

The Pesticide Applicator Report

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



Spring 2021 Volume 22 – Issue 1

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Growing Hemp in Vermont

*Stephanie Smith & Matt Wood,
Vermont Agency of Agriculture, Food & Markets*

To grow or process hemp in Vermont a person must register with the Vermont Hemp Program. The expectation is that an individual or company register before taking possession of viable seed, plants/clones, harvested crops, or hemp concentrate to formulate into hemp products or hemp-infused products. A person can register at any point in the year, but all registrations expire December 31, in the calendar year in which the Program issued the registration.

Registration is online through the Vermont Hemp Program registration and compliance portal, which can be found at <https://hemp.vermont.gov/>. Through the portal, applicants are able pay for registration using a credit card or electronic check and access a copy of the issued registration and print maps of cultivation, drying and storage areas, processing locations and other mapped information from the registrant's account.

Compliance with the Vermont Hemp Rules (VHR) begins with registration. Additionally, the VHR addresses the required tests for compliance with tetrahydrocannabinol concentration associated with the definition of hemp and contaminant action limits that support hemp production and retail product development. These analytical tests include tests for pesticides.

When faced with pest pressures and choosing a pesticide one must be aware of the regulations that apply, both state of Vermont pesticide regulations and US Environmental Protection Agency (EPA) regulations. Although there are currently no pesticides that list hemp as an allowed application site on the label, as of the writing of this article the EPA has approved

(continued)

56 biopesticides and one conventional pesticide that can be used on hemp.

These products are also required to be registered for use in Vermont prior to be offered for sale in the state. These regulations are in place to protect the hemp crops, workers on the farm, and the environment.

The Worker Protection Standard (WPS) regulations apply as soon as one uses a pesticide on an agricultural crop whose label contains “Agricultural Use Requirements” that reference WPS. If this is the case, all WPS requirements will need to be met each time that pesticide is used, which include employer provided pesticide safety, application and hazard information, pesticide safety training, decontamination supplies, and emergency assistance if needed. (see following WPS article for details)

The Agency of Agriculture, Food & Markets is very interested in helping you comply with these complex regulations, so feel free to contact us for help.

- For a list of pesticide products approved by EPA for use on hemp, search online for “hemp approved pesticides” and confirm that you are visiting an EPA.gov website: <https://www.epa.gov/pesticide-registration/pesticide-products-registered-use-hemp>
- For more information on pesticide use on hemp, search online for “Vermont Hemp Pesticide Guidance” check that you are visiting a Vermont Agency of Agriculture, Food & Markets website, and scroll down to “Pesticide Guidance.”
- For information about the Worker Protection Standard, search online for “Pesticide Educational Resources Collaborative” and click on <http://pesticideresources.org/>

For information on becoming a certified pesticide applicator in Vermont or WPS needs:

Anne.Macmillan@vermont.gov
802-828-3479

Pesticide Certification & Training and
WPS Coordinator, VAAF

Worker Protection Standard (WPS)

Vermont Agency of Agriculture, Food & Markets

If you own, rent or work on a farm, in a greenhouse, nursery or in a forest managed for wood products, and use agricultural pesticides, you probably have heard about the Environmental Protection Agency’s (EPA) Worker Protection Standard (WPS). The goal of the WPS is to reduce pesticide poisonings and injuries among agricultural workers and pesticide handlers. The WPS provides occupational safeties to over 2 million agricultural workers and pesticide handlers who work at over 600,000 agricultural establishments.

In 2015, EPA revised the WPS to decrease pesticide exposure incidents among farmworkers and their family members. Fewer incidents equates to a healthier workforce and fewer lost wages, medical bills and absences from work and school. All requirements of the revised WPS are now in effect.

WPS pesticide safety, application and hazard information requirements includes posting at a central location the facts about what pesticide was applied, where, when, and how long workers must stay out of the treated area(s). It also includes a requirement to supply Safety Data Sheets (SDSs) for each product applied so specific health effects can be known.

Pesticide safety training must be done annually before any workers start work in any area that

has been treated with a WPS-labeled pesticide. It consists of pre-approved oral or written materials or videos available online via YouTube. The training must be conducted by a properly trained trainer, which may mean an employee becomes a certified pesticide applicator.

The WPS also requires the employer provide workers with supplies for decontaminating themselves in the case of a pesticide exposure, including such materials as water, soap, and single-use towels. If a worker has been exposed to pesticides on the hemp farm and requires emergency assistance, the employer must assist in transportation to an appropriate emergency medical facility and provide information about the possible pesticide involved.

Up-to-date EPA-approved WPS training materials available at:
<http://pesticideresources.org/wps/training/index.html>

Pesticide Applicator Certification in Vermont Anne Macmillan, Vermont Agency of Agriculture, Food & Markets

Who needs to be a Certified Pesticide Applicator? According to the Vermont Regulations for the Control of Pesticides, in accordance with 6 V.S.A Chapter, 87, the following individuals need to be certified by the Vermont Agency of Agriculture to apply pesticides.

Private Applicators - Farmers of all kinds producing agricultural commodities: dairy, vegetables, berries, apples, grapes, nursery stock, Christmas trees, and more. To be certified to use Class A pesticides in Vermont, or to provide Worker Protection Standard training to your own employees including agricultural workers and/or pesticide handlers, private applicators only need to take and pass the

Vermont Private Core exam. A private certificate is valid for 5 years and costs \$25.00.

Commercial Applicators - Employees of companies that perform (but not limited to) the following services: pest control, mosquito control, landscape, lawn care, tree care, agricultural custom application, forest pest control including invasive plant control, vegetation control (right-of-way), aquatic weed control, wood preservation, aerial application. To use any pesticides on the property of others you must be a commercial applicator and be affiliated with a licensed pesticide applicator company.

Non-commercial Applicators - Golf course superintendents, groundskeepers, those that perform in-house cooling tower maintenance, and others that may use certain classes of pesticides only on their employer's property as part of their work.

Government Applicators - Employees of federal, state, or municipal departments or agencies that use (including the recommendation of) pesticides as part of their job. **Some exceptions do exist:**

- A person who uses a general-use, janitorial type supplies indoors at the place of their employment such as: sanitizers, disinfectants, and bactericides.
- A person who is not subject to the licensing requirements may apply a general use ready-to-use pesticide.
- Veterinarians or physicians, and employees working under their direct supervision, as part of their professional services, and laboratory personnel in pesticide use research.
- A person who is not subject to the licensing requirements may apply a Class C pesticide to swimming pools.

Requirements to become a Certified Pesticide Applicator: Individuals must be 18 years of age or older. Private applicators must pass the Vermont Private Core exam. All other applicators must pass the Vermont Core exam, and a minimum of one category exam in the applicator's area of pesticide use.

There is a study manual and exam for each category of pesticide application. Each examination requires a minimum score of 75 percent to pass. All exams are closed book. The questions are a combination of true/false, fill in the blank, matching, and multiple choice.

Categories for Commercial, Non-Commercial and Government Applicators: There are 17 commercial Categories and 6 private commodity groups in which an applicator could become certified. A commercial, non-commercial or government applicator must be certified in the category or categories fitting the type of pesticide use practiced. Applicators engaged in several sorts of pesticide-related activities may need to be certified in several categories. An applicator must be certified in at least one category.

Here is a list of Vermont's certification categories:
<https://agriculture.vermont.gov/public-health-agricultural-resource-management-division/pesticide-programs/applicator-types>.

Updated Certification and Training Requirements *Doug Johnstone, Vermont Agency of Agriculture, Food & Markets*

In early 2017, the Environmental Protection Agency (EPA) finalized revisions of the Certification of Pesticide Applicators (C&T) rule. March 2020 was the deadline for state and tribal pesticide programs all over the country to submit a modified C&T Plan to the EPA. In

those plans, states had to do describe how they intended to meet the new federal rules. While most New England states only needed to make a few changes to be compliant, there will be impacts as we move forward. Here are the major changes that that may affect Vermont applicators.

The federal C&T rule has certain age and supervisory restrictions for applicators. One new restriction will only allow certified applicators at least 18 years old to apply restricted use pesticides, with an exception. That exception does not matter in Vermont because the Vermont rules have always required pesticide applicators to be at least 18 years old. The federal rule will also allow uncertified applicators to apply federally restricted use pesticides under direct supervision with training requirements. Vermont will be proposing to update the state rules to require that all federally restricted use pesticides only be applied by certified applicators, while state-restricted products could still be used under direct supervision of a certified applicator.

Another area that will be required to change is recording keeping for commercial, non-commercial, private applicators and Restricted Used Dealers (Class A). These changes, not yet required in Vermont, can be anticipated as we go through formal rulemaking processes, over the next year or so.

Currently, commercial, non-commercial, and private applicators must maintain routine records of pesticides uses (restricted use only for private applicators) which includes:

- Product or trade name of pesticide(s) used.
- EPA registration number(s)
- Amount used.
- Date of application.
- Location of application (farm name and town)
- Pest(s) treated for.

In the future, routine application records will now be required to include the following additional information:

- The time of application.
- The size of area treated.
- Applicator name and certification number.
- The customer's name and address.
- Location of application will need to detail crop, commodity, stored product, or site.

Currently, Class A dealers must annually report:

- The pesticide product name.
- The EPA registration number.
- The size and number of containers purchased.
- The county of intended use.

In the future, Class A dealers will need to keep additional records including:

- Name and address of the residence or principal place of business of each certified applicator to whom the Class A pesticide was distributed or sold, or that information for the designee.
- The certification number on the Vermont-issued certificate presented to the seller to purchase the Class A pesticide; the expiration date of the applicator's certification, and the category(ies) in which the applicator is certified relevant to the pesticide(s) sold.
- The date of the transaction.

There are other requirements in the new federal C&T rule that will mean changes to the Vermont rule, including creating new certification categories. The Vermont Agency of Agriculture, Food and Markets, Plant Health and Agricultural Resource Management division will continue to educate licensed companies, dealers, and applicators throughout the entire regulation update process – STAY TUNED!

Application Exclusion Zone (AEZ)

Vermont Agency of Agriculture, Food & Markets

The intent of the Application Exclusion Zone (AEZ) (<https://www.epa.gov/pesticide-worker-safety/worker-protection-standard-application-exclusion-zone>) is to protect agricultural workers and bystanders from potential exposure to pesticides from nearby applications. The AEZ is the area surrounding a pesticide applicator and the application equipment on an agricultural establishment that workers and other people are not allowed to enter. AEZ requirements only apply during an application and may extend beyond property lines.

The AEZ must be a minimum of 100 feet horizontally in all directions when the pesticide is applied:

- By air (fixed wing or helicopter),
- By an air blast application method,
- As a spray using a spray quality smaller than medium (i.e., fine, very fine or extra fine), or
- As a fumigant, smoke, mist, or fog.

The AEZ must be a minimum of 25 feet horizontally in all directions when the pesticide is:

- NOT applied in a manner that would require a 100-foot AEZ, and
- Sprayed from a height of greater than 12 inches from the planting medium (soil) using a spray quality of medium or larger (i.e., medium, coarse, very coarse, extra coarse, and ultra-coarse).

No AEZ: No AEZ is required when the pesticide is applied in a manner other than those covered above (i.e., equal to or less than 12 inches from the soil with medium or larger spray quality).

Situations where no AEZ is required include applications of granular pesticides, soil incorporated pesticides (not fumigants); pre-

plant, at-plant, and spot-spray pesticide applications if they are less than 12 inches from the soil and use a medium or larger spray quality.

Keeping Unprotected People Out of the AEZ:

Employers must keep workers and other persons out of the AEZ and treated areas during pesticide applications. Employers can do this by complying with the notification requirements, which will ensure workers know of all applications-in-progress, and entry restrictions that apply to their activities. In addition, employers should schedule worker tasks to ensure they are well away from pesticide applications and ensure good communication between the supervisors of applicators and the supervisors of workers.

Suspending a Pesticide Application:

Applicators must suspend any application if anyone enters the AEZ, other than a trained and equipped handler(s) involved with the application.

Applicators may only resume an application if they can ensure the pesticide will not contact anyone, on or off the establishment, directly or through drift.

Within the boundary of the establishment, the application cannot resume until all everyone is out of the AEZ except trained, equipped handlers involved in the application.

More in-depth discussion of the AEZ can be found at:
<http://pesticideresources.org/wps/guide/aez/index.html>

Should you have any questions please contact your Field Agent or:
Anne.Macmillan@vermont.gov
802-828-3479
WPS Coordinator, VAAF

Pesticide Mix Water Quality

Doug Johnstone, Vermont Agency of Agriculture, Food & Markets

When we think about water quality, we normally consider the effects that nutrients and other chemicals have on the suitability of surface or ground water. Conversely, the quality of water used to create a pesticide dilution can also influence the results of a pesticide application. Considering that most pesticide dilutions are close as 95% water, the quality of the applicator's mix water should not be overlooked. Applicators need a reliable source of consistent and clean water for mixing. That source should be tested periodically for accurate analysis, as inputs may vary over time. Some factors related to the quality of mix water include turbidity, pH, and dissolved minerals or hardness.

Turbidity is the state of being clouded or opaque and is caused by suspended matter or stirred up sediment. These particles are usually soil or other organic matter which can reduce the efficacy of active ingredients by adsorbing, or binding to them and potentially making them ineffective against the target pest. Turbid mix water can also plug nozzles and screens which can cause uneven spray patterns, reduced control, and increased repair costs. Be sure to read the label for statements related to adsorption when using untested mix water, or water drawn from surface water sources.

Roundup Power Max II label states:
PERFORMANCE OF THIS PRODUCT CAN BE SIGNIFICANTLY REDUCED IF WATER CONTAINING SOIL SEDIMENT IS USED AS CARRIER. DO NOT MIX THIS PRODUCT WITH WATER FROM PONDS OR DIRCHES THAT IS VISIBLY MUDDY OR MURKY.

Gramoxone SL 3.0 label states: Clay and organic matter rapidly tie up Gramoxone SL 3.0.

As a result, Gramoxone SL 3.0 has no residual soil activity to affect later-planted crops or later germinating weeds.

The **pH value** describes the acidity (concentration of hydrogen ions) or alkalinity (concentration of hydroxide ions) of any solution. The pH scale ranges from zero to 14 with a pH of 7 being neutral. The scale is logarithmic such that a solution with a pH of 5 has 10x the hydrogen ions as a solution with a pH of 6, and 100x more than a pH of 7.

pH = 7.....neutral (H+ equals OH-)

pH > 7.....alkaline (more OH-)

pH < 7.....acid (more H+)

In general, most pesticides work best in solutions with pH between 4-7 and many pesticide labels will indicate the desired pH of the mix water to prevent degradation or hydrolysis of the active ingredient. Hydrolysis is the breakdown of the active ingredient molecule into smaller or simpler components that are not usually absorbed by the target pest, or they may even become inert. Weak acid pesticides like 2,4-D and glyphosate break down quickly when mixed with water above pH 7, while sulfonyl-ureas are weak alkaline pesticides that degrade quickly in solutions below pH 7.

Hardness refers to the concentration of minerals such as calcium (Ca⁺⁺), magnesium (Mg⁺⁺), and iron (Fe⁺⁺) cations that are dissolved in water. Total hardness is measured in parts per million (ppm) or grains per gallon of calcium. One grain equates to 17.1 ppm. Water hardness can affect the performance of the pesticide when the positively charged cations bind with negatively charged anions in the active ingredient. When this happens, the bound molecules cannot enter the target pest, or enter at a slower rate, or may even precipitate out of solution. The United States Geological Survey classifies water hardness according to the following chart:

Classification	hardness in mg-CaCO ₃ /L
Soft	0–60
Moderately hard	61–120
Hard	121–180
Very hard	≥ 181

While the Vermont Department of Health classifies water hardness slightly differently:

- below 75 mg/L - is generally considered soft
- 76 to 150 mg/L - moderately hard
- 151 to 300 mg/L - hard
- more than 300 mg/ - very hard

Optimum and effective pesticide applications depend on many important factors, and the quality of the mix water is certainly one of them. Water should be tested annually or each time a new source is used. While the results may not change significantly over time, variations during the year may occur because of snow melt, excess precipitation, or drought. There are also do-it-yourself kits and meters that can be used in the field although accuracy may vary based upon which type used. Starting the pesticide mixing process with mix water that is optimum for the pesticides used brings the applicator one step closer to a successful treatment program.

For more in-depth information about pesticide water quality, refer to Purdue Extension publication PPP-86 and Montana State University Extension MontGuide publication Pesticide Performance and Water Quality.

Training and Recertification Credit Online Courses

uvm.edu/extension/pseponline

- CORE Manual Review (no credit)
- CORE Manual Review, Unit #1 (1 credit)
- CORE Manual Review, Unit #2 (1 credit)
- CORE Manual Review, Unit #3 (1 credit)
- CORE Manual Review, Unit #4 (1 credit)
- Managing Pests While Protecting Pollinators (1 credit)
- Category 7A Manual Review (no credit)
- ***NEW*** Category 7A Manual Review, Unit #1 (1 credit)
- ***NEW*** Category 7A Manual Review, Unit #2 (1 credit)
- ***NEW*** Category 7A Manual Review, Unit #3 (1 credit)
- ***NEW*** Category 7A Manual Review, Unit #4 (1 credit)



Welcome to the Pesticide Safety Education Program Online Courses!

Resources to help study for pesticide applicator exams and/or to provide recertification credits for certified pesticide applicators. Presented by University of Vermont Extension Pesticide Safety Education Program and the Vermont Agency of Agriculture, Food & Markets.

EXTENSION
FOUNDATION **Campus**

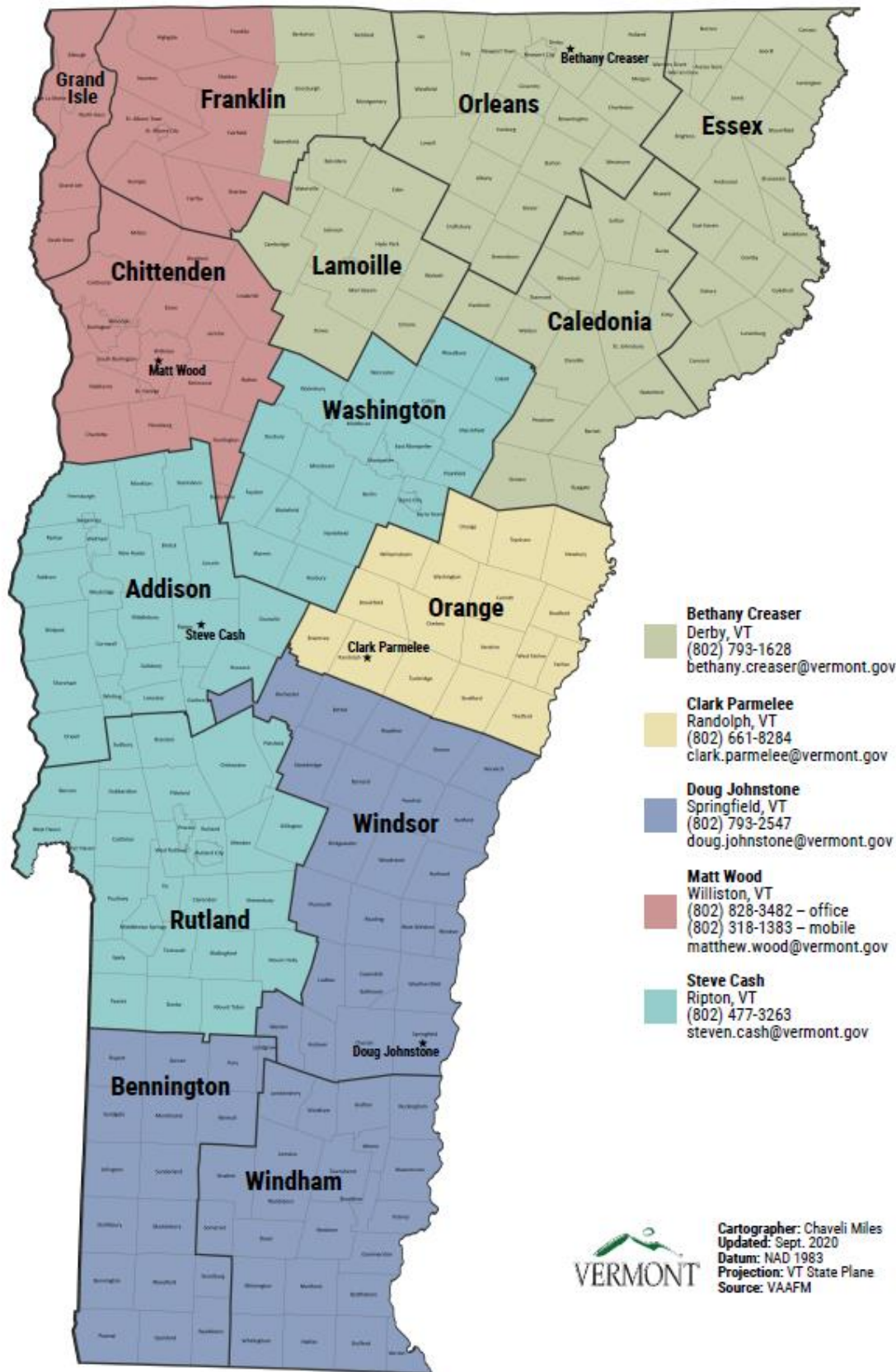
Helpful Contacts for Pesticide Applicators

Vermont Agency of Agriculture, Food & Markets

Field Agent NE	(802) 793-1628	Bethany.Creaser@vermont.gov
Field Agent SW	(802) 477-3263	Steven.Cash@vermont.gov
Field Agent CTR	(802) 661-8284	Clark.Parmelee@vermont.gov
Field Agent SE	(802) 793-2547	Doug.Johnstone@vermont.gov
Field Agent NW Golf Course Permit Coordinator	(802) 318-1383	Matthew.Wood@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
Agrichemical Section Chief	(802) 461-5040	Kanika.Gandhi@vermont.gov
Assistant Director	(802) 828-6417	Linda.Boccuzzo@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
Field Crops & Nutrient Management	(802) 388-4969 x332	Jeff.Carter@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 – Hemp, Pesticide Applicator Certification, Updates, WPS
(Please keep answers brief; use additional paper as needed.)

- 1. When is an individual or company expected to register with the Vermont Hemp Program? When do registrations expire?**
- 2. How many pesticides currently list hemp as an allowed application site on the label? How many have EPA approval to be used on hemp?**
- 3. When do Worker Protection Standard (WPS) regulations apply to hemp production?**
- 4. What is the minimum age requirement for pesticide applicators in Vermont?**
- 5. List the additional information that will be required on commercial and non-commercial pesticide application routine records.**
- 6. Once the Vermont Pesticide Rules are updated within the next year or so, will any uncertified applicator be able to apply restricted use pesticides under direct supervision?**
- 7. List three additional record keeping requirements that Class A Dealers will need to keep in the future.**
- 8. What is required to provide WPS training to your own employees including agricultural workers and/or pesticide handlers?**

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

Home Study Quiz 2 – Pesticide Mix Water Quality, AEZ

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

- 1. Name three factors that can affect the quality of pesticide mix water.**
- 2. Generally speaking, most pesticide formulations work best within what pH range?**
- 3. Water hardness refers to what? And how is it measured?**
- 4. How can water hardness affect pesticide performance?**
- 5. What does the pH value describe? And what is the range of the scale?**
- 6. List three effects that turbidity can have the pesticide application process.**
- 7. Define the Application Exclusion Zone on an agricultural establishment.**
- 8. Air blast application methods require an AEZ in all directions of:**

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

Pesticide Applicator Report *Evaluation*

(Please use additional paper as needed.)

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.

We would appreciate your answering a few quick questions so we can report our impacts and better serve you in the future. All information will remain confidential. Thanks for your time and support!

1. Has the *Pesticide Applicator Report* helped you to apply and use pesticides more safely?

Yes | No | Unsure

If Yes, please give an example(s): (e.g. better use of PPE, chose less-toxic pesticides, etc.)

2. Has the *Pesticide Applicator Report* helped you to adopt at least one new IPM practice?

Yes | No | Unsure

If Yes, please give an example(s): (e.g. better application timing, reduce pesticide use, etc.)

3. Please say something about the *Pesticide Applicator Report*, how it is (or is not) useful to you, that we could use as a 'testimonial' for this newsletter.

4. Please provide any specific examples of information that you would like to see in future issues of the *Pesticide Applicator Report*.

Questions and comments may also be directed to sarah.kingsley@uvm.edu in the University of Vermont Extension Pesticide Safety Education Program.

Please mail the completed evaluation to:

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

This evaluation does not count toward pesticide recertification credit.