

The Pesticide Applicator Report

News for Vermont's Pesticide Applicators from the
Vermont Agency of Agriculture, Food & Markets and UVM Extension



Spring 2022 Volume 23 – Issue 1

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Bat Tick Found in Vermont for the First Time

Cheryl Frank Sullivan & Margaret Skinner,
University of Vermont Entomology Research Laboratory

Last spring, a Chittenden County homeowner provided a specimen of an unknown ‘bug’ that was crawling on the ceiling of their rural farmhouse. The arthropod turned out to be Vermont’s first bat tick, *Carios* (originally *Ornithodoros*) *kelleyi*, a soft tick species. The tick was an adult female that had fed on their pet dog. The attic of the home harbored a colony of big brown bats (*Eptesicus fuscus*). A few months later, a bat rehabilitator reported larvae from a rescue, further confirming this species in this state.



Bat tick, *Carios kelleyi*, adult, female.
(length ~ 6mm)

This tick species is widely distributed across the US (32 states, including Vermont). Bat ticks are secretive and feed almost exclusively on bats. They usually remain in the vicinity of their bat hosts (attics, barns, etc.). Occasionally, one may wander off and accidentally bite a human or pet, especially when bat colonies are removed. Bat ticks can live a long time without a blood meal in cracks and crevices, enabling them to persist in the absence of bats. Infestations warranting management have been reported from the Midwest (i.e., Iowa and Kansas). Bat ticks can harbor disease-causing bacteria (i.e., *Rickettsia* spp., *Bartonella* spp., and relapsing fever, *Borrelia* spp.).

(continued)

However, it is unknown if these disease-causing pathogens are transmitted to humans by a bat tick bite. The likelihood for disease to humans is considered rare due to the elusive nature of bat ticks and their preference to feed on bats.

If bat ticks are suspected, it is important to get them accurately identified by State or University personnel before attempting to manage them. To eliminate bat ticks, the bats that serve as the primary host must be located and safely managed. This must be done carefully as the bats may be an endangered species (e.g., little brown bat, *Myotis lucifugus*, or northern long-eared bat, *Myotis septentrionalis*). Best management practices recommended by Vermont Fish & Wildlife should be followed to protect both humans and bats. Using glue traps to detect/trap ticks where bats may be present should be avoided. Sealing off all actual or potential bat entry points in and around a structure should prevent tick and future bat access to human inhabited areas. If ticks are found, crack/crevice treatments can be made using approved pesticides where bat ticks hide.

Additional Bat Tick Information

- University of Vermont. Bat ticks in Vermont. www.uvm.edu/~uvm/ticks/bat-ticks-in-vermont.pdf
- University of Minnesota Extension. How to control ticks and prevent tickborne diseases – bat ticks. extension.umn.edu/yard-and-garden-insects/ticks#bat-ticks-1729912
- Iowa State University Extension. Bat tick. hortnews.extension.iastate.edu/bat-tick
- University of Rhode Island, Tick Encounter. Bat tick. web.uri.edu/tickencounter/tick-notes/bat-tick/

Bat Management

- Got bats? vtfishandwildlife.com/learn-more/living-with-wildlife/got-bats
- Excluding Bats from Vermont Residences - A Guide to Best Management Practices. [vtfishandwildlife.com/sites/fishandwildlife/files/documents/Learn More/ Living with Wildlife/Bats/Excluding for bats.pdf](http://vtfishandwildlife.com/sites/fishandwildlife/files/documents/Learn%20More/Living%20with%20Wildlife/Bats/Excluding%20for%20bats.pdf)

Identification and Removal of Rare Invasive Giant Hogweed in VT

*Elizabeth Spinney, Invasive Plant Coordinator,
Forest Protection Program, Vermont
Department of Forests, Parks & Recreation*

Giant hogweed is a rare invasive plant in Vermont, but one worth understanding. An invasive plant is one that a) did not evolve in the place you've found it; and b) causes harm to things we value (like human health, the economy, or the environment). Giant hogweed evolved in the Caucasus region of eastern Europe. It easily escapes cultivation, produces seeds prolifically, negatively impacts vegetation diversity and soil stability, and poses a serious human health concern. For these reasons, it is listed on the U.S. federal noxious weed list and thus is included in Vermont's Noxious Weed Rule.

With only a handful of locations known across the state, giant hogweed is considered an early detection species. Those few populations can be found in fields, along waterways, forest openings, and disturbed habitats. Giant hogweed is often confused with a much more common locally-evolved species called American cowparsnip. The plants have certain similarities – both are large, have flat-topped white flowers, and can trigger a severe chemical reaction on

exposed skin. There are some key differences, too. Giant hogweed is huge – its compound leaves can be up to 5’ across with deep incisions down to the midrib – while American cow-parsnip leaves average 2’ across. An easy way to differentiate them is that American cow-parsnip blooms in the spring, while hogweed blooms in the summer.

It is worth noting that the reaction caused by giant hogweed is more worrisome than the reaction caused by other members of the carrot family that contain furanocoumarin (an organic compound that the plants produce as a line of defense from predators). The burn experienced after exposure to hogweed is worse, and it is easier to get. Plants like wild parsnip, wild chervil, or American cow-parsnip require the plant tissue be broken to encounter the sap. With giant hogweed, just brushing up against this plant can transfer the sap that leads to burns.

Understanding the biology of this plant ties in directly to effective management and eradication methods. Giant hogweed is a monocarpic perennial – which means it grows vegetatively for 1+ years before bolting, flowering, setting seed, and dying. Its main method of spread is through the prolific production of seeds, which can remain viable in the soil for up to 15 years. This plant can be successfully eradicated mechanically or chemically. With either technique, the important factor is persistence and stopping new seeds from being produced or introduced. The New York Department of Environmental Conservation has a robust giant hogweed control program and suggests using a systemic herbicide for chemical treatment of giant hogweed. They advise using a broadleaf-specific product because, while hogweed is susceptible to broadleaf-specific herbicide products like those with active ingredient Triclopyr, as well as non-selective herbicide products like those with active ingredient Glyphosate, using a broadleaf-specific product

will allow herbaceous plants and grasses to quickly recolonize the site, helping prevent soil erosion.

If you find locations of this plant anywhere in Vermont, please report them at:

<http://vtinvasives.org/get-involved/report-it>

Additional Giant Hogweed Information

- Vermont Invasives – Management, Disposal & More. vtinvasives.org/land/management#managementplants
- New York DEC - How to Control Giant Hogweed. dec.ny.gov/animals/40961.html
- VT Forests, Parks & Recreation – Quick ways to distinguish hogweed from look-alikes. fpr.vermont.gov/sites/fpr/files/documents/2021_Forest_Health_May_Observations.pdf
- Vermont’s Noxious Weed Rule. agriculture.vermont.gov/public-health-agricultural-resource-management-division/plant-health-and-pest-management/plant-2

Reading the Pesticide Label Correctly

Doug Johnstone, Vermont Agency of Agriculture, Food & Markets

Before a pesticide can be sold in the United States (US), the Environmental Protection Agency (EPA) is required to review data as part of the registration process. The process is based upon risk/benefit analysis and research must occur to determine the effects of toxicity; carcinogenicity; efficacy; degradation, mobility, and residue; and effects on wildlife and the environment to satisfy the need for use. Another very important requirement of pesticide registration is the pesticide label itself. The label must support all data, and it is required to include certain wording because it is the main communication between the manufacturer and the user. After all, the label is the law! There are no “speed limit” signs posted on the fields, lawns, or homes where an applicator may apply pesticides. The pesticide label is the “speed limit” sign to define how an applicator can and cannot use a pesticide as required by law!


The 3rd edition of the Cornell Northeast CORE manual identifies four main categories of information that can be found on every EPA registered pesticide label. While there are many subcategories which may be scattered throughout the label, these major categories are intended to provide the user with an indication of where specific information may be located.


1. Product Information

- Product, or brand name, EPA # and manufacturer information, and net contents.
- Whether or not the pesticide is a federally Restricted Use Pesticide (RUP).
- Statement of ingredients, which identifies and quantifies both active and inert ingredients in the formulation.

- Pesticide type, that is, whether it is an insecticide, fungicide, herbicide, rodenticide, etc.
- Product information, including formulation type, which is integral to the mixing/loading process when tank mixing.

RESTRICTED USE PESTICIDE
Due to Ground and Surface Water Concerns
For retail sale to and use only by Certified Applicators, or persons under their direct supervision, and only for those uses covered by the Certified Applicator's certification.
This product is a restricted use herbicide due to ground and surface water concerns. Users must read and follow all precautionary statements and instructions for use in order to minimize potential for atrazine to reach ground and surface water.

 **Dow AgroSciences**



HERBICIDE
®Trademark of The Dow Chemical Company ("Dow") or an affiliated company of Dow
A preemergence herbicide for control of annual grasses and broadleaf weeds in field corn, production seed corn, silage corn, sweet corn and popcorn.

Group	15	5	HERBICIDE
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Active Ingredients:
acetochlor: 2-chloro-2'-methyl-6'-ethyl-N-ethoxymethylacetanilide.....32.6%
atrazine: [2-chloro-4-(ethylamino)-6-(isopropylamino)-s-triazine] and related triazines24.4%
Other Ingredients:.....43.0%
Total.....100.0%
Contains 3.0 pounds acetochlor and 2.25 pounds atrazine active ingredient per gallon.
Not for Sale, Sale Into, Distribution and/or Use in Nassau and Suffolk Counties of New York State.


Precautionary Statements
Hazards to Humans and Domestic Animals
EPA Reg. No. 62719-368

2. Safety Information

- Signal word, which is an indication of the acute toxicity.
- Precautionary statements that mandate personal protective equipment (PPE) that must be worn to reduce exposure

- Statement of practical treatments that provides first aid instructions about how to treat someone that has been exposed to a pesticide, whether orally, dermally, by ingestion, or some other way as indicated on the label
- Safety Information may also include suggestions about how to reduce risk by washing prior to eating, not contaminating food or feed, how to protect other humans or animals, as well as instructions about how to properly launder clothing.

FULL HERE TO OPEN ➔


Quadris®
 Flowable Fungicide

GROUP 11 FUNGICIDE

**KEEP OUT OF REACH OF CHILDREN.
CAUTION**

See additional precautionary statements and directions for use inside booklet. Reformulation is prohibited. See individual container labels for repackaging limitations.

FIRST AID	
If on skin or clothing	<ul style="list-style-type: none"> • 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.
Have the product container or label with you when calling a poison control center or doctor or going for treatment.	
HOTLINE NUMBER For 24-Hour Medical Emergency Assistance (Human or Animal) Or Chemical Emergency Assistance (Spill, Leak, Fire or Accident) Call 1-800-888-8372	

PRECAUTIONARY STATEMENTS

Hazards to Humans and Domestic Animals

CAUTION

Harmful if absorbed through skin. Avoid contact with skin, eyes or clothing. Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco or using the toilet. Remove and wash contaminated clothing before reuse. Wear long-sleeved shirt and long pants, socks and shoes and chemical-resistant gloves made of any waterproof material such as polyvinyl chloride, nitrile rubber or butyl rubber.

Personal Protective Equipment (PPE)
Some materials that are chemically resistant to this product are listed below.

Applicators and other handlers must wear:


- Long-sleeved shirt and long pants
- Chemical-resistant gloves made of any waterproof material such as polyvinyl chloride, nitrile rubber or butyl rubber
- Shoes plus socks

User Safety Requirements
Follow the 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.

3. Environmental Protection Information

Because all chemicals have a relative toxicity, most, if not all pesticides will include language warning users about:

- Hazards to pollinators or aquatic species usually due to toxicity.
- Potential impacts to surface or groundwater from runoff or pesticide wastes.
- Potential for drift due to volatility or weather conditions.


Acelepryn®

Environmental Hazards
This pesticide is toxic to aquatic invertebrates, oysters and shrimp. Do not apply directly to water. Drift and runoff may be hazardous to aquatic organisms in water adjacent to use sites.

Surface Water Advisory
This product may impact surface water quality due to runoff of rain water. This is especially true for poorly draining soils and soils with shallow ground water. This product is classified as having a high potential for reaching surface water via runoff for several months or more after application. A level, well-maintained vegetative buffer strip between areas to which this product is applied and surface water features such as ponds, streams, and springs will reduce the potential loading of chlorantraniliprole from runoff water and sediment. Runoff of this product will be reduced by avoiding applications when rainfall is forecasted to occur within 48 hours.

Ground Water Advisory
This chemical has properties and characteristics associated with chemicals detected in ground water. This chemical may leach into ground water if used in areas where soils are permeable, particularly where the water table is shallow.

4. Directions For Use

This section may be the most comprehensive section and includes:

- Mixing/loading directions.
- Tank cleaning instructions.
- Storage and disposal requirements.
- Pests the manufacturer claims will be controlled.
- Restrictions on the use of the pesticide.
- Withdrawal statements, including days to harvest and grazing restrictions.
- Individual sites for which the product is approved for use.



STORAGE AND DISPOSAL

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

Storage: Store in original container only, preferably in a locked storage area. Do not store in a manner where cross contamination with other pesticides, fertilizer, food or feed could occur. Keep out of reach of children and animals. Store in a cool, dry place and avoid excess heat. Carefully open container. After partial use, close tightly. In case of spill, avoid contact isolate area and keep out animals and unprotected persons. Confine spills. Call FMC (800) 331-3148.

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: Wastes resulting from the use of this product may be disposed of on site or at an approved waste disposal facility. Emptied foil pouch may retain product residue. Observe all labeled safeguards until containers are destroyed. Do not reuse foil pouch.

Container Disposal: Nonrefillable container. Do not reuse or refill this container. Completely empty container into application equipment. Triple rinse container, then offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill or by incineration, or, if allowed by state and local authorities, by burning. If burned, stay out of smoke.

Dispose of empty foil pouch in a sanitary landfill, or by incineration, if allowed by state and local authorities. If burned, stay out of smoke.

DIRECTIONS FOR USE

It is a violation of Federal law to use this product in a manner inconsistent with its labeling. 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. Not for residential use by homeowners. For any requirements specific to your State or Tribe, consult the agency responsible for pesticide regulation.

AGRICULTURAL USE REQUIREMENTS

Use this product only in accordance with its labeling and with the Worker Protection Standard, 40 CFR part 170. This Standard contains requirements for the protection of agricultural workers on farms, forests, nurseries, and greenhouses, and handlers of agricultural pesticides. It contains requirements for training, decontamination, notification, and emergency assistance. It also contains specific instructions and exceptions pertaining to the statements on this label about personal protective equipment (PPE), and restricted-entry interval. The requirements in this box only apply to uses of this product that are covered by the Worker Protection Standard. Do not enter or allow worker entry into treated areas during the restricted entry interval (REI) of 12 hours.

PPE required for early entry to treated areas that is permitted under the Worker Protection Standard and that involves contact with anything that has been treated, such as plants, soil, or water, is: long-sleeved shirt and long pants, shoes plus socks, and waterproof gloves.

NON-AGRICULTURAL USE REQUIREMENTS

The requirements in this box apply to uses of this product that are NOT within the scope of the Worker Protection Standard for agricultural pesticides (40 CFR Part 170). The WPS applies when this product is used to produce agricultural plants on farms, forests, nurseries, or greenhouses. Do not allow children or pets to go into treated areas or to contact treated surfaces until spray has dried.

Indoor (Interiorscapes) Use Precautions: The use of this product in interiorscapes is limited to use on ornamental plant materials managed by professional and grown within common areas of commercial, industrial, and institutional buildings compatible. Once compatibility has been proven, use the same procedure for adding required ingredients to spray tank. Apply only in well-ventilated areas. Do not apply when occupants are present in the immediate area. Cover fish tanks prior to application. Apply to ornamental plants only. Do not apply to food crops.

Outdoor Use Precautions: Wear a long-sleeved shirt and long pants when spraying. Spray with the wind to your back. Do not spray on windy days. If clothes become wet from spray during use, remove clothing after spraying, wash affected body areas thoroughly with soap and water, and launder clothing before wearing again. Do not apply this product through any type of irrigation system.

GENERAL INFORMATION

Aria® Insecticide is a water dispersible granular formulation containing 8 ounces of flonicamid per pound.

It is to be used for pest control of ornamental plants in greenhouses, interiorscapes, nurseries and landscape ornamentals.

This product stops insect feeding within 30 minutes, but insects may remain on plants for up to 5 days. This product gives excellent residual control.

Use Restrictions

Do not apply to food crops (fruits, nuts, or vegetables).

Do not apply to home gardens, home greenhouses or in residential settings.

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

Do not allow children or pets to go into treated areas or to contact treated surfaces until spray has dried.

The use of this product in interiorscapes is limited to use on ornamental plant materials managed by professionals and grown within common areas of commercial, industrial and institutional buildings.

Mixing Instructions

Thoroughly wash out spray equipment before using this product. Use a calibrated measuring device to measure the required amount of this product. When diluting, first add approximately half of the water to the spray tank, then add the required quantity of this product while agitating. Then fill the remainder of the tank with water and continue agitating until thoroughly mixed. Occasionally agitate sprayer during use to assure even coverage. Shake or re-agitate sprayer before use if application is interrupted. Do not apply this product through any type of irrigation system.

If Spray Screens Are Used, They Should Be 50 Mesh or Larger.

While pesticide labels vary in their complexity and detail of information, all pesticide labels must contain information as required by the EPA to be registered for distribution and use in the US. Label language using words like “must” or “do not” are what EPA refers to as enforceable statements, meaning they are required by law and may result in penalties when violations are proven. Language using words such as “suggested” or “should” are referred to as guidance or recommendations, but not necessarily required by law. The applicator should read the pesticide label when using a pesticide so that enforceable statements are followed to prevent potential violations, as well to follow recommendations or suggestions to ensure reduced exposure, and increased safety. By following the

label, the applicator is protecting themselves, their customers or employees, and the environment. **READ THE LABEL!**

Pesticide Container Recycling

J. Mark Hudson, Executive Director, Ag Container Recycling Council

One of the easiest opportunities for stewardship in the agricultural industry is recycling of ag chemical containers. While there are many other types of ag plastics and packaging waste, the most readily recyclable is rigid HDPE containers. For 30 years, the Ag Container Recycling Council (ACRC) has been collecting and recycling containers across the USA, including the northeastern US. Since the program was started, ACRC contractors have collected and recycled over 226,000,000 pounds of HDPE ag containers nationally and over 8,000,000 pounds just within northeastern states (CT, DE, MA, ME, MD, NH, NY, RI, VA, VT, WV)! This program remains a free service to growers, commercial applicators and state and local governments. Collection sites often include larger farms, retail outlets, aerial and ground applicator locations, pest control applicators, state ag extension locations, solid waste landfills, golf courses, and nurseries.

In 2021, the ACRC awarded the above listed northeastern states to a new contractor, Ag Plastic Solutions (Orrstown, PA). Ag Plastic Solutions will be collecting in Vermont in 2022 and is seeking to identify additional qualified collection sites. Ag Plastic Solutions uses a waste collection truck to provide on-site pickup. Each container is visually inspected to ensure proper triple-rinsing has been performed. Properly rinsed containers are then compacted for transport and later ground into flake for recycling. The plastic flake is recycled into safe and approved end uses that include such products as ag drain tile, landscaping edging, nursery pots and underground electrical conduit.

The ACRC program is 100% funded by its members which include 34 chemical manufacturers and distributors and 17 packaging manufacturers. The program helps fund the collection of rigid HDPE ag chemical containers 55 gallons and smaller. The program also conducts research to approve new end uses for recycling. Through the life of the program, 100% of the plastic collected has been recycled.

If you are interested in learning more about recycling containers in Vermont or other northeastern states, please contact

ACRC (1-877-952-2272)

or

Ag Plastic Solutions (717-446-9917).

You can also learn more at ACRC's website, www.agrecycling.org

Thanks for participating in this vital stewardship initiative within our industry!



Introducing...



Meet Deputy Director David Huber

*By Scott Waterman, Vermont Agency of
Agriculture, Food & Markets*

The Vermont Agency of Agriculture, Food and Markets welcomes David Huber to an exciting new chapter in his career with the Agency as the Deputy Director of the Public Health & Agricultural Resource Management Division (PHARM). Dave has been the Agency's Chief Policy Enforcement Officer for the past six years. In that capacity, Dave oversaw administrative enforcement for the Water Quality and PHARM Divisions. This involved working with Agency staff to identify and abate agricultural violations with the goal of keeping our state pollution-free and Vermonters safe. Ensuring that farmers and businesses were on the path to compliance was key to this position, and Dave was able to successfully assist the Agency of Natural Resources and the Attorney General's Office when those entities had overlapping enforcement cases involving Vermont agriculture.

Dave moved to Vermont from Maryland in 2007 to pursue his passion for fishing and hiking, and also earned Master and Juris Doctor Degrees from Vermont Law School. Following school, Dave returned to Maryland to practice with the Office of the Attorney General's Environmental Crimes Unit and then a small law firm specializing in environmental issues.

Missing the mountains and Vermont lifestyle, Dave came back to the Green Mountains and worked for various state entities, including the

Office of Legislative Counsel, Department of Labor, and ultimately the Agency of Agriculture, Food and Markets. An avid scuba diver and big-game fly fisherman, protecting the environment has always been Dave's underlying goal and mission. This makes the transition from Enforcement to Deputy Director of PHARM a natural progression for him. The PHARM Division manages the Apiary, Plant Health and Pest Management, Pesticide, Animal Feeds, Seed, Fertilizer & Lime, and Hemp Programs. In overseeing these laws, the Division is tasked with ensuring that farmers, businesses, government, and even homeowners are responsible stewards of the land. Whether it is putting on a training to identify invasive pests or monitoring pesticide applicator exams, the Division is here to educate and regulate the agricultural resource industry.

When not out in the field for work or fun, Dave can be found in West Berlin with his wife, daughter, and dog, Willo.

Pesticide Applicator Report Evaluation Results

*Sarah Kingsley-Richards, University of Vermont
Extension Pesticide Safety Education Program*

Thank you to all who responded to the *Pesticide Applicator Report* Evaluation in Spring 2021. The results have been tallied and your feedback will be used to report our impacts and better serve you in the future.

The *Pesticide Applicator Report* has helped the majority of you to apply and use pesticides more safely and over half of you have adopted at least one new IPM practice. Applicators have become better at PPE use, improved choosing and handling of products and record keeping, and kept aware of regulatory changes, among many other examples of information provided. Better application timing, choosing less-toxic pesticides, and reducing pesticide use have

benefited applicators and the environment.

Suggestions for future articles included pest, pesticide, crop, and category-specific information as well as pesticide handling and application topics. Regulatory updates and quizzes continue to be useful.

The Pesticide Applicator Report is available to certified applicators in Vermont from the Vermont Agency of Agriculture, Food & Markets and University of Vermont Extension Pesticide Safety Education Program. The goal of this collaborative publication is to keep you informed of current pesticide-related topics, education and recertification opportunities, and regulatory developments that affect your operations.

Thanks for your time and support!

Training and Recertification Credit Online Courses

uvm.edu/extension/pseponline

- CORE Manual
- Managing Pests While Protecting Pollinators
- Category 7A Manual
- Category 7F Manual ***NEW***



EXTENSION
FOUNDATION

Campus

Helpful Contacts for Pesticide Applicators

Vermont Agency of Agriculture, Food & Markets

Field Agent Northeast	(802) 793-1628	Bethany.Creaser@vermont.gov
Field Agent Central	(802) 661-8284	Clark.Parmelee@vermont.gov
Field Agent South	(802) 793-2547	Doug.Johnstone@vermont.gov
Field Agent Northwest Golf Course Permit Coordinator	(802) 318-1383	Matthew.Wood@vermont.gov
Agrichemical Research Policy Specialist	(802) 279-9395	Morgan.Griffith@vermont.gov
Certification & Training Toxicologist	(802) 828-3479	Anne.Macmillan@vermont.gov
Pollinator Health Specialist	(802) 272-6688	Brooke.Decker@vermont.gov
Entomologist	(802) 279-2212	Judy.Rosovsky@vermont.gov
Groundwater Monitoring Program	(802) 828-3473	Patti.Casey@vermont.gov
Agricultural Innovation Board	(802) 461-5040	Kanika.Gandhi@vermont.gov
Deputy Director	(802) 461-7160	David.Huber@vermont.gov
Director	(802) 828-6531	Cary.Giguere@vermont.gov

University of Vermont Extension

Pesticide Safety Education Program	(802) 656-0475	Sarah.Kingsley@uvm.edu
Plant Diagnostic Clinic Pesticide Safety Education Program	(802) 656-0493	Ann.Hazelrigg@uvm.edu
Vegetable & Berry	(802) 257-7967 x303	Vernon.Grubinger@uvm.edu
Entomology	(802) 656-5440	Margaret.Skinner@uvm.edu
Agronomy Outreach Specialist	(802) 751-8307 x356	Laura.O.Johnson@uvm.edu
Agronomy	(802) 524-6501 x437	Heather.Darby@uvm.edu

Home Study Quiz 1 – Bat Tick, Giant Hogweed, Recycling

(Please keep answers brief; use additional paper as needed.)

- 1. What county was Bat Tick first found in Vermont?**
- 2. What diseases can Bat Ticks harbor?**
- 3. Name two endangered bat species.**
- 4. List one practice to manage Bat Ticks and one practice to avoid.**
- 5. What are two characteristics of an invasive plant?**
- 6. What is the name of the phytotoxic chemical produced by members of the carrot family that causes burns?**
- 7. What is the term used to describe the life cycle of Giant Hogweed?**
- 8. What two active ingredients were recommended for chemical control of Giant Hogweed?**
- 9. Provide three reasons Giant Hogweed is listed on the U.S Federal Noxious Weed list.**
- 10. What company is contracted to collect ag plastic containers for recycling in Vermont in 2022?**
- 11. How must plastic pesticide containers be properly prepared for recycling?**

Mail the completed quiz to receive one (1) pesticide recertification credit.

The following information is required.

Name:		
Certificate #:		Please check: <input type="checkbox"/> Commercial <input type="checkbox"/> Private <input type="checkbox"/> Non-Commercial <input type="checkbox"/> Government
Street Address:		
City/State/Zip		
Company/Farm:		
Signature:	Date:	
Email address (optional):		
Mail to:	Vermont Agency of Agriculture, Food & Markets Attn: Anne Macmillan 116 State Street Montpelier, VT 05620-2901	

Did you know?

- The UVM Extension Plant Diagnostic Clinic aids **COMMERCIAL GROWERS** in Vermont greenhouses, farms and orchards by assisting in the identification and management of diseases, pests and weeds. Management options are based on integrated pest management principles (IPM).

UVM Plant Diagnostic Clinic
(802) 656-0493
uvm.edu/extension/pdc

Trident®

BIOLOGICAL INSECTICIDE

For Control of Colorado Potato Beetle on Potatoes, Tomatoes, and Eggplant
For Control of Elm Leaf Beetle in Elm Trees



CAN BE USED IN ORGANIC PRODUCTION

ACTIVE INGREDIENT:

Bacillus thuringiensis subspecies *tenebrionis* strain SA-10
fermentation solids, spores, and insecticidal toxins* 14.32%

OTHER INGREDIENTS: 85.68%

TOTAL: 100.00%

*Potency: at least 14.2 billion *Tenebrionis* Units/gal of product

The percentage active ingredient does not indicate product performance and potency measurements are not federally standardized.

KEEP OUT OF REACH OF CHILDREN CAUTION

Refer to inside of label booklet for additional precautionary information and
Directions for Use including First Aid and Storage and Disposal.

Net Contents: 2.5 gallons

EPA Reg. No.: 70051-120

EPA Est. No.: 70051-CA-001

Lot No.:

Certis USA, LLC
9145 Guilford Road
Suite 175
Columbia, MD 21046

CERTIS

Made in the USA

Trident is a registered trademark
of Certis USA, LLC

FIRST AID

If inhaled: Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth, if possible. Call a poison control center or doctor for further treatment advice.

If in eyes: Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control center or doctor for treatment advice.

If 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.

Have the product container or label with you when calling a poison control center or doctor, or going for treatment. Hot Line Number: 1-800-255-3924.

PRECAUTIONARY STATEMENTS

HAZARDS TO HUMANS AND DOMESTIC ANIMALS—CAUTION: Harmful if inhaled. Avoid breathing spray mist. Causes moderate eye irritation. Avoid contact with skin, eyes or clothing. Harmful if absorbed through skin. Remove and wash contaminated clothing before reuse. Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco, or using the toilet.

Personal Protective Equipment:

Applicators and other handlers must wear:

- Long-sleeved shirt and long pants
- Protective eyewear
- Waterproof gloves
- Shoes plus socks

Mixer/loaders and applicators must wear and use a NIOSH approved particulate respirator with any N, R, or P filter with NIOSH approval number prefix TC-84A (if tank-mixing with any oil-based adjuvants, spreaders, or spreader/stickers, use

only R or P filters); or a NIOSH approved powered air purifying respirator with an HE filter with NIOSH approval number prefix TC-21C. (Repeated exposure to high concentrations of microbial proteins can cause allergic sensitization.)

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 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.

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

ENVIRONMENTAL HAZARDS:

This product may be toxic to bees and other pollinating insects exposed to direct treatment. Do not apply this product while bees or other pollinating insects are actively visiting the treatment area.

For terrestrial uses: Do not apply directly to water, or to areas where surface water is present or to intertidal areas below the mean high water mark. Do not contaminate water when disposing of equipment washwater or rinsate.

Do not discharge effluent containing this product into lakes, streams, ponds, estuaries, oceans, or other waters unless in accordance with the requirements

of a National Pollutant Discharge Elimination System (NPDES) permit and the permitting authority has been notified in writing prior to discharge. Do not discharge effluent containing this product to sewer systems without previously notifying the local sewage treatment plant authority. For guidance contact your State Water Board or Regional Office of the EPA.

DIRECTIONS FOR USE

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

Do not apply this product in a way that will contact workers or other persons, either directly or through drift. Only protected handlers may be in the area during application.

For any requirements specific to your State or Tribe, consult the State or Tribal agency responsible for pesticide regulation.

AGRICULTURAL USE REQUIREMENTS

Use this product only in accordance with its labeling and with the Worker Protection Standard, 40 CFR Part 170. This Standard contains requirements for the protection of agricultural workers on farms, forests, nurseries, and greenhouses, and handlers of agricultural pesticides. It contains requirements for training, decontamination, notification, and emergency assistance. It also contains specific instructions and exceptions pertaining to the statements on this label about personal protective equipment (PPE), and restricted-entry interval. The requirements in this box 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 4 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
- Protective eyewear
- Waterproof gloves
- Shoes plus socks

NON-AGRICULTURAL USE REQUIREMENTS

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

Do not enter treated areas without protective clothing until sprays have dried.

Use Restrictions

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

GENERAL INFORMATION:

Trident is a biological insecticide specific for the control of Colorado potato beetle (*Leptinotarsa decemlineata*) larvae on potatoes, tomatoes, and eggplants, and larvae of the elm leaf beetle (*Xanthogaleruca luteola*, formerly *Pyrausta luteola*) on elm trees. Trident is effective against Colorado potato beetles that are resistant to chemical insecticides. It can be tank mixed with chemical insecticides to improve control of Colorado potato beetles that are resistant to the chemical insecticide.

Initiate Trident application as soon as eggs begin to hatch. Trident is most effective on young larvae, in the first and second instars or up to ¼ inch in length. Trident attacks the larval gut and must be ingested by the insect to be effective. Thorough plant coverage is essential for best results. After eating Trident, larvae stop feeding within a few hours and die within 2-4 days.

Reapply every 7-14 days as necessary to maintain control during periods when larvae are present, as part of a pest management program that includes close scouting. During periods of heavy infestation and extended egg hatch, reapply every 4-5 days.

If infestation consists mainly of older larvae and adults, use a contact insecticide with rapid knockdown activity that is labeled for such use.

Since the active ingredient, *Bacillus thuringiensis* subspecies *tenebrionis*, is exempt from tolerance requirements, Trident may be applied up to the day of harvest.

APPLICATION INSTRUCTIONS

Mixing: Always shake or stir Trident thoroughly before use. Add the specified amount of Trident to ¼ volume of required spray mix before filling the tank. Mix well, maintaining agitation. Do not allow diluted sprays to remain in the tank for more than 48 hours. Trident is formulated to provide desirable coverage and adherence to leaf surfaces.

Adjuvants, spreaders, or spreader/stickers may be added to the spray mix before filling the tank to improve product performance, especially under heavy dew or rainy conditions. Do not use spreading agents, (especially silicone-based spreaders), which may interfere with uniform adhesion of Trident to plant surfaces.

Trident can be tank mixed with chemical insecticides to improve control of insecticide resistant Colorado potato beetle larvae. Do not mix Trident with other insecticides unless allowed in the label instructions for the other product (s). Always follow the most restrictive label instructions for components of such tank mixes.

Combinations with commonly used insecticides, fungicides, or other spray tank adjuvants are generally not deleterious to Trident if the mix is used promptly. Before mixing in the spray tank, test physical compatibility by mixing all components in a small container in the same proportions to be used in the spray mix.

Application Rates (by Volume):

For ground application: use 3 to 6 quarts of Trident per acre, in a minimum spray volume of 20 gallons of water per acre. Use the 3 quart per acre rate only when light populations of larvae of uniform age/size are present.

For aerial application: use 4 to 6 quarts of Trident per acre, in a minimum spray volume of 3 gallons of water per acre. Use the higher rate against heavy infestations or where it is difficult to get good coverage.

STORAGE AND DISPOSAL

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

Pesticide Storage: Store in a cool, dry area. Activity may be impaired by storage at temperatures above 90°F.

Pesticide Disposal: Wastes resulting from this product must be disposed on on-site or at an approved waste disposal facility.

Container Handling: Non-refillable container. Do not reuse or refill this container.

-for containers equal to or less than 5.0 gallons-

Triple rinse container (or equivalent) promptly after emptying. Triple rinse as follows: empty the remaining contents into application equipment or a mix tank and drain for 10 seconds after the flow begins to drip. Fill the container ¼ full with water and recap. Shake for 10 seconds. Pour rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Drain for 10 seconds after the flow begins to drip. Repeat this procedure two more times. Then offer for recycling, if available or puncture and dispose of in a sanitary landfill, or by incineration, or if allowed by state and local authorities, by burning. If burned, stay out of smoke.

-for containers greater than 5 gallons-

Triple rinse as follows: Empty the remaining contents into application equipment or a mix tank. Fill the container ¼ full with water. Replace and tighten closures. Tip container on its side and roll it back and forth, ensuring at least one complete revolution, for 30 seconds. Stand the container on its end and tip it back and forth several times. Turn the container over onto its other end and tip it back and forth several times. Empty the rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Repeat this procedure two more times. Then offer for recycling, if available, or puncture and dispose of in a sanitary landfill, or by incineration, or if allowed by state and local authorities, by burning. If burned, stay out of smoke.

Warranty

Certis USA, LLC warrants that the material contained herein conforms to the description on the label and is reasonably fit for the purposes referred to in the directions for use. Timing and method of application, weather, watering practices, nature of soil, the insect problem, condition of the crop, incompatibility with other chemicals not specifically recommended, and other influencing factors in the use of this product are beyond the control of the seller. To the extent consistent with applicable law, buyer assumes all risks of use, storage or handling of this material not in strict accordance with directions given herein. NO OTHER EXPRESS OR IMPLIED WARRANTY OF THE FITNESS OR MERCHANTABILITY IS MADE.

Trident is a registered trademark of Certis USA, LLC

Certis USA, LLC
9145 Guilford Road, Suite 175
Columbia, MD 21046

103116

Home Study Quiz 2 –Pesticide Label #1

(Please see included Trident label. Please keep answers brief; use additional paper as needed.)

- 1. What is the brand, or product name of this pesticide and is it a federal RUP (why or why not)?**
- 2. Can this pesticide be applied through irrigation systems?**
- 3. Is this a pesticide that is registered in the US (explain how that is determined)?**
- 4. When this pesticide is used on a non-agricultural site, how much time must pass before anyone may enter the treatment area after the application is completed?**
- 5. Can this pesticide be applied aerially?**
- 6. What pests can this pesticide be used to control, and on what specific sites?**
- 7. What PPE is required for mixers/loaders (explain what may occur with repeated exposure)?**
- 8. What may occur when this pesticide is stored at temperatures above 90°F?**
- 9. What is the specific active ingredient, percent, and potency of this pesticide?**
- 10. What is the signal word of this pesticide? (If you understand what the signal word means, feel free to explain what this tells you about this pesticide)**

Mail the completed quiz to receive one (1) pesticide recertification credit.

The following information is required.

Name:		
Certificate #:		Please check: <input type="checkbox"/> Commercial <input type="checkbox"/> Private <input type="checkbox"/> Non-Commercial <input type="checkbox"/> Government
Street Address:		
City/State/Zip		
Company/Farm:		
Signature:	Date:	
Email address (optional):		
Mail to:	Vermont Agency of Agriculture, Food & Markets Attn: Anne Macmillan 116 State Street Montpelier, VT 05620-2901	

Did you know?

- The UVM Extension Master Gardener Helpline volunteers serve **HOMEOWNERS** in Vermont to answer gardening questions, providing science based information about home horticulture issues.

UVM Master Gardener Helpline
(802) 656-5421
uvm.edu/extension/mastergardener/helpline

Home Study Quiz 3 –Pesticide Label #2

(Please see included Trident label. Please keep answers brief; use additional paper as needed.)

- 1. What type of adjuvants should NOT be used with this pesticide?**
- 2. Who may be in the treatment area during application?**
- 3. What is the REI for this pesticide when applied to agricultural sites, and if early entry must occur during the REI, what PPE must be worn?**
- 4. Does this pesticide have a tolerance requirement, and how soon before harvest may it be applied?**
- 5. When preparing for mixing, what must the applicator do to this pesticide formulation before use?**
- 6. Is it safe to apply this pesticide while bees or other pollinating insects are present in the treatment area?**
- 7. What should users do if the pesticide gets inside clothing?**
- 8. What type of pesticide is this?**
- 9. When should application of this pesticide be initiated, and on what stage of pest is it most effective?**
- 10. How often should this pesticide be applied under heavy infestations?**

Mail the completed quiz to receive one (1) pesticide recertification credit.

The following information is required.

Name:		
Certificate #:		Please check: <input type="checkbox"/> Commercial <input type="checkbox"/> Private <input type="checkbox"/> Non-Commercial <input type="checkbox"/> Government
Street Address:		
City/State/Zip		
Company/Farm:		
Signature:	Date:	
Email address (optional):		
Mail to:	Vermont Agency of Agriculture, Food & Markets Attn: Anne Macmillan 116 State Street Montpelier, VT 05620-2901	

Did you know?

- The **UVM Pesticide Safety Education Program (PSEP)** works closely with the Vermont Agency of Agriculture, Food & Markets to provide training and education resources for current and prospective pesticide applicators: *Certification Information, **Online Training and Recertification Courses**, CORE and Other Training, The Pesticide Applicator Report, COVID-19 Resources, Fact Sheets, Helpful Links.*

UVM Pesticide Safety Education Program

(802) 656-0475

uvm.edu/extension/psep

Ditch the Paper!

The *Pesticide Applicator Report* will be including an electronic format alternative to improve speed of delivery and reduce mail costs in the future. You have the choice to receive the publication via email or continue to receive a paper copy through regular mail. Details of the transition are still being determined.

To help our planning, we would like to know if you would prefer to receive the PAR via email or regular mail. **If so, please check one of the boxes below and provide us with your email address if you choose the electronic format.**

☐ I would prefer to receive the PAR via regular mail.

☐ I would prefer to receive the PAR via email.

Email Address: _____ (print clearly)

Certification ID #: _____ (print clearly)

Please mail the completed survey to:

Vermont Agency of Agriculture, Food & Markets
Attn: Anne Macmillan
116 State Street
Montpelier, VT 05620-2901

This survey does not count toward pesticide recertification credit.

Questions and comments may also be directed to Anne.Macmillan@vermont.gov 802-828-3479
Pesticide Certification & Training and WPS Coordinator, VAAFM.