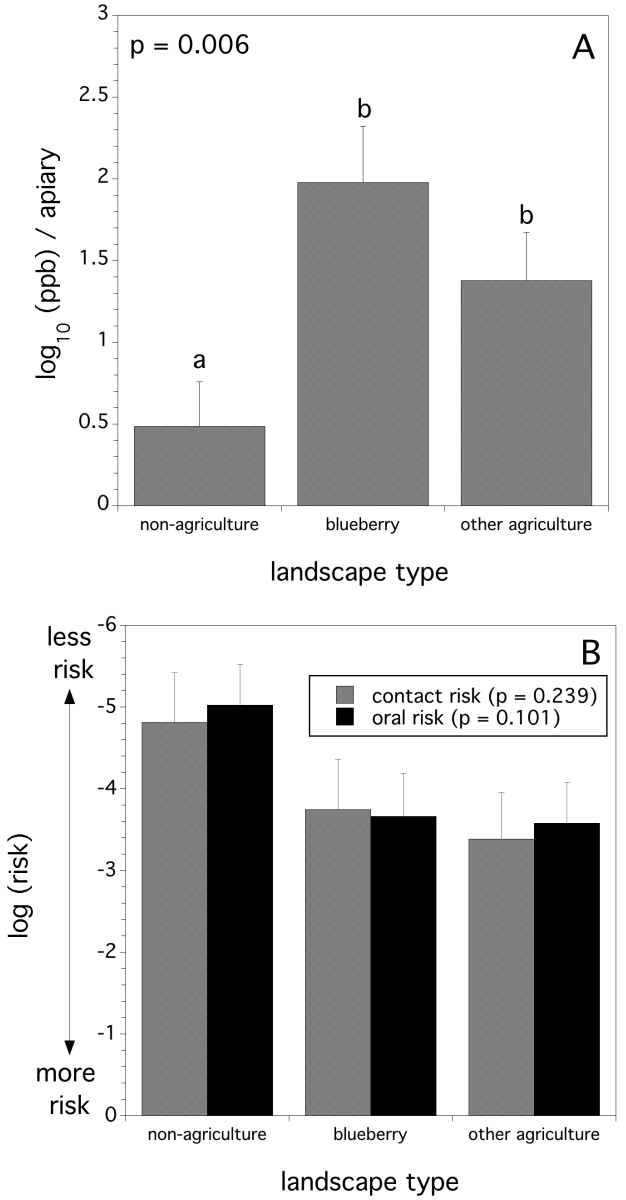


Fig. 7. Concentration (log ppb) (A) and logarithm transformed contact and oral risk quotients (B) for the three beekeeper-assessed land-use types (wild blueberry, other agriculture, and nonagricultural) suggested as foraging habitat around an apiary by the beekeepers. Bars with the same letter are not significantly different, Tukey test. Error bars are standard errors.

might involve a more rigorous sampling over time. However, when utilizing volunteers to conduct research, there is always a tradeoff between consistent, uniform, and careful collection of data and quantity of data collected (Dickinson et al. 2010). It is certainly likely that because of our sampling protocol we might have missed pulse exposures of pesticides that dissipate quickly in the environment (Tuzimski 2012). In addition, de Oliveira et al. (2016) showed that pollen has differential affinity and sorption potential for various pesticides and so actual tallies of compound-specific exposure only provides a relative estimate of risk to honey bees.

The total number of individual pesticides or metabolites detected in pollen was 25. This is in contrast to pollen contamination found in Connecticut by Stoner and Eitzer (2013), who found 60 pesticides and metabolites from five locations, but over a 2–5 yr period. In Connecticut, residues ranged from 1 to 16,556 ppb with a mean of 69.4 ppb averaged over all sites, years, and compounds. In our study, detection rate per apiary site and concentrations were of similar ranges (range = 0.6 to 16,400 ppb, mean = 27.1 ppb) and were dominated by the generally less toxic fungicides and herbicides. However, fungicide exposure to honey bees has been suspected of synergizing insecticide toxicity (Thompson and Wilkins 2003, Iwasa et al. 2004, Johnson et al. 2013) in the honey bee and resulting in sublethal physiological impairment (Vandame and Belzunces 1998, Desneux et al. 2007). This was a different trend than that reported in a study conducted by Chauzat et al. (2006) in five regions in France. They found only 20 pesticide compounds in 36–81 samples analyzed and the contaminant levels were dominated, in frequency of detection, by the four insecticides/metabolites: imidacloprid (49.4%), 6-chloronicotinic acid (44.4%), fipronil (12.4%), and fipronil desulfynil (11.1%). They also found that insecticides and miticides were also the dominant contaminants from the perspective of concentration. Mean concentrations (µg/kg) for the four largest contaminants in their pollen analyses were: coumaphos (925 µg/kg), Tau-fluvalinate (487), carbaryl (219), and endosulfan (81). In Maine, insecticides, while at low concentrations, constituted the highest risk of the three pesticide classes, but the individual apiary site risk of exposure was very low. There was only one of 32 sites that resulted in a summed risk quotient that was of concern (0.22 contact and 0.64 oral). This site was close to an apple orchard and phosmet (Imidan) exposure was relatively high. Phosmet is a common insecticide applied to both tree and small fruits. It was also shown to be a common contaminant of pollen trapped from honey bee colonies in Maine blueberry landscapes (Frazier et al. 2015). In our study, we also found that nonagricultural sites as assessed by beekeepers, did have significantly lower exposure concentrations of pesticide residues in pollen than agricultural landscapes, but overall risk to colonies did not differ significantly due to the variability between sites. We also found that based upon a digital land cover data base, apiaries within foraging distances of urban/developed, and conifer forested landscapes had fewer pesticide residue detections in pollen, lower residue concentrations and lower risk quotients as land area of these land cover types increased. The relationship between urban/developed land cover type and pollen contamination by pesticide residues was a surprise as several researchers have suggested that residential and urban areas in the United States tend to be characterized by significant pesticide contamination and exposure to children (Racke and leslie 1993, Lu et al. 2001, Lu et al. 2008).

Neonicotinoid insecticide exposure has been implicated as a serious threat to bee health (Goulson 2013, Lundin et al. 2015). We found that neonicotinoids were not an exposure risk to honey bees in Maine in 2015 and are probably not a threat most years in most parts of the state, based upon the proportion of land area that is nonforested (<8%, Huff and McWilliams 2016). This was not the case in France, Connecticut, or Massachusetts (Lu et al. 2016). In Massachusetts, 73% of all sampled pollen contained at least one neonicotinoid and the spatio-temporal variation was characterized by peak neonicotinoid detections in April through August, depending upon the geographic sampling site. This does suggest that colonies in Maine could have been exposed to one or more neonicotinoids at times that pollen was not collected, although we did collect during August, the month that colonies in Massachusetts were exposed to the highest concentrations of neonicotinoids. Although it is important to note that our detection limits for neonicotinoids ranged from 1 to 2 ppb (metabolites of imidacloprid from 3 to 10 ppb), while those of Lu et al. (2016) for their Massachusetts study were an order of magnitude lower at 0.1 ppb.

Odoux et al. (2014) and Sponsler (2016) (in France and Ohio, USA, respectively) found that forest land cover in agricultural landscapes are correlated with colony productivity. Unfortunately, these

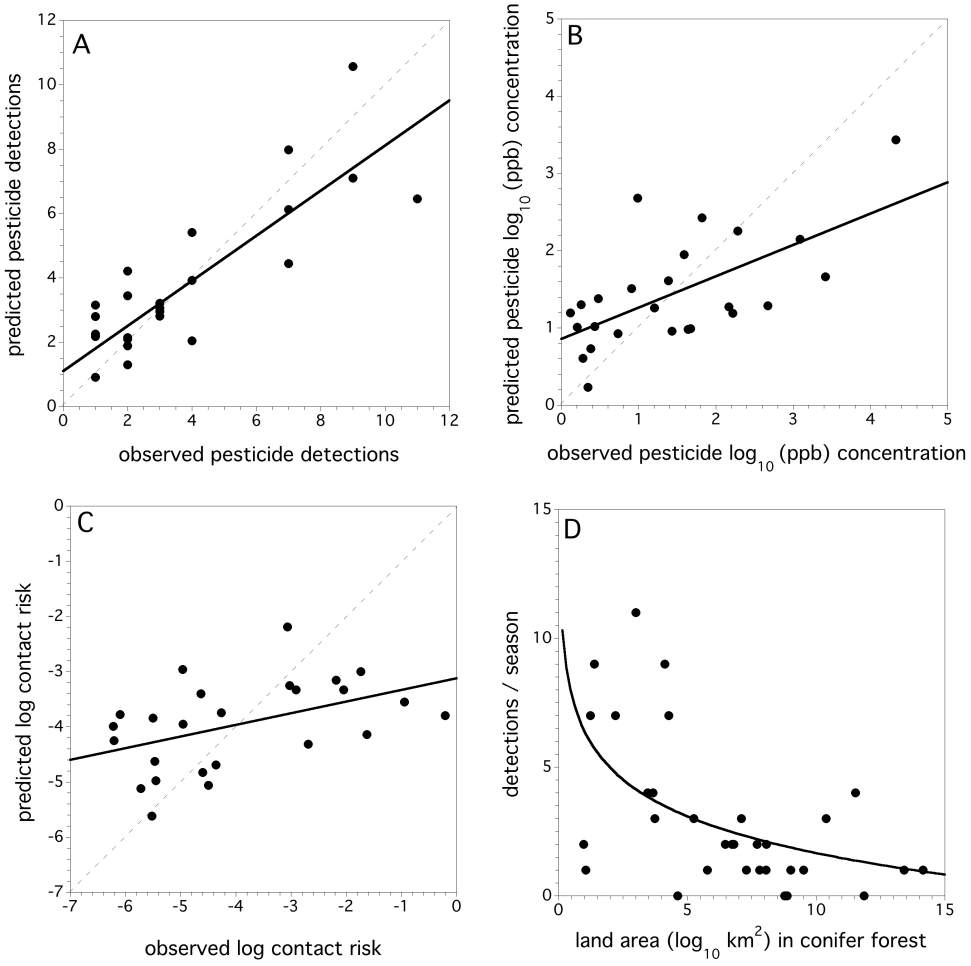


Fig. 8. Partial least squares model predictions and observed pesticide exposure measures for total detections (A), log pesticide concentration ppb (B), log contact risk quotient (C). Solid lines are least square regressions and dashed lines represent a slope of 1.0 or perfect prediction. (D) shows the relationship between conifer land area (logarithmically transformed) and the number of pesticide detections.

authors did not specifically classify the forest stands and so it is not known if the majority of forest stands were deciduous or coniferous. Sponsler (2016) also found that honey production was negatively correlated with urban landscapes. He suggests that this is a result of a lack of forage in urban landscapes, relative to agricultural landscapes. Does landscape result in a similar pattern for pesticide exposure? Our study in Maine suggests that honey bees foraging in agricultural land cover increases the likelihood of pesticide exposure via pollen, while conifer forest and urban/developed land cover decreases the likelihood of exposure. While herbicides are used in Maine forest management (usually glyphosate), the application is generally only once immediately after a clearcut operation in order to reduce deciduous tree competition to emerging stands of coniferous timber and pulp species being managed (Lough-Guiseppe et al. 2006). This one time application is low in frequency relative to the 60–80 year stand management horizon (LeVert et al. 2007).

We were not able to find many studies that assessed the indirect effects of land cover on pesticide exposure to honey bees. Heimbach et al. (2016) attempted to standardize land cover in a study on the impact of clothianidin on insect pollinators and thus no environmental effect on risk could be determined. Native bee pesticide exposure studies appear to have focused more on land cover. Hladik et al. (2016) showed that pesticide exposure in native bee communities was not related to land cover types (compared agricultural, grasslands, and open/developed land cover types) in Colorado. Park et al. (2015) showed that the native bee community pollinating apples in New York had less risk to pesticide exposure when the landscape surrounding the apple orchards was comprised of higher amounts of natural landscape. Whether this type of pesticide risk mitigation occurs with honey bees in lowbush blueberry is not explored in our study due to a lack of sample size (n = 6 blueberry landscapes sampled), but is an intriguing research question to pursue.

Within agricultural landscapes, Barmaz et al. (2010) found that perennial crop agricultural ecosystems increased pesticide exposure to honey bees relative to annual crop systems and that the exposure was greatest in the spring. A somewhat similar pattern was observed in Maine. We found that both beekeeper-assessed land-use type and our estimates of land cover type derived from a digital land cover data base, suggests that lowbush blueberry, a perennial crop system, had significantly higher detection frequency of pesticides in trapped pollen compared to other agricultural landscapes (mostly annual cropping systems). However, mean pesticide concentration in pollen and exposure risk was not significantly different between lowbush blueberry and other agricultural landscapes.

In summary, based upon our assessment, honey bees do not appear to be at great risk to pesticide exposure, even in agricultural landscapes. This appears to be related to Maine's landscape composition. Maine is estimated to be about 93% forested (McCaskill

2014) based upon a total land area of 91,633 km^2 (US Census Bureau 2012). Approximately 50% of this land area is conifer forest (O'Connell et al. 2014), a very poor bee habitat in Maine (Groff et al. 2016). The urban/developed and crop landscape areas each only comprise about 2.0–2.5% of Maine land area (Plantinga et al. 1999). Thus, it can be seen why pesticide exposure to honey bees would be low, on average, across the state. Even industrial chemical pollution would be estimated to be low, given the percent of land cover in urban/developed landscapes (2.5%).

Acknowledgments

We would like to thank all of the volunteer honey bee keepers who assisted in the data collection for this study. In addition, we would like to acknowledge a joint effort by Dr. Nancy Ostiguy and F. Drummond in compiling and translating honey bee LD_{50} values used in our analyses. We also appreciate the valuable contributions to this paper by two anonymous reviewers. This study was funded in part by a Maine Specialty Crop Block grant provided by the United States Department of Agriculture (grant CT 01A 20141022*1503). This project was supported by the USDA National Institute of Food and Agriculture, Hatch project number ME0-21505 through the Maine Agricultural and Forest Experiment Station. This is Maine Agricultural and Forestry Experiment Station Journal Number 3580.

References Cited

Agritox Agence nationale de sécurité sanitaire de l'alimentation, de l'environnement et du travail in France. http://www.agritox.anses.fr/index2.php. Accessed 9 February 2018.

Al Naggar, Y., G. Codling, A. Vogt, E. Naiem, M. Mona, A. Seif, and J. P. Giesy. 2015. Organophosphorus insecticides in honey, pollen and bees (*Apis mellifera* L.) and their potential hazard to bee colonies in Egypt. Ecotoxicol. Environ. Saf. 114: 1–8.

Alix, A., T. Steeger, C. Brittain, D. Fischer, R. Johnson, T. Moriarty, E. Johansen, F. Streissel, R. Fischer, M. Miles, et al. 2014. Overview of a proposed ecological risk assessment process for honey bees (*Apis mellifera*) and non-apis bees, pp. 121–148. In D. Fischer and T. Moriarty, eds. Pesticide Risk Assessment for Pollinators, John Wiley & Sons, Inc., NY.

Barmaz, S., S. G. Potts, and M. Vighi. 2010. A novel method for assessing risks to pollinators from plant protection products using honeybees as a model species. Ecotoxicology. 19: 1347–1359.

Brodschneider R. and K. Crailsheim. 2010. Nutrition and health in the honeybee (Review). Apidol. 41: 278–294.

Chauzat, M. P., J. P. Faucon, A. C. Martel, J. Lachaize, N. Cougoule, and M. Aubert. 2006. A survey of pesticide residues in pollen loads collected by honey bees in France. J. Econ. Entomol. 99: 253–262.

Cresswell, J. E. 2011. A meta-analysis of experiments testing the effects of a neonicotinoid insecticide (imidacloprid) on honey bees. Ecotoxicology. 20: 149–157.

Desneux, N., A. Decourtye, and J. M. Delpuech. 2007. The sublethal effects of pesticides on beneficial arthropods. Annu. Rev. Entomol. 52: 81–106.

Dickinson, J. L., B. Zuckerberg, and D. N. Bonter. 2010. Citizen science as an ecological research tool: challenges and benefits. Ann. Rev. Ecol. Evol. Syst. 41: 149–172.

Di Prisco, G., V. Cavaliere, D. Annoscia, P. Varricchio, E. Caprio, F. Nazzi, G. Gargiulo, and F. Pennacchio. 2013. Neonicotinoid clothianidin adversely affects insect immunity and promotes replication of a viral pathogen in honey bees. Proc. Natl. Acad. Sci. U. S. A. 110: 18466–18471.

Dively, G. P., M. S. Embrey, A. Kamel, D. J. Hawthorne, and J. S. Pettis. 2015. Assessment of chronic sublethal effects of imidacloprid on honey bee colony health. Plos One. 10: e0118748.

Doublet, V., M. Labarussias, J. R. de Miranda, R. F. Moritz, and R. J. Paxton. 2015. Bees under stress: sublethal doses of a neonicotinoid pesticide and pathogens interact to elevate honey bee mortality across the life cycle. Environ. Microbiol. 17: 969–983.

Drummond, F. A., K. Aronstein, J. Chen, J. Ellis, J. Evans, N. Ostiguy, W. Sheppard, M. Spivak, and K. Visscher. 2012. The first two years of the stationary hive project: abiotic site effects. Amer. Bee J. 152: 369–72.

Frazier, M. T., C. A. Mullin, J. L. Frazier, S. A. Ashcraft, T. W. Leslie, E. C. Mussen, and F. A. Drummond. 2015. Assessing honey bee (*Apis mellifera* L.) foraging populations and the potential impact of pesticides on eight U.S. crops. J. Econ. Entomol. 108: 2141–2152.

Goulson, D. 2013. Review: an overview of the environmental risks posed by neonicotinoid insecticides. J. Appl. Ecol. 50: 977–987.

Greigsmith, P. W., H. M. Thompson, A. R. Hardy, M. H. Bew, E. Findlay, and J. H. Stevenson. 1994. Incidents of poisoning of honeyees (Apis-mellifera) by agricultural pesticides in Great-Britain 1981–1991. Crop Protect. 13: 567–581.

Groff, S.C., C.S. Loftin, F. Drummond, S. Bushmann, and B. McGill. 2016. Parameterization of the InVEST crop pollination model to spatially predict abundance of wild blueberry (*Vaccinium angustifolium* Aiton) native bee pollinators in Maine, USA. Environ. Model. Soft. 79: 1–9.

Guez, D., S. Suchail, M. Gauthier, R. Maleszka, and L. P. Belzunces. 2001. Contrasting effects of imidacloprid on habituation in 7- and 8-day-old honeybees (*Apis mellifera*). Neurobiol. Learn. Mem. 76: 183–191.

Heimbach, F., A. Russ, M. Schimmer, and K. Born. 2016. Large-scale monitoring of effects of clothianidin dressed oilseed rape seeds on pollinating insects in Northern Germany: implementation of the monitoring project and its representativeness. Ecotoxicology. 25: 1630–1647.

Helson, B. V., K. N. Barber, and P. D. Kingsbury. 1994. Laboratory toxicology of six forestry insecticides to four species of bee (Hymenoptera: Apoidea). Arch. Environ. Contam. and Toxicol. 27: 104–114.

Henry, M., M. Béguin, F. Requier, O. Rollin, J. F. Odoux, P. Aupinel, J. Aptel, S. Tchamitchian, and A. Decourtye. 2012. A common pesticide decreases foraging success and survival in honey bees. Science. 336: 348–350.

Hladik, M. L., M. Vandever, and K. L. Smalling. 2016. Exposure of native bees foraging in an agricultural landscape to current-use pesticides. Sci. Total Environ. 542: 469–477.

Huff, E. S. and W. H. McWilliams. 2016. Forests of Maine, 2015. Resource Update FS-86. Newtown Square, PA: USDA, Forest Service, Northern Res. Stn. Bull. 86: 1–4.

Iwasa T., N. Motoyama, J. T. Ambrose, and R. M. Roe. 2003. Mechanism for the differential toxicity of neonicotinoid insecticides in the honey bee, *Apis mellifera*. Crop Protect. 23: 371–378.

Iwasa T., N. Motoyama, J.T. Ambrose, and R.M. Roe. 2004. Mechanism for the differential toxicity of neonicotinoid insecticides in the honey bee, *Apis mellifera*. Crop Protect. 23: 371–378.

James, R. R., and J. Xu. 2012. Mechanisms by which pesticides affect insect immunity. J. Invertebr. Pathol. 109: 175–182.

JMP. 2015. Version 12. SAS Institute Inc., Cary, NC, 1989–2007.

Johnson, R. M., M. D. Ellis, C. A. Mullin, and M. Frazier. 2010. Pesticides and honey bee toxicity–USA. Apidol. 41: 312–331.

Johnson, R. M., L. Dahlgren, B. D. Siegfried, and M. D. Ellis. 2013. Acaricide, fungicide and drug interactions in honey bees (*Apis mellifera*). Plos One. 8: e54092.

Kaszas, K. 2012. Custom Python Script - Batch Raster Extractor. http://kelseykaszasgis.blogspot.com/2012/07/custom-python-script-batch-raster.html.

Kiljanek, T., M. Niewladowska, and A. Posyniak. 2016. Pesticide poisoning of honeybees: a review of symptoms, incident classification, and causes of poisoning. J. Apicult. Sci. 60: 5–24.

Lee, K. V., N. Steinhauer, K. Rennich, M. E. Wilson, D. R. Tarpy, D. M. Caron, R. Rose, K. S. Delaplane, K. Baylis, E. J. Lengerich, et al. 2015. A national survey of managed honey bee 2013–2014 annual colony losses in the USA. Apidologie 46: 292–305.

LeVert, M., C. S. Colgan, and C. Lawton. 2007. Are the economics of a sustainable Maine forest sustainable? Maine Policy Rev. 16: 26–36. http://digitalcommons.library.umaine.edu/mpr/vol16/iss2/5.

Lough-Guiseppe, K. F., F. A. Drummond, C. Stubbs, and S. Woods. 2006. The use of herbicides in managed forest ecosystems and their potential effects on non-target organisms with particular reference to ants as potential bioindicators. MAFES, Tech Bull 192: 1–162.

Lu, C., D. E. Knutson, J. Fisker-Andersen, and R. A. Fenske. 2001. Biological monitoring survey of organophosphorus pesticide exposure among preschool children in the Seattle metropolitan area. Environ. Health Perspec. 109: 299 – 311.

Lu, C., D. B. Barr, M. A. Pearson, and L. A. Waller. 2008. Dietary intake and its contribution to longitudinal organophosphorus pesticide exposure in urban/suburban children. Environ. Health Perspect. 116: 537–542.

Lu, C., C. H. Chang, L. Tao, and M. Chen. 2016. Distributions of neonicotinoid insecticides in the Commonwealth of Massachusetts: a temporal and spatial variation analysis for pollen and honey samples. Environ. Chem. 13: 4–11.

Lundin, O., M. Rundlof, H. G. Smith, I. Fries, and R. Bommarco. 2015. Neonicotinoid insecticides and their impacts on bees: a systematic review of research approaches and identification of knowledge gaps. PLoS ONE 10: 20.

McCaskill, G. L. 2014. Forests of Maine, 2013.Resource Update FS-16. p. 4. U.S. Department of Agriculture, Forest Service, Northern Research Station, Newtown Square, PA.

McCune, B. and M. J. Mefford. 1999. PC-ORD. Multivariate Analysis of Ecological Data, Version 6. MjM Software Design, Gleneden Beach, Oregon, USA.

MELCD. 2004. Maine Land Cover Dataset, 2004. http://www.maine.gov/megis/catalog.

Mineau, P., K. M. Harding, M. Whiteside, M. R. Fletcher, D. Garthwaite, and L. D. Knopper. 2008. Using reports of bee mortality in the field to calibrate laboratory-derived pesticide risk indices. Environ. Entomol. 37: 546–554.

Mullin, C. A., M. Frazier, J. L. Frazier, S. Ashcraft, R. Simonds, D. Vanengelsdorp, and J. S. Pettis. 2010. High levels of miticides and agrochemicals in North American apiaries: implications for honey bee health. Plos One. 5: e9754.

Nauen R., U. Ebbinghaus-Kintscher, and R. Schmuck. 2001. Toxicity and nicotinic acetylcholine receptor interaction of imidacloprid and its metabolites in *Apis mellifera* (Hymenoptera: Apidae). Pest Manag. Sci. 57: 577–586. doi:10.1002/ps.331. PubMed: 11464788.

Nguyen, B. K., C. Saegerman, C. Pirard, J. Mignon, J. Widart, B. Thirionet, F. J. Verheggen, D. Berkvens, E. De Pauw, and E. Haubruge. 2009. Does imidacloprid seed-treated maize have an impact on honey bee mortality? J. Econ. Entomol. 102: 616–623.

O'Connell, B.M., E. B. LaPoint, and J. A. Turner. 2014. The Forest Inventory and Analysis database: Database description and user guide version 6.0.1 for Phase 2. U.S. Department of Agriculture, Forest Service, Northern Research Station, Newtown Square, PA. p. 748. http://www.fia.fs.fed.us/library/database-documentation/historic/ver6/FIADB%20User%20Guide%20P2_6-0- 1_final.pdf.

Odoux, J. F., P. Aupinel, S. Gateff, F. Requier, M. Henry, and V. Bretagnolle, 2014. ECOBEE: a tool for long-term honey bee colony monitoring at the landscape scale in West European intensive agroecosystems. J. Apicult. Res. 53: 57–66.

de Oliveira, R. C., S. C. D. N. Queiroz, C. F. P. da Luz, R. S. Porto, and S. Rath. 2016. Bee pollen as a bioindicator of environmental pesticide contamination. Chemosphere. 163: 525–534.

Ostiguy N., and B. Eitzer. 2014. Overwintered brood comb honey: colony exposure to pesticide residues. J. Apicult. Res. 53: 413–421.

Page, R. E., and R. A. Metcalf. 1984. A population investment sex ratio for the honey bee (*Apis mellifera* L.). Am. Nat. 5: 680–702.

Park, M. G., E. J. Blitzer, J. Gibbs, J. E. Losey, and B. N. Danforth. 2015. Negative effects of pesticides on wild bee communities can be buffered by landscape context. Proc. Biol. Sci. 282: 20150299.

Pettis, J. S., E. M. Lichtenberg, M. Andree, J. Stitzinger, R. Rose, and D. Vanengelsdorp. 2013. Crop pollination exposes honey bees to pesticides which alters their susceptibility to the gut pathogen Nosema ceranae. Plos One. 8: e70182.

Plantinga, A. J., T. Maulden, and R. J. Alig. 1999. Land use in Maine, determinants of past trends and projections of future changes. US Forest Service, Pacific Northwest Res. Stn., PNW-RP-511, p. 20.

Racke, K. D. and A. R. Leslie. 1993. Pesticides in urban environments. In ACS symp. ser. Amer. Chem. Soc, Washington (DC).

Sánchez-Bayo, F., D. Goulson, F. Pennacchio, F. Nazzi, K. Goka, and N. Desneux. 2016. Are bee diseases linked to pesticides? - A brief review. Environ. Int. 89–90: 7–11.

Sandrock, C., M. Tanadini, L. G. Tanadini, A. Fauser-Misslin, S. G. Potts, and P. Neumann. 2014. Impact of chronic neonicotinoid exposure on honeybee colony performance and queen supersedure. Plos One. 9: e103592.

Schmehl, D. R., P. E. Teal, J. L. Frazier, and C. M. Grozinger. 2014. Genomic analysis of the interaction between pesticide exposure and nutrition in honey bees (*Apis mellifera*). J. Insect Physiol. 71: 177–190.

Seitz, N., K. S. Traynor, N. Steinhauer, K. Rennich, M. E. Wilson, J. D. Ellis, R. Rose, D. R. Tarpy, R. R. Sagili, D. M. Caron, et al. 2016. A national survey of managed honey bee 2014–2015 annual colony losses in the USA. J. Apicult. Res. 54: 292–304.

Shannon, C. E. 1948. A mathematical theory of communication. The Bell Syst. Tech. J. 27: 379–423 and 623–656.

Škerl, M. I. S., Š. V. Bolta, H. B. Česnik, and A. Gregorc. 2009. Residues of pesticides in honeybee (*Apis mellifera carnica*) bee bread and in pollen loads from treated apple orchards. Bull. Environ. Contam. and Toxicol. 83: 374–377.

Sponsler, D.G. 2016. Honey Bee Landscape Ecology: Foraging, Toxic Exposure, and Apicultural Outcomes. Ph.D dissertation, Ohio State University, Columbus, OH, p. 224.

Stoner, K. A., and B. D. Eitzer. 2013. Using a hazard quotient to evaluate pesticide residues detected in pollen trapped from honey bees (*Apis mellifera*) in Connecticut. Plos One. 8: e77550.

Thompson, H. and S. Wilkins. 2003. Assessment of the synergy and repellency of pyrethroid/ fungicide mixtures. Bull. Insectol. 56: 131–134.

Tuzimski, T. 2012. Pesticide Residues in the Environment. CRC Press Taylor & Francis Group, Boca Raton.

US Census Bureau. 2012. Census of population and housing, population and housing counts, CPH-2-21, Maine. US Government Printing Office, Washington, D.C.

US EPA. 2008. Pesticide Ecotoxicity Database of the Office of Pesticide Programs, Ecological Fate and Effects Division.

US EPA Pesticide Ecotoxicity Database of the Office of PesticidePrograms, Ecological Fate and Effects Division. http://cfpub.epa.gov/ecotox/. Accessed 9 February 2018.

Vandame, R., and L. P. Belzunces. 1998. Joint actions of deltamethrin and azole fungicides on honey bee thermoregulation. Neurosci. Lett. 251: 57–60.

Vidau, C., M. Diogon, J. Aufauvre, R. Fontbonne, B. Viguès, J. L. Brunet, C. Texier, D. G. Biron, N. Blot, H. El Alaoui, et al. 2011. Exposure to sublethal doses of fipronil and thiacloprid highly increases mortality of honeybees previously infected by Nosema ceranae. Plos One. 6: e21550.

van der Voet, H. 1994. Comparing the predictive accuracy of models using a simple random-ization test. Chem. Intell. Lab. Syst. 25: 313–323.

Wold, H. 1966. Estimation of principal components and related models by iterative least squares, pp. 391–420. In P. R. Krishnaiaah (ed.), Multivariate Analysis. Academic Press, New York.

Wu, J. Y., M. D. Smart, C. M. Anelli, and W. S. Sheppard. 2012. Honey bees (*Apis mellifera*) reared in brood combs containing high levels of pesticide residues exhibit increased susceptibility to *Nosema* (Microsporidia) infection. J. Invertebr. Pathol. 109: 326–329.

Yang, E. C., Y. C. Chuang, Y. L. Chen, and L. H. Chang. 2008. Abnormal foraging behavior induced by sublethal dosage of imidacloprid in the honey bee (Hymenoptera: Apidae). J. Econ. Entomol. 101: 1743–1748.

Zar, J. H. 2010. Biostatistical Analysis, 5th ed. Prentice Hall, Upper Saddle River, N.J., p. 944.

Zhu, W., D. R. Schmehl, C. A. Mullin, and J. L. Frazier. 2014. Four common pesticides, their mixtures and a formulation solvent in the hive environment have high oral toxicity to honey bee larvae. Plos One. 9: e77547.

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

JANET T. MILLS
GOVERNOR

AMANDA E. BEAL
COMMISSIONER

Memorandum

To: Board of Pesticides Control
From: Alexander Peacock, Director
Subject: LD 1697: An Act to Increase Penalties to Deter Violations of the Laws Regarding Improper Pesticide Use

October 3, 2025

Background

Maine's 132nd Legislature recently passed LD 1697: An Act to Increase Penalties to Deter Violations of the Laws Regarding Improper Pesticide Use.

Today's discussion is to review the rulemaking requirements set forth in this bill, as seen below.

Sec. 3. Board of Pesticides Control to adopt rules. The Department of Agriculture, Conservation and Forestry, Board of Pesticides Control shall adopt routine technical rules as described in the Maine Revised Statutes, Title 5, chapter 375, subchapter 2-A to:

1. Establish a penalty schedule for violations of the laws and rules governing pesticides to create transparency for future penalties assessed;
   See attached draft

2. Provide the means by which separate civil suits may be brought against the same violator of the laws and rules governing pesticides if pesticide migration through soil or bedrock occurs affecting more than one property;
   Discussion about adding rules regarding runoff?

ALEXANDER PEACOCK, DIRECTOR
90 BLOSSOM LANE, DEERING BUILDING

PHONE: (207) 287-2731
WWW.THINKFIRSTSPRAYLAST.ORG

3. Provide for the restoration of affected property and replacement of vegetation as penalties for violations of the laws and rules governing pesticides in addition to monetary penalties; and

   Could be accomplished as an administrative order within an administrative consent agreement?

4. Designate pesticides with the active ingredient tebuthiuron as state-restricted-use pesticides.

   Rulemaking in Chapter 40: Restricted and Limited-Use Pesticides

APPROVED
JUNE 12, 2025
BY GOVERNOR

CHAPTER
292
PUBLIC LAW

STATE OF MAINE

IN THE YEAR OF OUR LORD

TWO THOUSAND TWENTY-FIVE

H.P. 1132 - L.D. 1697

An Act to Increase Penalties to Deter Violations of the Laws Regarding Improper Pesticide Use

Be it enacted by the People of the State of Maine as follows:

Sec. 1. 7 MRSA §616-A, sub-§2, ¶A, as repealed and replaced by PL 2003, c. 452, Pt. B, §6 and affected by Pt. X, §2, is amended to read:

A. A person may not violate this subchapter or a rule adopted pursuant to this subchapter or Title 22, chapter 258-A or a rule adopted pursuant to Title 22, chapter 258-A. This paragraph does not apply to a private applicator as defined in Title 22, section 1471-C, subsection 22 or a private applicator of general use pesticides as defined in Title 22, section 1471-C, subsection 22-A. Except as provided in paragraph B, the following penalties apply to violations of this paragraph.

(1) A person who violates this paragraph commits a civil violation for which a fine ~~of not more than $1,500~~ may be adjudged as follows.

(a) A fine of not more than $10,000 may be adjudged except as provided in division (b).

(b) A fine of not more than $50,000 may be adjudged for an unauthorized pesticide application in a case in which the preponderance of the evidence demonstrates that the person who violated this paragraph benefited substantially from the violation as determined by the board by routine technical rule as described in Title 5, chapter 375, subchapter 2-A. Clear and convincing evidence that only one person benefited substantially from an unauthorized pesticide application constitutes prima facie evidence that the person is responsible for the unauthorized pesticide application.

(2) A person who violates this paragraph and is subject to a fine under subparagraph (1), division (a) after having previously violated this paragraph and having been subject to a fine under subparagraph (1), division (a) within the previous 4-year period commits a civil violation for which a fine of not more than ~~$4,000~~ $75,000 may be adjudged. A person who violates this paragraph and is subject to a fine under subparagraph (1), division (b) after having previously

violated this paragraph and having been subject to a fine under subparagraph (1), division (b) within the previous 4-year period commits a civil violation for which a fine of not more than $150,000 may be adjudged.

Sec. 2. 7 MRSA §616-A, sub-§2, ¶B, as amended by PL 2011, c. 510, §1, is further amended to read:

B. A private applicator, as defined in Title 22, section 1471-C, subsection 22, and a private applicator of general use pesticides, as defined in Title 22, section 1471-C, subsection 22-A, may not violate this subchapter or a rule adopted pursuant to this subchapter or Title 22, chapter 258-A or a rule adopted pursuant to Title 22, chapter 258-A or a rule regarding records maintained pursuant to section 606, subsection 2, paragraph G. The following penalties apply to violations of this paragraph.

(1) A person who violates this paragraph commits a civil violation for which a fine of not more than ~~$500~~ $1,000 may be adjudged.

(2) A person who violates this paragraph after having previously violated this paragraph within the previous 4-year period commits a civil violation for which a fine of not more than ~~$1,000~~ $2,000 may be adjudged.

Sec. 3. Board of Pesticides Control to adopt rules. The Department of Agriculture, Conservation and Forestry, Board of Pesticides Control shall adopt routine technical rules as described in the Maine Revised Statutes, Title 5, chapter 375, subchapter 2-A to:

1. Establish a penalty schedule for violations of the laws and rules governing pesticides to create transparency for future penalties assessed;

2. Provide the means by which separate civil suits may be brought against the same violator of the laws and rules governing pesticides if pesticide migration through soil or bedrock occurs affecting more than one property;

3. Provide for the restoration of affected property and replacement of vegetation as penalties for violations of the laws and rules governing pesticides in addition to monetary penalties; and

4. Designate pesticides with the active ingredient tebuthiuron as state restricted use pesticides.

§606. Prohibited acts

1. Unlawful distribution. A person may not distribute in the State any of the following:

A. A pesticide that has not been registered pursuant to the provisions of this subchapter; [PL 2005, c. 620, §5 (AMD).]

B. A pesticide if any of the claims made for it or any of the directions for its use or other labeling differs from the representations made in connection with its registration, or if the composition of a pesticide differs from its composition as represented in connection with its registration; a change in the labeling or formulation of a pesticide may be made within a registration period without requiring reregistration of the product if the registration is amended to reflect that change and if that change will not violate any provision of FIFRA or this subchapter; [PL 2005, c. 620, §5 (AMD).]

C. A pesticide unless it is in the registrant's or the manufacturer's unbroken immediate container and there is affixed to the container, and to the outside container or wrapper of the retail package, if there is one, through which the required information on the immediate container cannot be clearly read, a label bearing the information required in this subchapter and rules adopted under this subchapter; [PL 2005, c. 620, §5 (AMD).]

D. A pesticide that has not been colored or discolored pursuant to section 610, subsection 1, paragraph D; [PL 2005, c. 620, §5 (AMD).]

E. A pesticide that is adulterated or misbranded or any device that is misbranded; [PL 2021, c. 105, §1 (AMD).]

F. A pesticide in containers that are unsafe due to damage; [PL 2021, c. 673, §4 (AMD).]

G. Beginning January 1, 2022, a pesticide containing chlorpyrifos as an active ingredient; [PL 2021, c. 673, §4 (AMD).]

H. A pesticide that has been contaminated by perfluoroalkyl and polyfluoroalkyl substances; or [PL 2021, c. 673, §4 (NEW).]

I. Beginning January 1, 2030, a pesticide that contains intentionally added PFAS that may not be sold or distributed pursuant to Title 38, section 1614, subsection 5, paragraph D. [PL 2021, c. 673, §4 (NEW).]

[PL 2021, c. 673, §4 (AMD).]

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

A. Detach, alter, deface or destroy, wholly or in part, any label or labeling provided for in this subchapter or rules adopted under this subchapter; [PL 2005, c. 620, §5 (AMD).]

A-1. Add any substance to or take any substance from a pesticide in a manner that may defeat the purpose of this subchapter or rules adopted under this subchapter; [PL 2005, c. 620, §5 (NEW).]

B. Use or cause to be used any pesticide in a manner inconsistent with its labeling or with rules of the board, if those rules further restrict the uses provided on the labeling; [PL 2005, c. 620, §5 (AMD).]

C. Use for that person's own advantage or reveal, other than to the board or proper officials or employees of the state or federal executive agencies, to the courts of this State or of the United States in response to a subpoena, to physicians, or in emergencies to pharmacists and other qualified persons for use in the preparation of antidotes, any information relative to formulas of products acquired by authority of section 607 or any information judged by the board to contain or relate to

trade secrets or commercial or financial information obtained by authority of this subchapter and marked as privileged or confidential by the registrant; [PL 2005, c. 620, §5 (AMD).]

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

E. Dispose of, discard or store any pesticides or pesticide containers in such a manner as may cause injury to humans, vegetation, crops, livestock, wildlife or beneficial insects or pollute any water supply or waterway; [PL 2005, c. 620, §5 (AMD).]

F. Refuse or otherwise fail to comply with the provisions of this subchapter, the rules adopted under this subchapter or any lawful order of the board; [PL 2021, c. 673, §5 (AMD).]

G. Apply pesticides in a manner inconsistent with rules for pesticide application adopted by the board; or [PL 2021, c. 673, §5 (AMD).]

H. Use or cause to be used any pesticide container inconsistent with rules for pesticide containers adopted by the board. [PL 2021, c. 673, §5 (NEW).]

[PL 2021, c. 673, §5 (AMD).]

3. Unlawful use. A person may not apply glyphosate or dicamba within 75 feet of school grounds. This subsection does not apply to residential property or land used for commercial farming.

For purposes of this subsection, unless the context otherwise indicates, the following terms have the following meanings:

A. "Commercial farming" has the same meaning as in section 52, subsection 3; [PL 2021, c. 197, §1 (NEW).]

B. "Residential property" means real property located in this State that is used for residential dwelling purposes; [PL 2021, c. 197, §1 (NEW).]

C. "School" means any public, private or tribally funded elementary school as defined in Title 20-A, section 1, subsection 10, secondary school as defined in Title 20-A, section 1, subsection 32 or a nursery school that is part of an elementary or secondary school; and [PL 2021, c. 197, §1 (NEW).]

D. "School grounds" means:

(1) Land associated with a school building including playgrounds and athletic fields used by students or staff of a school. "School grounds" does not include land used for a school farm; and

(2) Any other outdoor area used by students or staff including property owned by a municipality or a private entity that is regularly used for school activities by students and staff but not including land used primarily for nonschool activities, such as golf courses, farms and museums. [PL 2021, c. 197, §1 (NEW).]

[PL 2021, c. 197, §1 (NEW).]

SECTION HISTORY

PL 1975, c. 382, §3 (NEW). PL 1983, c. 558, §§1,2 (AMD). PL 1983, c. 761, §§1,2 (AMD). PL 1985, c. 506, §A6 (AMD). PL 1989, c. 878, §§E3,4 (AMD). PL 2005, c. 620, §5 (AMD). PL 2021, c. 105, §§1-3 (AMD). PL 2021, c. 197, §1 (AMD). PL 2021, c. 673, §§4, 5 (AMD).

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

Maine Board of Pesticides Control Enforcement Protocol

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

7. Whereas the Board is establishing this protocol in order to clarify and facilitate its proceedings for the handling by it and its staff of enforcement matters, the Board recognizes that the Attorney General, as chief law enforcement officer of the State, may independently initiate or pursue enforcement matters as he deems in the best interests of the State and appropriate under the circumstances

BPC Enforcement Matrix DRAFT, September 2025

Introduction

The Maine Board of Pesticides Control has been designated as the authority with exclusive jurisdiction with regard to pesticides through the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA), the Maine 1975 Pesticide Control Act (MRS Title 7, Ch. 103, 2-A), and its regulations promulgated at MRS Title 22, Ch. 258-A. Through its governing statutes, the Department has the authority to issue enforcement actions when the statute/regulations have been violated. Enforcement Actions may include, but not be limited to: Notice of Warning, Letters of Warning, Administrative Consent Agreements (Fines), Referral to Office of the Attorney General, Referral to EPA, License Suspension, License Revocation, and Criminal Action.

There are many issues to consider when issuing an enforcement action, including but not limited to the following:

Size of the company
Severity of the violation
How the violation was found
Human/ public health impact
Environmental impact
History of violations

Due to the fact that each inspection/investigation is different and there are a multitude of factors that contribute to finding violations, this Enforcement Matrix ("Matrix") is not to be considered a definitive rule of enforcement but rather a guideline to ensure consistency and fairness when issuing enforcement actions. (See Appendix A)

Authority

The authority to regulate pesticides within the State of Maine is given in the following statute/regulations (See Appendix B):

- *MRS Title 22 §1471-D: Certifications and Licenses*
- *MRS Title 22 §1471-G: Reports*
- *MRS Title 22 §1471-J: Penalties*
- *MRS Title 7 § 606: Prohibited Acts*
- *MRS Title 7 § 611: Enforcement*
- *MRS Title 7 § 616-A: Penalties*

Intent

It is important when considering an enforcement action to determine what the intent is, to the extent possible. For the purposes of this Matrix, intent can be broken down into the following three categories:

1. Lack of Knowledge: When a person or company that has committed a violation was not aware or would not, within reason, be expected to have been aware of statutory requirements. While this is not a defense to any violation, the type of violation coupled with the statute or regulation at issue may show a lack of intent to negligently or willfully commit a violation. An example might be a record-keeping violation or an accident not caused by negligence.

2. Negligence: When an individual uses a pesticide in a potentially reckless or harmful manner that may pose a threat to human health or the environment, and the individual should have known that such a manner had the potential to cause such a threat. Negligence may also include when an individual does not know a statute or regulation, but based on their credentials or position, should have knowledge. An example might be when an individual does not follow label directions.

3. Willful: When a person or company has committed a violation in a flagrant manner, knowing the statute, regulation, or label requirements, and yet still commits the violation. Examples might be ignoring warnings given by an inspector, knowingly giving false information to the Department or customer, attempting to defraud, or having numerous previous violations of a related fashion, thereby having notice of the correct requirements.

Level of Severity

It is important when considering an enforcement action to determine the level of severity of the violation. For the purposes of this Matrix, the level of severity can be broken into the following three categories:

1. Minimal (A): When there are no injuries or damage, and no large potential for any injuries or damage, and when there has been no inconvenience caused to the client or public, and when all reasonable corrective measures have been taken by the applicator at his own expense.

2. Moderate (B): When there is any potential for or actual minor damage to non-target species, but where there is no actual threat to the client, public, or environment. Minor injuries may be considered moderate if all reasonable efforts were made to rectify the

situation in a manner that significantly reduced the potential for continued damage or problems.

3. Extreme (C): Any application or related activity that results in or has a reasonable potential for causing the injury or death of any person; any widespread or long-term damage to non-target species; contamination by a pesticide with potentially long-term consequences, or any application that has or is likely to have long term damage to the environment.

Enforcement Actions

Depending on the violation (s), enforcement actions may be issued to the company, individual, or both. The Department will determine who the enforcement action is issued to on a case-by-case basis.

Notice of Warning (NOW): NOWs issued on-site are usually given during a routine inspection. These NOWs are already on a standard form. These are given for minor infractions, which are usually "administrative," such as incomplete records or not providing proper notification. The inspector should plan on conducting a follow-up inspection to ensure that the infractions are fixed. NOWs can be issued for minor infractions during Marketplace Inspections, School IPM inspections, and Worker Protection Standard (WPS) Inspections.

Letters of Warning (LOW): LOWs that are not issued on site are usually due to a violation that was found during an inspection, but either due to the nature of the violation or information available to the inspector, the violation does not rise to the level of issuing an administrative consent agreement. LOWs may include minor actions that the applicator must perform or materials that must be submitted. LOWs will be issued when the infraction is not considered egregious and where there has not been any history of violation.

Administrative Consent Agreements (ACA): ACAs are administrative fines that are expressly authorized by statute. ACAs may be issued under the following circumstances:
Repeat violation/History of Violations
Egregious violations
Violation may have caused potential for harm or actual harm
ACAs may order a company/individual to pay a fine. These actions are intended to ensure that the violation does not occur again and provide avenues so that the human/environment is protected. A violation of the ACA may lead to referral to the Attorney General's office for further enforcement action.

License Suspension/Revocation (LS/LR): License Suspensions/Revocations may be issued for egregious violations, such as but not limited to the following:
Not following label directions, making false or fraudulent statements
Causing an unreasonable adverse effect on the environment or persons
The Board may issue a suspension for up to 45 days upon an adjudicatory proceeding, while a revocation requires action by the District Court.

GUIDANCE FOR ENFORCEMENT ACTION

LACK OF KNOWLEDGE			
PREVIOUS VIOLATIONS	A	B	C
0	NOW		
1			
2			

NEGLIGENT			
PREVIOUS VIOLATIONS	A	B	C
0			
1			
2			

WILLFUL			
PREVIOUS VIOLATIONS	A	B	C
0			
1			
2			LS/LR

**NOW – Notice of Warning

LOW – Letter of Warning

ACA – Administrative Consent Agreement

LS – License Suspension

LR – License Revocation

Board Enforcement Case Pre-Review
Background Summary

Subject:
TruGreen Lawncare
2 Delta Drive
Westbrook, Maine 04092

Summary of Complaints/Incidents:

Incident 1:

On August 4, 2025, the Board received a call from a resident of Berwick, Maine. The caller stated that a lawn care application, possibly for weed control, was conducted at their property at around 9:00 AM on Monday, August 4, 2025. The caller does not contract with any company for lawn care or pesticide applications. The caller is concerned about their dogs and children entering the treated areas.

A follow-up inspection conducted by the Board staff revealed that a TruGreen employee applied the pesticides Change Up, EPA Reg. No. 228-445 and Drive XLR8, EPA Reg. No. 7969-272 at 13 Haflinger Lane instead of the intended customer at 9 Haflinger Lane. The follow-up inspection further revealed that the employee did not use a system to positively identify the property of the Company's customer, and that the Company had not recorded any data to positively identify its customer location.

Incident 2:

On August 17, 2025, the Board received an email from a former employee of TruGreen who left the company in June of 2025, due in part to "leaking or inoperative equipment". In the email sent to the Board, the former employee alleged that:

1. Incorrect pesticide applications happen and are typically handled in-house (there are no verification processes for making sure techs are at the correct house).

2. If the app used to track jobs indicates that weather conditions exceed the acceptable range, they were directed by my manager (Nick Greer) to change the wind speed to 10mph and proceed.

3. They stated "there was a day when the backpack sprayer leaked and soaked my whole back with Talstar. When I called my manager (John Tripp), he told me to use a different piece of equipment but didn't want me to clean myself up or change my uniform."

From the First Aid Section of the Talstar P label:

If on skin or clothing
• Take off contaminated clothing.
• Rinse skin immediately with plenty of water for 15-20 minutes.
• Call a poison control center or doctor for treatment advice.

Summary of Relevant Laws

7 U.S.C. § 136j(a)(2)(G):

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

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

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

01-026 CMR ch. 20, Section 7 (A):

Commercial applicators making outdoor treatments to residential properties must implement a system, based on Board approved methods, to positively identify the property of their customers.

22 M.R.S. § 1471-D (8) (B):

Has engaged in fraudulent business practices in the application or distribution of pesticides;

Attachments: Inspection report, Email, Talstar P label, 2020 Consent Agreement, 2023 Consent Agreement

Inquiry / Complaint **(EC-107857)**

Inquiry/Complaint | **Overview** | **Caller** | **Actions** | **Audit**

Action Taken
Inspection Required

Finalized / Resolved ☐

Comments
—

Resolution Details
—

Inquiry / Complaint Details

Complaint ID
COMPLAINT-1006

Event Type
Complaint

Company / Agency Name
TRUGREEN LAWNCARE

Inquiry / Complaint Details
This call was received on 8/4/2025. The caller stated that a lawn care application, possibly for weed control, was conducted at their property at around 9:00 AM on Monday, August 4, 2025. The caller does not contract with any company for lawn care or pesticide applications. The caller is concerned about their dogs and children entering the treated areas.

Estimated Date of Incident
Aug 4, 2025

Urgency Level
High

Topic
Unauthorized Application

Site
Turf/Ornamental

Application Method
Unknown

Inquiry / Complaint Physical Location Address

Address Line
—

Address Line 2
—

City
Berwick

Directions
—

Pesticide Use Inspection Report

Inspected Company/Agency
sample text

sample text

Company/Agency Name
TRUGREEN LAWNCARE

Company/Agency Type
FH

Category

Address Line
2 Delta Dr

City
Westbrook

Primary Phone

Email

Contact First Name
John

Contact Last Name
Tripp

Type and size of operation:
no value

Do you have obsolete pesticides?
no value

APPLICATOR, SUPERVISOR, LICENSING

no value

Licensing is:
- (●) Correct
- ( ) Violation
- ( ) Not Required

Applicator

Name
Noah Sterling

License (If any)
COA-9650

Firm License (If any)
SCF-1800

Supervisor (When required)

Name
John Trip

License (If any)
CMA-6108

Location
Westbrook

APPLICATION SITE

Latitude

Longitude

Field Name, Address or Description of Application Site (If different than on Notice of Inspection)

Field Name	Description	Address Line 1	City	State	Postal Code
	no value	13 Haflinger Lane	Berwick	ME	no value

Owner Name & Address (If different than on Notice of Inspection)

Owner Name	Address Line 1	City	State	Postal Code
			ME	no value

Type of establishment treated (Farm, home, etc)	Site treated (Crop, structure, vegetation, etc.)	Size of area treated	Target pest(s)	Cropping stage (If applicable)	Application Date Time	Wind Speed	Direction	Temperature	Sky Conditions
Home	Lawn	807 sq. ft.	Weeds		August 4, 2025 11:00:00 AM EDT	1.1 mph	NNW	76	missing

PESTICIDES APPLIED

Formatted Text
no value

Add item
Delete

	Brand Name	EPA Reg #	Site as specified on label	Violation?	Formulation	RUP
1	Change Up	228-445	Lawns	No	Liquid	False
2	Drive XLR8	7969-272	Lawns	No	Liquid	False

APPLICATION RATE

Application Method (Equipment)	Pressure	Nozzle(s)	Calibration Adequate	Calibration Documented
Ride on sprayer		N/A	no value	no value

Total Mix in Tank
25 Gallons

*Amount used if Part Tank Used
.54 g

Area Covered per Tank/Use

Quantity of Pesticide Formulation In Tank

Add item
Delete

	Quantity
1	34 fl. oz.
2	54 fl. oz.

Formulation Applied Per Unit Area Or Volume

Add item
Delete

1	.9183 fl. oz./1000 sq. ft.
2	1.45 fl. oz./1000 sq. ft.

Maximum Labeled Rate Per Unit Area or Per Volume

Add item
Delete

		Violation?
1	1.1 fl. oz./1000 sq. ft.	No
2	1.45 fl. oz./1000 sq. ft.	No

PERSONAL PROTECTIVE EQUIPMENT

R=Required W=Worn

	Apply		Mix	
Long sleeve shirt	☑ R	☑ W	☑ R	☑ W
Long pants	☑ R	☑ W	☑ R	☑ W
Shoes/socks	☑ R	☑ W	☑ R	☑ W
Chemical resistant boots	☐ R	☐ W	☐ R	☐ W
Coveralls	☐ R	☐ W	☐ R	☐ W
Chemical resistant suit	☐ R	☐ W	☐ R	☐ W
Gloves, regular	☐ R	☐ W	☐ R	☐ W
Gloves, waterproof	☐ R	☐ W	☐ R	☐ W
Gloves, chemical resistant	☑ R	☐ W	☑ R	☐ W
Chemical resistant hat	☐ R	☐ W	☐ R	☐ W
Chemical resistant apron	☐ R	☐ W	☐ R	☐ W
Protective eyewear	☑ R	☐ W	☑ R	☐ W
Respirator	☐ R	☐ W	☐ R	☐ W
Enclosed cab	☐ Y	☐ N		
PPE in cab	☐ R	☐ W		

Other Items
no value

OTHER COMPLIANCE ITEMS

no value

Storage Area
○ Violation
○ No Violation Observed

no value

Posting
◉ Violation
○ No Violation Observed

no value

Application Method
○ Violation
○ No Violation Observed

no value

Mixing/Loading Area
○ Violation
○ No Violation Observed

no value

Spray Interval
○ Violation
○ No Violation Observed

no value

Rinsing/Disposal

○ Violation
○ No Violation Observed

no value

Preharvest Interval
○ Violation
○ No Violation Observed

no value

Off target drift
○ Violation
○ No Violation Observed

no value

Other
○ Violation
○ No Violation Observed

Comments
no value

RECORD DETAILS

no value

Are records maintained for two years?
◉ Yes
○ No

no value

Reviewed by Inspector? If no, explain in comments.
◉ Yes
○ No

Comments
no value

no value

Application Method
◉ Yes
○ No

no value

Brand name of pesticide
◉ Yes
○ No

no value

Active ingredient(s)
◉ Yes
○ No

no value

EPA registration #

no value

Size of treated area
◉ Yes
○ No

no value

Target pest
◉ Yes
○ No

no value

Site or crop treated
◉ Yes
○ No

no value

Sensitive areas noted

◉ Yes
○ No

no value

REI or Ventilation
○ Yes
◉ No

no value

Applicator name
◉ Yes
○ No

no value

Applicator license #
○ Yes
◉ No
○ N/A

no value

Date of application
◉ Yes
○ No

no value

Time of application
◉ Yes
○ No

no value

Town of application
◉ Yes
○ No

no value

Site name or description
◉ Yes
○ No

Comments

no value

Did inspector take copy of records
◉ Yes
○ No

no value

Hazard Communication Standard
◉ Yes
○ No

○ Yes
◉ No
○ N/A

no value

Wind speed & direction
◉ Yes
○ No
○ N/A

no value

Temperature
◉ Yes
○ No
○ N/A

no value

Sky conditions
○ Yes
◉ No
○ N/A

no value

Total amount of RUP
○ Yes
○ No
◉ N/A

no value

Application rate GUP
◉ Yes
○ No

no value

Sprayer calibration
◉ Yes
○ No
○ N/A

Comments
no value

Worker Protection Standard?
No

Worker Protection Standard

no value

Provide supporting details and documents.

Physical Samples Taken

Sample Number	Sample Description	Sample Type	Date of Submission	Result	Lab Location	Analysis Completion Date
No items						

Add Physical Sample

Documentary Samples

Sample Number	Sample Description	
250805JEP01A	Copy of application records	Delete
250805JEP01B	Photo of label for Drive XLR8 EPA Reg. No. 7969-272	Delete
250805JEP01C	Photo of label for Change Up EPA Reg. No. 228-445	Delete

Add Documentary Sample

Reportable Data

Number of Documentary Samples Collected
2

Supporting Documents

(5)

Loading...

Brief Summary of Inspection
On 8/05/2025 a non-agricultural follow up use inspection was conducted with Noah Sterling, applicator for TruGreen, and supervisor John Tripp at 2 Delta Drive in Westbrook. This inspection was completed as a follow up to the complaint filed in EC-107857, alleging unauthorized application. The complainant was home at time of application, she saw the applicator spraying on lawn, the applicator left after she confronted him, and he did not leave signage.

On 8/4/2025, applicator Noah Sterling made an application of Change Up EPA Reg. No. 228-445 and Drive XLR8 EPA Reg. No. 7969-272 to 13 Haflinger Lane in Berwick to control weed in the yard. Sterling applied to 807 sq. ft. before the homeowner told him he was at the wrong property. Change Up and Drive XLR8 both require the applicator to where chemical resistant gloves when mixing and applying, sterling admitted he did not wear gloves, he also did not wear protective eye wear which is

required by Change Up. Records are missing application method, REI, applicator license #, and sky conditions

The target site for this application was supposed to be 9 Haflinger Lane, which is next door to 13 Haflinger Lane. When shown a picture of each property Sterling confirmed he made an application to 13 Haflinger Lane. Sterling said he knock on the door and no one answered so he started the application.

In November 2024 there was a misapplication of a fertilizer at TruGreen, recommended Tripp have multiple verification methods for a property such as pictures of the property and electric meter numbers. This property did not have any method of positive identification of proper treatment which is a violation of Chapter 20: Special Provisions.

Recommendations
no value

Acknowledgement

Acknowledgement:

The physical and/or documentary samples listed above were collected by a Maine Board of Pesticides Control Representative in connection with administration of FIFRA and/or State of Maine Pesticide Statutes and Regulations.

Accept Clear

no value

NOTICE OF PESTICIDE USE RELATED INSPECTION & RECEIPT FOR SAMPLES

Maine
Board of Pesticides Control
DEPARTMENT OF Agriculture Conservation & Forestry
28 State House Station
Augusta, ME 04333-0028
Tel: (207) 287-2731
Fax: (207) 287-7548
www.thinkfirstspraylast.org

Date 8/5/25 — Appointment ◉ Unannounced ○
Time 6:30a — Response to Complaint ◉ Y ○ N
Inspection # 250805JEP01

Individual Noah Sterling — Title
Owner/Manager (If different) — Title
Company or Farm Name Tru Green
Address 2 Delta Drive — Phone 2078567117
Town Westbrook — Zip 04092

Name of Pesticide Inspector (Please print): Jennie Poisson
Signature of Pesticide Inspector: Jennie Poisson

NOTICE OF INSPECTION & CONSENT TO INSPECTION

☐ Credentials presented

This investigation is being conducted by a representative of the Maine Board of Pesticides Control for the purpose of inspecting sites where pesticides are being/have been used, to collect data on their use in order to determine whether pesticides are being/have been used in compliance with the Federal Insecticide, Fungicide and Rodenticide Act (FIFRA), and/or State of Maine Pesticide Statutes and Regulations.

☐ Routine inspection
◉ Violation suspected (Describe) Unauthorized Application

The undersigned hereby voluntarily consents to an inspection of pesticide use related property, records and procedures, of which I am Owner, Agent or Person-In-Charge, for the purposes of gathering information and/or samples in connection with the administration and enforcement of FIFRA and State Pesticide Statutes and Regulations.

Print Name	Signature	Date
⇨ Noah Sterling	⇨ Noah Sterling	⇨

RECEIPT FOR SAMPLES (If applicable)

Samples Collected *Describe fully. List sample number, registration number and other positive identification.*

The following pesticide and/or environmental samples or other documentation were collected by a Maine Board of Pesticides Control Representative indicated below in connection with the administration and enforcement of FIFRA and/or State Pesticide Statutes and Regulations.

250805JEP01A Application Records for 9 Hidflingerdn
250805JEP01B- Photo of label for Drive XLR8 EPA Reg. No. 7969-272
250805JEP01C- Photo of label for Change UP EPA Reg. No. 228-445

☐ Duplicate samples provided
☐ Duplicate samples not requested

Samples were ☐ Purchased ☐ Received, no charge ☐ Borrowed

Amount paid for samples ☐ Cash ☐ Voucher ☐ To be billed

Signature of inspector, samples collected	Date	Signature of agent, samples acknowledged	Date
Jennie Poisson	8/5/25	Noah Sterling	8/5/25

Maine Board of Pesticides Control — PESTICIDE USE INSPECTION REPORT

Inspection # 250805JEP01

Company or Farm Name: TruGreen | Person Interviewed: Noah Sterling | Date: 250805

Type and size of operation: Commercial lawn care company

Do you have obsolete pesticides? Y ☐ N ☑ NA ☐

APPLICATOR, SUPERVISOR, LICENSING

Licensing is: Correct ☐ Violation ☐ Not Required ☐

	Name	License (If any)	Firm License (If any)
Applicator	Noah Sterling	COA - 9650	SCF - 1800
Supervisor (When required)	John Fripp	License CMA - 10108	Supervisor's Location Westbrook

APPLICATION SITE

N Deg Min Sec W Deg Min Sec

Field Name, Address or Description of Application Site (If different than on Notice of Inspection): 13 Hatthaer Lane Berwick

Owner Name & Address (If different than on Notice of Inspection):

Type of establishment treated (Farm, home, etc)	Site treated (Crop, structure, vegetation, etc.)	Size of area treated	Target pest(s)	Cropping stage (If applicable)
Home	Lawn	807 sqft	Weeds	

Application Date	Time	Wind Speed	Direction	Temperature	Sky Conditions
8/4/2025	11:00 am ~4:00 pm	1-1 mph N/A ☐	NNW N/A ☐	~76° N/A ☐	N/A ☐

PESTICIDES APPLIED

	EPA Reg #	Site as specified on label	Violation?	Formulation	RUP
a. Brand Name: Change Up	228-445	Lawns	Y ☐ N ☑	Liquid	☐
b. Brand Name: DriveXLR8	7969-272	lawns	Y ☐ N ☑	Liquid	☐
c. Brand Name	EPA Reg #	Site as specified on label	Y ☐ N ☐	Formulation	☐

APPLICATION RATE

Application Method (Equipment): Ride on Spreader | Pressure: N/A ☐ | Nozzle(s): N/A ☐ | Calibration Adequate: Y ☑ N ☐ N/A ☐ | Calibration Documented: Y ☑ N ☐ N/A ☐

	Quantity of Pesticide Formulation In Tank	Total Mix in Tank	Area Covered per Tank/Use	Formulation Applied Per Unit Area Or Volume	Maximum Labeled Rate Per Unit Area or Per Volume	Violation?
a.	34 fl oz	25 gals	.34 g *Amount used if Part Tank Used	a. .9183 fl oz / 1000	a. 1.1 fl oz / 1000	☐ N ☐
b.	54 fl oz			b. 1.45 fl oz / 1000	b. 1.45 fl oz / 1000	☐ N ☐
c.				c.	c.	Y ☐ N ☐

PERSONAL PROTECTIVE EQUIPMENT

R = Required W = Worn

	Apply	Mix		Apply	Mix		Apply	Mix
Long sleeve shirt	R☑ W☐	R☑ W☐	Gloves, regular	R☐ W☐	R☐ W☐	Protective eyewear	R☑ W☐	R☑ W☐
Long pants	R☑ W☐	R☑ W☐	Gloves, waterproof	R☐ W☐	R☐ W☐	Respirator	R☐ W☐	R☐ W☐
Shoes/socks	R☑ W☐	R☑ W☐	Gloves, chemical resistant	R☑ W☐	R☑ W☐	Enclosed cab	Y☐ N☐	
Chemical resistant boots	R☐ W☐	R☐ W☐	Chemical resistant hat	R☐ W☐	R☐ W☐	PPE in cab	R☐ W☐	
Coveralls	R☐ W☐	R☐ W☐	Chemical resistant apron	R☐ W☐	R☐ W☐		R☐ W☐	R☐ W☐
Chemical resistant suit	R☐ W☐	R☐ W☐		R☐ W☐	R☐ W☐		R☐ W☐	R☐ W☐

OTHER COMPLIANCE ITEMS

NVO = No Violation Observed V = Violation

Storage Area	NVO ☐ V ☐	Application Method	NVO ☐ V ☐	Spray Interval	NVO ☐ V ☐	Preharvest Interval	NVO ☐ V ☐
Posting	NVO ☐ V ☐	Mixing/Loading Area	NVO ☐ V ☐	Rinsing/disposal	NVO ☐ V ☐	Off target drift	NVO ☐ V ☐
Other	NVO ☐ V ☐						

RECORDS DETAILS

Are records maintained for two years? Y ☑ N ☐ Reviewed by Inspector? Y ☑ N ☐ If no, explain in comments.

Application method	Y ☐ N ☑	Date of application	Y ☑ N ☐	Sensitive areas noted	Y ☐ N ☐ N/A ☑
Brand name of pesticide	Y ☐ N ☐	Time of application	Y ☐ N ☑	Wind speed & direction	Y ☐ N ☐ N/A ☐
Active ingredient(s)	Y ☐ N ☐	Town of application	Y ☐ N ☐	Temperature	Y ☐ N ☐ N/A ☐
EPA registration #	Y ☐ N ☐	Site name or description	Y ☐ N ☐	Sky conditions	Y ☐ N ☑ N/A ☐
REI or Ventilation	Y ☐ N ☑	Size of treated area	Y ☐ N ☐	Total amount of RUP	Y ☐ N ☐ N/A ☑
Applicator name	Y ☑ N ☐	Target pest	Y ☐ N ☐	Total or rate of GUP	Y ☐ N ☐
Applicator license # NA ☐	Y ☐ N ☑	Site or crop treated	Y ☑ N ☐	Sprayer calibration	Y ☐ N ☐ N/A ☑

Did inspector take copy of records Y ○ N ○

COMMENTS

Knocked on door did halt application

Hazard Communication Standard Y ☐ N ☑

Pesticide Inspector's Signature: Jamie Rosson Date: 8/5/2025

250805JEP01A

TRUGREEN
Live life outside.®

5028 - PORTLAND, ME
2 DELTA DR
WESTBROOK, ME, 04092
(207)856-7117

Master Form #:

Work order #: WO7838165504

CUSTOMER SERVICE INFORMATION

CHAPMAN JR., AARON
5028-7009265787
9 HAFLINGER LN
BERWICK, ME, 03901
HOME: (603)520-5776

SPECIALIST INFORMATION

TRUCK ID: 216729
SPECIALIST: 207145-NOAH STERLING

CUSTOMER BILLING INFORMATION

CHAPMAN JR., AARON
9 HAFLINGER LN
BERWICK, ME, 03901
HOME: (603)520-5776

CONDITIONS

START:
TEMP: 76 ° F
WIND: 1.1 MPH NNW

TODAY'S SERVICE	DESCRIPTION	PROPERTY SQFT	DATE	TIME
TruPro Lawn Plan	TruPro Lawn Service	8073 sqft	8/4/2025	10:58 AM

COMMENTS

- We hope that with today's treatment you can better live life outside, thank you for trusting us to take care of your landscape. I've left my notes below.

WHAT I DID AND WHAT TO EXPECT

- Today I treated for broadleaf weeds and annual grasses in your lawn. You should see weeds turn color and begin to decline in a few weeks. For best results avoid mowing for 24 hours.

- Thank you for your business! Please keep an eye out for a message following today's application containing a link to our post-service survey.

	PRODUCTS APPLIED		TOTAL VOLUME	SQFT
	BROADLEAF & GRASSY WEED CONTROL		0.54 GAL	807
METHOD:	Spray, 0.67 GAL/1000 SQFT			
AREAS:	Where Needed			
PRODUCTS:	CHANGE UP (MCPA,FLUROXYPYR,DICAMBA) EPA# 228-445			
	RATE:	0.9183 FLOZ/1000 SQFT		
	APPLIED AMT:	0.7413 FLOZ		
	TARGETS:	Annual Broadleaf Weeds		
	DRIVE XLR8 (QUINCLORAC) EPA# 7969-272			
	RATE:	1.4500 FLOZ/1000 SQFT		
	APPLIED AMT:	1.1706 FLOZ		
	TARGETS:	Crabgrass		
	METHYLATED SEED OIL (METHYLATED SEED OIL) EPA#			
	RATE:	0.0017 GAL/1000 SQFT		
	APPLIED AMT:	0.0013 GAL		

Thank you for your business!

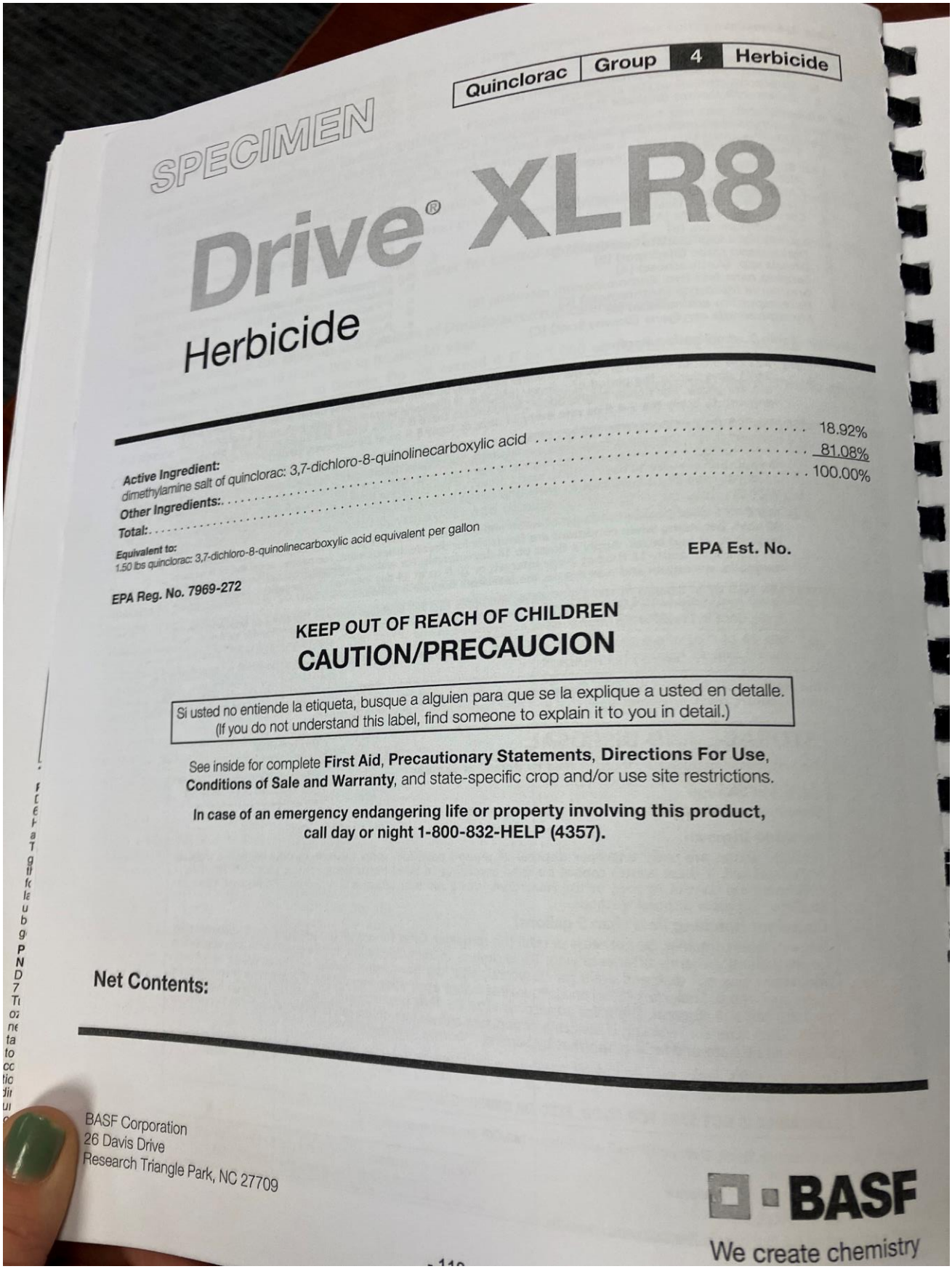
Please note: This is not an invoice. For billing information, please visit MyAccount.TruGreen.com.

To optimize the effectiveness of your program, it is important to apply the right products at the right time. For this reason, your program continues from year to year without any action on your part.

Notice: I acknowledge I have received a copy of my written TruGreen contract and I agree to all terms contained therein, and by signing, I am giving TruGreen permission to apply the materials that may be needed to promote a healthy and vigorous landscape, and that my signature will have all the same effect as if I had signed the actual contract, which is incorporated herein verbatim.

Documentary Sample No. 250805JEP01B

Photo of label for Drive XLR8 EPA Reg. No. 7969-272



FIRST AID	
If swallowed	• Call a poison control center or doctor immediately for treatment advice. • Have person sip a glass of water if able to swallow. • **DO NOT** induce vomiting unless told to do so by a poison control center or doctor. • **DO NOT** give anything by mouth to an unconscious person.
If on skin or clothing	• Take off contaminated clothing. • Rinse skin immediately with plenty of water for 15 to 20 minutes. • Call a poison control center or doctor for treatment advice.
If in eyes	• Hold eyes open and rinse slowly and gently with water for 15 to 20 minutes. • Remove contact lenses, if present, after first 5 minutes; then continue rinsing eyes. • Call a poison control center or doctor for treatment advice.
If inhaled	• Move person to fresh air. • If person is not breathing, call 911 or an ambulance; then give artificial respiration, preferably by mouth to mouth, if possible. • Call a poison control center or doctor for further treatment advice.
HOTLINE NUMBER	
Have the product container or label with you when calling a poison control center or doctor or going for treatment. You may also contact BASF Corporation for emergency medical treatment information: 1-800-832-HELP (4357).	

Precautionary Statements

Hazards to Humans and Domestic Animals

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

Personal Protective Equipment (PPE)

Applicators and other handlers must wear:

- Long-sleeved shirt and long pants
- Chemical-resistant gloves, made of butyl rubber ≥ 14 mils, natural rubber ≥ 14 mils, neoprene rubber ≥ 14 mils, or nitrile rubber ≥ 14 mils
- Shoes plus socks

Follow manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables exist, use detergent and hot water. Keep and wash PPE separately from other laundry.

USER SAFETY RECOMMENDATIONS

Users should:

- Remove clothing/PPE immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing.
- Remove PPE immediately after handling this product. Wash the outside of gloves before removing. As soon as possible, wash thoroughly and change into clean clothing.

Engineering Controls

When handlers use closed systems or enclosed cabs in a manner that meets the requirements listed in the Worker Protection Standard (WPS) for agricultural pesticides [40 CFR 170.240(d)(4-6)], the handler PPE requirements may be reduced or modified as specified in the WPS.

Environmental Hazards

This chemical has properties and characteristics associated with chemicals detected in groundwater. The use of this chemical where soils are permeable, particularly where the water table is shallow, may result in groundwater contamination.

Keep out of lakes, ponds and streams. **DO NOT** apply directly to water, to areas where surface water is present, or to intertidal areas below the mean high water mark. **DO NOT** contaminate water by cleaning of equipment or disposal of rinsate.

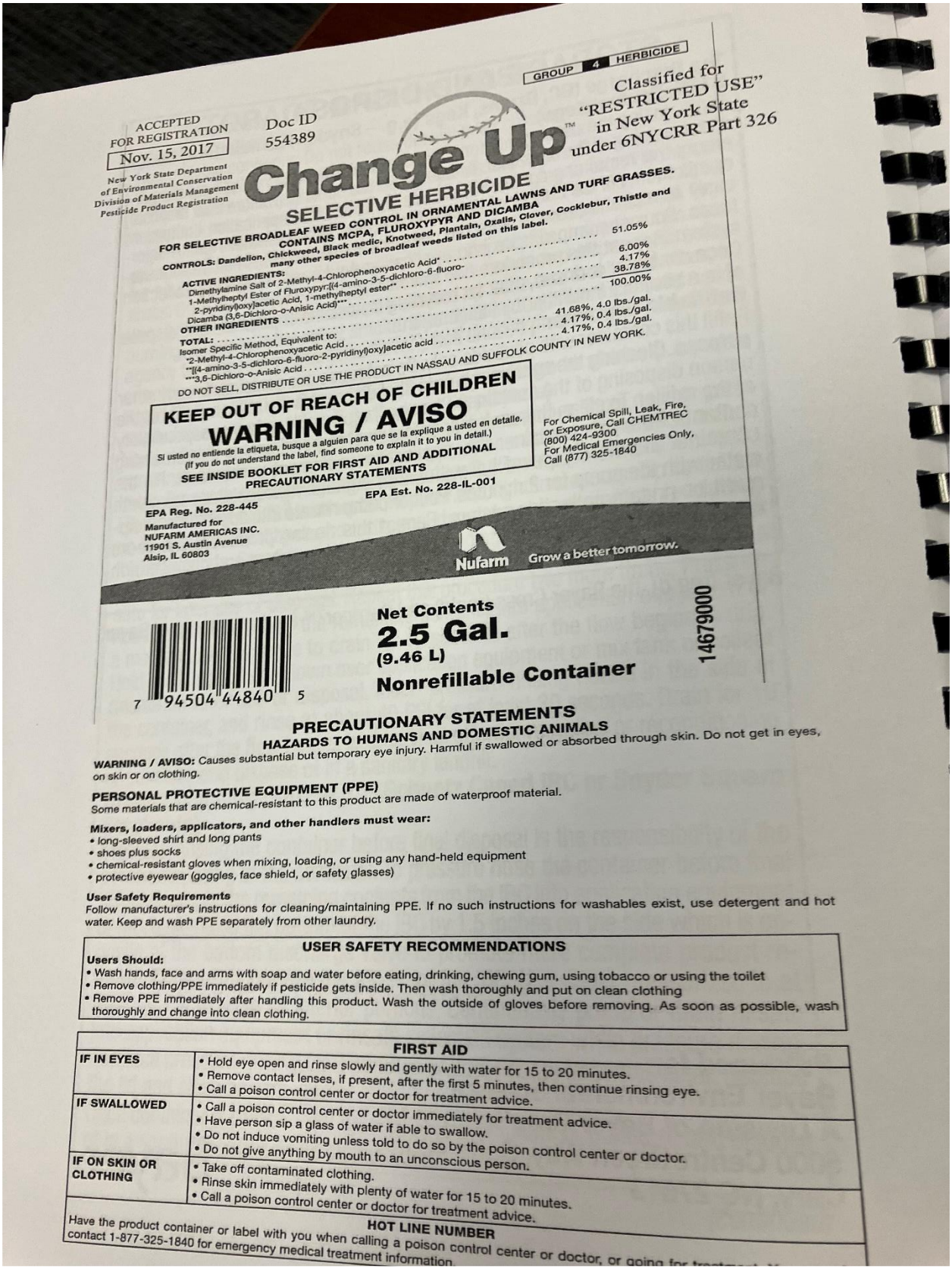
Directions For Use

It is a violation of federal law to use this product in a manner inconsistent with this labeling. All applicable directions, restrictions and precautions are to be followed. This labeling must be in the possession of the user at time of application.

DO NOT apply this product in a way that will contact workers or other persons, either directly or through drift. Only protected handlers may be in the specified area during application. For any requirements specific to your state or tribe, consult the agency responsible for pesticide regulation.

Documentary Sample No. 250805JEP01C

Photo of label for Change Up EPA Reg. No. 228-445



ACCEPTED
FOR REGISTRATION
Nov. 15, 2017
New York State Department
of Environmental Conservation
Division of Materials Management
Pesticide Product Registration

Doc ID
554389

GROUP 4 HERBICIDE

Classified for
"RESTRICTED USE"
in New York State
under 6NYCRR Part 326

Change Up™

SELECTIVE HERBICIDE

FOR SELECTIVE BROADLEAF WEED CONTROL IN ORNAMENTAL LAWNS AND TURF GRASSES.
CONTAINS MCPA, FLUROXYPYR AND DICAMBA

CONTROLS: Dandelion, Chickweed, Black medic, Knotweed, Plantain, Oxalis, Clover, Cocklebur, Thistle and many other species of broadleaf weeds listed on this label.

ACTIVE INGREDIENTS:	
Dimethylamine Salt of 2-Methyl-4-Chlorophenoxyacetic Acid*	51.05%
1-Methylheptyl Ester of Fluroxypyr:[(4-amino-3-5-dichloro-6-fluoro-2-pyridinyl)oxy]acetic Acid, 1-methylheptyl ester**	6.00%
Dicamba (3,6-Dichloro-o-Anisic Acid)***	4.17%
OTHER INGREDIENTS	38.78%
TOTAL:	100.00%

Isomer Specific Method, Equivalent to:	
*2-Methyl-4-Chlorophenoxyacetic Acid	41.68%, 4.0 lbs./gal.
**[(4-amino-3-5-dichloro-6-fluoro-2-pyridinyl)oxy]acetic acid	4.17%, 0.4 lbs./gal.
***3,6-Dichloro-o-Anisic Acid	4.17%, 0.4 lbs./gal.

DO NOT SELL, DISTRIBUTE OR USE THE PRODUCT IN NASSAU AND SUFFOLK COUNTY IN NEW YORK.

KEEP OUT OF REACH OF CHILDREN

WARNING / AVISO

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

SEE INSIDE BOOKLET FOR FIRST AID AND ADDITIONAL PRECAUTIONARY STATEMENTS

For Chemical Spill, Leak, Fire, or Exposure, Call CHEMTREC (800) 424-9300
For Medical Emergencies Only, Call (877) 325-1840

EPA Est. No. 228-IL-001

EPA Reg. No. 228-445

Manufactured for
NUFARM AMERICAS INC.
11901 S. Austin Avenue
Alsip, IL 60803

Nufarm Grow a better tomorrow.

7 94504 44840 5

Net Contents
2.5 Gal.
(9.46 L)
Nonrefillable Container

14679000

PRECAUTIONARY STATEMENTS

HAZARDS TO HUMANS AND DOMESTIC ANIMALS

WARNING / AVISO: Causes substantial but temporary eye injury. Harmful if swallowed or absorbed through skin. Do not get in eyes, on skin or on clothing.

PERSONAL PROTECTIVE EQUIPMENT (PPE)
Some materials that are chemical-resistant to this product are made of waterproof material.

Mixers, loaders, applicators, and other handlers must wear:
- long-sleeved shirt and long pants
- shoes plus socks
- chemical-resistant gloves when mixing, loading, or using any hand-held equipment
- protective eyewear (goggles, face shield, or safety glasses)

User Safety Requirements
Follow manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables exist, use detergent and hot water. Keep and wash PPE separately from other laundry.

USER SAFETY RECOMMENDATIONS

Users Should:
- Wash hands, face and arms with soap and water before eating, drinking, chewing gum, using tobacco or using the toilet
- Remove clothing/PPE immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing
- Remove PPE immediately after handling this product. Wash the outside of gloves before removing. As soon as possible, wash thoroughly and change into clean clothing.

FIRST AID	
IF IN EYES	• Hold eye open and rinse slowly and gently with water for 15 to 20 minutes. • Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. • Call a poison control center or doctor for treatment advice.
IF SWALLOWED	• Call a poison control center or doctor immediately for treatment advice. • Have person sip a glass of water if able to swallow. • Do not induce vomiting unless told to do so by the poison control center or doctor. • Do not give anything by mouth to an unconscious person.
IF ON SKIN OR CLOTHING	• Take off contaminated clothing. • Rinse skin immediately with plenty of water for 15 to 20 minutes. • Call a poison control center or doctor for treatment advice.

HOT LINE NUMBER

Have the product container or label with you when calling a poison control center or doctor, or going for [illegible]
contact 1-877-325-1840 for emergency medical treatment information.

ENVIRONMENTAL HAZARDS

This pesticide is toxic to fish, aquatic invertebrates and aquatic plants. Do not apply directly to water, to areas where surface water is present, or to intertidal areas below the mean high water mark. Do not contaminate water when disposing of equipment washwater or rinsate. Drift and runoff may be hazardous to aquatic organisms in water adjacent to treated areas. Runoff of this product will be reduced by avoiding applications when rainfall is forecasted to occur within 48 hours.

This chemical has properties and characteristics associated with chemicals detected in groundwater. The use of this chemical in areas where soils are permeable, particularly where the water table is shallow, may result in groundwater contamination.

DIRECTIONS FOR USE

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

READ ENTIRE LABEL BEFORE USING THIS PRODUCT. USE STRICTLY IN ACCORDANCE WITH LABEL DIRECTIONS.

Do not apply this product in a way that will contact any person, or pet, either directly or through drift. Keep people and pets out of the area during application. Aerial application is prohibited.

This pesticide must be used strictly in accordance with the drift and run-off precautions on this label in order to minimize off- site exposure. Only protected handlers may be in the area during application. For any requirements specific to your State or Tribe, consult the agency responsible for pesticide regulation.

Under some conditions this product may have a potential to run-off to surface water or adjacent land. Where possible, use methods which reduce soil erosion, such as no till, limited till and contour plowing; these methods also reduce pesticide run-off. Where feasible, use application techniques such as T-banding and in-furrow techniques which incorporate the pesticide into the soil. Use of vegetation filter strips along rivers, creeks, streams, wetlands, etc. or on the downhill side of fields where run-off could occur will minimize water run-off is recommended.

Low humidity and high temperatures increase the evaporation rate of spray droplets and therefore, the likelihood of increased spray drift. Avoid spraying during conditions of low humidity and/or high temperatures.

AGRICULTURAL USE REQUIREMENTS

Use this product only in accordance with its labeling and with the Worker Protection Standard, 40 CFR Part 170. This Standard contains requirements for the protection of agricultural workers on farms, forests, nurseries, and greenhouses, and handlers of agricultural pesticides. It contains requirements for training, decontamination, notification, and emergency assistance. It also contains specific instructions and exceptions pertaining to the statements on this label about Personal Protective Equipment (PPE) and restricted-entry interval. The requirements in this box only apply to uses of this product that are covered by the Worker Protection Standard.

Do not enter or allow worker entry into treated areas during the restricted-entry interval (REI) of 48 hours.

PPE required for early entry to treated areas that is permitted under the Worker Protection Standard and that involves contact with anything that has been treated, such as plants, soil, or water, is:

- coveralls worn over short-sleeved shirt and short pants
- chemical-resistant footwear plus socks
- chemical-resistant gloves made of any waterproof material
- chemical-resistant headgear for overhead exposure, and
- protective eyewear

NON-AGRICULTURAL USE REQUIREMENTS

The requirements in this box apply to uses of this product that are NOT within the scope of the Worker Protection Standard for agricultural pesticides (40 CFR Part 170). The WPS applies when this product is used to produce agricultural plants on farms, forests, nurseries, or greenhouses. For Turf use, the maximum number of broadcast applications per treatment site is 2 per year.

Do not allow people (other than applicator) or pets on treatment area during application. Do not enter or allow others to enter the treated area until sprays have dried.

This product is for use on Ornamental Turf Lawns (Residential, Industrial and Institutional), Parks, Cemeteries, Athletic Fields and Golf Courses (Fairways, Aprons, Tees* and Roughs); also for use on Sod Farms.

*Excluding Bentgrass Tees.

SPRAY DRIFT MANAGEMENT

Preventing spray drift at the application site is the responsibility of the applicator. The interaction of many equipment and weather related factors determine the potential for spray drift. The applicator and the grower are responsible for considering all these factors when making decisions.

Apply only as a medium or coarser spray (ASAE standard 572) or a volume mean diameter of 300 microns or greater for spinning atomizer nozzles.

Apply only when the wind speed is 2-10 mph at the application site.

For groundboom application, do not apply with a nozzle height greater than 4 feet above the crop canopy.

Avoid drift of spray mist to vegetables, flowers, ornamental plants, shrubs, trees and other desirable plants. Do not use on Dichondra, nor on lawns or turf where desirable clovers are present. Avoid fine mists. Use lawn type sprayer with coarse spray as wind drift is less likely. Avoid contact with exposed feeder roots of ornamentals and trees. Do not allow the herbicide solution to mist, drip, drift, or splash from treated areas onto desirable broadleaf plants as small amounts of this product can damage sensitive plants near the treated area. If desirable plants are accidentally sprayed, immediately rinsing leaves with water may reduce or eliminate plant damage.

Maximum control of weeds will be obtained from spring or early fall applications when weeds are actively growing. The degree of weed control and duration of effect will vary with weed size and density, spray rate and coverage, and growing conditions before, during, and after the time of treatment. Use the higher rate for hard-to-control weeds. Avoid broadcast applications when air temperature exceeds 90°F. When using in small, spot treatment applications in temperatures over 90°F, turf injury may occur. Use added caution when treating Carpetgrass and St. Augustinegrass and air temperature exceeds 80°F.

APPLICATION RESTRICTIONS

- Do not apply more than 3 pints of this product per acre per application (1.5 lbs MCPA ae, 0.15 lbs Fluroxypyr ae, 0.15 lbs Dicamba ae).
- Do not apply more than 2 broadcast applications of this product to the same treatment site per year, excluding spot treatments.
- Do not apply more than 6 pints of this product per acre per year, including all broadcast and spot treatments combined.
- The minimum retreatment interval for this product is 21 days.
- Do not apply this product to lawn or turf during spring transition (green-up).
- Do not exceed specified dosages for any area; be particularly careful within the dripline of tree and other ornamental species.
- Do not apply to newly seeded grasses until well established.
- Do not apply by air.
- Do not apply this product through any type of irrigation system.

ACTIVE INGREDIENT APPLICATION RESTRICTIONS

- Application of MCPA is limited to 3.0 lbs ae per acre per year, no more than 1.5 lbs ae per application, and no more than 2 broadcast applications per year.
- Application of Fluroxypyr is limited to 0.47 lbs ae per acre per year
- Application of Dicamba is limited to 2.0 lbs ae per acre per year, no more than 1.0 lbs ae per application, and no more than 2 broadcast applications per year.

The suitable use of this product on non-labeled turf species may be determined by treating a small area at any rate/acre which does not exceed 3 pints/acre. The treated area should be observed for any sign of turf injury for a period of 30 days of normal growing conditions to determine the phytotoxicity and efficacy to the treated area.

For optimum results: (1) avoid applying during excessively dry or hot periods unless irrigation is used; (2) turf should not be mowed 1 to 2 days before and following application; (3) reseed no sooner than 3 to 4 weeks after application of this product. Adding oil, wetting agent, or other appropriate surfactant to the spray may be used to increase effectiveness on weeds but doing so may reduce selectivity to turf resulting in turf damage. Clean and rinse spray equipment using soap or detergent and water, and rinse thoroughly before reuse for other sprays.

250805JEP01

Photos of 9 and 13 Haflinger Lane in Berwick

13 Haflinger Lane, Berwick. Incorrect site/location.

9 Haflinger Lane

Target site

Peacock, Alexander R

From: Pesticides
Sent: Monday, August 18, 2025 7:42 AM
To: Peacock, Alexander R
Subject: FW: TruGreen concerns

Follow Up Flag: Follow up
Flag Status: Flagged

From: [redacted]
Sent: Sunday, August 17, 2025 11:11 AM
To: Pesticides <Pesticides@maine.gov>
Subject: TruGreen concerns

EXTERNAL: This email originated from outside of the State of Maine Mail System. Do not click links or open attachments unless you recognize the sender and know the content is safe.

To whom it concerns at the Maine Board of Pesticide,

My name is [redacted], and for several months (until the beginning of June), I worked for TruGreen in Westbrook. Part of why I left was leaking or inoperative equipment, but it didn't occur to me until I'd recently caught up with a current employee that you should be notified of some other issues.

Incorrect pesticide applications happen, and are typically handled in-house (there are no verification processes for making sure techs are at the correct house). Between when I started (8/24) and when I left, we never calibrated our equipment (ride-on spreaders or walk-behinds, mosquito backpacks or hand cans). Pesticide is sprayed even when temps exceed the label's indication. If the app used to track jobs indicates weather conditions exceed acceptable range, I was directed by my manager (Nick Greer) to change the wind speed to 10mph and proceed. Some technicians wear t-shirts when spraying or mixing pesticides. And the last thing I can think of right now is that when I started doing mosquito treatments, there was a day when the backpack sprayer leaked and soaked my whole back with Talstar. When I called my manager (John Tripp), he told me to use a different piece of equipment, but didn't want me to clean myself up or change my uniform.

I'm sure you'll want to speak further, and you can reach me at [redacted]. I'll likely miss your call at first, but I'll get back as soon as I can.

Thank you for your time,

[redacted]

Talstar® P

PROFESSIONAL

INSECTICIDE

To control pests indoors and outdoors on residential, institutional, public, commercial, and industrial buildings, greenhouses, animal confinement facilities/livestock premises, kennels, food handling establishments, and lawns, ornamentals, parks, recreational areas and athletic fields.

When used as a termiticide, individuals/firms must be licensed by the state to apply termiticide products. States may have more restrictive requirements regarding qualifications of persons using this product. Consult the pest control regulatory agency of your state prior to use of this product.

Provides up to 1 month residual control of house flies
Kills fleas for up to 3 months

EPA Reg. No. 279-3206 **EPA Est. 279-NY-1**

Active Ingredient:	**By Wt.**
Bifenthrin*	7.9%
Other Ingredients:	92.1%
	100.0%

Talstar® P Professional Insecticide contains ⅔ pound active ingredient per gallon.
*Cis isomers 97% minimum, trans isomers 3% maximum.

KEEP OUT OF REACH OF CHILDREN

CAUTION

FMC

FMC Corporation
2929 Walnut Street
Philadelphia PA 19104

Net Contents: 1 Gallon

2-28-19

FIRST AID

If swallowed	• Call poison control center or doctor immediately for treatment advice. • Have person sip a glass of water if able to swallow. • Do not induce vomiting unless told to do so by the poison control center or doctor. • Do not give anything by mouth to an unconscious person.
If inhaled	• Move person to fresh air. • If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. • Call a poison control center or doctor for further treatment advice
If on skin or clothing	• Take off contaminated clothing. • Rinse skin immediately with plenty of water for 15-20 minutes. • Call a poison control center or doctor for treatment advice.
If in eyes	• Hold eye open and rinse slowly and gently with water for 15-20 minutes. • Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. • Call a poison control center or doctor for treatment advice.

HOTLINE NUMBER

Have the product container or label with you when calling a poison control center or doctor, or going for treatment. You may also contact 1-(800)-331-3148 for Emergency Assistance.

NOTE TO PHYSICIAN

This product is a pyrethroid. If large amounts have been ingested, the stomach and intestine should be evacuated. Treatment is symptomatic and supportive. Digestible fats, oils, or alcohol may increase absorption and so should be avoided.

For Information Regarding the Use of this Product Call 1-800-321-1FMC (1362).

PRECAUTIONARY STATEMENTS

Hazards to Humans (and Domestic Animals)

CAUTION

Harmful if swallowed, inhaled or absorbed through skin. Avoid contact with skin, eyes or clothing. Avoid breathing spray mist. Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, or using tobacco. Remove contaminated clothing and wash before reuse.

All pesticide handlers (mixers, loaders and applicators) must wear long-sleeved shirt and long pants, socks, shoes and chemical-resistant gloves. After the product is diluted in accordance with label directions for use, and/or when mixing and loading using a closed spray tank transfer system (such as an in-line injector system), shirt, pants, socks, shoes and waterproof gloves are sufficient. In addition, all pesticide handlers must wear a respiratory protection device[1] when working in a non-ventilated space. All pesticide handlers must wear protective eyewear when working in non-ventilated space.

[1]Use one of the following NIOSH approved respirator with any R, P or HE filter or a NIOSH approved respirator with an organic vapor (OV) cartridge or canister with any R, P or HE prefilter.

Follow manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables exist, use detergent and hot water. Keep and wash PPE separately from other laundry.

User Safety Recommendations:
Users should:
- Wash hands before eating, drinking, chewing gum, using tobacco or using the toilet.
- Remove clothing immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing.
- Remove PPE immediately after handling this product. Wash outside of gloves before removing. As soon as possible, wash thoroughly and change into clean clothing.

Environmental Hazards

This pesticide is extremely toxic to fish and aquatic invertebrates. Drift and run-off from treated areas may be hazardous to aquatic organisms in neighboring areas. Care should be used when spraying to avoid fish and reptile pets in/around ornamental ponds.

To protect the environment, do not allow pesticide to enter or run off into storm drains, drainage ditches, gutters or surface waters. Applying this product in calm weather when rain is not predicted for the next 24 hours will help to ensure that wind or rain does not blow or wash pesticide off the treatment area. Rinsing application equipment over the treated area will help to avoid run off to water bodies or drainage systems.

This product is highly toxic to bees exposed to direct treatment or residues on blooming crops or weeds. Do not apply this product or allow to drift to blooming crops if bees are foraging the treatment area.

Physical and Chemical Hazards

Do not apply water-based dilutions of Talstar® P Professional Insecticide to electrical conduits, motor housings, junction boxes, switch boxes or other electrical equipment because of possible shock hazard.

Index

DIRECTIONS FOR USE

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

Do not apply a broadcast application to interior surfaces of homes.

Do not apply by air.

Do not apply in plant nurseries.

Do not apply this product through any kind of irrigation system.

Not for use on sod farm turf, golf course turf, or grass grown for seed.

Do not water treated area to the point of run-off.

Do not make applications during rain.

Application is prohibited directly into sewers or drains, or to any area like a gutter where drainage to sewers, storm drains, water bodies, or aquatic habitat can occur. Do not allow the product to enter any drain during or after application.

Additional Application Restrictions for Residential Outdoor Surface and Space Sprays:

All outdoor applications, if permitted elsewhere on this label, must be limited to spot or crack-and-crevice treatments only, except for the following permitted uses, if allowed elsewhere on this label:

1. Applications to soil or vegetation, as listed on this label, around structures;

2. Applications to lawns, turf, and other vegetation, as listed on this label;

3. Applications to the side of a building, up to a maximum height of 3 feet above grade;

4. Applications to underside of eaves, soffits, doors, or windows permanently protected from rainfall by a covering, overhang, awning, or other structure;

5. Applications around potential pest entry points into buildings, when limited to a surface band not to exceed one inch in width;

6. Applications made through the use of a coarse, low pressure spray to only those portions of surfaces that are directly above bare soil, lawn, turf, mulch or other vegetation, as listed on this label, and not over an impervious surface, drainage or other condition that could result in runoff into storm drains, drainage ditches, gutters or surface waters, in order to control occasional invaders or aggregating pests.

AGRICULTURE USE REQUIREMENTS*

Use this product only in accordance with its labeling and with the Worker Protection Standard, 40 CFR part 170. This Standard contains requirements for the protection of agricultural workers on farms, forests, nurseries, and greenhouses, and handlers of agricultural pesticides. It contains requirements for training, decontamination, notification, and emergency assistance. It also contains specific instructions and exceptions pertaining to the statements on this label about personal protective equipment (PPE), and restricted-entry intervals. The requirements in this box only apply to uses of this product that are covered by the Worker Protection Standard.

Do not enter or allow worker entry into treated areas during the restricted entry interval (REI) of 12 hours.

PPE required for early entry to treated areas that is permitted under the Worker Protection Standard and that involves contact with anything that has been treated, such as, plants, soil, or water is:

• Coveralls

• Chemical-resistant gloves, such as barrier laminate or butyl rubber or nitrile rubber or neoprene rubber or polyvinyl chloride or viton.

• Shoes plus socks

Do not apply this product in a way that will contact workers or other persons either directly or through drift. Only protected handlers may be in the area during application. For any requirement specific to your State or Tribe, consult the State/Tribal agency responsible for pesticide regulation.

For California

Greenhouse Applicators must wear:

• Full body chemical-resistant protective suit (such as barrier laminate, butyl rubber, nitrile rubber, polyvinyl chloride, or equivalent).

Reapplication Interval: Reapplications to greenhouses must be at intervals of 30 days or longer.

Greenhouse Harvesters must wear:

• Regular length gloves plus a long sleeved shirt or elbow-length (gauntlet type) gloves during the 30 days following application.

*These requirements apply only to the greenhouse uses on this label

NON-AGRICULTURAL USE REQUIREMENTS**

The requirements in this box apply to uses of this product that are NOT within the scope of the Worker Protection Standards for agricultural pesticides (40 CFR Part 170). The WPS applies when this product is used to produce agricultural plants on farms, forests, nurseries and greenhouses.

Do not allow people or pets on treated surfaces until the spray has dried.

**These requirements apply to all other non-greenhouse uses on this label

Use Directions for Container

1. Remove the measuring chamber cap and induction seal. Replace the cap and securely tighten. Tip container until liquid fills measuring chamber.
2. Return container to level position. No adjustment is needed.
3. Remove measuring chamber cap and dispense into proper application equipment.

For multiple dose measuring: Remove fill chamber cap and dispense according to markings on side of bottle.

STORAGE AND DISPOSAL

Prohibitions: Do not contaminate water, food or feed by storage or disposal.

Pesticide Storage: Keep out of reach of children and animals. Store in original containers only. Store in a cool, dry place and avoid excess heat. Carefully open containers. After partial use replace lids and close tightly. Do not put concentrate or dilute material into food or drink container.

In case of spill, avoid contact, isolate area and keep out animals and unprotected persons. Confine spills. Call CHEMTREC (Transportation and Spills): (800) 424-9300.

To Confine Spill: If liquid, dike surrounding area or absorb with sand, cat litter or commercial clay. If dry material, cover to prevent dispersal. Place damaged package in a holding container. Identify contents.

Pesticide Disposal: Pesticide wastes are toxic. Do not contaminate water, food or feed by storage or disposal. Improper disposal of excess pesticide, spray mixture, or rinsate is a violation of Federal Law. Dispose of excess or waste pesticide by use according to label directions, or contact your State Pesticide or Environmental Control Agency, or the Hazardous Waste representative at the nearest EPA Regional Office for guidance.

Container Disposal:
Container Handing: Non-refillable container. Do not reuse or refill this container. Triple rinse as follows: (For containers less than 5 gallons) Empty the contents into application equipment or a mix tank and drain for 10 seconds after flow begins to drip. Fill container 1/4 full with water and recap. Shake for 10 seconds. Pour rinsate into application equipment or mix tank or store rinsate for later use or disposal. Drain for 10 seconds after the flow begins to drip. Repeat this procedure two more times. Then offer for recycling, if available or reconditioning, if appropriate, or puncture and dispose of in a sanitary landfill, or incineration, or if allowed by state and local authorities, by burning. If burned, stay out of smoke.
(For containers greater than 5 gallons) Empty the remaining contents into application equipment or a mix tank. Fill the container 1/4 full with water. Replace and tighten closures. tip container on its side and roll it back and forth, ensuring at least one complete revolution, for 30 seconds. Stand the container on its end and tip it back and forth several times. Turn the container over onto its other end and tip it back and forth several times. Empty the rinsate into application equipment or a mix tank or store rinstea for later use or disposal. Repeat this procedure two more times.

Returnable/Refillable Sealed Container: Refill this container with pesticide only. Do not reuse this container for any other purpose. Do not rinse container. Do not empty remaining formulated product. Do not break seals. Return intact to point of purchase. Cleaning the container before final disposal is the responsibility of the person disposing of the container. Cleaning before refilling is the responsibility of the refiller.

Product Information

Talstar® P Professional Insecticide controls a wide spectrum of insects and mites on trees, shrubs, foliage plants, non-bearing fruit and nut trees, and flowers in greenhouses, interiorscapes including hotels, shopping malls, office buildings, etc., and outdoor plantscapes, such as around residential dwellings, parks, institutional buildings, recreational areas, athletic fields and home lawns. Non-bearing crops are perennial crops that will not produce a harvestable raw agricultural commodity during the season of application. Talstar® P Professional Insecticide may also be used in feed and food handling establishments, animal confinement facilities, kennels, confined animal feeding operations, livestock premises, and in/around/under structures.

Resistance: Some insects are known to develop resistance to products used repeatedly for control. Because the development of resistance cannot be predicted, the use of this product should conform to resistance management strategies established for the use area. Consult your local or state pest management authorities for details.

If resistance to this product develops in your area, this product, or other products with a similar mode of action, may not provide adequate control. If poor performance cannot be attributed to improper application or extreme weather conditions, a resistant strain of insect may be present. If you experience difficulty with control and suspect that resistance is a reasonable cause, immediately consult your local company representative or pest management advisor for the best alternative method of control for your area.

Talstar® P Professional Insecticide Dilution Chart

			Fluid Ounces of Talstar P Professional Diluted to these Volumes of Finished Spray			
Applic. Volume:		Applic. Rate:	1 Gallon	5 Gallons	10 Gallons	100 Gallons
% a.i.	Gal/ 1000 sq. ft.	Fl. oz./ 1000 sq. ft.	fl. oz.	fl. oz.	fl. oz.	fl. oz.
0.008	1.0	0.125	0.125	0.63	1.25	12.5
0.011	1.0	0.18	0.18	0.90	1.8	18.0
0.015	1.0	0.25	0.25	1.25	2.5	25.0
0.020	1.0	0.33	0.33	1.67	3.33	33.3
0.031	1.0	0.5	0.5	2.5	5.0	50.0
0.041	1.0	0.67	0.67	3.33	6.67	66.7
0.046	1.0	0.75	0.75	3.75	7.5	75.0
0.062	1.0	1.0	1.0	5.0	10.0	100.0
0.004	2.0	0.125	-	0.31	0.63	6.3
0.006	2.0	0.18	-	0.45	0.90	9.0
0.008	2.0	0.25	0.13	0.63	1.25	12.5
0.010	2.0	0.33	0.17	0.83	1.65	16.5
0.015	2.0	0.5	0.25	1.25	2.5	25.0
0.021	2.0	0.67	0.33	1.67	3.35	33.5
0.023	2.0	0.75	0.38	1.88	3.75	37.5
0.031	2.0	1.0	0.5	2.5	5.0	50.0
0.003	3.0	0.125	-	0.21	0.42	4.2
0.004	3.0	0.18	-	0.30	0.60	6.0
0.005	3.0	0.25	-	0.42	0.83	8.3
0.007	3.0	0.33	0.11	0.55	1.10	11.0
0.010	3.0	0.5	0.17	0.83	1.67	16.7
0.014	3.0	0.67	0.22	1.11	2.23	22.3
0.015	3.0	0.75	0.25	1.25	2.5	25.0
0.021	3.0	1.0	0.33	1.67	3.33	33.3
0.002	4.0	0.125	-	0.16	0.31	3.1
0.003	4.0	0.18	-	0.23	0.45	4.5
0.004	4.0	0.25	-	0.31	0.63	6.3
0.005	4.0	0.33	-	0.41	0.83	8.3
0.008	4.0	0.5	0.13	0.63	1.25	12.5
0.010	4.0	0.67	0.17	0.84	1.67	16.7
0.012	4.0	0.75	0.19	0.94	1.88	18.8
0.015	4.0	1.0	0.25	1.25	2.5	25.0
0.002	5.0	0.125	-	0.13	0.25	2.5
0.002	5.0	0.18	-	0.18	0.36	3.6
0.003	5.0	0.25	-	0.25	0.5	5.0
0.004	5.0	0.33	-	0.33	0.67	6.7
0.006	5.0	0.5	0.1	0.5	1.0	10.0
0.008	5.0	0.67	0.13	0.67	1.33	13.3
0.009	5.0	0.75	0.15	0.75	1.5	15.0
0.012	5.0	1.0	0.2	1.0	2.0	20.0
0.001	10.0	0.125	-	-	0.13	1.3
0.001	10.0	0.18	-	-	0.18	1.8
0.002	10.0	0.25	-	0.13	0.25	2.5
0.002	10.0	0.33	-	0.17	0.33	3.3
0.003	10.0	0.5	-	0.25	0.5	5.0
0.004	10.0	0.67	-	0.33	0.67	6.7
0.005	10.0	0.75	-	0.38	0.75	7.5
0.006	10.0	1.0	0.1	0.5	1.0	10.0

1 fluid oz. = 29.57 ml = 2 tablespoons = 6 teaspoons
Do not use household utensils to measure Talstar® P Professional Insecticide.

Note: Higher finished volume should be applied to penetrate thatch, mulch, brush, and porous surfaces. Lower finished volumes can be used indoors and for non-porous surfaces. Do not apply more than 1 oz. Talstar Professional per 1,000 square feet.

Application Instructions

Talstar® P Professional Insecticide formulation mixes readily with water and other aqueous carriers.

Talstar® P Professional Insecticide may be tank-mixed with adjuvants, and with other pesticides, including insect growth regulators. When tank mixing Talstar® P Professional Insecticide with other pesticides, observe all precautions and limitations on each separate product label. The physical compatibility of Talstar® P Professional Insecticide may vary with different sources of pesticide products, and local cultural practices. Any tank mixture which has not been previously tested should be prepared on a small scale (pint or quart jar), using the proper proportions of pesticides and water to ensure the physical compatibility of the mixture.

The following procedure is recommended for preparation of a new tank mix, unless specified otherwise in label directions: (1) Add wettable powders to tank water, (2) Agitate, (3) Add liquids and flowables, (4) Agitate, (5) Add emulsifiable concentrates, and (6) Agitate. If a mixture is found to be incompatible following this order of addition, try reversing the order of addition, or increase

the volume of water. Note: If the tank-mixture is found to be compatible after increasing the amount of water, then the sprayer will need to be recalibrated for a higher volume application. Do not allow tank mix to stand overnight.

Formula for Determining the Active Ingredient Content of the Finished Spray Mixture: The following formula may be used to determine the percent active ingredient that is in the spray tank after mixing Talstar® P Professional Insecticide:

$$\frac{(7.9)(\text{Fl. Oz. of Talstar P Professional added to tank})}{(\text{Gallons of finished spray mix})(128)} = \text{Percent Active Ingredient of spray mix}$$

APPLICATION DIRECTIONS

ANT CONTROL

Nuisance Ants Indoors: For best results, locate and treat ant nests. Dilute 0.5 to 1.0 fluid oz. of Talstar® P Professional Insecticide per gallon of water and apply at the rate of one gallon of dilution per 1,000 square feet as a crack and crevice or spot treatment to areas where ants have been observed or are expected to forage. These areas include, but are not limited to, baseboards, in and behind cabinets, under and behind dishwashers, furnaces, refrigerators, sinks and stoves, around pipes, cracks and crevices and in corners. Particular attention should be given to treating entry points into the home or premises such as around doors and windows. When using Talstar® P Professional Insecticide in combination with baits, apply Talstar® P Professional Insecticide as instructed above, and use baits in other areas that have not been treated with Talstar® P Professional Insecticide

Nuisance Ants Outdoors: For best results, locate and treat ant nests. Apply Talstar® P Professional Insecticide to ant trails around doors and windows and other places where ants have been observed or are expected to forage. Apply a perimeter treatment using either low or high volume applications described in the "Pest Control on Outside Surfaces and Around Buildings" section of this label. The higher dilutions and/or application volumes, as well as more frequent applications, may be necessary when treating concrete surfaces for ant control. Maximum control is generally achieved using the following procedure:

The following procedure must be followed to help achieve maximum control of the pest:

1) Treat non-porous surfaces only in areas protected from rainfall and spray from sprinklers with low volume applications using 0.5 to 1.0 fluid oz. of Talstar® P Professional Insecticide per gallon of water and applying this dilution at the rate of one gallon per 1,000 square feet.
2) Treat porous surfaces and vegetation with high volume applications (usually 5 to 10 finished gallons per 1,000 square feet) using dilutions that are calculated to deliver 0.5 to 1.0 fluid oz. of Talstar® P Professional Insecticide per 1,000 square feet (refer to the Talstar® P Professional Insecticide Dilution Chart).
3) For maximum residual control, dilute 1.0 fluid oz of Talstar P Professional Insecticide per gallon of water and apply at a rate of up to 10 gallons of dilution per 1,000 square feet.

Carpenter Ants Indoors: Dilute 0.5 to 1.0 fluid oz. of Talstar® P Professional Insecticide per gallon of water and apply at the rate of one gallon of dilution per 1,000 square feet as a crack and crevice or spot treatment to areas where carpenter ants have been observed or are expected to forage. These areas include, but are not limited to, baseboards, in and behind cabinets, under and behind dishwashers, furnaces, refrigerators, sinks, and stoves, around pipes, cracks and crevices and in corners. Particular attention should be given to treating entry points into the home or premises such as around doors and windows. Spray or foam into cracks and crevices or drill holes and spray, mist or foam into voids where carpenter ants or their nests are present. When using Talstar® P Professional Insecticide in combination with baits, apply Talstar® P Professional Insecticide as instructed above, and use baits in other areas that have not been treated with Talstar® P Professional Insecticide.

Carpenter Ants Outdoors: Apply Talstar® P Professional Insecticide to carpenter ant trails around doors and windows and other places where carpenter ants have been observed or are expected to forage. For best results, locate and treat carpenter ant nests. Apply a perimeter treatment using either low or high volume applications described in the "Pest Control on Outside Surfaces and Around Buildings" section of this label. The higher dilutions and/or application volumes, as well as more frequent applications, may be necessary when treating concrete surfaces for carpenter ant control. Maximum control is generally achieved using the following procedure:

The following procedure must be followed to help achieve maximum control of the pest:

1) Treat non-porous surfaces only in areas protected from rainfall and spray from sprinklers with low volume applications using 0.5 to 1.0 fluid oz. of Talstar® P Professional Insecticide per gallon of water and applying this dilution at the rate of one gallon per 1,000 square feet
2) Treat the trunks of trees that have carpenter ant trails, or upon which carpenter ants are foraging, using 0.5 to 1.0 fluid oz. of Talstar® P Professional Insecticide per gallon of water and applying this dilution to thoroughly wet the bark from the base of the tree to as high as possible on the trunk
3) Treat porous surfaces and vegetation with high volume applications (usually 5 to 10 finished gallons per 1,000 square feet) using dilutions that are calculated to deliver 0.5 to 1.0 fluid oz. of Talstar® P Professional Insecticide per 1,000 square feet (refer to the Talstar® P Professional Insecticide Dilution Chart)
4) For maximum residual control, dilute 1.0 fluid oz. of Talstar® P Professional Insecticide per gallon of water and apply at a rate of up to 10 gallons of dilution per 1000 square feet.

To control carpenter ants inside trees, utility poles, fencing or deck materials and similar structural members, drill to locate the interior infested cavity and inject or foam a 0.06% dilution (1.0 fluid oz. of Talstar® P Professional Insecticide per gallon of water) into the cavity using a sufficient volume and an appropriate treatment tool with a splashback guard.

To control carpenter ants that are tunneling in the soil, dilute 0.5 to 1.0 fluid ounces of Talstar® P Professional Insecticide per gallon of water and apply as a drench or inject the dilution or foam at intervals of 8 to 12 inches. Establish a uniform vertical barrier at the edges of walls, driveways or other hard surfaces where ants are tunneling beneath the surfaces.

To protect firewood from carpenter ants (and termites), dilute 1.0 fluid oz. of Talstar® P Professional Insecticide per gallon of water and apply to the soil beneath where the firewood will be stacked at the rate of one gallon of dilution per 8 square feet

For wood piles and stored lumber apply a 0.06% dilution. Use a hose-end sprayer or sprinkling can to deliver a coarse drenching spray. Treated wood can be burned as firewood or used for lumber one month after treatment. Do not use in structures.

For Ant and Fire Ant Mounds control is optimized by combining broadcast applications that will control foraging workers and newly mated fly-in queens with mound drenches that will control existing colonies. If the soil is not moist, then it is important to irrigate before application or use a high volume application. Apply broadcast treatments at 0.6 to 1 fluid oz. per 1,000 square feet. Use enough finished volume to penetrate thatch or sod. Treat mounds by applying 1 fl oz Talstar P Professional per mound in 1 to 2 gallons water by sprinkling the mound until it is wet and treat 3 feet out around the mound. Use the higher volume for mounds larger than 12". Treat mounds with sufficient force to break their apex and allow the insecticide solution to flow into the ant tunnels. For best results, apply in cool weather (65 - 80°F) or in early morning or late evening hours.

Pest Control on Outside Surfaces and Around Buildings

Talstar® P Professional Insecticide will provide up to 1 month residual control of house flies. Length of residual control is dependant upon rate and surface treated.

Follow Additional Application Restrictions for Outdoor Surface and Space Sprays under DIRECTIONS FOR USE

Applications to vertical exterior surfaces (e.g., foundations) are permitted to a maximum height of 3 feet from ground level. Sections of vertical exterior surfaces that abut non-porous horizontal surfaces can only be treated if either 1) these sections are protected from rainfall and spray from sprinklers or 2) they do not drain into a sewer, storm drain, or curbside gutter (e.g., not to sections that abut driveways or sidewalks that drain into streets).

For control of Ants, Carpenter Ants, Fire Ants, Armyworms, Lady Beetle, Bees, Beetles†, Biting Flies, Boxelder Bugs, Centipedes, Chiggers, Chinch Bugs, Cicadas, Clover Mites, Cockroaches, Crickets, Cutworms, , Dichondra Flea Beetles, Earwigs, Elm Leaf Beetles, Firebrats, Fleas, Flies, Gnats, Grasshoppers, Hornets, Japanese Beetles†, Midges, Millipedes, Mosquitoes, Moths, Scorpions, Silverfish, Sod Webworms, Sowbugs (Pillbugs), Spider Mites, Spiders (including Black Widow, Brown Recluse and Hobo Spiders), Springtails, Stink Bugs, Ticks (including Brown Dog Ticks), Vinegar (Fruit) Flies, and Wasps.

†Not for use in California.

Apply Talstar® P Professional Insecticide using a 0.02 to 0.06% dilution as a residual spray to outside surfaces of buildings including, but not limited to, exterior siding, foundations, porches, window frames, eaves, patios, garages, refuse dumps, lawns such as grass areas adjacent or around private homes, duplexes, townhouses, condominiums, house trailers, apartment complexes, carports, garages, fence lines, storage sheds, barns, and other residential and non-commercial structures, soil, trunks of woody ornamentals and other areas where pests congregate or have been seen. Do not apply more than 1 oz. Talstar P Professional per 1000 square feet. (Refer to the Talstar P Professional Dilution Chart.). Higher application volumes may be used to obtain the desired coverage of dense vegetation or landscaping materials.

Mixing Directions: For 0.02% dilution, mix 0.33 fluid oz. of Talstar® P Professional Insecticide per gallon of water. For 0.06% dilution, mix 1 fluid oz. Talstar® P Professional Insecticide per gallon of water (1 fluid oz. = 2 tablespoons). Do not use household utensils to measure Talstar® P Professional Insecticide. Use the higher rate for heavy pest infestation, quicker knockdown or longer residual control. Retreatment may be nec-

essary to achieve and/or maintain control during periods of high pest pressure. Repeat application is necessary only if there are signs of renewed insect activity. Repeat application should be limited to no more than once per seven days.

Perimeter Treatment: Apply to a band of soil and vegetation 6 to 10 feet wide around and adjacent to the structure. Also, treat the foundation of the structure to a height of 2 to 3 feet. Apply 0.33 to 1.0 fluid oz. of Talstar® P Professional Insecticide per 1,000 square feet in sufficient water to provide adequate coverage (refer to Talstar® P Professional Insecticide Dilution Chart). For sections of foundation that abut non-porous horizontal surfaces, the treated areas must be protected from rainfall and spray from sprinklers or they do not drain into a sewer, storm drain, or curbside gutter (e.g. not to sections that abut driveways or sidewalks that drain into streets).

Broadcast Treatment of Wood for the Control of Wood-infesting Insects and Nuisance Pests Outside of Structure
Apply a 0.06% dilution with a fan spray using a maximum pressure of 25 psi. Treatment should be made to thoroughly and uniformly cover the surface but limit excess runoff.

To control wood-infesting insects active inside trees, utility poles and/or fence posts, drill to find the interior infested cavity and inject a 0.06% dilution. To control Bees, Wasps, Hornets, and Yellow-Jackets, apply in late evening when insects are at rest. Aim spray at nest openings in ground, bushes and in cracks and crevices which may harbor nests, saturating nest openings and contacting as many insects as possible.

Pests Under Slabs
Infestations of Arthropods, such as Ants, Cockroaches and Scorpions inhabiting under slab area may be controlled by drilling and injecting or horizontal rodding and then injecting 1 gallon of a 0.06% or 1/2 gallon of a 0.12% dilution per 10 square feet (or 2 gallons of a 0.06% dilution or 1 gallon of a 0.12% dilution per 10 linear feet).

MOSQUITO CONTROL

To control adult mosquitoes outdoors on residential, institutional, public, commercial and industrial buildings, and lawns, ornamentals, parks, recreational areas and athletic fields.

Apply Talstar® P Professional Insecticide for mosquito control at an application rate of 0.33 to 1.0 fluid oz. Talstar® P Professional Insecticide per gallon of water (0.07 to 0.22 lbs bifenthrin/acre), and apply at the rate of one gallon of dilution per 1,000 square feet as a general spray (refer to the Talstar® P Professional Insecticide Dilution Chart). Use the high rate for residual control of mosquitoes. Use this product for control of mosquitoes that may potentially transmit malaria and arboviruses (West Nile fever, dengue fever, Eastern equine encephalitis, and St. Louis encephalitis).

Apply as a residual spray to outside surfaces of buildings including but not limited to, exterior siding, foundations, porches, window frames, eaves, patios, garages, refuse dumps, lawns such as grass areas adjacent to or around private homes, duplexes, townhouses, condominiums, house trailers, apartment complexes, carports, fence lines, storage sheds, barns, and other commercial, residential and non commercial structures, soil, trunk of woody ornamentals, trees, shrubs, ground cover, bedding plants, foliage plants, flowers, non-bearing fruit and nut trees, urban areas, parks, campsites, athletic fields, playgrounds, recreational and overgrown waste areas, roadsides and other areas where mosquitoes are found. May also be applied to non-bearing crops or perennial crops that will not produce harvestable raw agricultural commodities during the season of application.

Use the high rate for heavy pest infestation, quicker knockdown, or longer residual control. Retreatment may be necessary to achieve and/or maintain control during periods of high pest pressure, or if there are signs of renewed insect activity. For the lower use rates, repeat application should be limited to no more than once per seven days. For the high use rate of 1.0 fluid oz. Talstar® P Professional Insecticide per gallon of water, do not apply more than once per four weeks.

Apply with hand-held and back pack sprayers or mist blowers, ground sprayers, power sprayers, truck mounted hydraulic sprayers or mist blowers. Do not apply by air or with hand held or truck mounted cold aerosol ULV sprayers and thermal fogging devices. For best results apply when mosquitoes are most active. Application during the cooler hours of the night or early mornings is recommended.

Do not apply more than 1.0 fluid oz. of Talstar® P Professional Insecticide per 1,000 square feet (equivalent to 0.22 lbs. bifenthrin/acre) per application

Do not apply when wind speed exceeds 10 MPH.

INDOOR USE

For control of Ants, Carpenter Ants, Bedbugs, Bees, Beetles, Biting Flies, Boxelder Bugs, Centipedes, Cicadas, Cockroaches, Crickets, Earwigs, Firebrats, Fleas, Flies, Gnats, Millipedes, Mosquitoes, Moths, Scorpions, Silverfish, Sowbugs (Pillbugs), Spider Mites, Spiders (including Black Widow, Brown Recluse and Hobo Spiders), Springtails, Stink Bugs, Ticks (including Brown Dog Ticks), Vinegar (Fruit) Flies, and Wasps.

In the home, all food processing surfaces and utensils should be covered during treatment or thoroughly washed before use. Exposed food should be covered or removed.

Use a 0.02% to 0.06% dilution (0.33 to 1 fluid oz. per gallon of water) for residual pest control in buildings and structures and on modes of transport. Apply either as a crack and crevice, pinstream, spot, coarse, low pressure spray (25 psi or less) or with a paint brush.

Apply as a coarse, low pressure, crack and crevice or spot spray to areas where pests hide, such as baseboards, corners, storage areas, closets, around water pipes, doors and windows, attics and eaves, behind and under refrigerators, cabinets, sinks, furnaces, stoves, the underside of shelves, drawers and similar areas. Do not use as a space spray. Pay particular attention to cracks and crevices.

Mixing Directions: See mixing directions in "Pest Control on Outside Surfaces and Around Buildings" section.

Talstar® P Professional Insecticide is to be diluted with water for spray or brush application. Fill sprayer with the desired volume of water and add Talstar® P Professional Insecticide. Close and shake before use in order to ensure proper mixing. Mix only the amount of solution needed for the application. Retreatment may be necessary to achieve and/or maintain control during periods of high pest pressure. Repeat application is necessary only if there are signs of renewed insect activity. Limit repeat application to no more than once per seven days.

Talstar® P Professional Insecticide may be converted to a foam and used to treat void spaces, or as a spot spray on vertical or horizontal surfaces where visual marking of application is desired. Use of a foaming agent increases a.i. surface contact time on challenging surfaces and provides visual marking of the application.

Bedbugs: Thorough application should be made to crack and crevices where evidence of bed bugs occurs. This includes bed frames, box springs, inside empty dressers and clothes closets and carpet edges, high and low wall moldings and wallpaper edges. Do not use this product on bed linens, pillows, mattresses or clothes. Remove all clothes and other articles from dressers or clothes closets before application. Allow all treated areas to thoroughly dry before use. Not recommended for use as sole protection against bedbugs. If evidence of bedbugs is found in/on mattresses, use products approved for this use.

Use a 0.06% dilution (1 fluid oz. per gallon of water) for residual pest control in buildings and structures and on modes of transport. Apply either as a crack and crevice, pinstream, spot, coarse, low pressure spray (25 psi or less) or with a paint brush.

Cockroaches, Crickets, Firebrats, Flies, Gnats, Moths, Mosquitoes, Scorpions, Silverfish, Spiders, Ticks

Talstar® P Professional Insecticide will provide up to 1 month residual control of house flies. Length of residual control is dependant upon rate and surface treated.

Apply as a coarse, low pressure spray to areas where these pests hide, such as baseboards, corners, storage areas, closets, around water pipes, doors and windows, attics and eaves, behind and under refrigerators, cabinets, sinks, furnaces, and stoves, the underside of shelves, drawers and similar areas. Pay particular attention to cracks and crevices.

Ants: Apply to any trails, around doors and windows and other places where ants may be found.

Fleas:

Talstar® P Professional Insecticide will kill fleas for up to 3 months

Apply as a coarse, low pressure spot or crack and crevice treatment to areas frequented by pets, such as under bedding, rugs, next to furniture. Do not apply Talstar® P Professional Insecticide dilution directly to pets. Treatment must be dry before pet re-entry. Vacuum prior to treatment.

Boxelder Bugs, Centipedes, Cicadas, Earwigs, Beetles, Millipedes, Pillbugs, Sowbugs, Springtails, and Stink Bugs: Apply around doors and windows and other places where these pests may be found or where they may enter premises. Check damp areas and drains for pest access. Spray baseboards, storage areas and other locations.

Spider Mites: Treat houseplants thoroughly but do not allow run off to occur. Make sure to treat underside of leaves.

Bees and Wasps
To control Bees, Wasp, Hornets, and Yellow-Jackets apply a 0.06% dilution. Application should be made in the late evening when insects are at rest. Thoroughly spray nest and entrance and surrounding areas where insects alight. Spray liberally into hiding and breeding places, especially under attic rafters, contacting as many insects as possible. Retreatment may be necessary to achieve and/or maintain control during periods of high pest pressure. Repeat application is necessary only if there are signs of renewed insect activity.

Precautions: Do not apply dilution until location of heat pipes, ducts, water and sewer lines and electrical conduits are known and identified. Caution must be taken to avoid puncturing and injection into these structural elements. During any overhead applications to overhead interior areas of structures, cover surfaces below with plastic sheeting or similar materials.

Restrictions:

Do not apply into electrical fixtures, switches, or sockets.

In the home, all food processing surfaces and utensils in the treatment area should be covered during treatment or thoroughly washed before re-use. Remove pets, birds, and cover aquariums before spraying. Do not permit humans or pets to contact treated surfaces until the spray has dried.

Wear protective clothing, unvented goggles, gloves and respirator, when applying to overhead areas or in poorly ventilated areas. Avoid touching sprayed surfaces until spray has completely dried.

FOR CONTROL OF STORED PRODUCTS PESTS

Including Indian Meal Moths, Rice Moths, Tobacco Moths, Flour Beetles, Lesser Grain Borers, Merchant Grain Beetles, Sawtoothed Grain Beetles, Grain Weevils, Warehouse Beetles, Cigarette Beetles, and Dermestid Beetles, Psocids, and other similar pests. Inspect to locate and remove infested food sources, remove or cover any food items or food serving dishes or utensils prior to treatment. Apply Talstar P Professional using a 0.02 to 0.06% dilution, Apply as a coarse, low pressure spray to areas where these pests hide, such as baseboards, corners, storage areas, closets, around water pipes, doors and windows, attics and eaves, behind and under refrigerators, cabinets, sinks, furnaces, and stoves, the underside of shelves, drawers and similar areas. Pay particular attention to cracks and crevices. Do not apply directly to food.

WAREHOUSES and GROCERY/PET STORES: Talstar® P Professional Insecticide dilution may be applied as a surface, spot or crack and crevice treatment in food and storage warehouses and stores. Apply to all areas that may harbor pests, including under and between pallets, bins, and shelves. Do not apply directly to food, grain bins (interior), or animals.

FOOD/FEED HANDLING ESTABLISHMENT APPLICATIONS

Applications of this product are permitted in both food/feed and non-food areas of food/feed handling establishments as a surface, spot, or crack and crevice treatment.

Talstar P Professional Insecticide will provide up to 1 month residual control of house flies. Length of residual control is dependant upon rate and surface treated.

Food/feed handling establishments are defined as places other than private residences in which exposed food/feed is held, processed, prepared or served. Included also are areas for receiving, storing, packing (canning, bottling, wrapping, boxing), preparing, edible waste storage and enclosed processing systems (mills, dairies, edible oils, syrups) of food. Serving areas where food is exposed and the facility is in operation are also considered food areas.

Permitted non-food areas of use include, garbage rooms, lavatories, entries and vestibules, offices, locker rooms, machine rooms, garages, mop closets and storage (after canning or bottling).

Permitted use sites include, but are not limited to: Aircraft (Do not use in aircraft cabins), bakeries, bottling facilities, breweries, buses, cafeterias, candy plants, canneries, dairy product processing plants, food manufacturing plants, food processing plants, food service establishments, granaries, grain mills, hospitals, hotels, industrial buildings, laboratories, meat/poultry/egg processing plants, mobile/motor homes, nursing homes offices, railcars, restaurants, schools, ships, trailers, trucks, vessels, warehouses and wineries.

Surface Application: Do not use this application method in food/feed handling establishments when the facility is in operation or foods/feeds are exposed. Do not apply directly to food products. Cover or remove all food processing and/or handling equipment during application. After application in food processing plants, bakeries, cafeterias and similar facilities, wash all equipment, benches, shelving and other surfaces which food will contact. Clean food handling or processing equipment and thoroughly rinse with clean, fresh water.

Spot, Crack and Crevice Application: Spot or crack and crevice applications may be made while the facility is in operation; however, food should be covered or removed from area being treated. Do not apply directly to food. For this application a "spot" will not exceed 2 ft^2

ANIMAL CONFINEMENT FACILITIES, LIVESTOCK PREMISES, CONFINED ANIMAL FEEDING OPERATIONS, and KENNELS

Controls biting flies, filth-breeding flies, fleas, litter beetles, hide beetles, bed bugs, mites, and ticks. Apply as a surface (including directed spray) and/or crack and crevice treatment. Control is enhanced when interior and exterior perimeter applications are made in and around the livestock, poultry, or pet housing structures. Normal cleaning practices of the structure also must be followed along with applications of Talstar P Professional Insecticide to effectively control crawling and flying insect pests.

For occupied areas of poultry/livestock facilities and kennels, apply to indoor cracks and crevices only. Exterior applications to walls and foundation perimeters can help prevent interior infestations of flying and crawling insect pests. Apply Talstar P Professional Insecticide at a rate equivalent to 0.33 to 1 fl. oz per 1000 sq. feet.

For unoccupied areas of poultry/livestock facilities and kennels, apply to floors, vertical and overhead surfaces where crawling or flying insect pests may be present. Feeders, waterers, and feed carts should be covered before application to prevent contamination. Do not apply to milk rooms. Pay attention to animal areas including stanchions, pipes, windows, doors, and areas where insect pests hide or congregate. Exterior applications to walls and foundation perimeters can help prevent interior infestations of flying and crawling insect pests. Apply Talstar P Professional Insecticide at a rate equivalent to 0.33 to 1 fl. oz per 1000 sq. feet. Use sufficient finished volume to penetrate leaf litter, thatch, mulch, or porous surfaces.

To control bed bugs, mites and ticks in animal facilities, treat cracks/crevices, walls, posts, nest boxes, and mobile side curtains. Do not apply Talstar P Professional Insecticide directly to animals. To control bedbugs, use 0.5 to 1 fl. oz per 1000 sq. ft. Use the higher rate of application on painted and non-porous surfaces.

For adult fly control in and around animal facilities, spray application should target areas where flies will rest, such as the ceiling, rafters, and trusses. Also treat windows, interior and exterior walls and supports, fences, and vegetation. Talstar P Professional Insecticide dilution may be sprayed on manure in areas where fly larvae are abundant and the area cannot be cleaned.

For poultry houses, apply to floor area (birds grown on litter) or to walls, posts, and cage framing (birds grown in cages). Application should also be made into cracks and crevices around insulation. Reapply after each growout or sanitization procedure, but not more frequently than every 8 weeks. Indoor control can be enhanced by making perimeter treatments around the outside of building foundations to prevent immigrating adult beetles. Apply in a uniform band 2 to 3 feet up and 6 to 10 feet out from the structure. Maintaining a year-round treatment program will prevent background populations from reaching problem levels.

To control beetles in houses containing birds grown on litter, apply Talstar P Professional Insecticide at a rate equivalent to 0.33 to 1 fl. oz per 1000 sq. feet to litter after birds are removed and during tilling. If litter is removed and replaced with fresh litter, apply Talstar P Professional Insecticide at a rate equivalent to 0.33 to 1 fl. oz per 1000 sq. feet to bare soil or concrete, and treat new litter after it is spread. Apply spray to inside walls, posts, and exterior perimeter. Reapply between each flock.

To control beetles in broiler-breeder houses, apply as directed above for litter and soil/floor treatment.

To control beetles in caged-layer houses, do not treat accumulated manure, as it will likely disrupt natural enemies that control fly breeding. Instead, treat the perimeter of the manure at a rate equivalent to 0.33 to 1 fl. oz Talstar P Professional Insecticide per 1000 sq. feet. Pit walls, posts, and exterior of structure should also be sprayed. Reapply between each flock.

Allow Talstar P Professional Insecticide treatment to dry before applying disinfectants.

DO NOT apply Talstar P Professional Insecticide as a surface spray when animals are present in the facility. Allow applications to dry before restocking the facility. Treatment may be made to cracks and crevices when animals are present.

DO NOT apply Talstar P Professional Insecticide to any animal feed, water, or watering equipment.

DO NOT contaminate any animal feed, food, or water in and around livestock, poultry, or pet housing when making applications.

Foam Applications

Talstar® P Professional Insecticide may be converted to a foam and used to treat void spaces, or as a spot spray on vertical or horizontal surfaces where visual marking of application is desired. Use of a foaming agent increases a.i. surface contact time on challenging surfaces and provides visual marking of the application. Ensure that the foaming agent is approved for food surface/area contact use.

Specific Pest Control Applications

Underground Services such as: wires, cables, utility lines, pipes, conduits, etc. Services may be within structures or located outside structures, in right-of-ways or to protect long range (miles) of installations of services.

Soil treatment may be made using 0.06 to 0.12% Talstar® P Professional Insecticide dilution to prevent attack by Termites and Ants.

Apply 2 gallons of dilution per 10 linear feet to the bottom of the trench and allow to soak into the soil. Lay services on the treated soil and cover with approximately 2 inches of fill soil. Apply another 2 gallons per 10 linear feet over the soil surface to complete the treatment barrier. In wide trenches, only treat the soil in the area near the services. It is important to establish a continuous barrier of treated soil surrounding the services.

Where soil will not accept the above labeled volume, 1 gallon of 0.12% Talstar® P Professional Insecticide may be used per 10 linear feet of trench both to the bottom of the trench and over the soil on top of the services.

Finish filling the trench with treated fill soil. The soil where each service protrudes from the ground may be treated by trenching/rodding of no more than 1 to 2 gallons of dilution into the soil.

Restrictions:

Do not treat electrically active underground services.

Posts, Poles, and Other Constructions
Create an insecticidal barrier in the soil around wooden constructions such as signs, fences and landscape ornamentation by applying a 0.06% dilution.

Previously installed poles and posts may be treated by sub-surface injection or treated by gravity-flow through holes made from the bottom of a trench around the pole or post. Treat on all sides to create a continuous insecticidal barrier around the pole. Use 1 gallon of dilution per foot of depth for poles and posts less than six inches in diameter. For larger poles, use 1.5 gallons of dilution per foot of depth. Apply to a depth of 6 inches below the bottom of the wood. For larger constructions, use 4 gallons per 10 linear feet per foot of depth.

Treatment of Wood-in-Place for Control of Wood-Infesting Insects: (Localized Areas in Structure) For the control of insects such as Termites, Ants, Carpenter Ants, and wood-infesting beetles such as Old House Borer and Powder Post in localized areas of infested wood in and around structures, apply a 0.06% dilution to voids and galleries in damaged wood and in spaces between wooden members of a structure and between wood and foundations where wood is vulnerable. Paint on or fan spray applications may also be used. Plastic sheeting must be placed immediately below overhead areas that are spot treated except for soil surfaces in crawl spaces. Application may be made to inaccessible areas by drilling, and then injecting dilution with a crack and crevice injector into the damaged wood or void spaces. This type of application is not intended to be a substitute for soil treatment, mechanical alteration or fumigation to control extensive infestation of wood-infesting insects.

Termite carton nests in trees or building voids may be injected with 0.06% dilution. Multiple injection points to varying depths may be necessary. It is desirable to physically remove carton nest material from building voids when such nests are found.

Pest Control in Crawlspaces and Voids: Broadcast Talstar® P Professional Insecticide at 0.02% to 0.06% to all surfaces in crawlspace and/or void to control ants, fleas, roaches, scorpions, or other arthropods. This treatment is not intended as a substitute for termite control. Treatment should be made to thoroughly and uniformly cover the surface but limit excess runoff. Keep children and pets off surface until dry.

SUBTERRANEAN TERMITE CONTROL

Directions For Use

All pesticide handlers (mixers, loaders and applicators) must wear long-sleeved shirt and long pants, socks, shoes and chemical-resistant gloves. After the product is diluted in accordance with label directions for use, and/or when mixing and loading using a closed spray tank transfer system (such as an in-line injector system) , shirt, pants, socks, shoes and waterproof gloves are sufficient. In addition, all pesticide handlers must wear a respiratory protection device[1] when working in a non-ventilated space. All pesticide handlers must wear protective eyewear when working in non-ventilated space or when applying termiticide by rodding or sub-slab injection.

[1]Use one of the following NIOSH approved respirator with any R, P or HE filter or a NIOSH approved respirator with an organic vapor (OV) cartridge or canister with any R, P or HE prefilter.

When treating adjacent to an existing structure, the applicator must check the area to be treated, and immediately adjacent areas of the structure, for visible and accessible cracks and holes to prevent any leaks or significant exposures to persons occupying the structure. People present or residing in the structure during application must be advised to remove their pets and themselves from the structure if they see any signs of leakage. After application, the applicator is required to check for leaks. All leaks resulting in the deposition of termiticide in locations other than those prescribed on this label must be cleaned up prior to leaving the application site. Do not allow people or pets to contact contaminated areas or to reoccupy contaminated areas of the structure until the clean-up is completed

The use of this product prevents and controls termite infestations in and around structures and constructions.

The insecticidal dilution must be adequately dispersed in the soil to establish a barrier between the wood and the termites in the soil. As a good practice: 1) all non-essential wood and cellulose containing materials, should be removed from around foundation walls, crawl spaces, and porches; 2) eliminate termite access to moisture by repairing faulty plumbing and/or construction grade. Soil around untreated structural wood in contact with soil should be treated as described below.

To establish an effective insecticidal barrier with this product the service technician must be familiar with current termite control practices such as: trenching, rodding, sub-slab injection, coarse fan spraying of soil surfaces, crack and crevice (void) injection, excavated soil treatment, and brush or spray applications to infested or susceptible wood. These techniques must be correctly employed to prevent or control infestations by subterranean termites such as: *Coptotermes, Heterotermes, Reticulitermes* and *Zootermopsis*. The biology and behavior of the species involved should be considered by the service technician in determining which control practices to use to control or prevent the termite infestation.

Choice of appropriate procedures should include consideration of such variable factors as the design of the structure, location of heating, ventilation, and air conditioning (HVAC) systems, water table, soil type, soil compaction, grade conditions, and location and type of domestic water supplies and utilities.

For advice concerning current control practices with relation to specific local conditions, consult resources in structural pest control and state cooperative extension and regulatory agencies.

Important: Contamination of public and private water supplies must be avoided by following these restrictions and procedures: Use anti-backflow equipment or procedures to prevent siphonage of insecticide into water supplies. Do not contaminate cisterns or wells. Do not treat soil that is water saturated or frozen or in any conditions where runoff or movement from the treatment area (site) is likely to occur. Consult state and local specifications for recommended distances of wells from treated areas, or if such regulations do not exist, refer to Federal Housing Administration Specifications (H.U.D.) for guidance.

Note: Crawl spaces are considered inside of the structure.

Critical Areas: Critical areas include areas where the foundation is penetrated by utility services, cracks and expansion joints, bath traps and areas where cement constructions have been poured adjacent to the foundation such as stairs, patios and slab additions.

Structures with Wells/Cisterns Inside Foundations
Structures that contain wells or cisterns within the foundation of a structure can only be treated using the following techniques:

1. Do not treat soil while it is beneath or within the foundation or along the exterior perimeter of a structure that contains a well or cistern. The treated backfill method must be used if soil is removed and treated outside/away from the foundation. The treated backfill technique is described as follows:
   a. Trench and remove soil to be treated onto heavy plastic sheeting or similar material or into a wheelbarrow.
   b. Treat the soil at the rate of 4 gallons of dilution per 10 linear feet per foot of depth of the trench, or 1 gallon per 1.0 cubic feet of soil. See "Mixing Directions section of the label. Mix thoroughly into the soil taking care to contain the liquid and prevent runoff or spillage.
   c. After the treated soil has absorbed the dilution, replace the soil into the trench.
2. Treat infested and/or damaged wood in place using an injection technique such as described in the "Control of Wood Infesting Insects" section of this label.

Structures with Adjacent Wells/Cisterns and/or Other Water Bodies
Applicators must inspect all structures with nearby water sources such as wells, cisterns, surface ponds, streams, and other bodies of water and evaluate, at a minimum, the treatment recommendations listed below prior to making an application

1. Prior to treatment, if feasible, expose the water pipe(s) coming from the well to the structure, if the pipe(s) enter the structure within 3 feet of grade.
2. Prior to treatment, applicators are advised to take precautions to limit the risk of applying the termiticide into subsurface drains that could empty into any bodies of water. These precautions include evaluating whether application of the termiticide to the top of the footer may result in contamination of the subsurface drain. Factors such as depth to the drain system and soil type and degree of compaction should be taken into account in determining the depth of treatment.
3. When appropriate (i.e., on the water side of the structure), the treated backfill technique (described above) can also be used to minimize off-site movement of termiticide.

Prior to using this technique near wells or cisterns, consult state, local or federal agencies for information regarding approved treatment practices in your area.

Application Rate:
Use a 0.06% dilution for subterranean termites. For other pests on the label use specific listed rates.

Mixing Directions: Mix the termiticide use dilution in the following manner: Fill tank 1/4 to 1/3 full. Start pump to begin by-pass agitation and place end of treating tool in tank to allow circulation through hose. Add appropriate amount of Talstar® P Professional Insecticide. Add remaining amount of water. Let pump run and allow recirculation through the hose for 2 to 3 minutes.

Talstar® P Professional Insecticide may also be mixed into full tanks of water, but requires substantial agitation to ensure uniformity of the dilution.

To prepare a 0.06% water dilution, ready to use, dilute 3 quarts of Talstar® P Professional Insecticide with 99.25 gallons of water.

Mixing:
For the desired application rate, use the chart below to determine the amount of Talstar® P Professional Insecticide for a given volume of finished dilution:

Amount of Talstar® P Professional Insecticide (Gallons except where noted)			
Dilution Concentration	**Amount of Talstar P Professional**	**Amount of Water**	**Desired Gallons of Finished Dilution**
0.06%	1 fl oz	127 fl oz.	1
	5 fl oz	4.9	5
	10 fl oz.	9.9	10
	25 fl oz.	24.8	25
	1.5 qt.	49.6	50
	2.25 qt.	74.4	75
	3 qt	99.25	100
0.12%*	2 fl oz	126 fl oz.	1
	10 fl oz	4.9	5
	19.5 fl oz.	9.8	10
	1.5 qt.	24.6	25
	3 qt.	49.2	50
	4.5 qt.	73.8	75
	6 qt	98.5	100

Common units of measure:
1 pint = 16 fluid ounces (fl oz.)
1 quart = 2 pints = 4 cups = 32 fluid ounces (fl oz.)

*For termite applications, only use this rate in conjunction with the application volume adjustments as listed in the section below or in the foam or underground service application sections.

Application Volume: To provide maximum control and protection against termite infestation apply the specified volume of the finished water dilution and active ingredient as set forth in the directions for use section of this label. If soil will not accept the labeled application volume, the volume may be reduced provided there is a corresponding increase in concentration so that the amount of active ingredient applied to the soil remains the same.

Note: Large reductions of application volume reduce the ability to obtain a continuous barrier. Variance is allowed when volume and concentration are consistent with label directed rates and a continuous barrier can still be achieved.

Where desirable for pre and post construction treatments, the volume of the 0.12% dilution may be reduced by ½ the labeled volume. See Volume Adjustment Chart below.

Note: When volume is reduced, the hole spacing for subslab injection and soil rodding may require similar adjustment to account for lower volume dispersal of the termiticide in the soil.

Volume Adjustment Chart		
Rate (% dilution)	**0.06%**	**0.12%**
Volume allowed		
Horizontal (gallons dilution/10 ft^2)	1.0 gallons	0.5 gallons
Vertical (gallons dilution/10 lin. ft.)	4.0 gallons	2.0 gallons

After Treatment: All holes in commonly occupied areas into which Talstar® P Professional Insecticide has been applied must be plugged. Plugs must be of a non-cellulose material or covered by an impervious, non-cellulose material.

Pre-Construction Subterranean Termite Treatment

The treatment site must be covered prior to a rain event in order to prevent run-off of the pesticide into non-target areas.

The applicator must either cover the soil him/herself or provide written notification of the above requirement to the contractor on site and to the person commissioning the application (if different than the contractor). If notice is provided to the contractor or the person commissioning the application, then they are responsible under FIFRA to ensure that: 1) if the concrete slab cannot be poured over the treated soil within 24 hours of application the treated soil is covered with a waterproof covering (such as polyethylene sheeting), and 2) the treated soil is covered if precipitation is predicted to occur before the concrete slab is scheduled to be poured.

Do not treat soil that is water-saturated or frozen.

Do not treat when raining.

Do not allow treatment to runoff from the target area.

Do not apply within 10 feet of storm drains. Do not apply within 25 feet of aquatic habitats (such as, but not limited to, lakes; reservoirs; rivers; permanent streams; marshes or ponds; estuaries; and commercial fish farm ponds).

Do not make on-grade applications when sustained wind speeds are above 10 mph (at application site) at nozzle end height.

Pre-Construction Treatment: Do not apply at a lower dosage and/or concentration than specified on this label for applications prior to the installation of the finished grade.

When treating foundations deeper than 4 feet, apply the termiticide as the backfill is being replaced, or if the construction contractor fails to notify the applicator to permit this, treat the foundation to a minimum depth of 4 feet after the backfill has been installed. The applicator must trench and rod into the trench or trench along the foundation walls and around pillars and other foundation elements, at the rate prescribed from grade to a minimum depth of 4 feet. When the top of the footing is exposed, the applicator must treat the soil adjacent to the footing to a depth not to exceed the bottom of the footing. However, in no case should a structure be treated below the footing.

Effective pre-construction subterranean termite control is achieved by the establishment of vertical and/or horizontal insecticidal barriers using 0.06% dilution of Talstar® P Professional Insecticide.

Horizontal Barriers
Create a horizontal barrier wherever treated soil will be covered by a slab, such as footing trenches, slab floors, carports, and the soil beneath stairs and crawl spaces.

For a 0.06% rate apply 1 gallon of dilution per 10 square feet, or use 1 fluid ounce of Talstar® P Professional Insecticide per 10 square feet in sufficient water (no less than 1/2 gallon or more than 2 gallons) to provide thorough and continuous coverage of the area being treated.

If the fill is washed gravel or other coarse material, it is important that a sufficient amount of dilution be used to reach the soil substrate beneath the coarse fill.

Applications shall be made by a low pressure spray (less than 50 p.s.i.) using a coarse spray nozzle. If slab will not be poured the same day as treatment, cover treated soil with a water-proof barrier such as polyethylene sheeting. This is not necessary if foundation walls have been installed around the treated soil.

Vertical Barriers
Vertical barriers must be established in areas such as around the base of foundations, plumbing, utility entrances, back-filled soil against foundation walls and other critical areas.

For a 0.06% rate, apply 4 gallons of dilution per 10 linear feet per foot of depth or 4 fluid ounces of Talstar® P Professional Insecticide 10 linear feet per foot of depth from grade to top of footing in sufficient water (not less than 2 gallons or more than 8 gallons) to ensure complete coverage.

a. When trenching and rodding into the trench, or trenching, it is important that dilution reaches the top of the footing. Rod holes must be spaced so as to achieve a continuous termiticide barrier, but in no case more than 12 inches apart.
b. Care should be taken to avoid soil wash-out around the footing.
c. Trenches need not be wider than 6 inches. Dilution should be mixed with the soil as it is being replaced in the trench.
d. For a monolithic slab, an inside vertical barrier may not be required.

Treat hollow block voids at a rate of 2 gallons of dilution per 10 linear feet so that the dilution will reach the top of the footing.

Prior to each application, applicators must notify the general contractor, construction superintendent, or similar responsible party, of the intended termiticide application and intended sites of application and instruct the responsible person to notify construction workers and other individuals to leave the area to be treated during application and until the termiticide is absorbed into the soil.

Post Construction Subterranean Termite Treatment

Use a 0.06% dilution for post-construction treatment. Post-construction soil applications shall be made by injection, trenching and rodding into the trench or trenching, or coarse fan spray with pressures not exceeding 25 p.s.i. at the nozzle. Care should be taken to avoid soil wash-out around the footing.

Do not apply dilution until location of wells, radiant heat pipes, water and sewer lines and electrical conduits are known and identified. Caution must be taken to avoid puncturing and injection into these elements.

Foundations: For applications made after the final grade is installed, the applicator must trench and rod into the trench or trench along the foundation walls and around pillars and other foundation elements, at the rate prescribed from grade to the top of the footing. When the footing is more than four (4) feet below grade, the applicator must trench and rod into the trench or trench along the foundation walls at the rate prescribed to a minimum depth of four feet. The actual depth of treatment will vary depending on soil type, degree of compaction, and location of termite activity. When the top of the footing is exposed, the applicator must treat the soil adjacent to the footing to a depth not to exceed the bottom of the footing. However, in no case should a structure be treated below the footing.

Slabs
Vertical barriers may be established by sub-slab injection within the structure and trenching and rodding into the trench or trenching outside at the rate of 4 gallons of dilution per 10 linear feet per foot of depth. Special care must be taken to distribute the treatment evenly. Treatment should not extend below the bottom of the footing.

Treat along the outside of the foundation and where necessary beneath the slab on the inside of foundation walls. Treatment may also be required beneath the slab along both sides of interior footing-supported walls, one side of interior partitions and along all cracks and expansion joints. Horizontal barriers may be established where necessary by long-rodding or by grid pattern injection vertically through the slab.

a. Drill holes in the slab and/or foundation to allow for the application of a continuous insecticidal barrier.

b. For shallow foundations (1 foot or less) dig a narrow trench approximately 6 inches wide along the outside of the foundation walls. Do not dig below the bottom of the footing. The dilution should be applied to the trench and soil at 4 gallons of dilution per 10 linear feet per foot of depth as the soil is replaced in the trench.

c. For foundations deeper than 1 foot follow rates for basement.

d. Exposed soil and wood in bath traps may be treated with a 0.06% dilution.

Basements
Where the footing is greater than 1 foot of depth from grade to the bottom of the foundation, application must be made by trenching and rodding into the trench, or trenching at the rate of 4 gallons of dilution per 10 linear feet per foot of depth. When the footer is more than four feet below grade, the applicator may trench and rod into the trench, or trench along foundation walls at the rate prescribed for four feet of depth. Rod holes must be spaced to provide a continuous insecticidal barrier, but in no case more than 12 inches apart. The actual depth of treatment will vary depending on soil type, degree of compaction, and location of termite activity. However, in no case should a structure be treated below the footer. Sub-slab injection may be necessary along the inside of foundation walls, along cracks and partition walls, around pipes, conduits, piers, and along both sides of interior footing-supported walls.

Accessible Crawl Spaces: For crawl spaces, apply vertical termiticide barriers at the rate of 4 gallons of dilution per 10 linear feet per foot of depth from grade to the top of the footing, or if the footing is more than 4 feet below grade, to a minimum depth of 4 feet. Apply by trenching and rodding into the trench, or trenching. Treat both sides of foundation and around all piers and pipes. Where physical obstructions such as concrete walkways adjacent to foundation elements prevent trenching, treatment may be made by rodding alone. When soil type and/or conditions make trenching prohibitive, rodding may be used. When the top of the footing is exposed, the applicator must treat the soil adjacent to the footing to a depth not to exceed the bottom of the footing. Read and follow the mixing and use direction section of the label if situations are encountered where the soil will not accept the full application volume.

1. Rod holes and trenches must not extend below the bottom of the footing.
2. Rod holes must be spaced so as to achieve a continuous termiticide barrier but in no case more than 12 inches apart.
3. Trenches must be a minimum of 6 inches deep or to the bottom of the footing, whichever is less, and need not be wider than 6 inches. When trenching in sloping (tiered) soil, the trench must be stepped to ensure adequate distribution and to prevent termiticide from running off. The dilution must be mixed with the soil as it is replaced in the trench.
4. When treating plenums or crawl spaces, turn off the air circulation system of the structure until application has been completed and all termiticide has been absorbed by the soil.

Inaccessible Crawl Spaces: For inaccessible interior areas, such as areas where there is insufficient clearance between floor joists and ground surfaces to allow operator access, excavate if possible, and treat according to the instructions for accessible crawl spaces. Otherwise, apply one or a combination of the following two methods.

1. To establish a horizontal barrier, apply to the soil surface, 1 gallon of dilution per 10 square feet overall using a nozzle pressure of less than 25 p.s.i. and a coarse application nozzle (e.g., Delavan Type RD Raindrop, RD-7 or larger, or Spraying Systems Co. 8010LP TeeJet or comparable nozzle). For an area that cannot be reached with the application wand, use one or more extension rods to make the application to the soil. Do not broadcast or powerspray with higher pressures.
2. To establish a horizontal barrier, drill through the foundation wall or through the floor above and treat the soil perimeter at a rate of 1 gallon of dilution per 10 square feet. Drill spacing must be at intervals not to exceed 16 inches. Many States have smaller intervals, so check State regulations which may apply.

When treating plenums and crawl spaces, turn off the air circulation system of the structure until application has been completed and all termiticide has been absorbed by the soil.

Masonry Voids: Drill and treat voids in multiple masonry elements of the structure extending from the structure to the soil in order to create a continuous treatment barrier in the area to be treated. Apply at the rate of 2 gallons of dilution per 10 linear feet of footing, using a nozzle pressure of less than 25 p.s.i. When using this treatment, access holes must be drilled below the sill plate and should be as close as possible to the footing as is practical. Treatment of voids in block or rubble foundation walls must be closely examined: Applicators must inspect areas of possible runoff as a precaution against application leakage in the treated areas. Some areas may not be treatable or may require mechanical alteration prior to treatment.

All leaks resulting in the deposition of termiticide in locations other than those prescribed on this label must be cleaned up prior to leaving the application site. Do not allow people or pets to contact contaminated areas or to reoccupy the contaminated areas of the structure until the clean-up is completed.

Note: When treating behind veneer care should be taken not to drill beyond the veneer. If concrete blocks are behind the veneer, both the blocks and the veneer may be drilled and treated at the same time.

Not for use in voids insulated with rigid foam insulation.

Excavation Technique: If treatment must be made in difficult situations, along fieldstone or rubble walls, along faulty foundation walls, and around pipes and utility lines which lead downward from the structure to a well or pond, application may be made in the following manner:

a. Trench and remove soil to be treated onto heavy plastic sheeting or similar material.

b. Treat the soil at the rate of 4 gallons of dilution per 10 linear feet per foot of depth of the trench. Mix the dilution thoroughly into the soil taking care to prevent liquid from running off the liner.

c. After the treated soil has absorbed the liquid dilution, replace the soil in the trench.

Attention: When applying Talstar® P Professional Insecticide in a confined area, the user should wear unvented goggles and a respirator approved by NIOSH during application.

Foam Applications

Talstar® P Professional Insecticide dilution, from 0.06 to 0.12 % may be converted to a foam with expansion characteristics from 2 to 40 times.

Localized Application: The dilution may be converted to a foam and the foam used to control or prevent termite infestations.

Depending on the circumstances, foam applications may be used alone or in combination with liquid dilution applications. Applications may be made behind veneers, piers, chimney bases, into rubble foundations, into block voids or structural voids, under slabs, stoops, porches, or to the soil in crawlspaces, and other similar voids.

Foam and liquid application must be consistent with volume and active ingredient instructions in order to ensure proper application has been made. The volume and amount of active ingredient are essential to an effective treatment. At least 75% of the labeled liquid dilution volume of product must be applied, with the remaining percent delivered to appropriate areas using foam application. Refer to label and use recommendations of the foam manufacturer and the foaming equipment manufacturer.

Foam applications are generally a good supplement to liquid treatments in difficult areas, but may be used alone in difficult spots.

Application Under Slabs or to Soil in Crawlspaces to Prevent or Control Termites
Application may be made using Talstar® P Professional Insecticide foam alone or in combination with liquid dilution. The equivalent of at least 4 gallons (4 ounces of Talstar® P Professional Insecticide concentrate) of 0.06% dilution per 10 linear feet (vertical barrier), or at least 1 gallon (1 ounce of Talstar® P Professional Insecticide concentrate) of 0.06% dilution per 10 square feet (horizontal barrier) must be applied either as dilution, foam, or a combination of both. For a foam only application, apply Talstar® P Professional Insecticide concentrate in sufficient foam concentration and foam volume to deposit 4 ounces of concentrate per 10 linear feet or 1 ounce of concentrate per 10 square feet. For example, 2 gallons of 0.12% dilution generated as foam to cover 10 linear feet is equal to the application of 4 gallons of 0.06% dilution per 10 linear feet.

Sand Barrier Installation and Treatment

Termites can build mud tubes over treated surfaces as long as they have access to untreated soil and do not have to move Talstar® P Professional Insecticide treated soil. Susceptible cracks and spaces can be filled with builder's or play box sand and the sand treated with Talstar P Professional. The sand should be treated as soil following the termiticide rate listed on the Talstar® P Professional Insecticide label.

Retreatment for subterranean termites can only be performed if there is clear evidence of reinfestation or disruption of the barrier due to construction, excavation, or landscaping and/or evidence of the breakdown of the termiticide barrier in the soil. These vulnerable or reinfested areas may be retreated in accordance with application techniques described in this product's labeling. The timing and type of these retreatments will vary depending on factors such as termite pressure, soil types, soil conditions and other factors which may reduce the effectiveness of the barrier.

Annual retreatment of the structure is prohibited unless there is clear evidence that reinfestation or barrier disruption has occurred.

APPLICATION IN CONJUNCTION WITH THE USE OF TERMITE BAITS

As part of the integrated pest management (IPM) program for termite control, Talstar® P Professional Insecticide may be applied to critical areas of the structure including plumbing and utility entry sites, bath traps, expansion joints, foundation cracks and areas with known or suspected infestations at a rate of 0.06% as a spot treatment or complete barrier treatment. Applications may be made as described in the Postconstruction treatment section of this label.

TERMITE CONTROL (ABOVE GROUND ONLY)

The purpose of the applications described below are to kill termite workers or winged reproductives that may be present at the time of treatment. These applications are intended as supplements to, and not substitutes for, mechanical alteration, soil treatment or foundation treatment.

To control exposed workers and winged reproductive termites in localized areas, dilute 1.0 fluid oz. of Talstar® P Professional Insecticide per gallon of water and apply as a course fan spray at the rate of one gallon per 1,000 square feet to attics, crawl spaces, unfinished basements and other void areas. Treat swarming termites as well as the areas in which they congregate.

To control above-ground termites in localized areas of infested wood, dilute 1.0 fluid oz. of Talstar® P Professional Insecticide per gallon of water and apply as a liquid or foam to voids and galleries in damaged wood as well as to spaces between wooden structural members and between the sill plate and foundation where wood is vulnerable to attack. Applications may be made to inaccessible areas by drilling and then injecting the dilution or foam, with a suitable directional injector , into damaged wood or wall voids. All treatment holes drilled in construction elements in commonly occupied areas of structures should be securely plugged after treatment.

To control termite carton nests in building voids, dilute 1.0 fluid oz. of Talstar® P Professional Insecticide per gallon of water and apply as a liquid or foam using a pointed injection tool. Multiple injection points and varying depths of injection may be necessary to achieve control. When possible, the carton nest material should be removed from the building void after treatment.

LAWN

Apply Talstar® P Professional Insecticide as a broadcast treatment. Use application volumes of up to 10 gallons per 1000 square feet to get uniform coverage when treating dense grass foliage.

For low volume applications, less than 2 gallons/1000 square feet, immediate irrigation of treated area with at least 0.25 inches of water following application to ensure efficacy of sub-surface pests such as, but not limited to, Mole Crickets, is recommended.

LAWN APPLICATION RATES

The application rates listed in the following table will provide excellent control of the respective pests under typical conditions. However, at the discretion of the applicator, Talstar® P Professional Insecticide may be applied at up to 1 fl. oz. per 1000 square feet to control each of the pests listed in this Table. The higher application rates should be used when maximum residual control is desired or heavy pest populations occur.

Pest	Application Rate Talstar® P Professional Insecticide
Armyworms[1] Cutworms[1] Sod Webworm[1]	0.18 - 0.25 fluid oz. per 1000 sq. ft.
Annual Bluegrass Weevil (Hyperodes) (Adult)[2] Banks Grass Mite[6] Billbugs (Adult)[3] Black Turfgrass Ataenius (Adult)[4] Centipedes Crickets Earwigs Fleas (Adult) Grasshoppers Leafhoppers Mealybugs Millipedes Mites[6] Pillbugs Sowbugs	0.25 - 0.5 fluid oz. per 1000 sq. ft.
Crane Flies[12]	0.5 fluid oz. per 1000 sq. ft.
Ants Chinch Bugs[5] Fleas (Larvae)[7] Imported Fire Ants[8] Japanese Beetle (Adult) Mole Cricket (Adult)[9] Mole Cricket (Nymph)[10] Stink Bugs Ticks[11]	0.5 - 1.0 fluid oz. per 1000 sq. ft.

In New York State, this product may NOT be applied to any grass or turf area within 100 feet of a water body (lake, pond, river, stream, wetland, or drainage ditch).

In New York State, do make a single repeat application of Talstar® P Professional Insecticide if there are signs of renewed insect activity, but not sooner than two weeks after the first application.

Comments

[1]**Armyworms, Cutworms and Sod Webworms:** To ensure optimum control, delay watering (irrigation) or mowing for 24 hours after application. If the grass area is being maintained at a mowing height of greater than 1 inch, then higher application rates (Up to 1 fluid oz. per 1000 square feet) may be required during periods of high pest pressure.

[2]**Annual Bluegrass Weevil (*Hyperodes*) adults:** Applications should be timed to control adult weevils as they leave their overwintering sites and move into grass areas. This movement generally begins when *Forsythia* is in full bloom and concludes when flowering dogwood (*Cornus florida*) is in full bloom. Consult your State Cooperative Extension Service for more specific information regarding application timing.

[3]**Billbug adults:** Applications should be made when adult billbugs are first observed during April and May. Degree day models have been developed to optimize application timing. Consult your State Cooperative Extension Service for information specific to your region. In temperate regions, spring applications targeting billbug adults will also provide control of over-wintered chinch bugs.

[4]**Black Turfgrass Ataenius adults:** Applications should be made during May and July to control the first and second generation of black turfgrass ataenius adults, respectively. The May application should be timed to coincide with the full bloom stage of Vanhoutte spiraea (*Spiraea vanhouttei*) and horse chestnut (*Aesculus hippocastanum*). The July application should be timed to coincide with the blooming of Rose of Sharon (*Hibiscus syriacus*).

[5]**Chinch Bugs:** Chinch Bugs infest the base of grass plants and are often found in the thatch layer. Irrigation of the grass area before treatment will optimize the penetration of the insecticide to the area where the chinch bugs are located. Use higher volume applications if the thatch layer is excessive or if a relatively long mowing height is being maintained. Chinch Bugs can be one of the most difficult pests to control in grasses and the higher application rates (Up to 1 fluid oz. per 1000 square feet) may be required to control populations that contain both nymphs and adults during the middle of the summer.

[6]**Mites:** To ensure optimal control of eriophyid mites, apply in combination with the labeled application rate of a surfactant. A second application, five to seven days after the first, may be necessary to achieve acceptable control.

[7]**Flea larvae:** Flea larvae develop in the soil of shaded areas that are accessible to pets or other animals. Use a higher volume application when treating these areas to ensure penetration of the insecticide into the soil. Note: if the lawn area is being treated with Talstar® P Professional Insecticide at 0.25 fluid oz. per 1000 square feet for adult flea control, then the larval application rate may be achieved by increasing the application volume two- to four-fold.

[8]**Imported Fire Ants:** Control will be optimized by combining broadcast applications that will control foraging workers and newly mated fly-in queens with mound drenches that will control existing colonies. If the soil is not moist, then it is important to irrigate before application or use a high volume application. Apply broadcast treatments at 0.6 to 1 fluid oz. per 1,000 square feet. Use enough finished volume to penetrate thatch or sod. Treat mounds by applying 1 oz Talstar P Professional per mound in 1 to 2 gallons water by sprinkling the mound until it is wet and treat 3 feet out around the mound. Use the higher volume for mounds larger than 12". Treat mounds with sufficient force to break their apex and allow the insecticide solution to flow into the ant tunnels. For best results, apply in cool weather (65 - 80°F) or in early morning or late evening hours.

[9]**Mole Cricket adults:** Achieving acceptable control of adult mole crickets is difficult because preferred grass areas are subject to continuous invasion during the early spring by this extremely active stage. Applications should be made as late in the day as possible and should be watered in with up to 0.5 inches of water immediately after treatment. If the soil is not moist, then it is important to irrigate before application to bring the mole crickets closer to the soil surface where contact with the insecticide will be maximized. Grass areas that receive pressure from adult mole crickets should be treated at peak egg hatch to ensure optimum control of subsequent nymph populations (see below).

[10]**Mole Cricket nymphs:** Grass areas that received intense adult mole cricket pressure in the spring should be treated immediately prior to peak egg hatch. Optimal control is achieved at this time because young nymphs are more susceptible to insecticides and they are located near the soil surface where the insecticide is most concentrated. Control of larger, more damaging, nymphs later in the year may require both higher application rates and more frequent applications to maintain acceptable control. Applications should be made as late in the day as possible and should be watered in with up to 0.5 inches of water immediately after treatment. If the soil is not moist, then it is important to irrigate before application to bring the mole crickets closer to the soil surface where contact with the insecticide will be maximized.

[11]**Ticks (Including ticks that may transmit Lyme Disease and Rocky Mountain Spotted fever):** Do not make spot applications. Treat the entire area where exposure to ticks may occur. Use higher spray volumes when treating areas with dense ground cover or heavy leaf litter. Ticks may be reintroduced from surrounding areas on host animals. Retreatment may be necessary to achieve and/or maintain control during periods of high pest pressure. Repeat application is necessary only if there are signs of renewed activity. Limit repeat application to no more than once per seven days.

Deer ticks (*Ixodes sp.*) have a complicated life cycle that ranges over a two year period and involves four life stages. Applications should be made in the late fall and/or early spring to control adult ticks that are usually located on brush or grass above the soil surface and in mid to late spring to control larvae and nymphs that reside in the soil and leaf litter.

American dog ticks may be a considerable nuisance in suburban settings, particularly where homes are built on land that was previously field or forest. These ticks commonly congregate along paths or roadways where humans are likely to be encountered. Applications should be made as necessary from mid-spring to early fall to control American dog tick larvae, nymphs and adults.

[12]**Crane Flies:** Treatments can be made to control early to mid-season larvae (approximately August – February) as they feed on plant crowns. Treatments made to late-season larvae (approximately March, April) may only provide suppression.

ORNAMENTALS AND TREES

For ornamental applications (including but not limited to trees, shrubs, ground covers, bedding plants, and foliage plants) apply 0.125 to 1.0 fluid oz. of Talstar® P Professional Insecticide per 1,000 square feet or 5.4 to 43.5 fl. oz. per 100 gallons. Talstar® P Professional Insecticide may be diluted and applied in various volumes of water providing that the maximum label rate (1.0 fluid oz. per 1,000 square feet or 43.5 fl. oz per 100 gallons.) is not exceeded. Talstar® P Professional Insecticide may be applied through low volume application equipment by dilution with water or other carriers and providing that the maximum label rate (1.0 fluid oz. per 1,000 square feet or 43.5 fl. oz per 100 gallons) is not exceeded.

Apply the specified application rate as a full coverage foliar spray. Repeat treatment as necessary to achieve control using higher application rates as pest pressure & foliage area increases. Limit repeat application to no more than once per seven days.

Certain cultivars may be sensitive to the final spray solution. A small number of plants should be treated and observed for one week prior to application to the entire planting.

Use of an alternate class of chemistry in a treatment program is recommended to prevent or delay pest resistance.

GREENHOUSES AND INTERIORSCAPES

Use Talstar® P Professional Insecticide, either alone or tank mixed with other products, including insect growth regulators, to control a wide spectrum of insects and mites on trees, shrubs, foliage plants, non-bearing fruit and nut trees, and flowers in greenhouses and interiorscapes including hotels, shopping malls, office buildings, etc.

Calculating Dilution Rates using the Ornamental and Greenhouse Application Rates Table and the Talstar® P Professional Insecticide Dilution Chart (page 3): The following steps should be taken to determine the appropriate dilution of Talstar® P Professional Insecticide that is required to control specific pests:

1) Identify the least susceptible target pest (the pest requiring the highest application rate for control).
2) Select an application rate in terms of fluid oz. of Talstar® P Professional Insecticide.
3) Identify your application volume and how much spray mix you want to prepare.
4) Use the Dilution Chart to determine the appropriate volume of Talstar® P Professional Insecticide that must be mixed in your desired volume of water.

ORNAMENTAL and GREENHOUSE APPLICATION RATES

The application rates listed in the following table will provide excellent control of the respective pests under typical conditions. However, at the discretion of the applicator, Talstar® P Professional Insecticide may be applied at up to 1 fluid oz. per 1,000 square feet (43.5 fl. oz. per 100 gallons per acre) to control each of the pest listed in this Table. The higher application rates should be used when maximum residual control is desired.

Apply the specified rate as a full coverage foliar spray. Repeat as necessary to achieve control using higher rates as pest pressure and foliage increases.

Certain cultivars may be sensitive to the final spray solution. A small number of plants should be tested prior to application of the entire planting.

Use an alternate class of chemistry in the treatment program is recommended to prevent or delay resistance.

Pest	Application Rate Talstar® P Professional Insecticide	
	Fluid Ounces per 1,000 square feet	Fluid Ounces per 100 gallons
Bagworms[12] Cutworms Elm Leaf Beetles Fall Webworms Gypsy Moth Caterpillars Lace Bugs Leaf Feeding Caterpillars Tent Caterpillars	0.125 - 0.25	5.4 - 10.8
Adelgids† Aphids Bees Beet Armyworm Beetles[13; †] Black Vine Weevil (Adults) Brown Soft Scales Broad Mites Budworms California Red Scale (Crawlers)[13] Centipedes Cicadas Citrus Thrips Clover Mites Crickets Diaprepes (Adults) Earwigs European Red Mite Flea Beetles Fungus Gnats (Adults) Grasshoppers Japanese Beetle (Adult)† Leafhoppers Leafrollers Mealybugs Millipedes Mites Orchid Weevil Pillbugs Plant Bugs (Including *Lygus spp.*) Psyllids† Scale crawlers, such as California scale, San Jose scale, etc.[13] Scorpions Sowbugs Spider Mites[14] Spiders Spittlebugs† Thrips Tip Moths Treehoppers† Twig Borers[13] Wasps Weevils[13] Whiteflies	0.25 - 0.5	10.8 - 21.7
Ants Imported Fire Ants** Leafminers Pecan Leaf Scorch Mite Pine Shoot Beetle (Adults) Sawfly larvae Spider Mites[14] Stink Bugs	0.5 - 1.0	21.7 - 43.5
Mosquitoes	See Mosquito Control directions for residual control rates and information on page 5	

[12]**Bagworms:** Apply when larvae begin to hatch and spray larvae directly. Applications when larvae are young will be most effective.

[13]**Beetles†, Scale Crawlers, Twig Borers, and Weevils:** Treat trunks, stems and twigs in addition to plant foliage.

[14]**Spider Mites:** Talstar® P Professional Insecticide provides optimal twospotted spider mite control when applied during spring to mid-summer. Higher application rates and/or more frequent treatments may be required for acceptable twospotted spider mite control during mid- to late-summer. The addition of a surfactant or horticultural oil may increase the effectiveness of Talstar® P Professional Insecticide. Combinations of Talstar® P Professional Insecticide with other registered miticides have also proven effective. Alternately, Talstar® P Professional Insecticide applications may be rotated with those of other products that have different modes of action in control programs that are designed to manage resistance by twospotted spider mites. Consult your local Cooperative Extension Service for resistance management recommendations in your region.

**For foraging ants.

†Not for use in California.

Attention

Prior to applying Talstar P Professional Insecticide to wood siding, especially rough wood siding, be sure to thoroughly agitate the tank mixture. Prior to treating wood siding, test a small area and allow it to dry to be sure no deposits will form. Follow the same procedure when applying to wood surfaces in direct sunlight or the heat of the day.

Application equipment that delivers low volume treatments, such as the

Micro-Injector® or Actisol® applicators, may also be used to make crack and crevice, deep harborage, spot and surface treatments of Talstar P Professional Insecticide.

Restrictions

Do not apply this product in a way that will contact any person or pet either directly or through drift.

Do not apply a broadcast application to interior surfaces of homes.

Do not apply to pets, food crops, or sources of electricity.

Firewood is not to be burned for one month after treatment.

Use only in well ventilated areas.

Do not use on edible crops

During any application to overhead areas within the structure, cover surfaces below with plastic sheeting or similar material, except for soil surfaces in crawlspaces.

Do not allow spray to contact food, foodstuffs, food contacting surfaces, food utensils or water supplies.

Thoroughly wash dishes and food handling utensils with soap and water if they become contaminated by application of this product.

Do not treat areas where food is exposed.

During indoor surface applications do not allow dripping or run-off to occur.

Do not allow people or pets on treated surfaces until spray has dried.

Let surfaces dry before allowing people and pets to contact surfaces.

Do not apply this product in patient rooms or in any rooms while occupied by the elderly or infirm.

Do not apply in classrooms when in use.

Do not apply when occupants are present in the immediate area in institutions such as libraries, sports facilities, etc.

Conditions of Sale and Limitation of Warranty and Liability:

NOTICE: Read the entire Directions for Use and Conditions of Sale and Limitation of Warranty and Liability before buying or using this product. If the terms are not acceptable, return the product at once, unopened, and the purchase price will be refunded.

The Directions for Use of this product must be followed carefully. It is impossible to eliminate all risks inherently associated with the use of this product. Crop injury, ineffectiveness, or other unintended consequences may result because of such factors as manner of use or application, weather or crop conditions beyond the control of FMC or Seller. All such risks shall be assumed by Buyer and User, and Buyer and User agree to hold FMC and Seller harmless for any claims relating to such factors.

Seller warrants that this product conforms to the chemical description on the label and is reasonably fit for the purposes stated on the Directions for Use when used in accordance with the directions under normal conditions of use. TO THE EXTENT CONSISTENT WITH APPLICABLE LAW, FMC MAKES NO WARRANTIES OF MERCHANTABILITY OR OF FITNESS FOR A PARTICULAR PURPOSE, NOR ANY OTHER EXPRESS OR IMPLIED WARRANTIES WITH RESPECT TO THE SELECTION, PURCHASE, OR USE OF THIS PRODUCT. Any warranties, express or implied, having been made are inapplicable if this product has been used contrary to label instructions, or under abnormal conditions, or under conditions not reasonably foreseeable to (or beyond the control of) seller or FMC, and buyer assumes the risk of any such use.

To the extent allowed by law, FMC or seller shall not be liable for any incidental, consequential or special damages resulting from the use or handling of this product. THE EXCLUSIVE REMEDY OF THE USER OR BUYER, AND THE EXCLUSIVE LIABILITY OF FMC AND SELLER FOR ANY AND ALL CLAIMS, LOSSES, INJURIES OR DAMAGES (INCLUDING CLAIMS BASED ON BREACH OF WARRANTY, CONTRACT, NEGLIGENCE, TORT, STRICT LIABILITY OR OTHERWISE) RESULTING FROM THE USE OR HANDLING OF THIS PRODUCT, SHALL BE THE RETURN OF THE PURCHASE PRICE OF THE PRODUCT OR, AT THE ELECTION OF FMC OR SELLER, THE REPLACEMENT OF THE PRODUCT.

This Conditions of Sale and Limitation of Warranty and Liability may not be amended by any oral or written agreement.

Talstar, Talstar P Professional and FMC —Trademarks of FMC Corporation

Micro-Injector is a registered trademark of Whitmire Micro-Gen Research Laboratories

Actisol is a registered trademark of Roussel-Uclaf

Proposed Administrative Consent Agreement
Background Summary

Subject: TruGreen Lawncare
2 Delta Drive
Westbrook, ME 04092

Date of Incident(s): June 25, 2020 - September 15, 2022

Background Narrative: On October 10, 2020, a licensed applicator for TruGreen Lawncare applied Talstar P Insecticide, EPA Reg. No. 279-3206, to a residential property located in Saco, Maine for control of mosquitoes and ticks. Prior to the start of the application, a TruGreen co-worker asked the applicator to hold-off applying the insecticide in the backyard so that they could complete the lawn aeration service assigned to them. The applicator ignored the request of their co-worker, and the individual was exposed to the spray solution while conducted the lawn aeration. The exposed worker sought medical attention.

On October 29 & November 5, of 2020 a licensed applicator for TruGreen Lawncare experienced exposure to Talstar P Insecticide, EPA Reg. No. 279-3206, when the powered backpack being used for the application had a leak and the applicator's clothing became saturated with the pesticide and contacted their skin. The applicator was not instructed to properly wash themselves or their clothing and was encouraged to continue working.

Prior to pesticide applications conducted on March 22, 2021, May 10, 2021, June 30, 2021, & August 22, 2022, TruGreen Lawncare failed to notify a member of the Pesticide Notification Registry in Cape Elizabeth. Failure to notify the same registrant on several occasions was settled with Board in Consent Agreement in January of 2020.

During a pesticide spray application to a lawn with powered spray equipment conducted by a licensed applicator for TruGreen Lawncare on May 26, 2021, in Westbrook, Maine a neighbor was exposed to Merit 2F Systemic Insecticide, EPA Reg. No. 432-1312, Barricade 4FL Herbicide, EPA Reg. No. 110-1139, & Escalade 2 Herbicide, EPA Reg. No. 228-442, through drift.

On June 3, 2021, a licensed applicator for TruGreen Lawncare was conducting herbicide applications with Turpower 3 Herbicide, EPA Reg. No. 228-551, to common space lawn areas in a neighborhood in Scarborough, Maine. The applicator was observed not wearing the proper PPE (Personal Protective Equipment). The ensuing inspection confirmed the failure to wear proper PPE and the application being conducted with powered spray equipment was done at higher wind speeds the label allows.

Summary of Violations: CMR 01-026, Chapter 28, Section 2 (D) requires commercial applicators to provide advance notification of outdoor pesticide applications made within 250 feet of the property of any participant on the current year Notification Registry.

The violations described above are considered a second, third, fourth and fifth offense within a four-year period pursuant to 7 M.R.S. § 616-A (2) A (2).

7 U.S.C. § 136j(a)(2)(G) and 7 M.R.S. § 606(2)(B) prohibit the use of a pesticide inconsistent with its label.

The Talstar P label contains the following statements: "Do not apply this product in a way that will contact any person or pet either directly or through spray drift." "Remove clothing immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing."

Barricade 4FL label contains the following statement: "Do not apply this product in a way that will contact workers or other persons, either directly or through drift."

Escalade 2 label contains the following statement: "Do not apply this product in a way that will contact workers or other persons, either directly or through drift."

CMR 01-026, Chapter 22, Section 2 (D) contains the statement: "The applicator shall cease spray activities at once upon finding evidence showing the likely presence of unprotected persons in the target area or in such proximity as to result in unconsented exposure to pesticides."

The Trupower 3 label contains the following statements: "All mixers, loaders, applicators and other handlers must wear:

a) Long-sleeved shirt and long pants
b) Shoes plus socks, and
c) Protective eyewear (Goggles or face shield or shielded safety glasses)
d) Chemical-resistant gloves (except for applicators using groundboom equipment).
e) Chemical-resistant apron when mixing or loading, cleaning up spills or equipment, or otherwise exposed to the concentrate.
f) Do not apply at wind speeds greater than 10 mph."

Rationale for Settlement: TruGreen Lawncare failed to contact a member of the Pesticide Notification Registry on four occasions. Pesticide applications conducted by applicators allowed exposure to pesticides through direct contact and drift on four separate occasions. The incidents of exposure, failure to wear proper PPE and applications during high wind speed are all violations of pesticide labeling. These violations occurred within a four-year period of a previously settled consent agreement that included failure to notify members of the Pesticide Notification Registry, applications in high winds and applications to the incorrect property.

Attachments: Proposed Consent Agreement

NOV 22 2023

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

Ck Amount $25000—
Ck Date 11-13-23
Ck # 60533856

In the Matter of:	)	ADMINISTRATIVE CONSENT
TruGreen Lawncare	)	AGREEMENT
2 Delta Drive	)	AND
Westbrook, Maine 04092	)	FINDINGS OF FACT

This Agreement by and between TruGreen Lawncare (hereinafter referred to as the "Company") and the State of Maine Board of Pesticides Control (hereinafter referred to as the "Board"), as approved by the Office of the Attorney General ("OAG"), is entered into pursuant to 22 M.R.S. § 1471-M(2)(D) and in accordance with the Enforcement Protocol amended by the Board on December 13, 2013.

The parties to this Agreement agree as follows:

1) That the Company provides a variety of turf, landscaping and mosquito control services across the United States, including the State of Maine. Said services include pesticide applications.

2) That on October 10, 2020, Daniel Berensen, a Company employee was aerating a customer's lawn at 20 Wedgewood Drive in Saco, Maine.

3) That during the lawn aeration process described in paragraph two, Patrick O'Donnell, another Company employee arrived at the same address to make a tick and mosquito control application using Talstar P Insecticide, EPA Reg. No. 279-3206.

4) That Berensen spoke to O'Donnell explaining that he only needed to finish aerating behind the house prior to departing the location. Berenson believed that O'Donnell would therefore refrain from spraying in his immediate vicinity until he was finished.

5) That shortly thereafter, O'Donnell began spraying behind the house while Berenson was still present. Berenson was directly down wind of O'Donnell.

6) That Berenson stated that immediately he was "hit by the chemical."

7) That approximately an hour later, Berenson reported that he began to experience symptoms including a hot sensation on his face, burning eyes and nausea.

8) That Berensen's supervisor instructed him to seek a medical evaluation at a Concentra Urgent Care location in Portland. According to Berensen, the attending physician advised him to monitor his symptoms for the next few days and seek additional attention if symptoms worsened.

9) That the Talstar P label contains the following statements: "Do not apply this product in a way that will contact any person or pet either directly or through spray drift. Do not allow people or pets on treated surfaces until spray has dried. Let surfaces dry before allowing people or pets to contact surfaces."

10) That 7 U.S.C. § 136j(a)(2)(G) and 7 M.R.S. § 606(2)(B) prohibit the use or supervision of such use of a pesticide inconsistent with its label, and 22 M.R.S. § 1471-D(8)(F) provides for court action to seek suspension or revocation of an applicator's license and/or certification for use or supervision of such use of a pesticide inconsistent with its label.

11) That the circumstances described in paragraphs two through ten constitute a violation of 7 U.S.C. § 136j(a)(2)(G) and 7 M.R.S. § 606(2)(B) and would permit court action to seek suspension or revocation of an applicator's license and/or certification pursuant to 22 M.R.S. § 1471-D(8)(F).

12) That CMR 01-026, Chapter 22, Section 2 (D) contains the statement: "The applicator shall cease spray activities at once upon finding evidence showing the likely presence of unprotected persons in the target area or in such proximity as to result in unconsented exposure to pesticides."

13) That the Company applicator did not cease spray activities when in such proximity to Berensen so as to result in unconsented exposure to pesticides.

14) That the circumstances described in paragraphs two through ten and thirteen constitute a violation of CMR 01-026, Chapter 22, Section 2 (D).

15) That Brett Haynes, a Company employee, contacted the Board with concerns about a series of chemical discharges that occurred during the course of Haynes' work for the Company between October 29 and November 5, 2020.

16) That during the first chemical discharge event on October 29, Haynes' backpack, containing a spray solution of Talstar P Insecticide, EPA Reg. No 279-3206, developed a leak which quickly saturated Haynes' underpants, undershirt, pants and shirt.

17) That Haynes returned to the Westbrook branch location whereupon he was provided a clean set of pants and a replacement backpack, and he was instructed to continue spraying.

18) That two additional chemical discharge events occurred on November 3 and November 5. The November 3 event resulted in a small spill. The November 5 event resulted in the loss of 2.5 gallons of spray mix and another chemical exposure event in which Haynes' pants became saturated.

19) That the Talstar P label contains the following statement: "Remove clothing immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing."

20) That upon returning to the Westbrook branch following the exposure incident on October 29, Haynes was not instructed to remove all saturated clothing and to thoroughly wash exposed skin.

21) That 7 U.S.C. § 136j(a)(2)(G) and 7 M.R.S. § 606(2)(B) prohibit the use of a pesticide inconsistent with its label, and 22 M.R.S. § 1471-D(8)(F) provides for court action to seek suspension or revocation of an applicator's license and/or certification for use of a pesticide inconsistent with its label.

22) That the Company's supervision of the use of Talstar P was inconsistent with the product labeling.

23) That the circumstances described in paragraphs fifteen through twenty-two constitute a violation of 7 U.S.C. § 136j(a)(2)(G) and 7 M.R.S. § 606(2)(B) and would permit court action to seek suspension or revocation of an applicator's license and/or certification pursuant to 22 M.R.S. § 1471-D(8)(F).

24) That the Company entered into an Administrative Consent Agreement and Findings of Fact with the Maine Board of Pesticides Control ratified by the Board on January 15, 2020, in which the Company acknowledged a series of Maine pesticide law violations which occurred in calendar years 2017, 2018 and 2019.

25) That among the violations acknowledged in the Consent Agreement described in paragraph twenty-four was an August 13, 2019, turf pesticide application to 28 Wood Road in Cape Elizabeth, Maine.

26) That the violation described in paragraph twenty-five was to a property listed as an abutter to a participant in the 2019 Maine Pesticide Notification Registry, thereby requiring notification to the participant, Sarvenaz Maisak.

27) That the Company acknowledged failing to notify Maisak prior to the August 13, 2019, application in violation of CMR 01-026, Chapter 28, Section 2 (D).

28) That on March 22, 2021, a Company employee applied Omni Supreme Spray (insecticide-miticide) Liquid, EPA Reg. No. 5905-368 to dormant landscape plants at 22 Wood Road in Cape Elizabeth.

29) That 22 Wood Road is listed as an abutter to a participant in the 2021 Pesticide Notification Registry, Sarvenaz Maisak.

30) That CMR 01-026, Chapter 28, Section 2 (D) requires pesticide applicators to notify registry participants prior to making an application to properties listed as abutters on the registry.

31) That Company did not notify Maisak prior to the pesticide application described in paragraph twenty-eight.

32) That the circumstances described in paragraphs twenty-eight through thirty-one constitute a violation of CMR 01-026, Chapter 28, Section 2 (D).

33) That the violation described in paragraph thirty-two is a second violation within a four-year period pursuant to 7 M.R.S. § 616-A(2)(A)(2).

34) That on May 10, 2021, a Company employee applied Escalade 2 Herbicide, EPA Reg. No. 228-442 to the turf areas at 22 Wood Road in Cape Elizabeth.

35) That 22 Wood Road is listed as an abutter to a participant in the 2021 Pesticide Notification Registry, Sarvenaz Maisak.

36) That CMR 01-026, Chapter 28, Section 2 (D) requires pesticide applicators to notify registry participants prior to making an application to properties listed as abutters on the registry.

37) That Company did not notify Maisak prior to the pesticide application described in paragraph thirty-four.

38) That the circumstances described in paragraphs thirty-four through thirty-seven constitute a violation of CMR 01-026, Chapter 28, Section 2 (D).

39) That the violation described in paragraph thirty-eight is a third violation within a four-year period pursuant to 7 M.R.S. § 616-A(2)(A)(2).

40) That on June 30, 2021, a Company employee applied Merit 2F insecticide, EPA Reg. No. 432-1312 and Trupower 3 herbicide, EPA Reg. No. 228-551 to the turf areas at 22 Wood Road in Cape Elizabeth.

41) That 22 Wood Road is listed as an abutter to a participant in the 2021 Pesticide Notification Registry, Sarvenaz Maisak.

42) That CMR 01-026, Chapter 28, Section 2 (D) requires pesticide applicators to notify registry participants prior to making an application to properties listed as abutters on the registry.

43) That Company did not notify Maisak prior to the pesticide application described in paragraph forty.

44) That the circumstances described in paragraphs forty through forty-three constitute a violation of CMR 01-026, Chapter 28, Section 2 (D).

45) That the violation described in paragraph forty-four is a fourth violation within a four-year period pursuant to 7 M.R.S. § 616-A(2)(A)(2).

46) That on August 22, 2022, a Company employee applied Tempo SC Ultra Insecticide, EPA Reg. No. 432-1363, Eagle 20 EW Specialty Fungicide, EPA Reg. No. 62719-463 and Forbid 4F Ornamental Insecticide/Miticide, EPA Reg. No. 432-1279 to the landscape plants at 22 Wood Road in Cape Elizabeth.

47) That 22 Wood Road is listed as an abutter to a participant in the 2022 Pesticide Notification Registry, Sarvenaz Maisak.

48) That CMR 01-026, Chapter 28, Section 2 (D) requires pesticide applicators to notify registry participants prior to making an application to properties listed as abutters on the registry.

49) That Company did not notify Maisak prior to the pesticide application described in paragraph forty-six.

50) That the circumstances described in paragraphs forty-six through forty-nine constitute a violation of CMR 01-026, Chapter 28, Section 2 (D).

51) That the violation described in paragraph fifty is a fifth violation within a four-year period pursuant to 7 M.R.S. § 616-A(2)(A)(2).

52) That on May 26, 2021, John Sullivan, an employee for the Company applied Merit 2F, EPA Reg. No 432-1312, Barricade 4FL, EPA Reg. No. 100-1139 and Escalade 2, EPA Reg. No 228-442 to the turf areas located at 250 Duck Pond Road in Westbrook, Maine.

53) That during the course of the application described in paragraph fifty-two, John Stewart, an abutting neighbor, emerged from his back door onto his back lawn.

54) That Stewart immediately detected a chemical taste in his mouth and his eyes started burning.

55) That Stewart quickly identified the source of the chemical exposure as arising from the turf pesticide application taking place on the abutting lawn.

56) That Stewart stated that the wind speed was 14 miles per hours blowing from the application site toward his property.

57) That Stewart subsequently approached the Company applicator and requested that the applicator cease and desist due to the weather conditions and the proximity to him and his property.

58) That a heated exchange ensued between Stewart and the Company applicator who expressed the view that it was proper from him to continue.

59) That ultimately the applicator agreed to switch to a granular application.

60) That the Barricade 4FL label contains the following statement: "Do not apply this product in a way that will contact workers or other persons, either directly or through drift."

61) That the Escalade 2 label contains the following statement: "Do not apply this product in a way that will contact workers or other persons, either directly or through drift."

62) That the spray mists from the application described in paragraph fifty-two contacted John Stewart.

63) That 7 U.S.C. § 136j(a)(2)(G) and 7 M.R.S. § 606(2)(B) prohibit the use or supervision of such use of a pesticide inconsistent with its label, and 22 M.R.S. § 1471-D(8)(F) provides for court action to seek suspension or revocation of an applicator's license and/or certification for use or supervision of such use of a pesticide inconsistent with its label.

64) That the Company employee's use of Barricade 4FL and Escalade 2 was inconsistent with the product labeling.

65) That the circumstances described in paragraphs fifty-two through sixty-four constitute a violation of 7 U.S.C. § 136j(a)(2)(G) and 7 M.R.S. § 606(2)(B) and would permit court action to seek suspension or revocation of an applicator's license and/or certification pursuant to 22 M.R.S. § 1471-D(8)(F).

66) That CMR 01-026, Chapter 22, Section 2 (D) states that "The applicator shall cease spray activities at once upon finding evidence showing the likely presence of unprotected persons in the target area or in such proximity as to result in unconsented exposure to pesticides."

67) That the Company applicator described in paragraph fifty-two did not cease spray activities when John Stewart came into such proximity as to result in unconsented exposure.

68) That the circumstances described in paragraphs sixty-six and sixty-seven constitute a violation of CMR 01-026, Chapter 22, Section 2 (D).

69) That on June 3, 2021, Reginald Poulin, a Company employee, applied Trupower 3 herbicide, EPA Reg. No. 228-551 to the turf areas of the commonly owned property at Scottow Hill Woods, 1 Plantation Drive in Scarborough, Maine.

70) That the Board received a complaint from Deven Morrill relating to the application described in paragraph sixty-nine.

71) That Morrill alleged that the Company applicator was not wearing appropriate protective equipment.

72) That Morrill alleged that the windspeeds were high during the application described in paragraph sixty-nine.

73) That the Trupower 3 label contains the following statements: "All mixers, loaders, applicators and other handlers must wear:
   a) Long-sleeved shirt and long pants
   b) Shoes plus socks, and
   c) Protective eyewear (Goggles or face shield or shielded safety glasses)
   d) Chemical-resistant gloves (except for applicators using groundboom equipment).
   e) Chemical-resistant apron when mixing or loading, cleaning up spills or equipment, or otherwise exposed to the concentrate.
   f) Do not apply at wind speeds greater than 10 mph."

74) That the Company applicator was not wearing a long sleeve shirt or chemical resistant gloves at the time of the application described in paragraph sixty-nine.

75) That the Company applicator recorded a windspeed 11.5 miles per hour on the applicator record.

76) That 7 U.S.C. § 136j(a)(2)(G) and 7 M.R.S. § 606(2)(B) prohibit the use or supervision of such use of a pesticide inconsistent with its label, and 22 M.R.S. § 1471-D(8)(F) provides for court action to seek suspension or revocation of an applicator's license and/or certification for use or supervision of such use of a pesticide inconsistent with its label.

77) That the Company employee's use of Trupower 3 was inconsistent with the product labeling.

78) That the circumstances described in paragraphs sixty-nine through seventy-seven constitute a violation of 7 U.S.C. § 136j(a)(2)(G) and 7 M.R.S. § 606(2)(B) and would permit court action to seek suspension or revocation of an applicator's license and/or certification pursuant to 22 M.R.S. § 1471-D(8)(F).

79) That the Company expressly waives:

A. Notice of or opportunity for hearing;

B. Any and all further procedural steps before the Board; and

C. The making of any further findings of fact before the Board.

80) That this Agreement shall not become effective unless and until the Board accepts it.

81) That in consideration for the release by the Board and the OAG of the causes of action which the Board and the OAG have against the Company resulting from the violations referred to in paragraphs eleven, fourteen, twenty-three, thirty-two, thirty-eight, forty-four, fifty, sixty-five, sixty-eight and seventy-eight, the Company agrees to pay a penalty to the State of Maine in the sum of $25,000.00 by November 27, 2023. (Please make checks payable to Treasurer, State of Maine).

82) The Board and OAG grant a release of their causes of actions against the Company for the specific violations cited in the immediately preceding paragraph (Paragraph 81) on the express condition that all actions listed in Paragraph 81 of this Agreement are completed in accordance with the express terms and conditions of this Agreement and to the satisfaction of the Board and the OAG. The release shall not become effective until the Company has completed its obligations pursuant to Paragraph 81.

83) Any non-compliance with any term or condition of this Agreement, as determined by the Board and OAG in their sole discretion, voids the release set forth in Paragraph 82 of this Agreement and may lead to an enforcement, suspension/revocation, equitable, and/or civil violation action pursuant to Titles 7 and 22 of the Maine Revised Statutes and/or M.R. Civ. P. 80H.

84) Nothing in this Agreement shall be construed to be a relinquishment of the Board's or OAG's powers under Titles 7 and 22 of the Maine Revised Statutes against the Company for any other violations other than those expressly listed in this Agreement.

85) This instrument contains the entire agreement between the parties, and no statements, promises, or inducements made by either party or agent of either party that are not contained in this written contract shall be valid or binding; this contract may not be enlarged, modified, or altered except in writing signed by the parties and indorsed on this Agreement.

86) The provisions of this Agreement shall apply to, and be binding on, the parties and their officers, agents, servants, employees, successors, and assigns, and upon those persons in active concert or participation with them who receive actual notice of this Agreement.

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

TRUGREEN LAWNCARE

By: Carol J Pearson Date: November 21, 2023

Type or Print Name: Carol J. Pearson, Vice President

BOARD OF PESTICIDES CONTROL

By: _____ Date: _____
John Pietroski, Acting Director

APPROVED:
By: _____ Date: _____
Carey Gustanski, Assistant Attorney General

Proposed Administrative Consent Agreement
Background Summary

Subject: TruGreen Lawncare
2 Delta Drive
Westbrook, Maine 04092

Date of Incident(s): August 22, 2017/ April 5, 2018/ May 6, 2019/ July 30, 2019

Background Narrative: On August 22, 2017, A TruGreen applicator applied Turflon Ester Ultra Herbicide and Quinclorac 75DF Select Herbicide to a residence at 254 Foreside Road in Cumberland Foreside. The resident told TruGreen on multiple prior occasions he did not want their services. The application was made anyways.

On April 5, 2018, a TruGreen applicator applied Barricade 4L herbicide to a customer on Jacob Avenue in Scarborough. The applicator recorded the wind and direction as 2.5 mph, from the W/SW at 9:18 AM. Official weather records at the Portland Jetport (3.47 miles from application site) for that date, before and after the application time, recorded the wind speed and direction as 21 mph with gusts to 30 mph from W/NW and 20 mph with gusts to 31 mph from W/NW. It is a violation to spray when winds exceed 15 mph.

On May 6, 2019, a TruGreen applicator applied two herbicides, Escalade 2 and Fertilizer with 0.29% Barricade to a complex of 24 condominiums and an additional 3 single homes in Windham. These applications were made to the wrong sites and were not TruGreen customers. TruGreen did not have a system in place to positively identify customer properties. Some of the treated properties were not posted. The company was aware pesticides were applied to the wrong properties but did not report these incidents to the Board.

On July 30, 2019, a TruGreen applicator applied Quinclorac 75 DF herbicide and Vista XRT herbicide to a property in Cape Elizabeth. That property was listed on the 2019 Maine Pesticide Notification Registry as an abutter to a registry member. The company did not provide notification to the registry member.

Summary of Violation(s):

- CMR 01-026 Chapter 20 Section 6(D)2 requires prior authorization from the property owner before a person can apply pesticides to their property.

- CMR 01-026 Chapter 22 Section 2(B)III requires “Without limitation of the other requirements herein, under no circumstances shall pesticide application occur when wind speed in the area is in excess of 15 miles per hour.”

- CMR 01-026 Chapter 20 Section 7(A) requires that commercial applicators making outdoor treatments to residential properties must implement a system, based on Board approved methods, to positively identify the property of their customers. The Board shall adopt a policy listing approved methods of positive identification of the proper treatment site.

- CMR 01-026 Chapter 28, Section 3 requires that pesticide applications to turf areas must be posted in a manner and at locations designed to reasonably assure that persons entering such areas will see the notice.

- CMR 01-026 Chapter 50, Section 2(C) requires commercial applicators to telephone spray incident reports into the Board.

- CMR 01-026 Chapter 28, Section 2 (D) requires that commercial applicators notify individuals listed on the Maine Pesticide Notification Registry at least six hours in advance of any pesticide application made within 250 feet of a registrant's listed property.

Rationale for Settlement: There were multiple violations in this case. They included unauthorized applications, application in excessive winds, failure to post turf applications, no approved system in place to identify customer properties, failure to report applications to wrong properties, and failure to provide the required notification to a registry member. The Company entered into an Administrative Consent Agreement with the Board for a registry notification violation occurring on April 29, 2016. Consequently, the violations described above are subsequent violations pursuant to 7 M.R.S. § 616-A (2)(B).

Attachments: Proposed Consent Agreement

Rec: DEC 18 2019
CK# 60347468
Amt $21,500
CK Date 12-17-19

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

In the Matter of: TruGreen Lawncare 2 Delta Drive Westbrook, Maine 04092	))))	ADMINISTRATIVE CONSENT AGREEMENT AND FINDINGS OF FACT

This Agreement by and between TruGreen Lawncare (hereinafter called the "the Company") and the State of Maine Board of Pesticides Control (hereinafter called the "Board") is entered into pursuant to 22 M.R.S. §1471-M (2)(D) and in accordance with the Enforcement Protocol amended by the Board on December 13, 2013.

The parties to this Agreement agree as follows:

1. That the Company provides lawn care services and has the firm license number SCF 1800 issued by the Board pursuant to 22 M.R.S. § 1471-D(1)(B).

2. That on August 24, 2017, Daniel Crewe, a resident at 254 Foreside Road in Cumberland Foreside emailed Board staff to report that the Company made an unauthorized pesticide application to his lawn on August 22, 2017. Crewe informed the Company in 2016 he did not want their services. The Company provided a service to his lawn in May of 2017 and Crewe immediately told the Company again he did not want their services. However, in June of 2017, he was home when a Company employee again tried to apply material to his lawn. Crewe informed the Company employee he did not want service to his property, the employee said he would inform his office.

3. That in response to the email described in paragraph two, a Board inspector contacted Crewe on August 25, 2017, and collected photocopies of Company service documents for applications on August 22, 2017. The August application included two herbicides, Quinclorac SPC 75DF and Turflon Ester Ultra.

4. That on August 25, 2017, a Board inspector conducted an inspection with Company Manager Chris Murphy.

5. That from the inspection described in paragraph four, the inspector documented that on August 22, 2017, Company applicator John Trip applied Turflon Ester Ultra Herbicide and Quinclorac 75DF Select Herbicide to Dan Crewe's lawn at 254 Foreside Road in Cumberland Foreside.

6. That CMR 01-026 Chapter 20 Section 6(D)2 requires prior authorization from the property owner before a person can apply pesticides to their property.

7. That the Company did not have Crewe's authorization for the August 22, 2017, application of pesticides to his property.

8. That the circumstances described in paragraphs one through seven constitute a violation of CMR 01-026 Chapter 20 Section 6(D)2.

9. That on April 5, 2018, the Board received a call alleging that a Company applicator was making a pesticide application to turf on Jacob Avenue in Scarborough at approximately 9 AM in high winds.

10. That the day of the complaint, a Board inspector conducted an inspection with Robert Fraser, the Company applicator for the Jacob Avenue application.

11. That from that the inspection described in paragraph ten, it was determined Fraser applied Barricade 4L herbicide to the lawn at 420 Jacob Avenue in Scarborough on April 5, 2018, at 9:18. Fraser recorded the wind as 2.5 mph from the W/SW.

12. That a Board inspector checked official wind speed records for the Portland Jet Port for the date of the 420 Jacob Avenue application before and after the 9:18 AM application. This jet port is 3.47 miles from the application site as measured on Google Earth. The wind at 8:51 AM was from the WNW measured at 21 mph with wind gusts to 30 mph and at 9:51 AM it was from the WNW measured at 20 mph with wind gusts to 31 mph.

13. That CMR 01-026 Chapter 22 Section 2(B)III requires "Without limitation of the other requirements herein, under no circumstances shall pesticide application occur when wind speed in the area is in excess of 15 miles per hour."

14. That the circumstances described in paragraphs nine through thirteen constitute a violation of CMR 01-026 Chapter 22 Section 2(B)III.

15. That on May 10, 2019, the Board received a complaint from Windham resident Jon Jamieson who stated on May 6, 2019, he found Company signs posted on his lawn indicating a pesticide application had been made that day. He is not a Company customer.

16. That during the phone call described in paragraph fifteen, Jamieson said the Company also made unauthorized pesticide applications to neighbors Terry Burn's lawn at 24 Corner Brook Drive and Adam Potter's lawn at 49 Provost Drive.

17. That in response to the complaint call described in paragraphs fifteen and sixteen, two Board staff members conducted follow up inspections on May 13, 2019, with Jon Jamieson, the resident at 50 Provost Drive and Adam Potter. Jamieson completed a written statement about the unauthorized pesticide application the Company made to his lawn on May 6, 2019, and Board staff collected the Company sign used to post that application. Potter completed a written statement that included in part, that when he checked his outdoor video feed, it recorded the Company making an unauthorized application to his lawn. The Company did not post their pesticide application to Potter's lawn.

18. That on May 13, 2019, Board staff also conducted a follow up inspection with Jacob Harvey, the Company General Manager at the Company's 2 Delta Drive Westbrook office.

19. That during the inspection described in paragraph eighteen, Harvey provided the work order listing customer information as Wildwood Properties Inc., Provost Drive, Windham. Areas on the work order were listed as "entire area" and square feet as 200,000. There were no electric meter numbers or other approved methods to positively identify the treatment properties on the work order provided to John Sullivan, the Company applicator who made the application.

20. That CMR 01-026 Chapter 20 Section 7(A) requires that commercial applicators making outdoor treatments to residential properties must implement a system, based on Board approved methods, to positively identify the property of their customers. The Board shall adopt a policy listing approved methods of positive identification of the proper treatment site.

21. That during the inspection described in paragraphs eighteen and nineteen, Board staff asked Harvey what method the Company used to positively identify outdoor pesticide applications. Harvey was not familiar with this requirement and could not provide evidence the Company implemented a system based on Board approved methods, to positively identify the property of their customers.

22. That on May 13, 2019, Board staff conducted a follow up interview with Company applicator John Sullivan. From that interview it was determined that the Company provided insufficient information to Sullivan for him to know what properties to treat as described in paragraph nineteen.

23. That on May 20, 2019, a Board inspector met and interviewed Terrance Burns who resides at 24 Corner Brook Circle. Burns completed a written statement in which he wrote that on May 6, 2019, he noticed tracks on his front lawn and a pesticide flag on his neighbor's lawn. Burn's narrative included that Company General Manager Harvey went to Burn's home to assess the impact of the unauthorized herbicide application and proposed an offer to resolve the issue. Burns noted that no pesticide application sign was posted on his treated lawn.

24. That the Company was supposed to apply herbicides to the turf at the Corner Brook II condominiums on May 6, 2019, but mistakenly applied Escalade 2 and Fertilizer with 0.29% Barricade Herbicide to the turf of the Corner Brook I condominiums. Another licensed spray contracting firm, the Cutter's Edge had one contract for the condominiums in Corner Brook I. The Company made an unauthorized pesticide application to the Corner Brook I condominiums. Three additional single-family homes that received unauthorized pesticide applications: Jamison's, Potter's, and Burns' bring the total to 4 unauthorized applications for the Windham applications made on May 6, 2019.

25. That the circumstance described in paragraphs fifteen through twenty-four constitute a violation of CMR 01-026 Chapter 20 Section 7(A).

26. That the circumstances in paragraphs six, fifteen, seventeen, twenty-three and twenty-four constitute four violations of CMR 01-026 Chapter 20 Section 6(D)2.

27. That commercial pesticide applications to turf areas must be posted in a manner and at locations designed to reasonably assure that persons entering such areas will see the notice pursuant to CMR 01-026 Chapter 28, Section 3.

28. That the Company did not post the pesticide turf applications as described in paragraphs seventeen and twenty-three.

29. That the circumstances described in paragraphs sixteen, seventeen, twenty- three, twenty -seven and twenty-eight constitute two violations of CMR 01-026 Chapter 28, Section 3.

30. That CMR 01-026 Chapter 50, Section 2(C) requires commercial applicators to telephone spray incident reports into the Board. A reportable spray incident is any significant misapplication or accidental discharge of a pesticide. Such incidents include accidently applying pesticides to the wrong site or places of human habitation.

31. That the Company did not report the spray incident of accidently applying pesticides to the wrong sites as described in paragraphs fifteen, sixteen, seventeen, eighteen, nineteen, twenty-three, twenty-four, and thirty.

32. That the circumstances described in paragraphs fifteen, sixteen, seventeen, eighteen, nineteen, twenty-three, twenty-four, thirty, and thirty-one, constitute a violation of CMR 01-026 Chapter 50, Section 2(C).

33. That on August 13, 2019, a Maine Pesticide Notification Registry member, who resides in Cape Elizabeth, called the Board to report that the Company made a nearby turf application without providing her the necessary notification. The registry member's windows were open, and she did not have time to cover her fruit trees. She has two children, a five-year-old and a baby.

34. That on August 14, 2019, a Board inspector met with Sarvi Maisak, the registry member who resides at 24 Wood Road in Cape Elizabeth who is listed as a registry member on Maine's 2019 Pesticide Notification Registry, as described in CMR 01-026 Chapter 28, Section 2. Peggy Anderson, who resides at 28 Wood Road in Cape Elizbeth, is listed on the 2019 registry as an abutter within 250 feet of Maisak's property.

35. That on August 14, 2019, a Board inspector also conducted an inspection with Jacob Harvey. From the inspection it was determined that on July 30, 2019, Company applicator Earl Richards applied Quinclorac 75 DF herbicide and Vista XRT herbicide, to Peggy Anderson's lawn at 28 Wood Road in Cape Elizabeth.

36. That during the inspection described in paragraph thirty-five, the Board inspector asked Harvey about the Company's notification practices for the pesticide application made to Anderson's lawn on July 30, 2019. Harvey stated that the Company's corporate office in Manchester, NH is tasked with providing notification to Maine registry members and Maisak was not contacted about the July 30, 2019, pesticide application and no record of attempted notification was found.

37. That commercial applicators are required by CMR 01-026 Chapter 28, Section 2 (D) to notify individuals listed on the Maine Pesticide Notification Registry at least six hours in advance of any pesticide application made within 250 feet of a registrant's listed property.

38. That the Company failed to comply with the notification requirements of CMR 01-026 Chapter 28, Section 2 (D). No notification was provided to Maisak prior to making the application described in paragraph thirty-five.

39. That the actions described in paragraphs thirty-three through thirty-eight constitute a violation of CMR 01-026 Chapter 28, Section 2(D).

40. That the Company entered into Administrative Consent Agreements with the Board for a registry notification violation occurring on April 29, 2016. Consequently, the violations described in paragraphs eight, fourteen, twenty-five, twenty-six, twenty-nine, thirty-two and thirty-nine are subsequent violations pursuant to 7 M.R.S. § 616-A (2)(B).

41. That the Board has regulatory authority over the activities described herein.

42. That the Company expressly waives:
    A. Notice of or opportunity for hearing;

    B. Any and all further procedural steps before the Board; and

    C. The making of any further findings of fact before the Board.

43. That this Agreement shall not become effective unless and until the Board accepts it.

44. That in consideration for the release by the Board of the cause of action which the Board has against the Company resulting from the violations referred to in paragraphs eight, fourteen, twenty-five, twenty-six, twenty-nine, thirty-two and thirty-nine, the Company agrees to pay a penalty to the State of Maine in the sum of $26,500, of which $5,000 shall be suspended pending compliance with the condition outlined in paragraph 45 below. The unsuspended portion of the penalty ($21,500) must be paid immediately. (Please make checks payable to Treasurer, State of Maine).

45. Prior to the start of the Company's 2020 pesticide application season, the Company shall provide mandatory training for all licensed applicators it employs. Such training shall be paid for by the Company and must be planned and presented by the Company staff. The training must focus on the violations in this consent agreement and be a minimum of one hour long. A Board staff member will be present at the training to monitor the presentation and collect a signature list of Company attendees. Attendees will not receive credit towards their certification for attendance at this training. The Company will also develop a method to provide equivalent training to Company employees hired after the 2020 preseason group training. The Company must inform the Board in writing, how they will implement this requirement. Upon completion of the preseason training and submission of the Company's written policy on new employee equivalent training, the suspended portion of the penalty will be discharged.

46. If the Company fails to provide mandatory training to all licensed applicators in its employ before the start of the 2020 pesticide application season as required by paragraph 45, or to develop a method to provide equivalent training to Company employees hired after the 2020 preseason group training as required by paragraph 45, the suspended penalty ($5,000) shall then be immediately due and payable.

47. In addition to payment of the penalty amount required in paragraph forty-four, at the time of returning the signed consent agreement, the Company shall submit a written policy to the Board containing procedures to ensure that persons on the Pesticide Notification Registry are given notice in accordance with CMR 01-026 Chapter 28, Section 2 (D). Also, at the same time, the Company shall submit its written policy for the Board approved method it has implemented to positively identify the property of their customers when commercial applicators are making outdoor treatments to residential properties in accordance with CMR 01-026 Chapter 20 Section 7(A).

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

TRUGREEN LAWNCARE

By: _____ Date: 12/16/19

Type or Print Name: Jacob Harvey

BOARD OF PESTICIDES CONTROL

By: _____ Date: _____
Megan Patterson, Director

APPROVED:

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

COMPLIANCE POLICIES TO AVOID VIOLATIONS PURSUANT TO THE ADMINISTRATIVE CONSENT AGREEMENT BETWEEN THE MAINE BOARD OF PESTICIDES CONTROL AND TRUGREEN

Pursuant to Section 45 of the of the Administrative Consent Agreement between the Maine Board of Pesticides and TruGreen, TruGreen submits the following policies to better comply with Maine pesticide regulations. In this regard, TruGreen is committed to compliance with law and has dedicated substantial resources to avoid violations. In this regard TruGreen has made corrections to its procedures as follows:

THE PESTICIDE NOTIFICATION REGISTRY, CMR 01-026, Chapter 28, Section 2 (D). TruGreen has a procedure to notify individuals on the Pesticide Notification Registry, but found that there was a gap in the process that resulted in the violation. The following outlines TruGreen's procedure for compliance with this law:

- Prior to making any pesticide applications in a given calendar year, TruGreen downloads the most updated Pesticide Notification Registry from the State's website.
- All registrants are entered into our database as "chemical sensitive parties."
- During the above listed data entry of each registrant a trigger distance is also entered. As a local policy in our branch office, we will use three times the State's regulation distance of 250 feet. We will use 250 yards.
- Upon our system scheduling any of our customers for a treatment of any kind, which occurs one business day in advance of the schedule date, an automatic check is performed against our database of "chemical sensitive parties," which will indicate whether any of our scheduled customers' properties fall within the trigger distance of any of the properties of the individuals listed in our database of "chemical sensitive parties."
- A report is then automatically generated which lists all "chemical sensitive parties" are required to be notified pursuant to CMR 01-026 Chapter 28, Section 2 (D), based on the next business day's scheduled work.
- Before the close of business on any given business day, the report generated above is reviewed and phone calls are placed by our staff to any registrant listed on the reported generated via the process above, to notify the registrant of any pesticide application scheduled for the next business day within our trigger distance of their registered property.
- As a further method of preventing un-notified pesticide treatments, any property for which we attempt to schedule any treatment to be performed the same business day as it is being scheduled, our system flags properties that fall within the trigger distance of all registrants' registered properties and disallows users from manually scheduling inside those trigger distances regardless of whether the work to be performed is expected to involve the application of pesticides or not.

Positive Identification, CMR 01-026 Chapter 20, Section 7 (A). TruGreen has expended significant resources in the purchase and installation of the Telogis software in our service trucks. This system is a GPS based system that directs trucks to the correct address. All customer addresses are geocoded at the time of sale, and Telogis routes the truck to the address. We have found that this system is very accurate, but like any system, there are occasional errors resulting in trucks being routed to the wrong address. TruGreen continues to

refine this system and look for enhancements to improve accuracy. Our IT Department is working on improvements on several fronts, including technology to photograph and store photographs of the home onto the customer's account which will be available on the service technician's tablet. Our IT department has been working with a major information systems vendor to adapt this technology to TruGreen's operation.

Review of BPC regulation violations - TruGreen, LP, 2 Delta Dr. Westbrook, ME 04092 — Thursday, March 5, 2020

Jacob Harvey (CMA-5796), Presenter — Alexander Peacock, BPC Representative — 9AM-10AM

Attendee Name	ME Pest Lic #	Signature	Date
Salvatore Saccarelli	Not Yet Licensed		Thursday, March 5, 2020
Christopher Chesaux	Not Yet Licensed		Thursday, March 5, 2020
Joseph Gamage	Not Yet Licensed		Thursday, March 5, 2020
Patrick Hudson	CMA-5678		Thursday, March 5, 2020
Daniel Mercier	COA-7731		Thursday, March 5, 2020
Nicholas Greer	COA-4294		Thursday, March 5, 2020
Damon Stroud	COA-7937		Thursday, March 5, 2020
Patrick O'Donnell	COA-7719		Thursday, March 5, 2020
Robert Fraser	COA-7286		Thursday, March 5, 2020
Donald Schmidt	COA-7482		Thursday, March 5, 2020
Bryce Patterson	COA-8069		Thursday, March 5, 2020
John Sullivan	COA-7078		Thursday, March 5, 2020
Michael Clayton	COA-8047		Thursday, March 5, 2020
John Tripp	COA-5156		Thursday, March 5, 2020
Joseph Lafoe	COA-7773		Thursday, March 5, 2020
Brian Hatch	COA-7747		Thursday, March 5, 2020
Reginald Poulin	COA-7657		Thursday, March 5, 2020
Earl Richards	COA-7197		Thursday, March 5, 2020

Jacob Harvey
General Manager

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

JANET T. MILLS
GOVERNOR

AMANDA E. BEAL
COMMISSIONER

August 26, 2025

Damariscotta Mills Consulting, Inc.
Robert Barkalow
25 Main St.
Nobleboro, ME 04555

RE: Variance permit for CMR 01-026 Chapter 29, Damariscotta Mills Consulting, Inc.

Greetings,

The Board of Pesticides Control has considered your application for a variance from Chapter 29 for the Philbrick property at 134 Dock Rd. in Alna. The variance is approved, provided that all products to be used are currently registered in the State of Maine or were registered at the time of purchase and that any application is made above the high-water line. Upon consultation with our colleagues at MeDEP, we feel it is vitally important that the applicator contact the Sheepscot Valley Conservation Association and the MidCoast Conservancy prior to the application, given that this river system has one of the last native Atlantic Salmon populations.

The Board authorizes the issuance of two-year permits for Chapter 29. Therefore, this permit is valid until December 31, 2026, as long as applications are consistent with the information provided on the variance request. Please notify the Board in advance of changes, particularly if you plan to use a different product from those listed.

Please bear in mind that your permit is based upon your company adhering to the precautions listed in Section X of your Chapter 29 variance request. The utmost caution should be taken when applying adjacent to open water, including curtailing operations if rain is in the forecast during the 24-hour period after the application.

I will alert the Board at its next meeting that the variance permit has been issued. If you have any questions concerning this matter, please feel free to contact me at 287-2731.

Sincerely,

Alexander Peacock

Alexander Peacock
Director

ALEXANDER PEACOCK, DIRECTOR
90 BLOSSOM LANE, DEERING BUILDING

PHONE: (207) 287-2731
THINKFIRSTSPRAYLAST.ORG

BOARD OF PESTICIDES CONTROL
APPLICATION FOR VARIANCE PERMIT
(Pursuant to Chapter 29, Section 6 of the Board's Regulations)

I. Jeffrey & Karen Philbrick ( )
Name Telephone Number

134 Dock Rd Alna, Maine 04535
Address City State Zip

II. Bob Barkalow Damariscotta Mills Consulting CMA – 6156
Master Applicator (if applicable) License Number

25 Main St. Nobleboro Me. 04555
Address City State Zip

III. **As part of your application, please send a revegetation plan and digital photos showing the target site and/or plants and the surrounding area, particularly showing proximity to wetlands and water bodies, to pesticides@maine.gov**

IV. Area(s) where pesticide will be applied:

30 feet wide X 100 feet patch along the bank of the Sheepscot River in Alna, Maine – Area is immediately downstream from the Scribilleto Knotweed project.

GPS location of the patch is approximately 44.1075 degrees North x 69.6067 West

V. Pesticide(s) to be applied: (Including EPA Registration Number)

Round-Up Custom EPA # 524 – 343 and Ike's Grip Stik Nonionic Surfactant

VI. Purpose of pesticide application:
Eliminate a monocultural patch infestation of Japanese Knotweed (Fallopia japonica) along a short stretch of the tidal freshwater reach of the Sheepscot River. Improve native vegetative biodiversity within a florally diverse and rich floodplain. Also to safeguard water quality by reducing streamside erosion and preventing KW from increasing colonization downstream in the watershed.

VII. Approximate dates of spray application:

A single application to be completed by early September – Note that the KW has been reduced by the cultivation and preparation practice of multiple successive hand cutting throughout the summer – resulting in a weakened colony whose height at the time of application will average about 24" before autumn senescence.

VIII. Application Equipment:

Low pressure pump backpack sprayer.

IX. Standard(s) to be varied from:

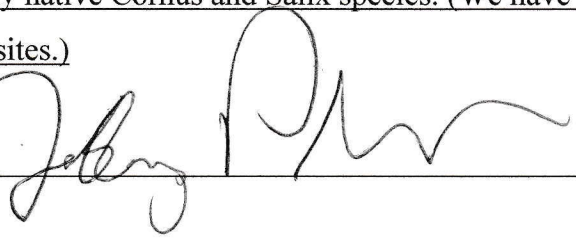
None

X. Method to ensure equivalent protection and Revegetation Plan:

(1.) Reduction of plant size and vitality through repeated manual cutting throughout the growing season 2025. (2.) Use of non-persistent Glyphosate. (3.) Low volume application with non-powered spray. (4.) comply with site ands weather conditions to avoid drift and spreading beyond target leaf surfaces. (5.) Strict control of application to minimize drift or contact with native species within the patch – to allow their survival to support the revegetation of the site.

XI. Revegetation Plan (attach separately if necessary)

Dormant seeds of native species (Joe Pye, Verbena, etc.) will be sourced locally in **September/October, 2025** to be seeded into the site in **October, 2025**. **April/May, 2026** - Install a high density of locally-sourced dormant live stakes in the streambank close to the MHW line – primarily native Cornus and Salix species. (We have performed this in earlier Sheepscot KW project sites.)

Signed:  Date: 8/17/25

Return completed form to: **Board of Pesticides Control, 28 State House Station, Augusta, ME 04333-0028**
OR E-mail to: pesticides@maine.gov

Jeffrey and Karen Philbrick – Maine Pesticide Board Herbicide Application Site – Lat 44.1075 N - Lon 69.6067 W

134 Dock Rd. Alna, Maine 04535

Approximate shape of 100 feet X 30 feet Knotweed Patch

PREPARED BY PHOTOGRAMMETRIC METHODS BY
JOHN E. O'DONNELL & ASSOCIATES
AUBURN, MAINE
1975

LEGEND
ADJACENT SHEET NO. 12
COMMON OWNERSHIP OR /
DEVELOPMENT LOT NO. (2)
SCALED DIMENSION ±

PROPERTY MAP
ALNA
MAINE

SCALE IN FEET
0 100 200

U-1

Jeffrey and Karen Philbrick Knotweed Management

Site Images – Pre Treatment August, 2025

44.1075 Lat X 69.6067 Lon

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

JANET T. MILLS
GOVERNOR

AMANDA E. BEAL
COMMISSIONER

August 26, 2025

Damariscotta Mills Consulting, Inc.
Robert Barkalow
25 Main St.
Nobleboro, ME 04555

RE: Variance permit for CMR 01-026 Chapter 29, Damariscotta Mills Consulting, Inc.

Greetings,

The Board of Pesticides Control has considered your application for a variance from Chapter 29 for the Scribellito property at 232 Head Tide Rd. in Alna. The variance is approved, provided that all products to be used are currently registered in the State of Maine or were registered at the time of purchase and that any application is made above the high-water line. Upon consultation with our colleagues at MeDEP, we feel it is vitally important that the applicator contact the Sheepscot Valley Conservation Association and the MidCoast Conservancy prior to the application, given that this river system has one of the last native Atlantic Salmon populations.

The Board authorizes the issuance of two-year permits for Chapter 29. Therefore, this permit is valid until December 31, 2026, as long as applications are consistent with the information provided on the variance request. Please notify the Board in advance of changes, particularly if you plan to use a different product from those listed.

Please bear in mind that your permit is based upon your company adhering to the precautions listed in Section X of your Chapter 29 variance request. The utmost caution should be taken when applying adjacent to open water, including curtailing operations if rain is in the forecast during the 24-hour period after the application.

I will alert the Board at its next meeting that the variance permit has been issued. If you have any questions concerning this matter, please feel free to contact me at 287-2731.

Sincerely,

Alexander Peacock

Alexander Peacock
Director

ALEXANDER PEACOCK, DIRECTOR
90 BLOSSOM LANE, DEERING BUILDING

PHONE: (207) 287-2731
THINKFIRSTSPRAYLAST.ORG

BOARD OF PESTICIDES CONTROL
APPLICATION FOR VARIANCE PERMIT
(Pursuant to Chapter 29, Section 6 of the Board's Regulations)

I. Ariel and Joe Scribellito (207)208-7271
Name Telephone Number

arielscrib@gmail.com & zscrib@msn.com

232 Head Tide Rd Alna, Maine 04535
Address City State Zip

II. Bob Barkalow Damariscotta Mills Consulting CMA – 6156
Master Applicator (if applicable) License Number

25 Main St. Nobleboro Me. 04555
Address City State Zip

III. **As part of your application, please send a revegetation plan and digital photos showing the target site and/or plants and the surrounding area, particularly showing proximity to wetlands and water bodies, to pesticides@maine.gov**

IV. Area(s) where pesticide will be applied:

10 to 15 feet wide patch along approximately 600 lineal feet of the Sheepscot River in Alna, Maine – Area is immediately adjacent to Head Tide Rd and clearly visible from the road.

GPS location of center of the patch is 44.1078 degrees North x 69.6073 West

V. Pesticide(s) to be applied: (Including EPA Registration Number)

Round-Up Custom EPA # 524 – 343 and Ike's Grip Stik Nonionic Surfactant

VI. Purpose of pesticide application:
Eliminate a monocultural patch infestation of Japanese Knotweed (Fallopia japonica) along the bank of the tidal freshwater reach of the Sheepscot River. Improve native vegetative biodiversity within a florally diverse and rich floodplain. Also to safeguard water quality by reducing streamside erosion and preventing KW from increasing colonization downstream in the watershed.

VII. Approximate dates of spray application:

A single application to be completed by early September – Note that the KW has been reduced by the cultivation and preparation practice of multiple successive hand cutting throughout the summer – resulting in a weakened colony whose height at the time of application will average about 24" before autumn senescence.

VIII. Application Equipment:

Low pressure garden pump sprayer.

IX. Standard(s) to be varied from:

None

X. Method to ensure equivalent protection and Revegetation Plan:

(1.) Reduction of plant size and vitality through repeated manual cutting throughout the growing season 2025. (2.) Use of non-persistent Glyphosate. (3.) Low volume application with non-powered spray. (4.) comply with site ands weather conditions to avoid drift and spreading beyond target leaf surfaces. (5.) Strict control of application to minimize drift or contact with native species within the patch – to allow their survival to support the revegetation of the site.

XI. Revegetation Plan (attach separately if necessary)

Dormant seeds of native species (Joe Pye, Verbena, etc.) will be sourced locally in **September/October, 2025** to be seeded into the site in **October, 2025**. **April/May, 2026** - Install a high density of locally-sourced dormant live stakes in the streambank close to the MHW line – primarily native Cornus and Salix species. (We have performed this in earlier Sheepscot KW project sites.) **Spring 2026**, a limited number of additional small native riparian tree species seedlings will be planted.

Signed: _____ Date: 8-9-25

Return completed form to: **Board of Pesticides Control, 28 State House Station, Augusta, ME 04333-0028**
OR E-mail to: pesticides@maine.gov

Rev. 2/2022

Ariel and Joseph Scribillito – Maine Pesticide Board Herbicide Application Site – Lat 44.107762 - Lon 69.607251

232 Head Tide Rd. Alna, Maine 04535

Approximate shape of 600 feet X 10 to 15 feet Knotweed Patch

PREPARED BY PHOTOGRAMMETRIC METHODS BY
JOHN E. O'DONNELL & ASSOCIATES
AUBURN, MAINE
1975

LEGEND
ADJACENT SHEET NO. 12
COMMON OWNERSHIP OR /
DEVELOPMENT LOT NO. (2)
SCALED DIMENSION ±

PROPERTY MAP
ALNA
MAINE

SCALE IN FEET
0 100 200

U-1

Ariel and Joe Scribillito Knotweed Management

Site Images – Pre Treatment June, 2025

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

JANET T. MILLS
GOVERNOR

AMANDA E. BEAL
COMMISSIONER

September 5, 2025

Damariscotta Mills Consulting, Inc.
Robert Barkalow
25 Main St.
Nobleboro, ME 04555

RE: Variance permit for CMR 01-026 Chapter 29, Damariscotta Mills Consulting, Inc.

Greetings,

The Board of Pesticides Control has considered your application for a variance from Chapter 29 for the Midcoast Conservancy, Musquash Pond Preserve in Jefferson. The variance is approved, provided that all products to be used are currently registered in the State of Maine or were registered at the time of purchase and that any application is made above the high-water line.

The Board authorizes the issuance of two-year permits for Chapter 29. Therefore, this permit is valid until December 31, 2026, as long as applications are consistent with the information provided on the variance request. Please notify the Board in advance of changes, particularly if you plan to use a different product from those listed.

Please bear in mind that your permit is based upon your company adhering to the precautions listed in Section X of your Chapter 29 variance request. The utmost caution should be taken when applying adjacent to open water, including curtailing operations if rain is in the forecast during the 24-hour period after the application.

I will alert the Board at its next meeting that the variance permit has been issued. If you have any questions concerning this matter, please feel free to contact me at 287-2731.

Sincerely,

Alexander Peacock

Alexander Peacock
Director

ALEXANDER PEACOCK, DIRECTOR
90 BLOSSOM LANE, DEERING BUILDING

PHONE: (207) 287-2731
THINKFIRSTSPRAYLAST.ORG

BOARD OF PESTICIDES CONTROL
APPLICATION FOR VARIANCE PERMIT
(Pursuant to Chapter 29, Section 6 of the Board's Regulations)

I. Midcoast Conservancy (207)389-5163
Name Telephone Number

Isobel Curtis

PO Box 439 (mailing) 290 Rt One (physical) Edgecomb, Maine 045556
Address City State Zip

II. Bob Barkalow Damariscotta Mills Consulting CMA – 6156
Master Applicator (if applicable) License Number

25 Main St. Nobleboro Me. 04555
Address City State Zip

III. **As part of your application, please send a revegetation plan and digital photos showing the target site and/or plants and the surrounding area, particularly showing proximity to wetlands and water bodies, to pesticides@maine.gov**

IV. Area(s) where pesticide will be applied:
Multiple areas at Musquash Pond Preserve, located in Jefferson ME:

30x50ft and 100x50ft patches of Japanese knotweed

55x35ft patch of Black swallowwort

60x35ft and 90x60ft patches of Purple loosestrife

35x35ft patch of Reed canary grass

V. Pesticide(s) to be applied: (Including EPA Registration Number)

Round-Up Custom EPA # 524 – 343 and Ike's Grip Stik Nonionic Surfactant

VI. Purpose of pesticide application:
Reduce invasive plant presence prior to starting a large wetland restoration project at the property in 2026. Please see attached Invasive Plant management plan for complete details.

VII. Approximate dates of spray application:
Applications will be completed in late August or early September – timing dependent on weather and plant growth as knotweed was cut in early August to ensure it is at an appropriate

height for a foliar application, we need to wait for the knotweed to rebound a bit before spraying.

VIII. Application Equipment:
Applied with a low-volume backpack unit fitted with a fan nozzle. Round-up applied as a 3% solution with Ike's Grip-Stik Nonionic Surfactant.

IX. Standard(s) to be varied from:
None

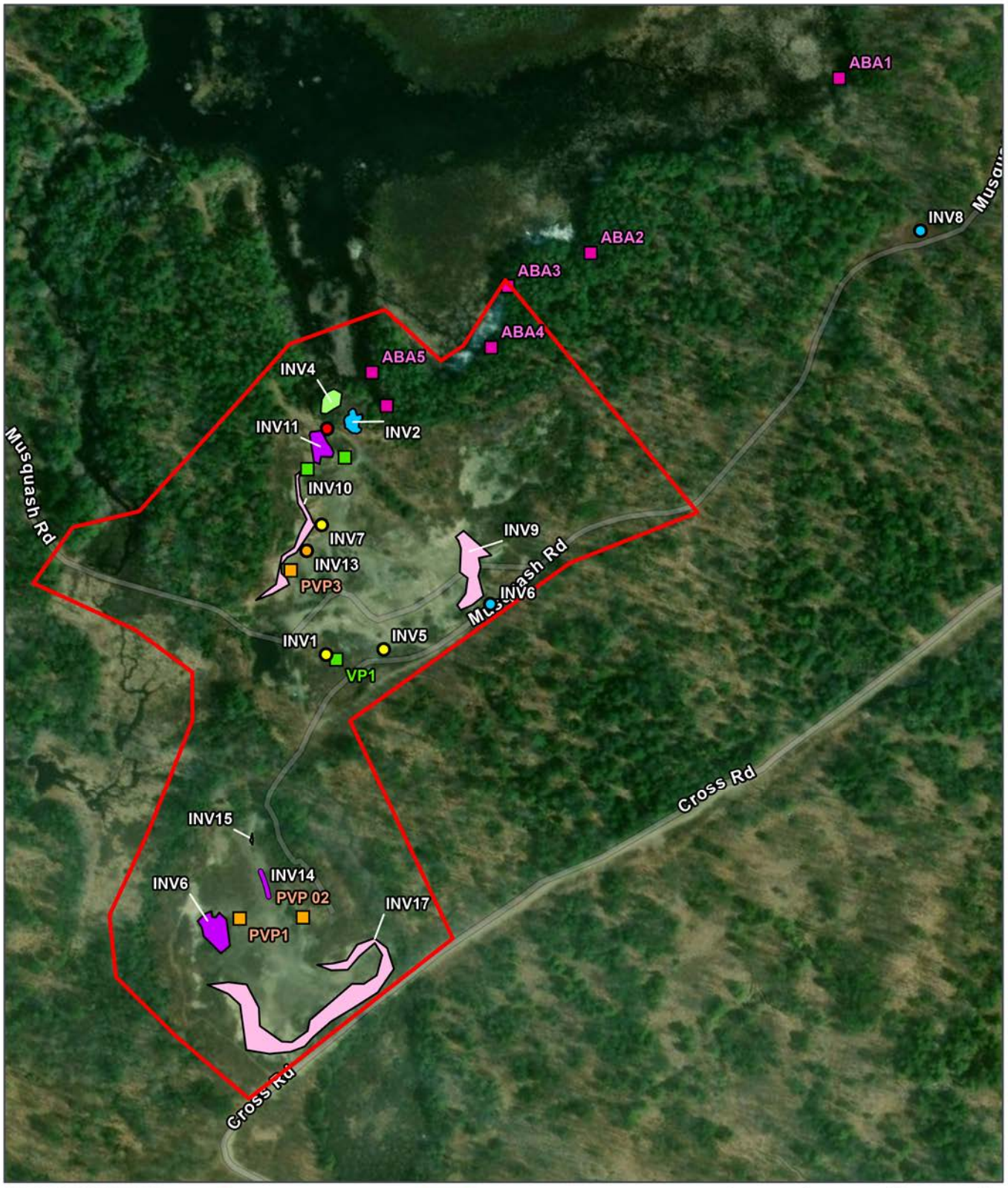
X. Method to ensure equivalent protection and Revegetation Plan:
For application: 1) cutting of knotweed prior to treatment (no spraying tall vegetation), 2) use of a non-persistent herbicide, 3) low-volume application by non-powered equipment, 4) avoid application on windy or wet days and 5) application will be highly targeted to preserve any co-ocurring native plant species.

XI. Revegetation Plan (attach separately if necessary)
The site will be the location of a large wetland restoration project funded through MNRCP to begin in 2026. Areas will be full revegetated through a combination of seeding, planting plugs, and planting container stock. I can send you the full restoration plan once it has been finalized by our consultants at SWCA.

Signed: Isobel Curtis Date: 08/14/2025

Return completed form to: **Board of Pesticides Control, 28 State House Station, Augusta, ME 04333-0028**
OR E-mail to: pesticides@maine.gov

Rev. 2/2022



MUSQUASH POND WETLAND CREATION AND RESTORATION PROJECT

Figure 3. Vernal Pools and Invasive Plants

- Japanese Knotweed
- Reed Canary Grass
- Autumn Olive
- Multiflora Rose
- Amphibian Breeding Area
- Potential Vernal Pool
- Vernal Pool
- Purple Loosestrife
- Black Swallowwort
- Coltsfoot
- Japanese Knotweed
- Purple Loosestrife
- Project Area

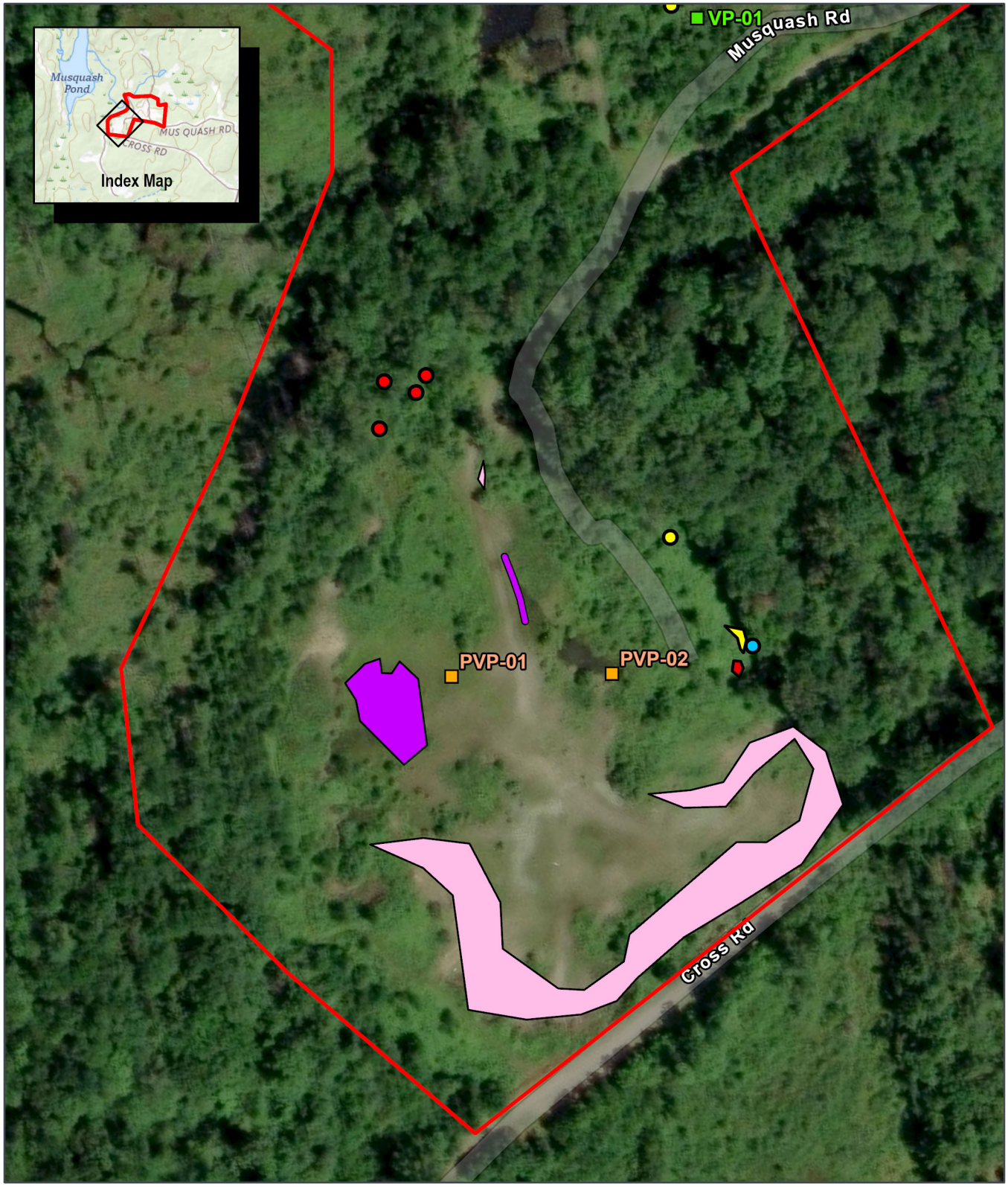
Jefferson, ME
USGS 7.5' Quadrangle:
North Whitefield
NAD 1983 UTM Zone 19N
44.1568°N 69.5189°W

0 200 400 Feet
0 50 100 Meters

1:3,800

Base Map: Esri ArcGIS Online, accessed August 2024
Updated: 8/2/2024
Project No. 79601
Layout: Fig 3 VPs and Invasives

SWCA ENVIRONMENTAL CONSULTANTS



MUSQUASH POND WETLAND CREATION AND RESTORATION PROJECT

Figure 3. Vernal Pools and Invasive Plants

Map 1 of 4

- Japanese Knotweed
- Reed Canary Grass
- Multiflora Rose
- Potential Vernal Pool
- Vernal Pool
- Coltsfoot
- Purple Loosestrife
- Multifloral Rose
- Reed Canary Grass
- Project Area

Jefferson, ME
USGS 7.5' Quadrangle:
North Whitefield
NAD 1983 UTM Zone 19N
44.1565°N 69.5221°W

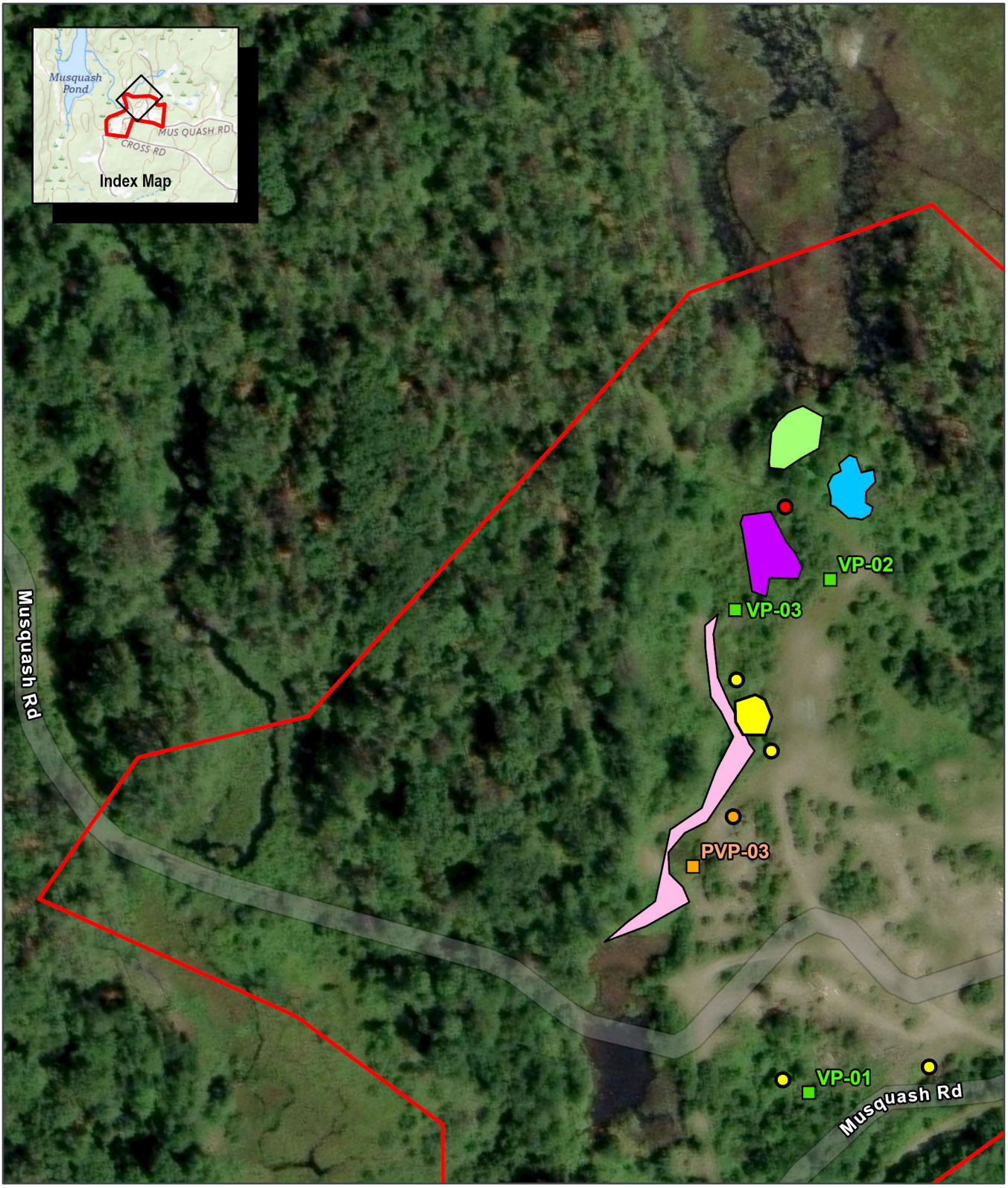
0 75 150 Feet
0 25 50 Meters

N

1:1,500

Base Map: Esri ArcGIS Online, accessed May 2025
Updated: 5/21/2025
Project No. 79601
Layout: Fig 3 VPs and Invasives

SWCA ENVIRONMENTAL CONSULTANTS



MUSQUASH POND WETLAND CREATION AND RESTORATION PROJECT

Figure 3. Vernal Pools and Invasive Plants

Map 2 of 4

- Reed Canary Grass
- Autumn Olive
- Multiflora Rose
- Potential Vernal Pool
- Vernal Pool
- Black Swallowwort
- Coltsfoot
- Japanese Knotweed
- Purple Loosestrife
- Reed Canary Grass
- Project Area

Jefferson, ME
USGS 7.5' Quadrangle:
North Whitefield
NAD 1983 UTM Zone 19N
44.1586°N 69.5198°W

0 75 150 Feet
0 25 50 Meters

N

1:1,500

Base Map: Esri ArcGIS Online, accessed May 2025
Updated: 5/21/2025
Project No. 79601
Layout: Fig 3 VPs and Invasives

SWCA ENVIRONMENTAL CONSULTANTS

MUSQUASH POND WETLAND CREATION AND RESTORATION PROJECT

Figure 3. Vernal Pools and Invasive Plants

Map 3 of 4

- Japanese Knotweed
- Reed Canary Grass
- Coltsfoot
- Project Area

Jefferson, ME
USGS 7.5' Quadrangle: North Whitefield
NAD 1983 UTM Zone 19N
44.157°N 69.5176°W

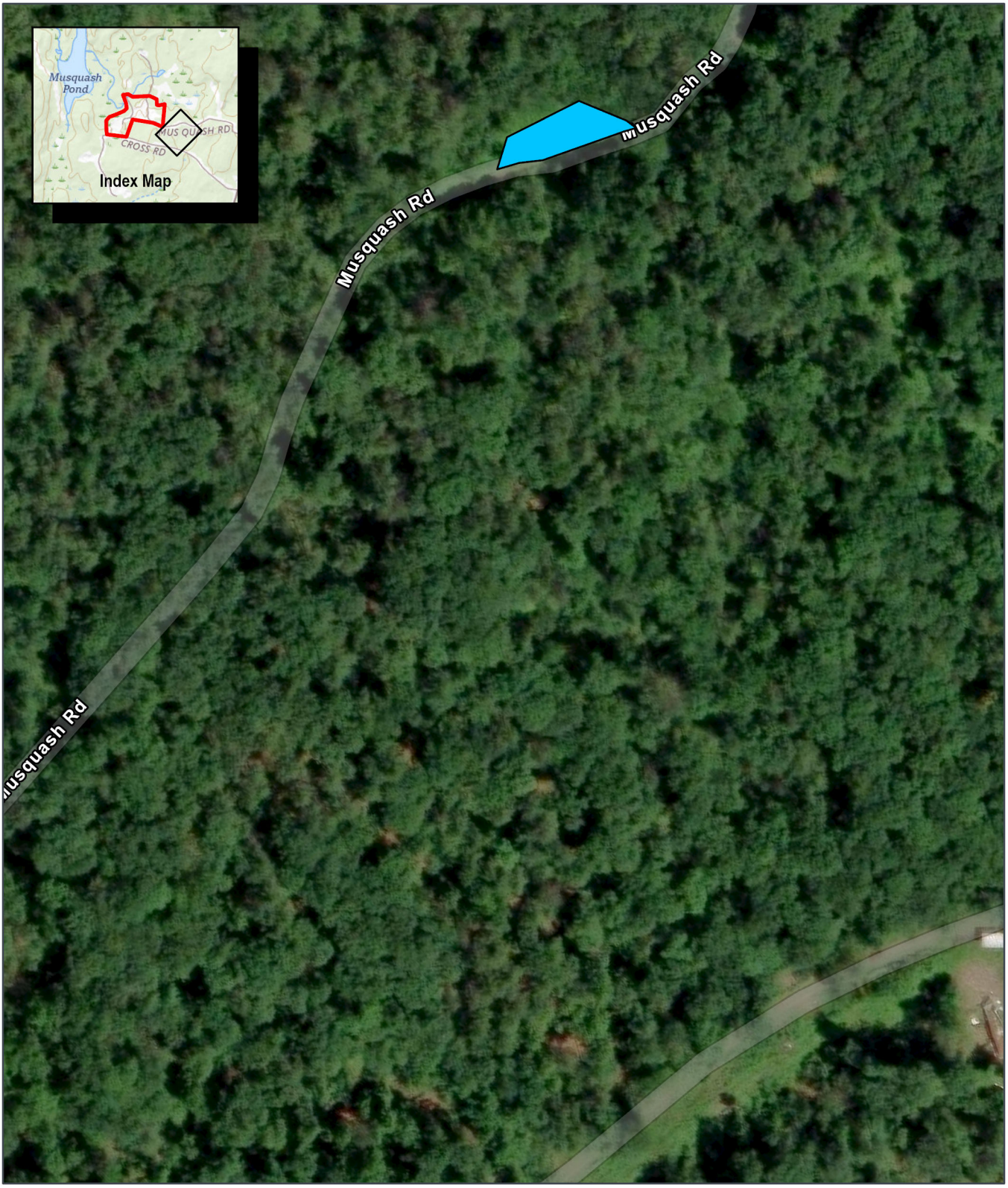
0 75 150 Feet
0 25 50 Meters

N

1:1,500

Base Map: Esri ArcGIS Online, accessed May 2025
Updated: 5/21/2025
Project No. 79601
Layout: Fig 3 VPs and Invasives

SWCA ENVIRONMENTAL CONSULTANTS



MUSQUASH POND WETLAND CREATION AND RESTORATION PROJECT

Figure 3. Vernal Pools and Invasive Plants

Map 4 of 4

Japanese Knotweed

Jefferson, ME
USGS 7.5' Quadrangle: North Whitefield
NAD 1983 UTM Zone 19N
44.1558°N 69.5154°W

0 75 150 Feet
0 25 50 Meters

N

1:1,500

Base Map: Esri ArcGIS Online, accessed May 2025
Updated: 5/21/2025
Project No. 79601
Layout: Fig 3 VPs and Invasives

SWCA ENVIRONMENTAL CONSULTANTS

APPENDIX B

Photographs

Feature: Invasive Species 01

Photo Facing: N/A

Comments: Reed canary grass

Date: July 3, 2024

Feature: Invasive Species 02

Photo Facing: N/A

Comments: Japanese knotweed

Date: July 3, 2024

Feature: Invasive Species 04

Photo Facing: N/A

Comments: Butterfly swallowwort

Date: July 3, 2024

Feature: Invasive Species 04

Photo Facing: N/A

Comments: Butterfly swallowwort

Date: July 3, 2024

Feature: Invasive Species 05

Photo Facing: N/A

Comments: Reed canary grass

Date: July 3, 2024

Feature: Invasive Species 06

Photo Facing: N/A

Comments: Japanese knotweed along roadway

Date: April 29 2024

Feature: Invasive Species 07

Photo Facing: N/A

Comments: Reed canary grass

Date: June 13 2024

Feature: Invasive Species 10

Photo Facing: N/A

Comments: Colt's foot

Date: July 29, 2024

Feature: Invasive Species 11

Photo Facing: N/A

Comments: Purple loosestrife

Date: July 29, 2024

Feature: Invasive Species 12

Photo Facing: N/A

Comments: Multifloral rose

Date: July 29, 2024

Feature: Invasive Species 13

Photo Facing: N/A

Comments: Autumn olive

Date: July 29, 2024

Feature: Invasive Species 14

Photo Facing: N/A

Comments: Purple loosestrife

Date: July 29, 2024

Feature: Invasive Species 15

Photo Facing: N/A

Comments: Colt's foot

Date: July 29, 2024

Feature: Invasive Species 16

Photo Facing: North

Comments: Purple loosestrife

Date: July 29, 2024

Feature: Invasive Species 16

Photo Facing: West

Comments: Purple loosestrife

Date: July 29, 2024

Invasive Species Control Plan for the Musquash Pond Wetland Creation and Restoration Project

PREPARED FOR

Midcoast Conservancy

PREPARED BY

SWCA Environmental Consultants

INVASIVE SPECIES CONTROL PLAN FOR THE MUSQUASH POND WETLAND CREATION AND RESTORATION PROJECT

Prepared for

Midcoast Conservancy
290 Route One
Edgecomb, Maine 04556

Prepared by

SWCA Environmental Consultants
8 Science Park
Scarborough, Maine 04074
(207) 292-2753
www.swca.com

SWCA Project No. 00079601-000-PTL

CONTENTS

Appendices

Tables

1 INTRODUCTION

This Invasive Species Control Plan (ICSP) has been developed to provide the specifications regarding the removal, handling, and management of invasive plants existing within boundary of the Musquash Pond Wetland Creation and Restoration Project (Project; Project Site) located within Musquash Pond Preserve, owned by Midcoast Conservancy. While there are other invasive species, such as insects and fungal pathogens potentially present on site, this plan is concerned with the mitigation and control of those most at risk to spread through earth disturbance and restoration activities: invasive plants species. This plan will be provided to and followed to the extent practicable by SWCA Environmental Consultants (SWCA), Midcoast Conservancy, and any hired subcontractors working on the Project.

Invasive plant management is conducted on restoration projects such as this one to improve the habitat value of the project site, protect the proposed landscape and/or restoration plantings, and prevent the future spread of invasive species from documented locations into uninfested project work areas. The main goal of this ICSP is to prevent substantive increase in existing invasive species populations as a result of wetland restoration and creation activities. While eradication is not the goal of this PIMP, a secondary goal is to reduce populations of invasive plants prior to restoration activities by contractors to better assist in limiting their spread throughout the site, which can hopefully be maintained in the succeeding years.

The measure of success for invasive plant management on this project is a net zero increase in surface area occupied by invasive plant populations from preconstruction conditions to the end of two growing seasons post construction activities (May 2025 through November 2028; review period). This determination is based solely on the invasive plant populations currently existing within the bounds of the project site, as documented in this ICSP (See Figure 1 in Appendix A for Project bounds). Project specifications ideally merit no net increase in surface area occupied by invasive plant populations by end of the review period. However, as invasive plant populations frequently extend outside the project sites and are extant for long periods of time in the underlying seedbank, a net zero increase immediately after Project construction completion may be infeasible. For this reason, the Project specifications have set parameters to have no net increase by the end of the review period to set a reasonable goal for success in the ICSP. SWCA believes that this is a more realistic goal for this Project.

Project construction will commence upon approval of this and other work plans and will extend through Fall of 2026. Active invasive plant management will be conducted, as needed, through the review period. Long-term monitoring of invasive plants will be conducted using inactive management practices supplemented with periodic active management and is outlined below.

1.1 State Law and In-Lieu Fee Program Compliance

Maine state law regulates aquatic invasive plants (38 MRSA §419-C) which prohibits an individual to "possess, import, cultivate, or distribute any invasive aquatic plant or parts of any invasive aquatic plant, including roots, rhizomes, stems, leaves or seeds, in a manner that could cause the plant to get into any state waters." Currently, there are no known populations of aquatic invasive plants documented on site. Additionally, all equipment brought on site will be thoroughly cleaned prior to site entrance to reduce the potential for invasives species to be introduced from other sites. Therefore, the Project does not foresee potential for non-compliance with Maine State Law or the potential spread of additional aquatic invasives.

The Maine Department of Agriculture, Conservation, and Forestry (MDACF) defines invasive plants as "a non-native species that has spread into native or minimally managed plant communities (habitats) in Maine that causes economic or environmental harm by developing self-sustaining populations that become dominant and/or disruptive to native species (01-100 MDACF Regulations Chapter 273; Statutory Authority 7 MRSA Chapter 405-A §2211)." The MDACF has adopted rules prohibiting the sale

of certain listed terrestrial plants. Additionally, all outside plant material and substrate utilized in the Project will be sourced to reduce the immediate threat and minimize the long-term potential of degradation, the species included in the U.S. Army Corps of Engineers (USACE) "Invasive and Other Unacceptable Plant Species" list in the 2016 Mitigation Guidance, as well as the species listed on the MDACF list of Invasive Terrestrial Plants. Plants from these lists shall not be included as planting stock in the overall project. Only plant materials native and indigenous to the region shall be used. Species not specified in the plan shall not be used without prior written approval from the Maine Natural Resource Council Program (MNRCP).

The Maine Natural Areas Program (MNAP) has an advisory list of invasive species which ranks non-native species from severely invasive to not invasive at this time. This advisory list is not regulatory, but informative for restoration and creation purposes and these practices have been incorporated into the ISCP to the extent feasible.

Other materials brought onto site for restoration and habitat creation will be thoroughly screened and sourced responsibly to prevent the spread of additional invasive species to the site. To the extent practicable, materials from the site will be utilized to create habitat features.

Terrestrial invasive plants will be controlled to the extent practicable, aiming to meet the ICSP goal of no net increase of surface area through the mitigation of existing invasive populations and replacement with native vegetation and ground cover.

2 RISK OF INVASIVE PLANTS ASSESSMENT

2.1 Risks Within the Project Site

SWCA conducted a survey of these areas on June 19, July 29, September 1, and December 3, 2024 to identify the preconstruction locations of invasive plants across the Project Site. The locations of invasive plants observed during the summer 2024 site visits are shown in the attached mapping (Appendix A). SWCA also took photographs of key invasive plant populations during the summer 2024 visits, which are included in the attached photograph pages (Appendix B).

In the northern gravel pit and along the roadway leading into the preserve are several dense populations or clumps of Japanese knotweed (*Reynoutria japonica*). These plants vigorously outcompete native species by spreading via rhizomes, plant fragments and seed dispersal. Populations within the Project area should be properly removed and managed to prevent further expansion. In addition to the populations of knotweed, several smaller clumps of reed canary grass (*Phalaris arundinacea*) are also present throughout the northern and southern gravel pits. A dense population of black swallowwort (*Cynanchum louiseae*) is present near a dense population of Japanese knotweed near Wetland W-79601-03. Populations of coltsfoot (*Tussilago farfara*) were observed scattered along the steep slopes of the northern and southern gravel pit, and alongside the two-track roadway at the entrance to the southern gravel pit. A small pocket of autumn olive (*Elaeagnus umbellata*) was observed in the northern gravel pit adjacent to W-79601-06. Scattered individuals of multifloral rose (*Rosa multiflora*) were observed in the northern gravel pit along the two-track roadway cutting through W-79601-03 and on the hill above W-79601-06, along a line in wetland W-79601-01, on top of the southern ridges of the southern gravel pit. Three individuals of Morrow's bush honeysuckle (*Lonicera morrowii*) were observed – one along B-79601-01 and two just southwest of W-79601-03 in the northern gravel pit. One populations of climbing nightshade (*Solanum dulcamara*) was observed in W-79601-01. Lastly, purple loosestrife (*Lythrum salicaria*) was observed in scattered clumps throughout W-79601-03 west of the two-track, along the roadway leading into the southern gravel pits, and both within and surrounding W-79601-08. Table 1 below lists invasive plant species observed in the field, estimated population size, and notes on the population location.

Table 1. Invasive Species Populations in and around the Project Area.

Scientific Name	Common Name	Population (square feet)	Notes
Cynanchum louiseae	Black swallowwort	1,825	Individuals spread out in area near Wetland W-79601-03
Elaeagnus umbellata	Autumn olive	5	One individual by W-79601-06
Lonicera morrowii	Morrow's bush honeysuckle	15	Three individuals, two in the northern gravel pit, one alongside stream B-79601-01
Lythrum salicaria	Purple loosestrife	6,401	Scattered clumps in wetland 3 areas located in northern gravel pit and in southern gravel pit near wetland W-79601-08
Phalaris arundinacea	Reed canary grass	1,076	Clumps of individuals scattered throughout northern and southern gravel pits
Reynoutria japonica	Japanese knotweed	4,848	Large clump of individuals adjacent to wetland W-79601-03 outside of northern gravel pit, small clump on ridge of northern gravel pit, large stand along access road outside of Project Site
Rosa multiflora	Multifloral rose	155	Dense clump adjacent to W-79601-03 and scattered individuals along ridges of the southern gravel pit
Solanum dulcamara	Climbing/oriental nightshade	15	Scattered plants in W-79601-01, approximately 20-30 indivudals
Tussilago farfara	Colt's foot	32,288	On slopes of gravel pits and along roadway edges

The invasive plant species with the greatest coverage on the project site are Japanese knotweed, reed canary grass, purple loosestrife, black swallowwort, and colt's foot. Climbing nightshade occurs outside of the immediate Project area and will not be a focus of treatment for this ISCP. While the invasives documented in Appendix A represent preconstruction conditions on the days of the site visits, it is possible that other invasive plants may be observed on-site prior to or after the start of construction.

2.2 Risks from Off Site

Risks from off site are primarily the result of outside traffic and impacts. There were 9 invasive plant species noted on site during site visits. However, within the area there are potential for additional invasive plant species spread, such as Japanese barberry (*Berberis thunbergii*), common reed (*Phragmites australis*), oriental bittersweet (*Celastris orientalis*), and glossy buckthorn (*Frangula alnus*), which are noted in the larger area surrounding the Project Site.

The greatest diversity and spread of populations of invasive plant species were noted in the northern gravel pit, where there also appears to be a greater amount of ATV activity and traffic, potentially due to its connection to the larger road network and more trail off shoots from that location. Other potential risks for invasive species spread stem from construction and restoration activities. These activities could

result in the bringing in of contaminated equipment, plant materials, and top soils. Additionally, construction and restoration activities could result in promoting the extension of already extant populations through earth disturbance activities spreading existing seed banks and inviting establishment and colonization of new areas before native species can colonize.

3 POTENTIAL PROJECT CONSTRAINTS

The state of Maine requires a permit for the application of herbicide, especially in proximity to wetlands and waterbodies. SWCA does have a licensed master herbicide applicator and an apprentice on staff. However, the master applicator will be on maternity leave during the 2025 growing season. While there is the possibility to partner with other organizations to meet state requirements for application of herbicides, this will be a factor in planning efforts for control of invasive plant species that require herbicide application.

Additional constraints are budgeting and focus of the Project scope. The MNRCP grant proposal scope was not focused on invasive species eradication, only in preventing undue spread of invasive species as a result of wetland restoration and creation activities. Additionally, the number and diversity of invasives is greater than originally scoped. Accordingly, funds and level of effort reflect those constraints and will limit the level of effort associated with how invasive populations are managed.

4 TARGETED INVASIVE SPECIES

Black swallowwort (*Cynanchum louiseae*)

Black swallowwort is a perennial, herbaceous, thin, twining vine commonly up to 6 feet in length, with opposite leaves and 5-pointed star shaped, dark purple flowers. Black swallowwort flowers from June to July, and wind dispersal of seed begins in late July to early August and continues through the fall (Plant Conservation Alliance 2006). Control methods include digging root crowns before seed pods develop, multiple mowings before pod production, and specifically timed herbicide applications (MDCAF 2021a).

Autumn olive (*Elaeagnus umbellate*)

Autumn olive is a perennial, deciduous shrub, up to 10 – 15 feet tall and wide, usually very branched, possibly with 1+ inch woody spines. White to light yellow tubular flowers bloom in May – June in Maine, with ½ inch roundish fruit growing around September. Control methods include mowing and hand digging/pulling, and herbicide application late in the growing season (July – September) (MDCAF 2021b).

Morrow's bush honeysuckle (*Lonicera morrowii*)

Morrow's bush honeysuckle is a perennial, deciduous shrub distinguished by its hairy abaxial leaves, hollow pith, and finely pubescent white or pink flowers. Tubular, fragrant, white and pink flowers appear around May, producing ripe fruit by late summer. Control methods include mowing and hand digging/pulling, and herbicide application late after stump cutting except in early spring (June – March) (MDCAF 2025).

Purple loosestrife (*Lythrum salicaria*)

Purple loosestrife is a robust, perennial herb, 4 – 6 feet tall, with distinctive purple flowers of long, crowded spikes. In Maine, purple loosestrife flowers in mid-to-late summer. Small populations can be

hand-pulled before flowering/seed, and herbicide control should be used after flowering but before seeds form (June through August) (MDCAF 2021c).

Reed canary grass (*Phalaris arundinacea*)

Reed canary grass is a robust, perennial grass, 2 – 6 feet tall, with alternate leaves and 3 – 8 inch long inflorescences formed high above the leaves that change from green to tan as the seeds mature. Seed germination is bimodal, peaking in March – May and again in June – July (WRCGMWG 2009). Control methods include mowing, cutting, shading, restoration planting, and herbicide application (MIPFG 2019).

Japanese knotweed (*Reynoutria japonica*)

Japanese knotweed is a robust, very tall (up to 10 feet) perennial herb that grows in dense stands, with simple, alternate, entire leaves up to 6 inches long and 3 – 4 inches wide. Flowering in late July or August in Maine -- their flowers are small, white, and abundant, in small spikes along stems. Control methods include cutting/mowing in early June (or after the plant has bloomed), smothering, and herbicide application (MDCAF 2021d).

Multifloral rose (*Rosa multiflora*)

Multifloral rose is a perennial, deciduous shrub, up to 20 feet tall, with arching canes that can grow up other plants. Its flowers, blooming in June in Maine, are 5 parted, white to pale pink, and around 1 inch wide. Fruits develop in late summer and remain on the plant through winter (Vermont Invasives 2025). Control methods include mowing, hand pulling/cutting, and herbicide treatment (2021e).

Colt's foot (*Tussilago farfara*)

Colt's foot is a rhizomatous perennial forb that is 2 – 20 inches tall, with flowers that resemble common dandelions, only smaller (1 – 1¼ inches wide). In New England, it generally flowers in April – June (FEIS 2011). Hand pulling can be effective as a control method, but any roots left in the soil may resprout. Herbicide treatments can be used as well, but should be done in the summer when colt's foot leaves are fully developed (WDNR 2025).

5 METHODS AND FOCUS OF THE INVASIVE SPECIES CONTROL PLAN

While several invasive plants will be managed, purple loosestrife and Japanese knotweed are of highest concern during the Project, due to their size and potential for spread as a result of restoration and creation activities. Japanese knotweed is a risk due to its ability to spread through rhizome fragmentation and difficulty in complete eradication. Particular care needs to be given when clearing vegetation and/or mobilizing through areas where Japanese knotweed exists. Purple loosestrife is a risk due to its persistent seedbank and the proposed earthwork activities required on site for the Project. Other invasive populations are smaller in surface area coverage (multifloral rose, autumn olive, and black swallowwort) and/or will find the created wetland habitat and increased competition from native species inhospitable to their growth (colt's foot).

Both chemical and traditional control methods will be a major means of invasive plant management throughout the review period. A combination of chemical and mechanical management will take place for most of the invasive plant populations located within the project site. The method utilized for each is detailed in Table 2. Outside of the review period, long-term management will commence. Long-term management will primarily be biological control methods with intermittent support of traditional control methods.

Chemical methods will be applied using either low-volume backpack sprayers or stump herbicide dabbers. Herbicide will be mixed with non-ionic surfactant and a marking dye. This will allow applicators to conduct selective herbicide application and remain aware of all plants treated, which eliminates unnecessary overspray or missed application.

Mechanical methods can effectively manage many of the invasive plants present. Such methods include clearing, grubbing, and other excavation activities which will all occur during this project. SWCA will work with Midcoast Conservancy and the site contractor to most effectively utilize both mechanical and chemical means of invasive plant management to meet the goals of this project as well as the Project schedule.

Midcoast Conservancy has planned two volunteer and staff removal days for purple loosestrife and black swallowwort. These species will be removed by hand. Midcoast Conservancy will also oversee the removal efforts for autumn olive and multifloral rose through mechanical removal methods.

Table 2. Invasive Plant Species Management Details

Common Name	Scientific Name	Treatment Protocol^	Management Timing
Autumn olive	*Elaeagnus umbellate*	Mechanical removal, clearing (excavation)	Prior to fruiting in July
Black swallowwort	*Cynanchum louiseae*	Hand-removal, Follow up foliar treatment: glyphosate	June to July June to July
Colt's foot	*Tussilago farfara*	Hand-removal Follow up foliar treatment: glyphosate	April to October June to August
Japanese knotweed	*Reynoutria japonica*	Foliar treatment: glyphosate Mechanical removal, mowing and clearing (excavation)	Late August to mid-October Late Spring to Summer (prior to treatments)
Multifloral Rose	*Rosa multiflora*	Mechanical removal, clearing (excavation) Follow up foliar/cut-stem treatment: glyphosate	Prior to fruiting in summer Prior to fruiting in summer
Purple loosestrife	*Lythrum salicaria*	Hand removal Follow up foliar treatment: glyphosate Release of biological control	June-July June-August May-July
Reed Canary Grass	*Phalaris arundinacea*	Foliar treatment: glyphosate	August-October
Other invasive plants*		Young woody and herbaceous: foliar; glyphosate Mature shrubs: cut-stem; glyphosate. Mature trees: hack and squirt or cut-stem; glyphosate. Herbaceous invasives: foliar; glyphosate	April to October

^Note: These herbicides are recommended for use. Either equivalent herbicides or similar herbicides may be used upon approval.
*Note: "Mature" is defined as stems 1 or more inches in diameter; "Young" is defined as stems less than 1 inch in diameter.
+Note: Clearing/Excavation will only be done for small isolated populations, not the large stand alongside the access.

5.1 Initial Management

This section details management techniques that will be utilized on site to control invasive plant populations. The full invasive plant management timeline and activity can be found in Table 3 below.

Table 3. Invasive Plant Management Timeline

Season	Task	Location
March-April 2025	Review plans and propose stockpile location	Project Site
	Complete survey to confirm pre-restoration bounds for invasive extents	Project Site
Spring 2025	First release of biological control for purple loosestrife	Project Site
before June 2025	Mechanical clearing: autumn olive, multifloral rose, bush honeysuckle	Project Site
Early June 2025	Hand-pulling of black swallowwort, purple loosestrife, colts foot	Project Site
Late June - Mid July 2025	Hand pulling of black swallowwort and purple loosestrife	Project Site
	Herbicide application of black swallowwort, reed canary grass, and purple loosestrife	Northern gravel pit, access road
	Mechanical clearing of Japanese knotweed	
Fall 2026	Herbicide application of Japanese knotweed	Northern gravel pit, access road
Spring 2026	Mechanical clearing of Japanese knotweed (prior to on-site mobilization of equipment)	Access road
June 2026	Herbicide application of early season and summer species (if needed/able with restoration/creation activities schedule)	Project Site
Summer 2026	Mechanical clearing of Japanese knotweed, Stem cut and herbicide application of bush honeysuckle	Project Site
Fall 2026	Herbicide application of Japanese knotweed (if needed)	Project Site
Spring 2027	Second release of biological control for purple loosestrife	Project Site
June 2027	Herbicide application of early season and summer species (if needed)	Project Site
Fall 2027	Herbicide application of knotweed (if needed)	Project Site
Spring 2028	Third release of biological control for purple loosestrife	Project Site

* Fall is assumed to include September to October, spring is assumed to include the start of the growing season through mid-June, and summer is assumed to include June through August. See Table 2 for species-specific management windows.

5.1.1 Manual Management: Hand Tools and Hand Pulling

Some invasive vegetation will be initially managed through manual means. Manual removals will be performed by hand, with a combination of removal by hand and the use of hand tools, inclusive of mowers, trimmers, shovels, loppers, etc. Any equipment that is used to remove vegetation and or excavate soil for an area that contains invasive plants will be cleaned prior to moving into uninfested areas of the project site or beyond. Hand pulled material will be bagged, sealed, and disposed of off-site. Timing of manual management will be planned to minimize risk of seed spread.

5.1.2 Mechanical Management: Clearing

Much of the invasive vegetation will be initially managed through clearing. Clearing will be performed with a combination of excavators, larger mowers, and land clearing equipment. Any equipment that is used to clear vegetation and/or excavate soil for an area that contains invasive plants will be cleaned prior to moving into uninfested areas of the project site or beyond. Equipment cleaning will be performed outside of wetland resource areas and their buffers and will be conducted prior to moving into uninfested areas.

If Japanese knotweed must be cut above ground level so as to not disturb the roots when cleared. Some areas will require excavation of Japanese knotweed to create wetland areas. All excavated material will be

stockpiled in a stable area where potentially viable propagules cannot transport to other portions of the site or waterways. This material will be either buried or removed from site and disposed of appropriately. Any mowing decks or mechanized equipment used for clearing or excavating Japanese knotweed must be cleaned thoroughly before moving on to clear other areas.

Any stockpiled invasive plant material or soil within invasive-infested areas will be stockpiled separately from uninfested material and will be clearly labeled as an invasive stockpile area. Section 5.1.2.1 ans 5.1.2.2 include best practices for equipment cleaning, disposal, and stockpiling. Appendix A includes the planned locations for temporary stockpile areas.

5.1.2.1 EQUIPMENT CLEANING AND STOCKPILING

All equipment will be cleaned using brushes, water, or compressed air prior to leaving areas with existing populations of invasive plant species. Using a combination of brushes and other hand tools to loosen compacted soil is preferable to the other two options, as brushes and hand tools will minimize the dispersal of any propagules. Any equipment that is used for the movement or clearing of soil within invasive populations will be cleaned prior to leaving the invasive-infested area. Cleaning will be performed on the tracks and buckets of the machines that have potentially come in contact with invasive root/propagule material.

If hand tools are used in clearing, they should also be cleaned prior to use in non-infested work areas. Cleaning activities shall occur outside of areas with disturbed soils and away from any surface waters to avoid the spread of seed material downstream.

If perimeter erosion controls are not already in place around these invasive-infested areas, the site contractor shall install a single line of straw bales around the area in which invasive plant propagules are cleaned from equipment. This will be performed to reduce the potential spread of invasives from infested to uninfested areas, particularly when there is bare soil in either the uninfested or infested areas in question. Final project close-out operations will include disposal of these perimeter controls. As they may contain viable invasive propagules, the receiving facility will be informed of that possibility, and the perimeter controls will not be reused after disposal.

Japanese knotweed can be cut during the dormant and growing seasons, but proper handling of plant and root material is crucial. Japanese knotweed must be cut above ground level without dislodging or affecting the roots of the plant. All cutting implements must be cleaned after cutting and prior to cutting areas not containing Japanese knotweed. Failure to do this can result in spreading the Japanese knotweed population. All Japanese knotweed cutting will be coordinated with SWCA and Midcoast Conservancy to prevent an overlap with any planned foliar treatments.

If burying Japanese knotweed on-site is possible, it is preferred over disposing of it off-site. The plant material may only be buried in locations that already contain Japanese knotweed. When moving potentially viable invasive propagules (both within or outside of the project site), all material will be secured in an enclosed structure (such as a dump truck bed) to avoid spread in transport.

All equipment used for the transport of invasive plant and root material will be inspected and cleaned prior to use with non-invasive materials. The site contractor will assume any soil and plant material remaining on equipment is invasive prior to use in uninfested portions of the project site. No oversight will be needed to conduct this task, but all equipment must be clear of excess soil and plant material when moving from an area of invasive infestation to one not infested.

5.1.2.2 SOIL MOVEMENT AND STOCKPILING

If possible, soils within areas of invasive plant presence should remain in place. However, if soils need to be removed from areas of invasive infestation, the site contractor must follow the following protocols:

When possible, soils in areas of invasive infestation will be buried under at least 6 inches of uncontaminated soil. If all locations for burial are full, or there is a need for material to be stockpiled before burial, the excess material will be stockpiled in the location marked on the attached plan set (see Appendix A), or as determined on site by the contractor. There will be one stockpile location for each gravel pit area for invasive contaminated soils.

The stockpile area will be surrounded by perimeter sediment and erosion controls to eliminate the displacement of any material during rain events. Should the stockpile area remain small, silt fence and straw bales will suffice for perimeter controls. However, should the stockpile area exceed a height of 5 feet, lined jersey barriers wrapped in a semi-permeable fabric will be installed to accommodate the larger volume of sediment that could mobilize during a large storm event. Should a secondary stockpile location be required, the site contractor will report the new location to Midcoast Conservancy and SWCA.

5.1.3 Chemical Management: Herbicide Application

Herbicide application will be conducted both before and after the start of restoration and creation activities utilizing targeted application of glyphosate-based non-persistent herbicide. No areas of standing water will be treated with herbicide. No broadcast herbicide spray treatment will be utilized. All applications will be completed by a licensed herbicide applicator with the state of Maine and timed as indicated in Table 3 as appropriate to species. Herbicide spraying will not occur on windy days (over 15 miles per hour gusts) nor when rainfall has been predicted within 24 hours. Application will be moderated to minimize impacts on non-target species and drift. Japanese knotweed populations will be mowed back along the access road prior to restoration and creation activities take place to limit potential for population spread, with foliar application occurring in the fall. Where earth disturbance activities occur in areas that Japanese knotweed exists, the site contractor will follow the protocols outlined in Section 5.1.1.1. The other invasive plants on the project site will initially be well-managed through mechanical or biological means prior to restoration activities. All invasive plants will be retreated with herbicide as needed in future management events (see Section 5.2).

5.1.4 Biological Management: Galerucella Beetle Release

To combat purple loosestrife populations, SWCA and Midcoast Conservancy will have three planned releases of *Galerucella calmariensis* and *G. pusilla* beetles, species known as a biological control agent for purple loosestrife. The *Galerucella* beetles cannot complete their life cycle on anything other than purple loosestrife, meaning their feeding activity reduces the loosestrifes' density and allows for native plants to compete for space. The beetles damage purple loosestrife at all stages of its life cycle. It is important to note that although the presence of *Galerucella* beetles will likely minimize the existing purple loosestrife population, it is unrealistic to expect complete elimination of the species from the Project area (KELT 2024).

SWCA and Midcoast Conservancy have partnered with Kennebec Estuary Land Trust and Maine Coast Heritage Trust to raise populations of *Galerucella* beetles for release onto the property starting in 2025. Subsequent releases (assuming construction activities preclude beetle release) will be in 2027 and 2028 to limit spread of purple loose strife populations and potentially shrink any extant population.

5.2 Follow-Up Management

Additional management efforts are required to limit the spread of Japanese knotweed and other invasive plants on the project site following clearing and grubbing activities. All invasive plants will be targeted during each management visit regardless of being mapped in the preconstruction visit. Any new invasive plant locations found will be relayed to the SWCA, Midcoast Conservancy, and subcontracting partners on site.

Follow-up management will be conducted twice during each year of the project via a combination of herbicide application and mechanical removal. There will be four follow-up visits in total across the review period; one visit each spring and one visit each summer (Table 3).

Any cutting to take place will be conducted with hedge trimmers, chain saws, or small hand tools (pruners, loppers, etc.) and will be performed in concert with herbicide application. Herbicide applications will be performed as indicated in Table 2. These management methods and timings have been included based on the ideal window for each invasive plant occurring on the project site. This timing is related to the flowering period for most invasive plants. The ideal timing for management is at or just after peak flowering. Any follow-up management to occur within the same growing season will occur a minimum of 2 to 3 weeks following any previous treatment.

As stated in Table 2, herbicide application may be conducted via foliar or cut-stem application. Foliar herbicide application will be performed by a low-volume backpack sprayer. Cut-stem application will be conducted using a handheld dabber applicator with a sponge tip. Where cut-stem applications are performed, cut material will be left in place. As construction activities will remove all large material prior to herbicide application, all cut-stem applications will be performed to small woody material, if needed. The exact implementation method (herbicide application or mechanical management) will be determined by SWCA and Midcoast Conservancy in the field based on site conditions.

All dead material with applied herbicide will be left on-site where it falls to decompose naturally (as it ultimately would if it were not cut). Cut material with potential fruiting bodies will be bagged and disposed of off-site to prevent further spread.

All herbicides that will be used for treatments are approved for use in wetlands and can be used in sensitive areas. Herbicide is discussed earlier in Section 5.1.3.

6 LANDSCAPE AND RESTORATION PLANTING GUIDANCE

There are planned landscape and restoration planting areas associated with this project. Some of the invasive plant areas overlap with where plants will be installed in the future. To ensure success of all plant installation, any planting efforts will not occur until two herbicide applications have been performed. This will reduce the likely need of repeat treatment within planting areas after installation.

Furthermore, all plantings should be scheduled no sooner than 2 weeks following the second herbicide application on the project site. The coordination and mobilization for all planting should occur during this timeframe, regardless of any landscape planting that may exist outside of the extent of invasive plant presence.

7 SUMMARY

SWCA and Midcoast Conservancy will work together with other on site subcontractors to manage invasive plants twice annually (or as needed) through the end of the review period, which is planned to be

November 2027. Initial methods of management include hand pulling and mechanical clearing, and follow-up methods include a combination of chemical and manual/mechanical management techniques. SWCA will conduct herbicide application to all invasive plants observed on-site during all follow-up management events, as detailed in Section 5 of this ISCP.

Full inspections will be conducted by SWCA during or immediately after the final management event of each year. Results of each inspection will determine the precise invasive species control plan for the following year. However, the management methods outlined in this ISCP include the approved methods from which annual plans will be determined. The goal for this invasive plant management plan is to limit the expansion of invasive plants populations within the Project Site to no net increase in surface coverage of their existing (preconstruction) footprint. General progress toward this goal, annual management activities, and Project Site review will be reported in each annual summary report to the MNRCP Committee. This brief memo will also include any updates to the plan for the upcoming management season as influenced by invasive population growth or subsidence. This report will include a marked-up figure (if requested) depicting the locations of invasive plant management and will detail the state of invasive plant presence in each treatment area.

8 REFERENCES

Fire Effects Information System (FEIS). 2011. Tussilago farfara. Available at: https://www.fs.usda.gov/database/feis/plants/forb/tusfar/all.html. Accessed May 2025.

Kennebec Estuary Land Trust (KELT). 2024. Biological Control with Galerucella Beetles. Available at: https://www.kennebecestuary.org/news/2024/8/3/biological-control-with-galerucella-beetles. Accessed May 2025.

Plant Conservation Alliance. 2006. Fact Sheet: Black Swallow-wort. Available at: https://www.invasive.org/weedcd/pdfs/wgw/blackswallowwort.pdf. Accessed May 2025.

Maine Department of Agriculture, Conservation & Forestry (MDACF). 2021a. Black Swallowwort. Available at: https://www.maine.gov/dacf/mnap/features/invasive_plants/cynanchum.htm. Accessed May 2025.

_____. 2021b. Autumn Olive. Available at: https://www.maine.gov/dacf/mnap/features/invasive_plants/elaeagnus.htm. Accessed May 2025.

_____. 2021c. Purple Loosestrife. Available at: https://www.maine.gov/dacf/mnap/features/invasive_plants/lythrum.htm. Accessed May 2025.

_____. 2021d. Japanese Knotweed. Available at: https://www.maine.gov/dacf/mnap/features/invasive_plants/fallopia.htm. Accessed May 2025.

_____. 2021e. Multiflora Rose. Available at: https://www.maine.gov/dacf/mnap/features/invasive_plants/rosa_multiflora.htm. Accessed May 2025.

_____.2025. Shrubby Honeysuckles. Available at: https://www.maine.gov/dacf/mnap/features/invasive_plants/lonicera.htm Accessed June 2025.

Maine Invasive Plants Field Guide (MIPFG). 2019. Reed Canary Grass. Available at: https://www.maine.gov/dacf/mnap/features/invasive_plants/phalaris.pdf. Accessed May 2025.

Vermont Invasives. 2025. Multiflora Rose. Available at: https://www.vtinvasives.org/invasive/multiflora-rose. Accessed May 2025.

Wisconsin Department of Natural Resources (WDNR). 2025. Colt's Foot. Available at: https://dnr.wisconsin.gov/topic/Invasives/fact/ColtsFoot. Accessed May 2025.

Wisconsin Reed Canary Grass Management Working Group (WRCGMWG). 2009. Reed Canary Grass (Phalaris arundinacea) Management Guide: Recommendations for Landowners and Restoration Professionals. Available at: https://www.nrcs.usda.gov/sites/default/files/2022-09/Reed%20Canary%20Grass%20Management%20Guide_0.pdf. Accessed May 2025.

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

JANET T. MILLS
GOVERNOR

AMANDA E. BEAL
COMMISSIONER

August 5, 2025

Damariscotta Mills Consulting, Inc.
Robert Barkalow
25 Main St.
Nobleboro, ME 04555

RE: Variance permit for CMR 01-026 Chapter 29, Damariscotta Mills Consulting, Inc.

Greetings,

The Board of Pesticides Control has considered your application for a variance from Chapter 29 for 398 State Route 32 in Chamberlain. The variance is approved, provided that all products to be used are currently registered in the State of Maine or were registered at the time of purchase and that any application is made above the high-water line.

The Board authorizes the issuance of two-year permits for Chapter 29. Therefore, this permit is valid until December 31, 2026, as long as applications are consistent with the information provided on the variance request. Please notify the Board in advance of changes, particularly if you plan to use a different product from those listed.

Please bear in mind that your permit is based upon your company adhering to the precautions listed in Section X of your Chapter 29 variance request. The utmost caution should be taken when applying adjacent to open water, including curtailing operations if rain is in the forecast during the 24-hour period after the application.

I will alert the Board at its next meeting that the variance permit has been issued. If you have any questions concerning this matter, please feel free to contact me at 287-2731.

Sincerely,

Alexander Peacock

Alexander Peacock
Director

ALEXANDER PEACOCK, DIRECTOR
90 BLOSSOM LANE, DEERING BUILDING

PHONE: (207) 287-2731
THINKFIRSTSPRAYLAST.ORG

BOARD OF PESTICIDES CONTROL
APPLICATION FOR VARIANCE PERMIT
(Pursuant to Chapter 29, Section 6 of the Board's Regulations)

I. Robert Barkalow (bob.barkalow@gmail.com) O: 207-458-3389 C: 973-214-9458
Name Telephone Number

Damariscotta Mills Consulting, Inc.
Company Name

25 Main Street Nobleboro Maine 04555
Address City State Zip

II. Robert Barkalow CMA-6156
Master Applicator (if applicable) License Number

25 Main Street Nobleboro Maine 04555
Address City State Zip

III. **As part of your application, please send a revegetation plan and digital photos showing the target site and/or plants and the surrounding area, particularly showing proximity to wetlands and water bodies, to pesticides@maine.gov**

IV. Area(s) where pesticide will be applied:
Area across road from 398 State Route 32 in Chamberlain. Roughly 2,500 square feet, bordering Long Cove, a small tidal inlet. Please see map and photos below. .

V. Pesticide(s) to be applied: (Including EPA Registration Number)
Round-Up Custom for Aquatic and Terrestrial Use, diluted to 50% per label instructions. EPA registration 524-343

VI. Purpose of pesticide application:
Removal of invasive plant (Japanese Knotweed).

VII. Approximate dates of spray application:
Not applicable. Knotweed stems will be treated with a cut-stump application in late June or early July, with re-sprouts treated again in mid- to late-September. This will be repeated, as needed, for 3 – 5 years.

VIII. Application Equipment:

Plants will be cut with hand tools. Herbicide will be applied with four ounce "buckthorn blaster" bottles equipped with wicking tops. No powered equipment will be used.

IX. Standard(s) to be varied from:

Chapter 29 section 6 (A) – Buffer Requirement. The treatment will use non-powered equipment directed at the specific target pest (knotweed). However, due to the tenacity of knotweed, treatment will need to be repeated for 3 – 5 years as the plant roots re-sprout, therefore all plant stems will be treated. To facilitate this approach, a variance is requested from the 20% treatment limit per calendar year for plants growing within 25' of the water.

Note that the total volume of pesticide applied will be well below the allowable maximum yearly amount.

X. Method to ensure equivalent protection and Revegetation Plan:

The cut-stump application will be undertaken by a trained professional to ensure that all chemicals are applied directly to the target pest and not released directly into any water. Glyphosate's inherent quality for low-mobility in soil will further ensure the protection of water resources.

XI. Revegetation Plan (attach separately if necessary)

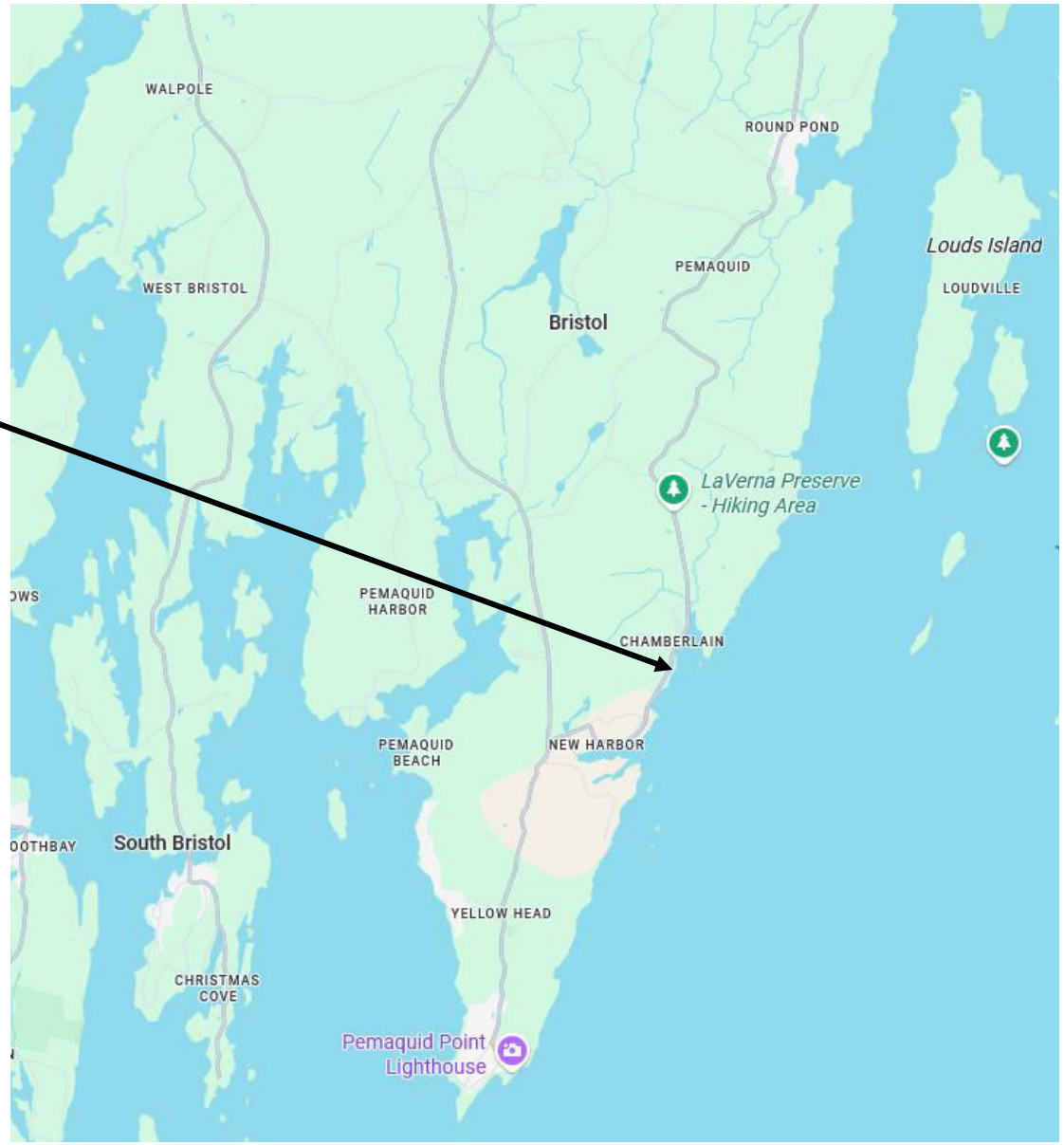
Due to the small size of the knotweed patches, no re-planting will be necessary. Native plants will fill in around the treatment sites once the knotweed stops overshadowing the area. In addition, the landowners are already planning to establish Virginia rose along this stretch of property to help manage erosion.

Signed:  Date: 8/4/2025

Return completed form to: **Board of Pesticides Control, 28 State House Station, Augusta, ME 04333-0028**
OR E-mail to: pesticides@maine.gov

Rev. 2/2022

398 State Route 32,
Chamberlain



Bob Barkalow
Damariscotta Mills Consulting, Inc.
August, 2025

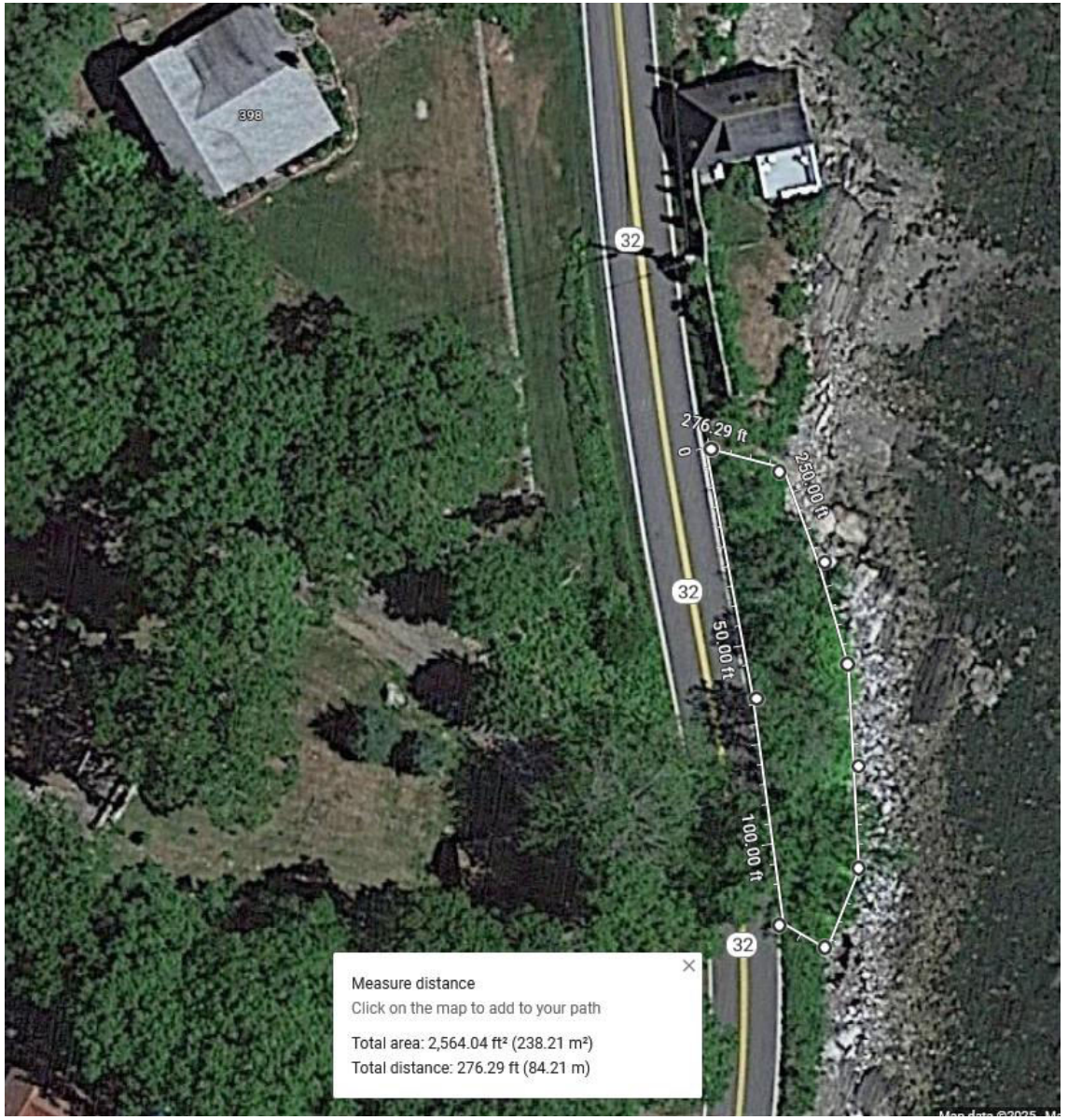
398 State Route 32, Chamberlain, ME

Knotweed Location (approximate coverage)

Roughly 2,500 square feet bordering tidal inlet (Long Cove)

20’ – 25’ above normal high tide mark

Landowner reports this is a new infestation since the big storm of January 2024. Road repair equipment used after the storm is a likely source of the knotweed.



Bob Barkalow
Damariscotta Mills Consulting, Inc.
August, 2025

View from South

View from North

View from Water

Bob Barkalow
Damariscotta Mills Consulting, Inc.
August, 2025

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

JANET T. MILLS
GOVERNOR

AMANDA E. BEAL
COMMISSIONER

July 24, 2025

Parterre Ecological
Shana Hostetter
14 Braintree St.
Portland, ME 04103

RE: Variance permit for CMR 01-026 Chapter 29, Parterre Ecological/Parterre Garden Services

Greetings,

The Board of Pesticides Control considered your application for a variance from Chapter 29 for Staple Street Park in Biddeford. The variance is approved, provided that all products to be used are currently registered in the State of Maine or were registered at the time of purchase and that any application is made above the high-water line.

The Board authorizes the issuance of two-year permits for Chapter 29, therefore this permit is valid until December 31, 2026, as long as applications are consistent with the information provided on the variance request. Please notify the Board in advance of changes, particularly if you plan to use a different product from those listed.

Please bear in mind that your permit is based upon your company adhering to the precautions listed in Section X of your Chapter 29 variance request.

I will alert the Board at its next meeting that the variance permit has been issued. If you have any questions concerning this matter, please feel free to contact me at 287-2731.

Sincerely,

Alexander Peacock

Alexander Peacock
Director

ALEXANDER PEACOCK, DIRECTOR
90 BLOSSOM LANE, DEERING BUILDING

DEPARTMENT OF Agriculture Conservation & Forestry

PHONE: (207) 287-2731
THINKFIRSTSPRAYLAST.ORG

BOARD OF PESTICIDES CONTROL
APPLICATION FOR VARIANCE PERMIT
(Pursuant to Chapter 29, Section 6 of the Board's Regulations)

I. Shana Hostetter — (717) 587-5355
Name — Telephone Number

Parterre Ecological
Company Name

525 Riverside Street — Portland — ME — 04103
Address — City — State — Zip

II. Shana Hostetter — CMA-6371
Master Applicator (if applicable) — License Number

14 Braintree Street — Portland — ME — 04103
Address — City — State — Zip

III. **As part of your application, please send a revegetation plan and digital photos showing the target site and/or plants and the surrounding area, particularly showing proximity to wetlands and water bodies, to pesticides@maine.gov**

IV. Area(s) where pesticide will be applied:

Staple Street Park at the end of Staple Street in Biddeford Pool.

V. Pesticide(s) to be applied:(Including EPA Registration Number)

Round Up Custom, 524- 343

VI. Purpose of pesticide application:
Eradicate Japanese Knotweed on Site

VII. Approximate dates of spray application:

Late Summer 2025 and 2026.

VIII. Application Equipment:

Backpack Sprayer, Hand-held Foamer

IX. Standard(s) to be varied from:

Chapter 29, Section 6, Section A

X. Method to ensure equivalent protection:

When using backpack sprayer we will be using large droplet sizes to minimize drift. We will only apply herbicide when the wind is less than 15mph. Spray only when ground is dry and not saturated with water. Avoid spraying when forecasts show a threat of heavy rains. Do not spray on rainy days and cease spray operations if rain is in the immediate forecast.

XI. Revegetation Plan (attach separately if necessary)

Reseed with a coastal maine grass seed mix.

Signed: _____ Date: 06/20/2025

Return completed form to: **Board of Pesticides Control, 28 State House Station, Augusta, ME 04333-0028**
OR E-mail to: pesticides@maine.gov

Rev. 8/2013

LAND MANAGEMENT PLAN

A NARRATIVE FOR INVASIVE MANAGEMENT & NATIVE PLANT RESTORATION

Biddeford Pool Aerial Photography

STAPLE STREET CONSERVATION AREA • BIDDEFORD POOL, MAINE

PARTERRE
ECOLOGICAL

CONTENTS

PROJECT INTRODUCTION

At the edge of Staple Street in Biddeford, Maine, lies a small but ecologically valuable parcel of conserved land. Nestled within a residential neighborhood, this area serves as a natural buffer, preserving open space and providing a quiet refuge for both people and wildlife. Though modest in size, the site plays an important role in supporting local biodiversity, contributing to regional habitat connectivity, and enhancing the visual and ecological character of the community.

The parcel features a diverse mix of native grasses, shrubs, and early successional tree species, which collectively offer food and shelter for a variety of birds, pollinators, and small mammals. Its proximity to the coastline and location within Biddeford's broader conservation framework further elevates its ecological value. Stewarded by the Biddeford Pool Land Trust, this landscape reflects both natural coastal processes and the challenges of long-term habitat management.

Among these challenges is the presence of invasive plant species, which threaten to undermine the ecological integrity of the site. In particular, mature populations of Japanese knotweed (Fallopia japonica) have become established along portions of the parcel. This aggressive, self-perpetuating species is known for its ability to outcompete native plants, disrupt soil structure, and rapidly dominate disturbed areas—making early intervention critical.

This management plan outlines a targeted approach to invasive species control on the Staple Street parcel. It identifies priority invasive plants for removal, provides species descriptions, and details best management practices tailored to the site's specific conditions. To support long-term success, the plan includes a seasonal maintenance calendar designed to guide treatment and monitoring efforts over multiple years, ensuring that ecological restoration efforts are sustained and effective.

MAINE CONSERVED LAND

PROJECT LIMIT OF WORK

0 0.05 0.1 0.2 mi
0 0.1 0.2 0.4 km

EXISTING CONDITIONS: INVASIVE PLANT IMAGES

A mix of native vegetation and invasive Japanese knotweed (Fallopia japonica) is intermingled on the conserved parcel at the end of Staple Street. This small but significant area provides important green space within the surrounding neighborhood and supports a variety of coastal plant communities. However, the presence of knotweed threatens the long-term ecological value of the site.

Japanese knotweed is a highly aggressive invasive species known for forming dense thickets that outcompete native plants. Its fast-growing underground rhizome network allows it to spread quickly and regenerate even after cutting or physical removal, making it particularly difficult to manage once established.

If left unchecked, knotweed is likely to expand and gradually displace native grasses, shrubs, and early successional trees. This degradation reduces plant diversity and habitat quality for birds, pollinators, and other wildlife. The visual and ecological character of the landscape—valued by both the community and local conservation efforts—would be significantly diminished.

Timely, strategic management is essential to control the spread of knotweed and preserve the ecological integrity of the site.

GENERAL INVASIVE REMOVAL TECHNIQUES

MANUAL HAND REMOVAL METHODS:

Manual methods of invasive plant management - including hand pulling and cutting - will be prioritized whenever possible. For tenacious woody plants, use of a weed-wrench is recommended. To minimize soil disturbance (which can activate invasive seed banks), only shallow-rooted invasive plants less than 1" in caliper should be hand pulled from the soil. Invasive plant species greater than 1" caliper are best cut and treated.

MECHANICAL MANAGEMENT:

Mechanical methods of invasive control include mowing, string-trimming, and sawing down of single large specimens or extensive stands of a particular plant. In a few cases repeated mowing or cutting is all that is needed to weaken a plant's resources to the point of die-off. With most aggressive invasives however, mowing and cutting are only the first step in a more intensive program plan that involves selective herbicidal treatments.

SPECIALIZED INVASIVE REMOVAL TECHNIQUES: *FALLOPIA JAPONICA* 'JAPANESE KNOTWEED'

DESCRIPTION:

Japanese knotweed (Fallopia japonica) is a tall-growing, hollow-stemmed, herbaceous perennial that can reach over 10 feet in height. The stems are smooth, stout, and noticeably swollen at the nodes where the leaves attach—giving it a bamboo-like appearance. Leaves are broadly oval to triangular, pointed at the tip, and typically measure about 6 inches long by 3 to 4 inches wide on mature plants. In late summer, the plant produces branched sprays of small, greenish-white flowers, followed by tiny, winged, triangular seeds roughly 1/10 inch long. Though it can reproduce by seed, its primary method of spread is through an extensive and resilient underground rhizome system.

HABITAT:

Knotweed forms dense monocultures on various site conditions, from roadsides to stream banks. Knotweed is a relative of buckwheat, smartweed, and the Noxious Weed mile-a-minute vine. Japanese knotweed was introduced to the U.S. as ornamentals during the late 1800s. However, it has become an invasive plant in our natural areas due to its imposing height, dense growth habit, aggressive spread, and seeming indifference to control methods.

MANAGEMENT:

Control typically involves a combination of foliar spray and cut-and-fill herbicide treatments over 2–5 consecutive seasons. Strategically timed cutting can extend the treatment window.

KNOTWEED MANAGEMENT TECHNIQUES:

IMPORTANT NOTE ON HERBICIDE APPLICATIONS BY COASTLINE AREA

Herbicide applications near the coastline will be conducted with caution. Manual removal will be prioritized where feasible, foliar spray and foliar foam methods used in sensitive areas. All treatments will occur during dry, calm weather to minimize drift, using only wetland-safe herbicides (Garlon 3A and Roundup Custom).

FOLIAR FOAM

Cutting alone is not sufficient to control Japanese knotweed, but it plays a critical role when combined with targeted herbicide application. For mature stands, we recommend an initial cut in May or early June. This encourages regrowth to a manageable height, which can then be treated with a 6% Aquaneat (glyphosate) solution in late summer—timed to align with the plant's downward movement of nutrients to its rhizomes.

This approach maximizes herbicide uptake and effectiveness. Late-season cuts limit regrowth and narrow the treatment window, reducing control success. Foliar applications during late summer are essential to suppress the extensive underground rhizome system and achieve long-term control.

FOLIAR SPRAY

Directed foliar sprays are herbicide/water mixes targeting invasive plant foliage. A certified herbicide technician will apply using a backpack sprayer—with low pressure and away from the coastline, drift inhibitors, and a spray shield—to enhance precision and cover all leaves to the point of runoff. Ideally, a water-soluble dye should be incorporated into the solution to track application and alert the technician to any unwanted spray drift.

Herbicide application by licensed technician

INVASIVE SPECIES MANAGEMENT SCHEDULE & CALENDAR FOR TREATMENT

EARLY SUMMER 2025

» Systematically remove invasive plants according to priority. Cut down Knotweed stalks & remove invasive vines.

LATE SUMMER 2025

» Treat plant reprouts with foliar herbicide in early summer and mid-summer.

TASK	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Hand removal woody seedlings < 1" caliper	■	■	■	■	■						▫	▫
Hand pulling herbaceous species			■	■	■			▫	■	■	▫	
Mechanical management of woody invasives	■	■	■	■	■	▫	▫	▫	▫	▫	▫	▫
Cut and fill herbicide on woody invasives	▫	▫	▫	▫	▫	■	■	■	■	■	■	■

■ Optimal timing and efficiency ■ Not optimal but mostly effective ▫ Possible, but not ideal

The timing of various containment and restoration strategies is critical to their success. Fortunately, the calender provides ample opportunity for action at any time of the year. Tasks should be performed by trained ecological technicians and licensed herbicide applicators. These recommendations for restoration take into consideration the long term health of the East Point Audubon Sanctuary. Once invasive plants have been managed in a particular area, the restoration of native species should begin.

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

JANET T. MILLS
GOVERNOR

AMANDA E. BEAL
COMMISSIONER

August 8, 2025

New England Spray Technologies
Steven Brook
21 Ridley Rd.
Shapleigh, ME 04076

RE: Variance permit for CMR 01-026 Chapter 29, New England Spray Technologies

Greetings,

The Board of Pesticides Control considered your application for a variance from Chapter 29 for Rotary Park in Kennebunk. The variance is approved, provided that all products to be used are currently registered in the State of Maine or were registered at the time of purchase and that any application is made above the high-water line.

The Board authorizes the issuance of two-year permits for Chapter 29, therefore this permit is valid until December 31, 2026, as long as applications are consistent with the information provided on the variance request. Please notify the Board in advance of changes, particularly if you plan to use a different product from those listed.

Please bear in mind that your permit is based upon your company adhering to the precautions listed in Section X of your Chapter 29 variance request. The utmost caution should be taken when applying adjacent to open water including curtailing operations if rain is in the forecast during the 24-hour period after the application.

I will alert the Board at its next meeting that the variance permit has been issued. If you have any questions concerning this matter, please feel free to contact me at 287-2731.

Sincerely,

Alexander Peacock

Alexander Peacock
Director

ALEXANDER PEACOCK, DIRECTOR
90 BLOSSOM LANE, DEERING BUILDING

PHONE: (207) 287-2731
THINKFIRSTSPRAYLAST.ORG

BOARD OF PESTICIDES CONTROL
APPLICATION FOR VARIANCE PERMIT
(Pursuant to Chapter 29, Section 6 of the Board's Regulations)

I. KENNEBUNK CONSERVATION COM (207) 608-5390
Name — Telephone Number

STEVEN BROOK
Company Name

NEW ENGLAND SPRAY
Address — City — State — Zip

21 Ridley Rd. Shapleigh ME. 04076

II. Master Applicator (if applicable) — License Number

SAME AS ABOVE — CMA - 3484
Address SAME AS ABOVE. City — State — Zip

III. **As part of your application, please send a revegetation plan and digital photos showing the target site and/or plants and the surrounding area, particularly showing proximity to wetlands and water bodies, to pesticides@maine.gov**

IV. Area(s) where pesticide will be applied:

IT'S A STONEY BANK CAN'T NOT PLANT. LET NATIVES COME BACK IN. Red maples, Alders, AND A FEW dogwoods IN AREA.

V. Pesticide(s) to be applied:(Including EPA Registration Number)

Round up CUSTOM #524-343 53.8% @ 5% RATE

VI. Purpose of pesticide application:

Kill the STAND OF INVASIVE KNOTWEED. SO NATIVES CAN GROW back.

VII. Approximate dates of spray application: would treat in month of August 2025.

VIII. Application Equipment: Hand Backpack and injection gun.

IX. Standard(s) to be varied from: 25' from waters edge.

X. Method to ensure equivalent protection:

only spray after cut or inject the stems

XI. Revegetation Plan (attach separately if necessary)

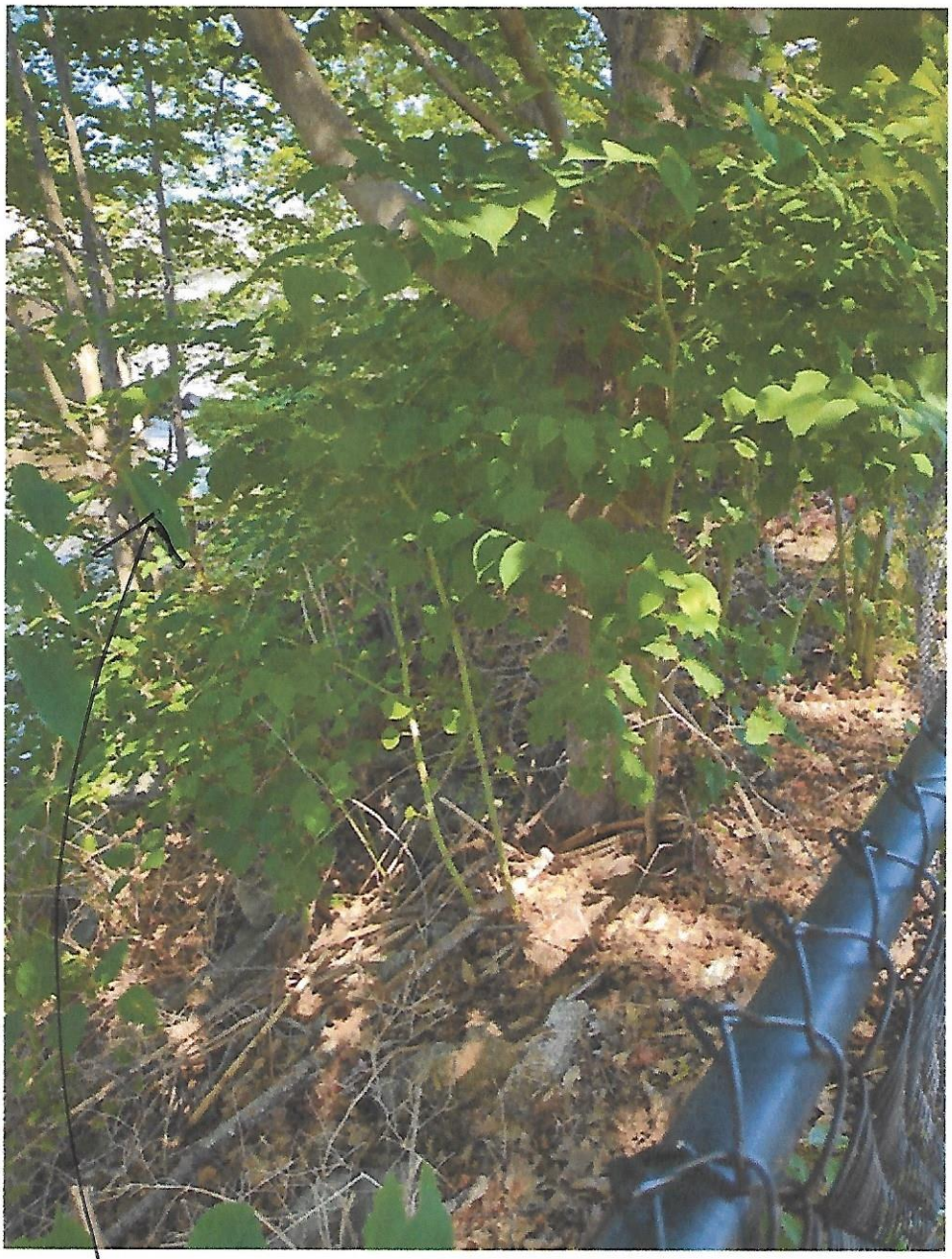
None.

Signed: Steven W. Burd Date: 7/25/25

Return completed form to: **Board of Pesticides Control, 28 State House Station, Augusta, ME 04333-0028**
OR E-mail to: pesticides@maine.gov

Rev. 8/2013

THE STAND IS 200 FT LONG. 20 FT WIDE @ START NARROWS TO 5FT ON THE OPPSITE END. I PLAN TO STEM INJECT 90% OF STAND. CUT AND SPRAY THE SMALLER STEMS I CAN'T INJECT. STEM START @ A FENCE LINE AND go down THE bank TO HUNTER RDGE. VERY Rocky poor soil.



SEE WATER in Background.


York St
25B
Rotary Park
Cumberland Farms
Convenience store
Perry Hopf Fra
Picture fram
Lumber
unk
aterials store
Map data ©2025 Google, Imagery ©202

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

JANET T. MILLS
GOVERNOR

AMANDA E. BEAL
COMMISSIONER

August 12, 2025

Legacy Woodlot Services
Hunter Manley
51 Veazie St.
Old Town, ME 04468

RE: Variance permit for CMR 01-026 Chapter 29, Legacy Woodlot Services

Greetings,

The Board of Pesticides Control considered your application for a variance from Chapter 29 for 149 Depot St. in Unity. The variance is approved, provided that all products to be used are currently registered in the State of Maine or were registered at the time of purchase and that any application is made above the high-water line.

The Board authorizes the issuance of two-year permits for Chapter 29, therefore this permit is valid until December 31, 2026, as long as applications are consistent with the information provided on the variance request. Please notify the Board in advance of changes, particularly if you plan to use a different product from those listed.

Please bear in mind that your permit is based upon your company adhering to the precautions listed in Section X of your Chapter 29 variance request. The utmost caution should be taken when applying adjacent to open water including curtailing operations if rain is in the forecast during the 24-hour period after the application.

I will alert the Board at its next meeting that the variance permit has been issued. If you have any questions concerning this matter, please feel free to contact me at 287-2731.

Sincerely,

Alexander Peacock

Alexander Peacock
Director

ALEXANDER PEACOCK, DIRECTOR
90 BLOSSOM LANE, DEERING BUILDING

PHONE: (207) 287-2731
THINKFIRSTSPRAYLAST.ORG

BOARD OF PESTICIDES CONTROL
APPLICATION FOR VARIANCE PERMIT
(Pursuant to Chapter 29, Section 6 of the Board's Regulations)

I. Hunter Manley — (207) 491-3420
Name — Telephone Number

Legacy Woodlot Services
Company Name

51 Vearse st — Old Town — ME — 04468
Address — City — State — Zip

II. Hunter Manley — CMA 5974
Master Applicator (if applicable) — License Number

Same as above
Address — City — State — Zip

III. **As part of your application, please send a revegetation plan and digital photos showing the target site and/or plants and the surrounding area, particularly showing proximity to wetlands and water bodies, to pesticides@maine.gov**

IV. Area(s) where pesticide will be applied:

Property of Ben Jacks - "Two Scholars Farm"
149 Depot street, Unity, ME.
Approx. less than 0.1 acre along Sandy Stream. Patch of Japanese knotweed visible @ southern tip of property along stream.
Map attached w/ annotations.

V. Pesticide(s) to be applied:(Including EPA Registration Number)

Aquamaster: EPA 524-343 Adjuvant: Li700 Surfactant

VI. Purpose of pesticide application:

Control Japanese knotweed to allow creating a turtle nesting area in collaboration with USDA-NRCS

VII. Approximate dates of spray application:

14 August through end of September

VIII. Application Equipment:

Backpack with wand and adjustable cone nozzle

IX. Standard(s) to be varied from: Chapter 29

Broad cast spray within 25 feet of water's edge.
Directly at edge will be treated cut-and-drip, not considered broadcast.

X. Method to ensure equivalent protection:

Strip of tall vegetation left as drift barrier + visual aid.
Spray will be directed away from water, with back to stream as long as possible (minimum 12-15'). All spray directly over foliage with pattern controlled to minimize drift.

XI. Revegetation Plan (attach separately if necessary)

Converting into turtle nesting habitat - sandy soil exposed.
Under direction + supported by NRCS staff and wildlife professional.

Signed: [signature] Date: 8 August 2025

Return completed form to: **Board of Pesticides Control, 28 State House Station, Augusta, ME 04333-0028**
OR E-mail to: pesticides@maine.gov

Rev. 8/2013


Treatment plan:
- Knotweed cut 27 June to re-sprout
- Foliar spraying intended in August using 8-10% solution glyphosate (Aquamaster - wetland approved formulation with Li700 surfactant added) Backpack sprayer with handheld wand, spray adjusted to minimize drift. Spraying will start facing away from water to cover as much as possible, not facing water until at least 10-15 feet is covered. Spray directed downward over foliage that is below chest height or less.
- Groups along water's edge, especially those not cut, will be treated with cut-and-drip method as long as they are not overhanging the water.
- This area is contracted for NRCS - EQIP cost-share for creating a turtle nesting habitat. Re-vegetation will not be intentional as exposed sandy soil is desired. Boxelder and native shrubs adjacent to the patch likely to colonize over time.
0 50 100 ft
Scale 1 : 1,200
1 inch = 100ft
N
Knotweed left high along this section -- steep bank with stems close to high water point.
Provides barrier for overspray & visual reference.
Where not over water these stems may be treated with cut-and-drip with concentrate.
Photo facing N-NE
Ben Jacks - Two Scholars Farm
Japanese Knotweed Treatment Area
149 Depot Street, Unity, ME
Produced by Legacy Woodlot Services, Inc.
Hunter Manley, LF#4044, CMA#5974
(207)-491-3420

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

JANET T. MILLS
GOVERNOR

AMANDA E. BEAL
COMMISSIONER

July 28, 2025

Lynch Landscaping, Inc.
Jerome Lynch
78 Maple St.
Norridgewock, ME 04957

RE: Variance permit for CMR 01-026 Chapter 29, Lynch Landscaping, Inc.

Greetings,

The Board of Pesticides Control considered your application for a variance from Chapter 29 for Bog Rd. in Vassalboro. The variance is approved, provided that all products to be used are currently registered in the State of Maine or were registered at the time of purchase and that any application is made above the high-water line.

The Board authorizes the issuance of two-year permits for Chapter 29, therefore this permit is valid until December 31, 2026, as long as applications are consistent with the information provided on the variance request. Please notify the Board in advance of changes, particularly if you plan to use a different product from those listed.

Please bear in mind that your permit is based upon your company adhering to the precautions listed in Section X of your Chapter 29 variance request.

I will alert the Board at its next meeting that the variance permit has been issued. If you have any questions concerning this matter, please feel free to contact me at 287-2731.

Sincerely,

Alexander Peacock

Alexander Peacock
Director

ALEXANDER PEACOCK, DIRECTOR
90 BLOSSOM LANE, DEERING BUILDING

PHONE: (207) 287-2731
THINKFIRSTSPRAYLAST.ORG

BOARD OF PESTICIDES CONTROL
APPLICATION FOR VARIANCE PERMIT
(Pursuant to Chapter 29, Section 6 of the Board's Regulations)

I. JEROME LYNCH — (207) 329-7168
Name — Telephone Number

LYNCH LANDSCAPING INC
Company Name

MAIL → PO BOX 2219 — SKOWHEGAN — ME — 04976
PHYSICAL – 78 MAPLE — NORRIDGEWOCK — ME — 04957
Address — City — State — Zip

II. JEROME O. LYNCH — CMA - 4333
Master Applicator (if applicable) — License Number

PO BOX 130 — SKOWHEGAN — ME — 04976
Address — City — State — Zip

III. **As part of your application, please send a revegetation plan and digital photos showing the target site and/or plants and the surrounding area, particularly showing proximity to wetlands and water bodies, to pesticides@maine.gov**

IV. Area(s) where pesticide will be applied:
ROADSIDE & STREAM BANKS ADJACENT TO THE CONSTRUCTION SITE.

V. Pesticide(s) to be applied: (Including EPA Registration Number)
ROUND UP CUSTOM HERBICIDE 524-343

VI. Purpose of pesticide application:
TO CONTROL WILD PARSNIP (PASTINACA SATIVA) AS PART OF A SAFETY PLAN FOR THE PROTECTION OF WORKERS REPLACING BRIDGE AND CULVERT LOCATED ON BOG ROAD IN VASSALBORO.

VII. Approximate dates of spray application:
AUGUST 6, 2025 WITH SPOT REAPPLICATION IN SEPTEMBER 2025.

VIII. Application Equipment:
BACKSPRAYERS & LOW PRESSURE TANK SPRAYERS

IX. Standard(s) to be varied from:
SECTION 6A, CHAPTER 29 (STANDARDS FOR WATER QUALITY PROTECTION)

X. Method to ensure equivalent protection and Revegetation Plan:
LIMITED SPOT SPRAYING OF INVASIVE TOXIC PLANT AND INTENTIONAL AVOIDANCE OF NATIVES & NON-INVASIVES.

XI. Revegetation Plan (attach separately if necessary)
CONSERVATION SEEDING OF ANY AREAS THAT COULD CAUSE EROSION CONCERNS

Signed: [signature] Date: 7/28/25

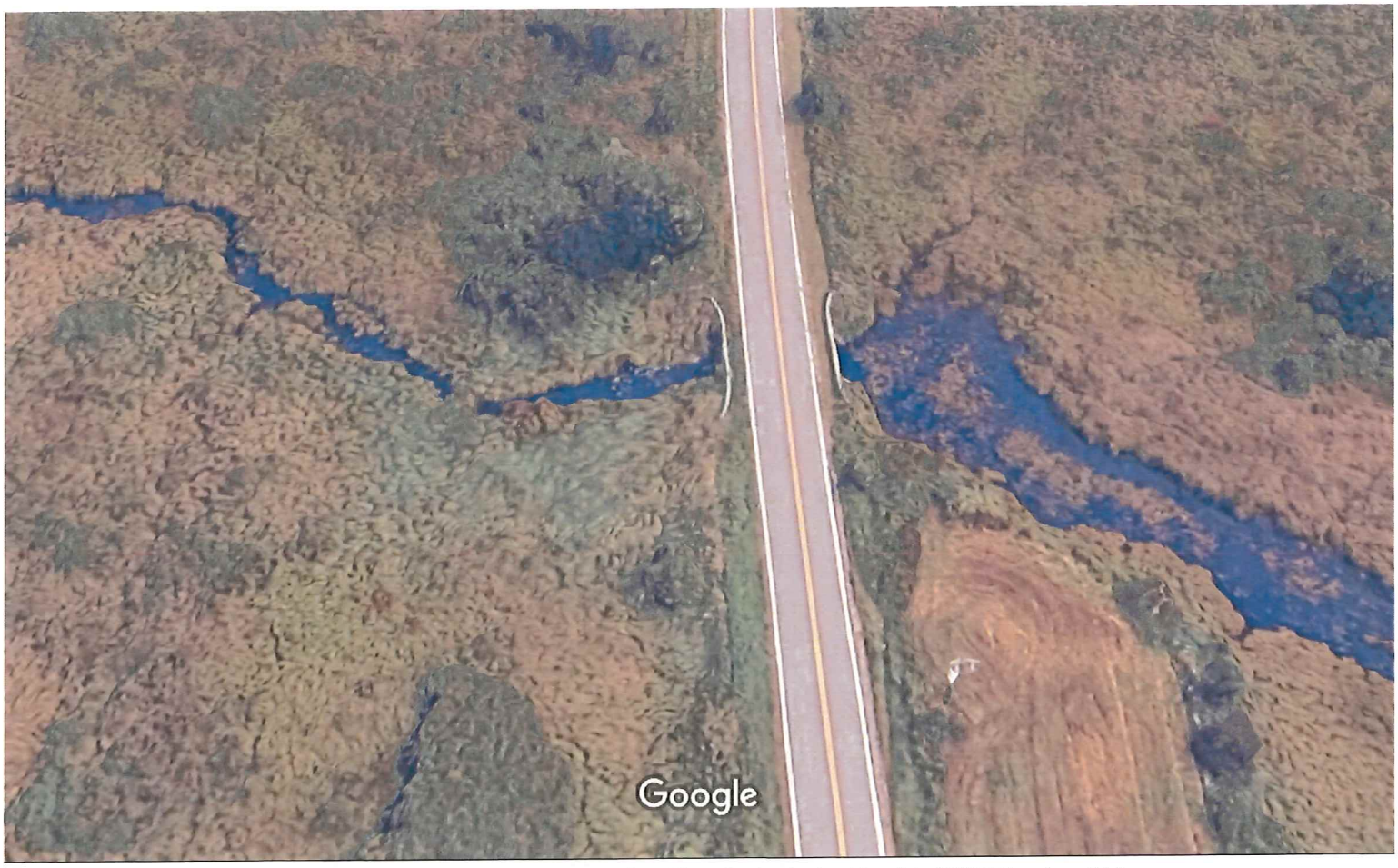
Return completed form to: **Board of Pesticides Control, 28 State House Station, Augusta, ME 04333-0028**
OR E-mail to: pesticides@maine.gov

Rev. 2/2022

Google Maps

Bog Rd

Also referred to as Pope Avenue and Getchell Corner Road



Imagery ©2025 Google, Imagery ©2025 Airbus, Maxar Technologies, Map data ©2025 Google 50 ft

Google Maps

800 Getchell Corner Rd

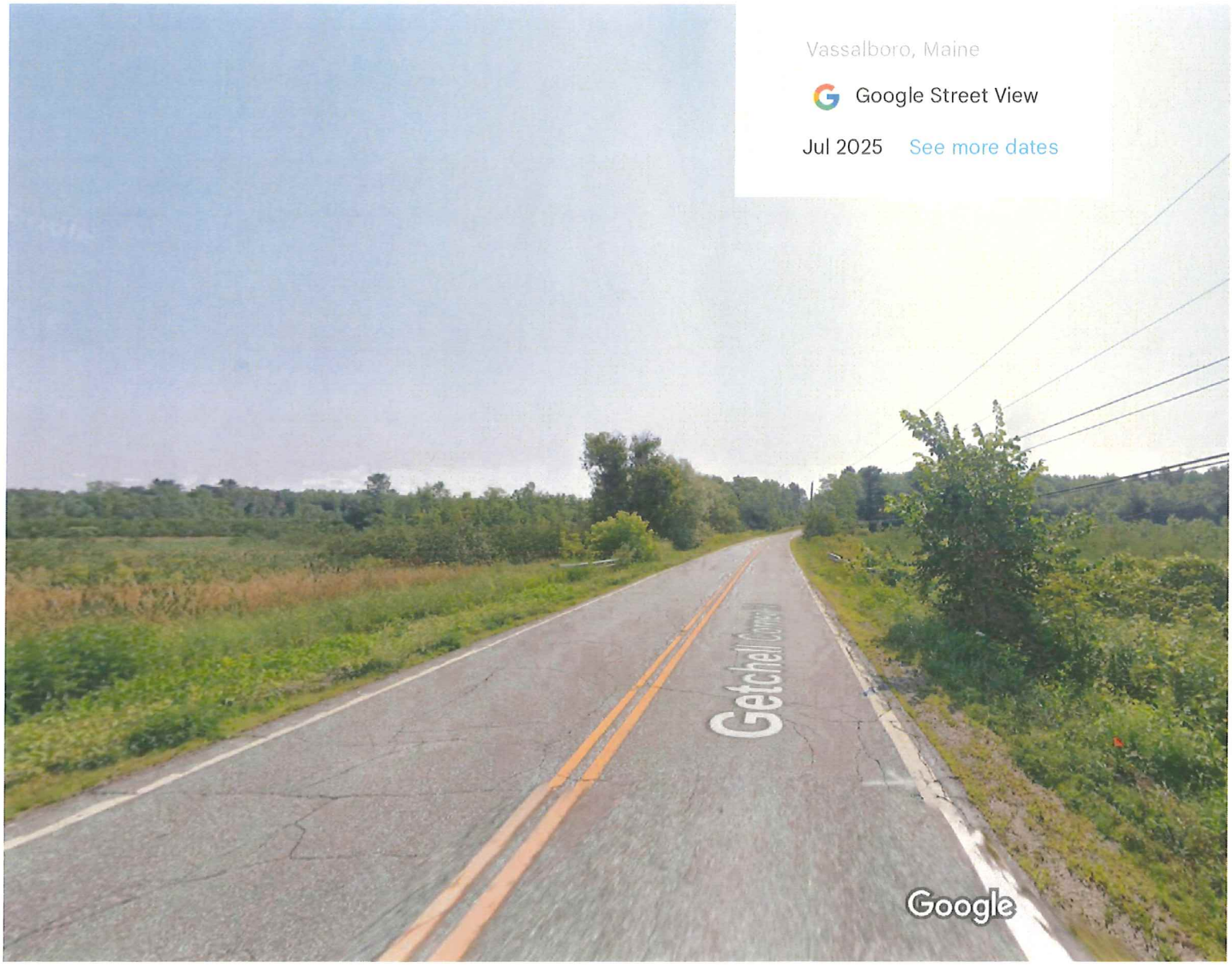


Image capture: Jul 2025 © 2025 Google

Google Maps

800 Getchell Corner Rd

Image capture: Jul 2025 © 2025 Google

Google Maps

800 Getchell Corner Rd

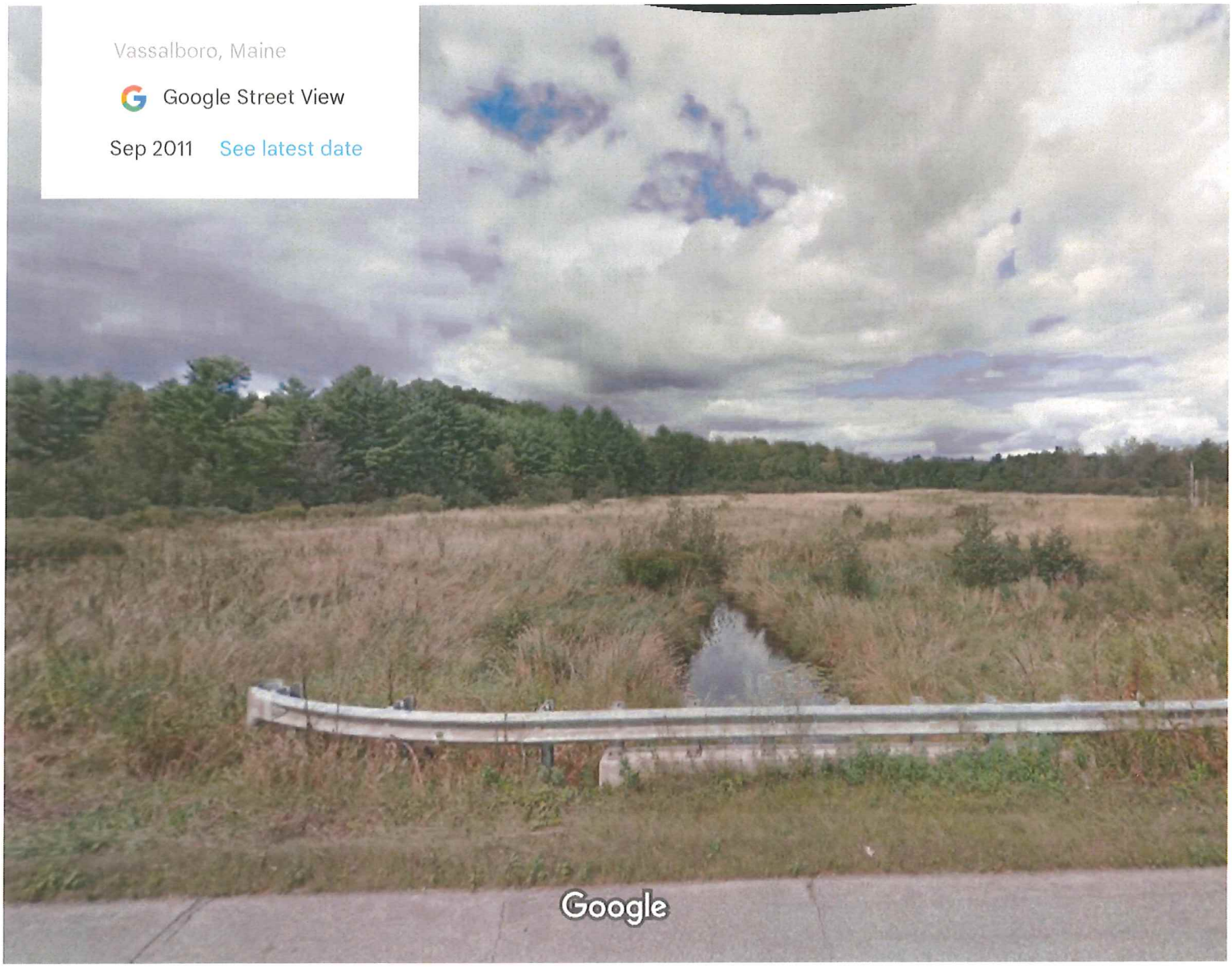


Image capture: Sep 2011 © 2025 Google

State of Maine
Maine Department of Agriculture,Conservation and Forestry
BOARD OF PESTICIDES CONTROL

License Number: CMA-4333
JEROME O LYNCH
LYNCH LANDSCAPING INC
Commercial Master Applicator
Categories: 7E, 6B, 6A, 5A, 3C, 3B, 3A, 1B

EXPIRATION DATE: 12/31/2025

8i

EPA Releases Documents on Genetically Engineered Mosquitoes for Public Comment and Peer Review

Released August 21, 2025

Today, the U.S. Environmental Protection Agency (EPA) released its white paper and supporting materials on genetically engineered (GE) mosquitoes for mosquito control. These materials outline considerations for the design of these insects and propose analytical methods for determining the absence of novel proteins in the saliva of GE female mosquitoes. These materials are being released for public comment and peer review by the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) Scientific Advisory Panel (SAP).

In addition to providing background and context for how GE mosquitoes function as a method of pest control, the white paper describes the contents of a draft memorandum by the agency that outlines design considerations for developers of novel GE mosquitoes used for mosquito control, as well as analytical methods that the agency finds provide robust and conservative approaches to determining the absence of novel proteins in the saliva of female GE mosquitoes. The white paper also presents three case studies, one of which is a real-world case study currently under review for registration. These case studies are expected to help refine the universe of acceptable data to support the agency's assessment based on the FIFRA SAPs recommendations.

EPA will solicit review and input from the FIFRA SAP on the proposed methodologies. This includes specific aspects of the agency's draft memorandum that provides considerations for developers of GE mosquitoes. Feedback from this review will be considered in the development of a final memorandum. EPA will hold a virtual FIFRA

SAP meeting on Nov. 3-5, 2025. EPA will accept written comments on the white paper, charge questions, background documents, and related supporting materials for consideration by the FIFRA SAP on or before Sep. 22, 2025, via the public docket EPA-HQ-OPP-2025-0756 <https://www.regulations.gov/docket/epa-hq-opp-2025-0756> on regulations.gov <https://www.regulations.gov/>.

To present oral comments during the virtual public meeting, registration should be completed by Oct. 27, 2025, and a written version of oral comments should be submitted by Oct. 30, 2025. For attendees not making oral comments, registration will remain open through the end of the meeting on Nov. 5, 2025.

Registration instructions for the public meeting will be announced on the FIFRA SAP website <https://epa.gov/sap/peer-review-white-paper-genetically-engineered-female-mosquitoes-mosquito-control> in Oct. 2025, including information about how to register to present oral comments during the virtual meeting.

For additional information on the FIFRA SAP peer review, please see the Federal Register notice <https://www.federalregister.gov/d/2025-15950> or contact the Designated Federal Official, Alie Muneer at muneer.alie@epa.gov.

Last updated on August 21, 2025

8J

EPA Updates Aquatic Life Benchmarks for Registered Conventional and Antimicrobial Pesticides

Released September 4, 2025

Today, the U.S. Environmental Protection Agency (EPA) has released an updated version of the Aquatic Life Benchmarks <https://epa.gov/pesticide-science-and-assessing-pesticide-risks/aquatic-life-benchmarks-and-ecological-risk>. These benchmarks are estimates of the concentrations below which pesticides (including conventional and antimicrobial pesticides) are not expected to present a risk of concern for freshwater organisms.

The updated Aquatic Life Benchmarks represent 782 chemicals (parent compounds and degradates) including newly registered pesticides or new values for previously registered pesticides and selected degradates. The updates include:

- Benchmarks for four newly registered pesticides and their two degradates (new registrations); and
- Revised benchmarks for one existing active ingredient.

EPA based these benchmarks on toxicity values from scientific studies that the agency has reviewed and used in publicly accessible ecological risk assessments in support of regulatory decisions for pesticides. For each of the pesticides listed in the Aquatic Life Benchmarks table, the table provides a link to the source documents for the benchmarks.

State, tribal, and local governments use these benchmarks in their interpretation of water quality monitoring data. Comparing a measured concentration of a pesticide in

water to its Aquatic Life Benchmarks can help in interpreting monitoring data and in identifying and prioritizing monitoring sites that may require further investigation. For example, the benchmarks provide federal, state, and local agencies and other interested parties information with which to interpret water monitoring data on pesticides. International regulatory authorities and researchers also use these data in their work.

This update supersedes the previous version published August 22, 2024. EPA intends to continue to update these benchmarks annually.

Read the summary of updated benchmarks <https://epa.gov/pesticide-science-and-assessing-pesticide-risks/summary-september-2025-updates-aquatic-life> or see the complete Aquatic Life Benchmarks table <https://epa.gov/pesticide-science-and-assessing-pesticide-risks/aquatic-life-benchmarks-and-ecological-risk#aquatic-benchmarks>.

Last updated on September 4, 2025