The Pesticide Applicator Report

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For Vermont's Pesticide Applicators
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In This Issue:

News from the Agency

As many of you noticed, no newsletters were sent out in 2014. We are on schedule to have 2-3 newsletters in 2015. We have also included an extra quiz in this issue.

If you rely only on the quizzes from the newsletters for recertification, please note there will still have been 16 available credits in your 5-year cycle. You may access archives of the newsletter on our web site under the Training & Recertification tab on the Pesticide Regulation page.

EPA Launches Drift Reduction Technologies (DRT) program

The EPA has developed a new voluntary testing to rate potential drift reducing technologies: nozzles, spray shields, and drift-reducing adjuvants. Stars will be used to show the DRT's rating. The more stars a DRT receives, the greater potential drift reduction. Pesticide applicators will be able to search tables for DRT-rated technology for ground boom and aerial applications by manufacturer and system pressure (psi). Pesticide registrants will be able to claim DRT technology on pesticide labels. Also, the EPA will credit the use of specific DRTs on pesticide labels and may decrease labeled buffer zones based on use of specified DRT.

The EPA's initial program will focus on DRTs for row and ground crops followed by orchard and vineyard crops. It is expected that as early as fall 2015 recommendations for DRTs may appear on pesticide labels-

- One star -- 25-49 % reduction
- Two stars -- 50-74 % reduction
- Three stars -- 75-89 % reduction
- Four stars -- 90+ % reduction

For more information: http://www2.epa.gov/reducing-pesticide-drift

http://www.aapco.org/meetings/minutes/2014/dec8/att8_drt_ellenberger.pdf

Questions or comments regarding this newsletter?
Please contact **Linda Boccuzzo** at the Vermont Agency of Agriculture at 802-828-6417 or email linda.boccuzzo@state.vt.us

Pesticide Applicator & Company License Renewals

It is that time of year- all *active* commercial, non-commercial, and government pesticide applicators should have received their annual 2015 renewal forms. If you are one of these types of applicator and *have not* renewed *and* received your certificate, you are not certified to use pesticides in Vermont and your account may be closed.

Private applicators that are in the 5th (final) year of their certificate should have also renewed and received a new 5-year certificate.

Applicators that are required to report usage (commercial, non-commercial and government) may download additional copies of the form or use the excel version available on the Agency's web site: http://agriculture.vermont.gov/pesticide_regulation/applicator_dealer_resources/applications_and_forms

Applicators that have not paid or renewed for 2014, did not receive a 2015 application.

Pesticide Regulation Revisions

Back in the early 1990's…the USSR dissolved… the Teenage Mutant Ninja Turtles were incredibly popular and Joe Montana quarterbacked the 49ers to a Super Bowl victory. It was also the last time the Vermont *Regulations for the Control of Pesticides* were updated, by the then Department of Agriculture. Many things have changed since 1991, except maybe the popularity of those cartoon turtles, and that is why we are reviewing and updating our pesticide regulations.

The expected timeline for submission of the updated regulations to the Secretary of State is April 2015. If you would like to be notified when the proposed regulations become available for public comment, please e-mail Linda at Linda.boccuzzo@state.vt.us

Staff Changes at the Agency

It's been a quite a year for change at the Agency

In the field-

With the retirement of Andy Squires, Vermont's field agent territories have changed. The field agent covering your territory may have changed. New territories by county:

- **Bethany Creaser** - Orleans, Essex, Caledonia and parts of Franklin, Lamoille and Washington counties.
- **David Tremblay** - Grand Isle, Chittenden and parts of Franklin, Lamoille and Washington counties
- **Dominique Golliot** – Addison, Rutland and Bennington counties
- **Doug Johnstone** – Windham, Windsor, Orange and parts of Washington counties

See the map on page 4 to find which field agent is now covering your town.

Matt Wood has taken a new position as the Agricultural Resource Management Supervisor working with the field staff and with the compliance and enforcement staff.

In the office-

Matt turns over the Certification & Training position to Linda Boccuzzo. Linda comes to the Agency from the Health Department where she worked in the Radiological & Toxicological section for several years. Linda will be handling all questions about renewals, recertification, scheduling exams and coordinating this newsletter. Send her your story ideas, comments and questions.

And last, but not least, the Licensing & Registration program welcomed Lisa Fantelli in December 2014.

Notes from the field (or forest)

Submitted by Toby Alexander, NRCS

– In at least a handful of cases in Vermont there has been some unexpected injury to some non-target woody species during invasive plant control where the herbicide Imazapyr was used in conjunction with other herbicides. Specifically, tall overstory trees such as red maple, ash, cherry and apple have been killed when invasive shrubs were treated below them.

Many pesticide applicators that have treated invasive plants in forest and other natural areas will see some minor negative effects to non-target grass, forbs or shrubs that are growing in close proximity to the invasive plants depending upon the herbicide used. Any applicator with much experience has probably killed a desirable shrub, forb or tree seedling inadvertently during invasive plant treatments. Even with the best techniques and precautions some minor non-target damage is often inevitable, particularly for foliar applications. But for some herbicides you need to be aware of what can take place underground as well.

Imazapyr is a broad spectrum herbicide that inhibits amino acid synthesis in plants. It is taken up rapidly and readily through plant foliage but is also readily absorbed from the soil by plant roots. Imazapyr is used to control a broad range of weeds including terrestrial annual and perennial grasses and broadleaved herbs, woody species, and riparian and emergent aquatic species. The half-life of imazapyr in soil ranges from one to seven months and once in the soil it can be taken up by non-target plant roots.

There is indication that Imazapyr may exude or leak from the roots of target species into soil where it can be taken up by non-target plant roots. In addition, Imazapyr can be transferred from target to non-target plants through intertwined root systems (root grafts). Negative effects would be amplified if Imazapyr was over-applied leading to herbicide going directly into the soil. So, for Imazapyr , non-target plants can be damaged directly through foliage (overspray or drift) as well as through the soil and from invasive (target) plant roots.

Some applicators that have experienced some of these negative effects have reduced the use of Imazapyr and are more cautious when treating invasive plants in close proximity to desirable trees and shrubs.

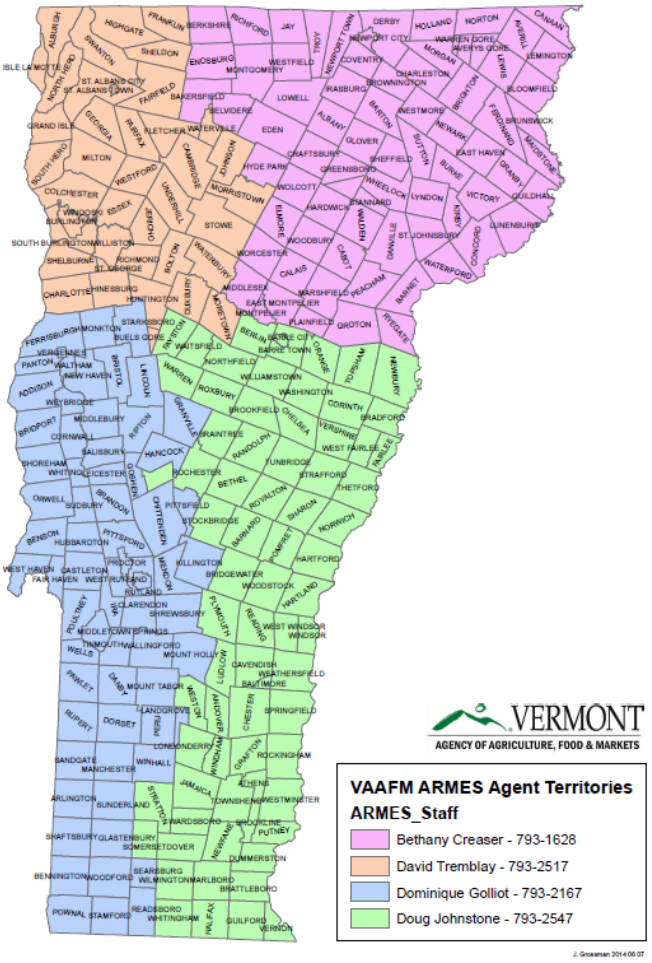
Information on Imazapyr primarily from TNC Weed Control Handbook Imazapyr section and references therein (updated in 2004) and Journal of Pesticide Reform – Imazapyr Herbicide Fact Sheet (FALL 1996 • VOL.16, NO. 3)

Brattleboro Test Site Moved

Applicator and dealer exams in the Brattleboro-area, are now being given in a new testing location.

The University of Vermont Extension office has moved to its new location at the Austine School. Exams are given in Brattleboro on the 1st Thursday of every month in the third floor conference room in Holton Hall at the Austine School. Look for signs for UVM Extension.

For current 2015 exam locations, directions and schedules please visit the Exam Tab on the Applicator & Dealer web page.



A Note from the State Division of Fire Safety – Tier II reporting

Submitted by Chris Herrick, Chief of VHMRT

Annually, the federal government requires that businesses that store hazardous materials report the amount and type. These regulations can be found in "Emergency Planning and Community Right to Know" (EPCRA) and are summarized below:

> *EPCRA Section 311-312 applies to any facility at which a hazardous chemical, as defined by the Occupational Safety and Health Act, is present in an amount exceeding a specified threshold. These facilities must submit -- to the SERC, LEPC, and local fire department -- material safety data sheets (MSDSs) or lists of MSDSs and hazardous chemical inventory forms (also known as Tier I and II forms). This information helps the local government respond in the event of a spill or release of the chemical.*

While there has not been a great deal of information about this regulation for the pesticide industry **it does include pesticides**. Some Vermont pesticide businesses have been routinely reporting, however not all required entities are.

Any Vermont business that stores pesticides with an active ingredient that is a hazardous material *and* the amount stored exceeds 100 lbs. of active ingredient, it must be reported.

Additionally, if the active ingredient is an *Extremely Hazardous Substance* it will need to be reported if it exceeds the weight found in the "List of Lists" found at the EPA website: http://www2.epa.gov/epcra/epcracerclacaa-ss112r-consolidated-list-lists-october-2012-version

The reporting period is January 1 to March 30th for the previous year. So reports for products in inventory in 2014 are due by the end of March. All reporting is done via TIERII SUBMIT (see link at website below) and then goes to Christopher Herrick, Chief of the Vermont HAZMAT Response Team.

See more detailed information at the site below and please contact Chris at

Christopher.Herrick@state.vt.us
http://vem.vermont.gov/programs/epcra

Catch my drift…?

As the agriculture-urban interface continues to grow in Vermont, the Agency has seen an increase in concerns and reports of pesticide drift. That along with the EPA's new DRT program being launched, we thought we would take a closer look at pesticide drift. Here are just a *few* reasons why you should be effectively managing pesticide drift during applications:

- Drift costs money. You are responsible for pesticide that drifts onto other people's property, onto non-labeled crops, and into sensitive areas, this includes during indoor applications. Also, pesticide that lands off-target makes the application less effective, costing you more.
- Drift can harm the environment.
- Drift can harm people's health - your family, your neighbors, other residents in the building
- Drift is a violation of the state and federal regulations.
- Drift harms the industry. Real & perceived instances of pesticide drift harm the reputation your industry.
- The Agency investigates *every* complaint of pesticide drift. We require the applicator to demonstrate that application operations were done in a manner that minimized drift.
- *Every* pesticide applicator is responsible for preventing drift

What is drift?

Drift is the airborne movement of pesticides during or immediately after its use to a site unintended for its use or application. In plain terms, a pesticide was applied in one location, and moved by air to an off-target site. Pesticide drift may occur in the form of a solid, liquid or vapor. Pesticide drift can occur by a variety of application methods, and even during indoor applications.

There are three types of pesticide drift: spray drift, particle drift and vapor drift. Here's a look at each type of drift and the factors that may influence them.

Spray drift

Spray drift occurs when droplets of pesticides move off-target *before* they reach the target. Spray drift can be managed by equipment selection, applying in appropriate environmental conditions, and by using good application techniques. These management factors apply for indoor applications too. Indoor environmental conditions such as room temperature, HVAC system status play a signifi**c**ant role in managing indoor pesticide drift.

Environmental factors related to spray drift

Temperature - Warmer temperatures can cause evaporation which makes pesticide droplets smaller. Smaller droplets are more likely to travel further in before depositing, increasing the chance of drift.

Relative humidity –Lower relative humidity means that the air is drier. Droplets evaporate faster in drier air, making them more likely to drift off-target. Warm temperatures, combined with low relative humidity, result in conditions which make drift more likely.

Wind speed – Higher wind speeds carry droplets or dusts further, increasing the chance of drift. Smaller droplet sizes, combined with increasing winds, result in conditions which make drift more likely. (cont→)

Wind direction - The direction of the wind determines the eventual location of deposition. Evaluating the wind direction before spraying can prevent drift from reaching sensitive areas. These may be sensitive environmental areas, human health areas, or crops or targets not listed on the label.

Thermal inversions – A thermal inversion is when a pocket of warm air is trapped between two layers of cold air. Inversions occur when heat is rapidly lost from the surface of the ground, making the ground cooler than the air directly above it. The air at higher altitudes is also cool. This results in a pocket of warmer air stuck in-between the ground surface and higher altitude. Inversions are commonly seen during clear cool periods, and end when solar radiation warms the ground or the air mixes. When a thermal inversion is present during an application, there is a greater risk of drift.

Air stability – Air that is too *stable* **or** too *unstable* is more likely to result in drift. Very calm (stable) air can allow droplets to remain suspended in the air for longer periods of time, making drift more likely. Very turbulent (unstable) air can move droplets up and into air currents, spreading them further away from the target.

Equipment & application factors related to spray drift

Spray height – The further away that pesticides are applied from the target, the more the chance that the pesticide will drift.

Spray pressure – The higher the pressure that the pesticide is applied with, the more likely the pesticide will disperse into smaller droplets. Smaller droplets are more likely to travel further in the air before depositing, increasing the chance of drift.

Nozzle types – Nozzles that create smaller droplets increase the risk pesticide drift as the smaller droplets are likely to travel further.

Spray characteristics – Drift retardants may be considered if allowed by the product label. Retardants should not be used as a primary means to reduce drift.

Particle Drift

Particle drift occurs *after* a pesticide reaches its target location. Particle drift occurs when dusts or soil particles are kicked up by the air and carried away in wind currents then re-depositing in off-target locations. Pesticides may remain active in soil for very long time, allowing drift to occur well after the application.

Factors related to particle drift

Pesticides that have been applied to soil or other areas that are prone to high winds or fast moving air, such as near air circulating equipment, are more prone to drift. Applying dusts or granules indoors or near air circulating equipment also increases the chance of drift. When applying dusts or granules indoors, limiting air movement around the particles will decrease the likelihood of drift. Air movement can be limited by turning off fans and heating systems when feasible.

Vapor Drift

Vapor drift is very different from spray drift. Vapor drift occurs when volatile pesticides-those that change from a solid or liquid to a gas—are applied to a target area and after application, change into a gas and travel with air currents away from the target area. Vapor drift can travel significant distance, much farther than spray drift and can happen well after the application. Vapor drift can occur in combination with other types of drift. The chemical type, temperature of the air and soil and moisture content of the soil are factors commonly associated with managing vapor drift. (cont→)

Factors related to vapor drift

Chemical type –The volatility of the pesticide is the primary factor in determining vapor drift. That is, how readily does the pesticide change from its solid or liquid form into a vapor (gas). The more volatile the chemical, the more likely the chance of vapor drift. Certain volatile herbicides have been associated with vapor drift issues, such as 2,4-D esters, dicamba and clomazone. As the symptoms of herbicide damage can be usually easily be seen, it makes the damage from this type of drift easy to recognize. Labels for pesticides prone to vapor drift generally have significant application restrictions.

Air & Soil Temperature – As chemicals volatilize more at higher temperatures, the temperature of the soil or air in the target area affects the likelihood of vapor drift. The warmer the temperature, the more likely the chance the pesticide will volatilize and drift.

Soil Moisture – Wet soil conditions promote the volatilization of the chemicals. As such, drier soils reduce the chance of vapor drift.

Remember all applicators are responsible for preventing drift!

News from the University of Vermont Extension

Invasive Pest Alert: Spotted Lanternfly

-adapted from *Pennsylvania Department of Agriculture & USDA APHIS Alert 2014*

In November 2014, USDA's Animal and Plant Health Inspection Service (APHIS) issued a pest alert for Spotted Lanternfly based on the confirmed presence of an invasive pest in Berks County, PA. Quarantine was issued on November 1, 2014 by the Commonwealth of Pennsylvania. This is the first detection of Spotted Lanternfly in the United States. A summary of the pest and damage are described below.

The spotted lanternfly is an invasive pest, primarily known to affect tree of heaven (*Ailanthus altissima*). It has been detected on many host plants, including apples, plums, cherries, peaches, nectarines, apricots, almonds, and pine. It also feeds on oak, walnut, poplar, and grapes. The insect will change hosts as it goes through its developmental stages. Nymphs feed on a wide range of plant species, while adults prefer to feed and lay eggs on tree of heaven [1] If allowed to spread in the United States, this pest could seriously harm the country's grape, orchard, and logging industries.

Adult spotted lanternfly (photo USDA)

Adult Spotted Lanternfly (Photo USDA)

Distribution and Spread

The spotted lanternfly is present in China, India, Japan, South Korea, and Vietnam. The insect was detected in PA in September 2014. This was the first detection of spotted lanternfly in the US. Spotted lanternflies are invasive and can spread

rapidly when introduced to new areas. While the insect can walk, jump, or fly short distances, its long-distance spread is facilitated by people who move infested material or items containing egg masses.

Nymphs are black with white spots in early stages of development. *(Credit: itchydogimages)*

Nymphs turn red just before becoming adults. *(Credit: itchydogimages)*

Damage

Both nymphs and adults of spotted lanternfly cause damage when they feed, sucking sap from stems and leaves. This can reduce photosynthesis, weaken the plant, and eventually contribute to the plant's death. In addition, feeding can cause the plant to ooze or weep, resulting in a fermented odor, and the insects themselves excrete large amounts of fluid (honeydew). These fluids promote mold growth and attract other insects.

Description

Adult spotted lanternflies are approximately 1 inch long and one-half inch wide, and they have large and visually striking wings. Their forewings are light brown with black spots at the front and a speckled band at the rear. Their hind wings are scarlet with black spots at the front and white and black bars at the rear. Their abdomen is yellow with black bars. Nymphs in their early stages of development appear black with white spots and turn to a red phase before becoming adults. Egg masses re yellowish-brown in color, covered with a gray, waxy coating prior to hatching.

Life Cycle

The spotted lanternfly lays its eggs on smooth host plant surfaces and on non-host material, such as bricks, stones, and dead plants. Eggs hatch in the spring and early summer, and nymphs begin feeding on a wide range of host plants by sucking sap from young stems and leaves. Adults appear in late July and tend to focus their feeding on tree of heaven and grapevine . As the adults feed, they excrete sticky, sugar-rich fluid similar to honeydew. The fluid can build up on plants and on the ground underneath infested plants, causing sooty mold to form.

Where To Look

Spotted lanternfly adults and nymphs frequently gather in large numbers on host plants. They are easiest to spot at dusk or at night as they migrate up and down the trunk of the plant. During the day, they tend to cluster near the base of the plant if there is adequate cover or in the canopy, making them more difficult to see. Egg masses can be found on smooth surfaces on the trunks of host plants and on other smooth surfaces, including brick, stone, and dead plants.

Hatched & unhatched egg masses

Cluster of adults on tree trunk at night

Report Your Findings

If you find an insect that you suspect is the spotted lanternfly, please contact UVM Plant Diagnostic Clinic at 802-656-0493 or the Plant Industry Division at 802-828-1317 to have the specimen identified properly.

[1] In Pennsylvania, adult spotted lanternflies have also been found feeding and egg laying on willow, maple, poplar, and sycamore, as well as on fruit trees,

Chemical Resistant Personal Protective Equipment (PPE)
Adapted from Oregon OSHA http://www.orosha.org/
Ann Hazelrigg, PSEP Coordinator UVM

Correct use of personal protective equipment (PPE) will eliminate chances of exposure to pesticides and ensure your safety. The pesticide label will list the exact PPE requirements necessary for the specific pesticide you are applying. Manufacturers must provide information about what PPE a handler must wear when mixing, loading, handling, and applying pesticides. Chemical resistant clothing may be specified on some pesticide labels.

Chemical-resistant protective clothing: The materials in this type of PPE will prevent the measurable movement of certain chemicals to your skin and clothing for a **LIMITED PERIOD OF USE or LENGTH OF TIME**. No material is chemical-proof.

Chemical-Resistant Gloves- If the label specifies chemical-resistant gloves, these may not have non-separate liners (e.g. flocking). You can wear shorter cotton gloves underneath the chemical-resistant ones, but they must be immediately disposed if they come into contact with liquid. Otherwise, they must be disposed of after 10 hours of use or within 24 hours. If the label specifies chemical-resistance categories A-H, use this table to help. This table assumes a standard glove thickness of at least 14 mls. Never wear cotton, leather, or canvas gloves unless the label specifies that this type of glove is required (e.g., aluminum phosphide fumigants).

Environmental Protection Agency chemical resistance categories for selected personal protective materials

Selection category listed on pesticide label	Type of personal protective material							
	Barrier laminate	Butyl rubber ≥14 mils	Nitrile rubber ≥14 mils	Neoprene rubber* ≥14 mils	Natural rubber ≥14 mils	Polyethylene	Polyvinyl chloride (PVC) ≥14 mils	Viton ≥14 mils
A (dry and water-based)	High	High	High	High	High	High	High	High
B	High	High	Slight	Slight	None	Slight	Slight	Slight
C	High	High	High	High	Moderate	Moderate	High	High
D	High	High	Moderate	Moderate	None	None	None	Slight
E	High	Slight	High	High	Slight	None	Moderate	High
F	High	High	High	Moderate	Slight	None	Slight	High
G	High	Slight	Slight	Slight	None	None	None	High
H	High	Slight	Slight	Slight	None	None	None	High

* Includes natural rubber blends and laminates.

Key: **High:** Highly chemical resistant. Clean or replace PPE at end of each day's work period. Rinse off pesticides at rest breaks.
Moderate: Moderately chemical resistant. Clean or replace PPE within an hour of contact.
Slight: Slightly chemical resistant. Clean or replace PPE within 10 minutes of contact.
None: Not chemical resistant. Do not wear this type of material as PPE when contact is possible.

Chemical resistant Coveralls- These are one or two piece suits that the manufacturer specifies to be resistant to certain chemicals. Suits made of butyl rubber, neoprene, PVC, or one of the newer coated and laminated polyethylene fabrics may be appropriate. In general, thicker materials, bound or sealed seams, and covered zippers and vent holes will increase the protection offered. These garments are often elasticized at the wrist and ankle. Some are reusable if properly cleaned, and some must be disposed of after a single use. Do not use coveralls made from cotton, polyester, or uncoated, non-woven olefin unless the label specifies "long-sleeved

shirt and long pants" or "coverall worn over long-sleeved shirt and long pants."

Characteristics of some commonly-used pesticide coveralls
(Consult manufacturers for more information)

Material	Particulate Protection Class*	Splash Protection Class*	Liquid proof?	Liquid chemical protection?	Breathable?	Relative cost
Tempro®	IV	(none)	NO	NO	YES	LOW
ProShield2®	I	III	NO	YES	YES	LOW
Tyvek®	I	III	NO	NO	YES	LOW
Tyvek® QC / sewn seams	I	II	NO	YES	NO	LOW
Tyvek® QC / sealed seams	I	II	YES	YES	NO	Moderate
Kleenguard® LP	I	III	NO	NO	YES	LOW
Tychem® SL / surged seams	I	I	NO	YES	NO	Moderate
Tychem® SL / sealed seams	I	I	YES	YES	NO	HIGH
PVC coverall	I	I	YES	YES	NO	HIGH
PVC suit	I	I	YES	YES	NO	Moderate

* ***Protection Class*** is determined by the "Signal Word" on the pesticide label:
Class I = Signal words "DANGER" or "DANGER/ POISON" (highly toxic)
Class II = Signal word "WARNING" (toxic)
Class III = Signal word "CAUTION" (less toxic)
Class IV = Signal word "CAUTION" (least toxic)

NOTE: The equipment depicted in images and any brand names mentioned in this document are for illustrative purposes and should not be construed as an endorsement for a particular product.

Chemical-Resistant Boots- These can be made of natural rubber, which may be coated with polyurethane, PVC, or blends, or you may use disposable or reusable shoe covers. Pants should always be outside of boots. Leather boots or leather/canvas shoes should never be worn when handling pesticides. Footwear used for pesticide application should be dedicated only for that use.

Chemical-Resistant Aprons-These may be required for mixing and loading pesticide spray tanks or for cleaning equipment. Aprons should be coated on both sides with the resistant material with edges sealed to prevent pesticide absorption. They should provide full protection of the front of the body from the neck to the knees. A chemical-resistant spray suit may be substituted for a chemical-resistant apron.

Chemical-Resistant hood/hat-Hats must be a rubber, PVC, or plastic-coated safari-style, or wide-brimmed hat. Hoods must be rubber, plastic, or other barrier-coated hood. A full hood or helmet that is part of a respirator, like a PAPR, is also acceptable. Do not use cloth hats or liners that will absorb chemicals.

Home Study Quiz 1 – Drift

The following questions refer to the article on pages 5-7. Fill out the information on the back of this completed quiz and mail it to the Vermont Agency of Agriculture to receive (1) one pesticide recertification credit**.**

1. Define drift and list the three types of pesticide drift-

2. How do warm temperatures and low relative humidity influence droplet size increases the risk of spray drift?

3. Why is air that is too unstable or too stable likely to result in spray drift?

4. How does wind direction affect the drift management techniques?

5. Can particle drift occur only at the time of application (indoors or outdoors)? Why or why not?

6. Describe three factors that heavily influence vapor drift (volatilization)

7. Who is responsible for managing pesticide drift?

The following information is required. Mail the completed quiz to the Vermont Agency of Agriculture to receive one (1) pesticide recertification credit.

Name:		
Certificate #:		Please check: ☐Commercial ☐ Non-Commercial ☐Government ☐Private
Street Address:		
City/State/Zip		
Company/Farm:		
Signature:	Date:	
Email address (optional):		

Mail to:

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

Home Study Quiz 2 – Chemical Resistant Personal Protective Equipment

The following questions refer to the article on pages 9-10. Fill out the information on the back of this completed quiz and mail it to the Vermont Agency of Agriculture to receive (1) one pesticide recertification credit.

1. What is meant when clothing is "chemical-resistant"?

2. What can be substituted for a chemically-resistant apron?

3. Why should you not tuck pants into boots when applying pesticides?

4. Which chemically-resistant coverall would you choose to give you the most protection for the least amount of money?

5. Why avoid use of chemical-resistant gloves with non-separate liners?

6. When can you wear cotton gloves?

7. When must cotton gloves be disposed of?

8. Where do you find what PPE you need for the application of a pesticide?

9. When can you wear cotton coveralls?

10. If chemical-resistant gloves in categories G and H are required by the label, which two gloves would you chose to use?

The following information is required. Mail the completed quiz to the Vermont Agency of Agriculture *attn*. Linda Boccuzzo to receive one (1) pesticide recertification credit.

Name:		
Certificate #:		Please check: ☐Commercial ☐ Non-Commercial ☐Government ☐Private
Street Address:		
City/State/Zip		
Company/Farm:		
Signature:	Date:	
Email address (optional):		

Home Study Quiz 3 – Math Refresher

Fill out the information on the back of this completed quiz and mail it to the Vermont Agency of Agriculture to receive (1) one pesticide recertification credit.

Round all answers to the nearest tenth. Answers must be in the correct units (provided)

1. An area to be treated is a rectangle with dimensions roughly 525 feet by 375 feet. What is the *acreage* to be treated?

_____ acres to be treated

2. The application rate on a product labeled for use is 2.8 pounds of *active ingredient* per acre. If treating the field in the question above, how many pounds of active ingredient would be used on the area with this product?

_____ pounds of active ingredient

3. A solid formulation of a product contains 18% active ingredient. How many pounds of the formulated product would you need to get 2.8 pounds of active ingredient?

_____ pounds of formulated product

4. A liquid formulation contains 4 pounds of active ingredient per gallon. How many gallons would you need to get 2.8 pounds of active ingredient?

_____ gallons

5. A spray tank can hold 3 gallons. The tank is calibrated to 0.7 gallons per 1,000 square feet. How many square feet could a full 3 gallon tank treat?

_____ square feet

6. A product label states that 5 ounces will treat 1000 square feet, how many ounces would you need to treat 10 acres?

_____ ounces to treat 10 acres

7. If the product in question 6 is *liquid*, how many gallons would you need to treat the 10 acres?

_____gallons

8. If product in question 6 is *solid*, how many pounds would you need to treat the 10 acres?

_____pounds

Conversions you will need:
43,560 square feet equals 1 acre | 1 gallon equals 128 fluid ounces | 1 pound equals 16 dry ounces

Pesticide Applicator Report
Fall/Winter 2015

Vermont Agency of Agriculture, Food & Markets
Agriculture Resource Management Division
116 State Street
Montpelier, VT 05620-2901

Name:		
Certificate #:		Please check: ☐Commercial ☐ Non-Commercial ☐Government ☐Private
Street Address:		
City/State/Zip		
Company/Farm:		
Signature:	Date:	
Email address (optional):		