

VTPP Quarterly

A Newsletter From Virginia
Tech Pesticide Programs

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Winter 2022 • Volume 3, Issue 1 • VTPP.ORG

Selecting Pesticides

Daniel Frank – Director

Pesticides can be an important tool in pest management, especially when nonchemical methods fail to provide adequate pest control. However, they must be selected and used with care and attention. When selecting a pesticide, keep in mind the following considerations: safety, site, specificity, speed, persistence, effectiveness, and cost.

Safety. One of the most important factors when selecting a pesticide product is its safety. Although pesticides are designed to kill pests, some active ingredients or product formulations are more toxic than others and may pose a greater risk to human health and/or the environment. The acute toxicity level of a pesticide is indicated by its LD50 (lethal dose that kills 50% of a test population), which can be found on a product's Safety Data Sheet (SDS). The higher the LD50 value, the less toxic the

chemical. A product's label provides signal words (Caution, Warning, Danger) to indicate relative toxicity to humans. The label also contains information on potential hazards to humans and the environment as well as ways to mitigate potential harm.

Site. Read the label of each product under consideration to be sure it can be used in the place and manner you intend. For example, products used on lawns or ornamental plants may not be labeled for use on fruits and vegetables. Products toxic to fish or other aquatic organisms should never be used near streams, ponds, or other bodies of water. It is also important that products labeled for outdoor sites are never used inside a home or other structure.

Specificity. This refers to the degree to which a particular pesticide is toxic to the target pest. A highly selective pesticide will kill the target pest, but have little to no effect on nontarget organisms.



Speed. The speed at which a pesticide works to control a pest can also be an important consideration. Some pesticides are slow acting, while others are more acutely toxic and fast acting. It is important to be aware of the speed at which a pesticide controls a pest because results from a spray application may not be readily apparent soon after treatment, and could require several days to be noticeable.

Persistence. This refers to the length of time a pesticide remains active in the environment. Many environmental conditions (e.g., sunlight, soil pH, and soil microbe activity) can play a role in the breakdown of pesticides. Some pesticide products breakdown readily in the environment, while others can persist and remain active for months. Selecting a pesticide that offers a short period of control or more long-term protection will depend on the particular pest situation. For any pesticide, it is important to read the re-entry (REI) and harvest (PHI) restrictions printed on the label to avoid entering a treated area or harvesting a treated crop too soon after application.

Effectiveness. A pesticide product must effectively control the target pest, or it will be a waste of both time and money to apply. Unfortunately, determining a product's effectiveness is not always straightforward. Effectiveness can vary depending on a number of factors related to the chemical itself and its application. For example, is the pest that needs to be controlled listed on the label? Does the pesticide need to be applied before the pest is apparent (as a preventative), or can it be used once the pest has already established (as a curative)? Will the pesticide be applied when the susceptible life/growth stage of the pest is present? Will the pesticide spray be applied in a way that ensures proper coverage or foliage penetration to reach the pest? Is the spray water at an optimal pH (most pesticides require a slightly acidic pH) to maintain stability of the chemical and prevent premature breakdown?

Cost. Although an important consideration when selecting a pesticide, cost is not necessarily as straightforward as looking at a product's unit price (cost per pound, quart, or other unit of weight or volume). Many newer pesticides are formulated to be used at lower rates, and thus may be packaged in smaller containers. These products may seem more

expensive at first glance, but application rates can be several times less than another product packaged in a larger container. In addition, some ready-to-use products may be more expensive than concentrated products, but provide a savings in time and the need for certain mixing and application equipment.

Pesticide Spills: Prevention and Management

Stephanie Blevins Wycoff – Extension Associate

Spilling a pesticide, whether it is a small or large amount, is not an ideal situation and can be difficult to clean up. A pesticide spill presents hazards to you and other people, animals, and the environment. Precautionary measures can be taken to minimize the risk of pesticide spills, and if a spill occurs, there are procedures for its management.

Spill Prevention

Safe and careful handling of pesticides will prevent most spills. Handling includes the use (mixing, loading, and applying), storage, and disposal of a pesticide product or its container. Anytime you engage in pesticide handling, there is risk of an accidental spill. However, there are several ways to minimize this risk while handling pesticides:

- Use (mixing, loading, and applying) – Be especially careful when mixing and loading pesticides to avoid spilling pesticides on yourself or the surrounding area. Make sure pesticide containers are placed on flat, stable surfaces to prevent the container from tipping and spilling after being opened. Also, be sure to close pesticide containers tightly after each use to prevent spills. Before applying pesticides, check to make sure your application equipment is intact and in proper working order to prevent leaks or spills. Always wear the proper personal protective equipment (PPE) recommended by the label when using pesticides!
- Storage – Keep pesticides out of the reach of children, pets, and other animals. Store pesticides in their original containers with labels intact. Take an inventory of all pesticides in your storage area, and check containers for cracks, tears, or leaks. Do not stockpile pesticide products. Make sure your storage is temperature controlled and not

- Disposal – Do not keep more pesticide products on hand than you can use in a season (which can lead to disposal issues). Do not leave empty pesticide containers unattended. Read the label instructions for disposal of excess pesticides or containers. In Virginia, the Department of Agriculture and Consumer Services, Office of Pesticide Services (VDACS-OPS) offers pesticide collection (vdacs.virginia.gov/pesticide-collection.shtml) and container recycling programs (vdacs.virginia.gov/pesticide-container-recycling.shtml).

Safe and careful transportation of pesticides can also help prevent spills. Be sure pesticide containers are intact (no leaks or cracks) before transporting them. Never transport pesticides in the passenger area of your vehicle (a truck bed with siderails and a tail rack is ideal). Also, do not transport food or feed while transporting pesticides, and be sure your vehicle is secure at all times.

Spill Management

If a spill occurs, there are several steps you can take to manage the situation. Pesticide spills require immediate attention. Do not leave a pesticide spill unattended as this increases the likelihood that it may harm people, animals, or the environment. Remember to remain calm, and seek help if you cannot clean up the spill yourself. The following steps, also known as the three C's (Control, Contain, and Clean up), will help you during a spill emergency.

Step 1: Control the Spill

Managing a pesticide spill requires swift action. There are four ways to take control of a spill:

- Protect yourself – Make sure you are wearing the proper PPE listed on the pesticide label before coming in contact with the spill. If you are unsure of the proper PPE or the chemical that has been spilled, do not risk your safety. Take extra precautions, and wear additional PPE.
- Stop the source of the spill – If a container or bag has tipped over, set it upright or position it so no more material can escape.
- Protect others and secure the area – Keep animals and people away from the spill by isolating or barricading the area.

Step 2: Contain the spill

After the source of the spill is controlled, confine the spill to the smallest area possible. Make sure the material does not get into any bodies of water or drains (all spills that may endanger people or the environment must be reported to VDACS-OPS). Liquids can be contained with sand, pet litter, or other absorbent materials. Dry materials should be covered with plastic to prevent them from becoming airborne.

Step 3: Clean Up the Spill

Sweep up any absorbent material used to soak up the liquids, and place it into a heavy-duty plastic bag or container (fig. 1). If the spilled material is a dry pesticide, such as a powder or granule, try to sweep up the material for later use. However, if the dry spill gets wet or has too much debris, it must be discarded. Place the dry material into a heavy-duty plastic bag or container as you would liquid material. Take these materials to a licensed hazardous waste facility.



Figure 1. An example of spill clean up. Pet litter has been spread over a liquid spill and is being swept up for disposal.

Cleaning the Spill Site

Decontaminate the spill site once you have thoroughly swept up the spilled pesticide. This does not mean to hose down the site with water. Instead, if the site where the pesticide was spilled is nonporous, such as sealed concrete, use detergent and just enough water to remove the pesticide residues. Do not allow the wash solution to run off. Cover the wash solution with absorbent material, sweep up the material, and place it in your heavy-duty bag or container. If the site where the pesticide was spilled is porous, such as soil, remove the contaminated surface area, and dispose

of it in your heavy-duty bag or container. Always remember to read the label of any pesticide you purchase to see if it offers any information on spill management.

It is also important to decontaminate any equipment or items that were contaminated by the spill. Use laundry detergent and hot water to clean PPE. Some items, such as the cleanup broom or any clothing, may need to be discarded if they were fully saturated. When finished, decontaminate yourself. Wash thoroughly with soap and water from head to toe!

When to Report a Pesticide Spill

Depending on the nature of the pesticide spill, some spills can be handled without additional assistance, and some may require further assistance from local and state officials. If a pesticide spill endangers any person, the general public, or the environment, you should call for help. In this case, you will also be required to report the spill to VDACS-OPS within 48 hours by calling (804) 371-6560. Within 10 days, you must also send a written report to VDACS-OPS via mail:

Field Operations
Office of Pesticide Services
Virginia Department of Agriculture and Consumer Services
P.O. Box 1163
Richmond, VA 23218

Your report must include: the name(s) of the individual(s) involved in the incident; name(s) of the pesticide(s) involved; quantity of pesticide spilled and containment procedures; time, date, and location of the incident; cleanup actions taken; and name and location of nearby water bodies that might have been contaminated during the incident. VDACS-OPS will also help you determine if further action is needed.

DIY Spill Kit

Keep items on hand for pesticide spill situations in a "spill kit." A spill kit includes articles such as a cell phone, emergency contacts, PPE (chemical resistant gloves, goggles, Tyvek suit, etc.), absorbent materials like pet litter, a broom and dustpan, detergent, and heavy-duty plastic bags or containers. Conveniently, most of these supplies can be easily stored in a

five-gallon bucket, which is also a helpful item to have in case of a spill. For further information on prevention and management of pesticide spills, please refer to:

- Pesticide Environmental Stewardship – pesticidestewardship.org/spills/.

Blast From the Past

Stephanie Blevins Wycoff – Extension Associate

Willson Rubber Goggles

The photo below (fig. 2) shows a pair of Willson Rubber Goggles, which were marketed to protect pesticide applicators and others working with chemicals in the early 1900s. It was recognized very early that protection was needed to shield the eyes from chemical exposure. The goggles were manufactured by Thomas A. Willson & Co., which was founded in 1871 in Reading, Pennsylvania. The company manufactured goggles and safety glasses for other professions as well, including factory workers, coal miners, aviators, and military personnel. T. A. Willson & Co. manufactured eyewear and other PPE until the late 1980s when the company was sold.

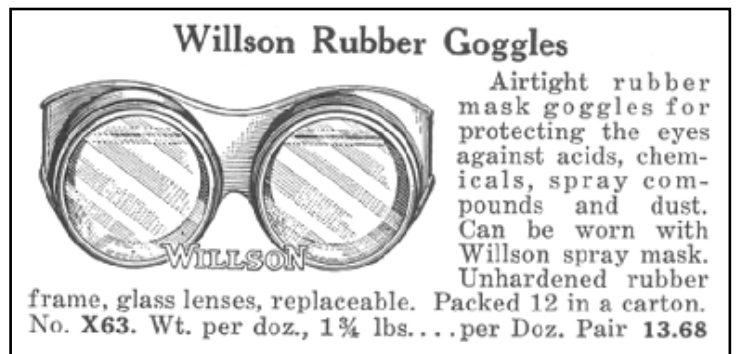


Figure 2. An advertisement for Willson Rubber Goggles in the early 1900s.

Program Updates

VTPP Updates

Online Private Recertification Courses Still Available
VTPP will continue to host our online PAR course until midnight on February 28, 2022. There is a \$10 fee for this self-paced online recertification course that provides full credit for Categories 90 and 91. Share this

registration link with any applicator(s) who may be interested in this option: tinyurl.com/2021-VCE-PAR-Training.

Contact VTPP's Jackie Brown at jbrown06@vt.edu with any questions.

VDACS Updates

It has been a long time coming, but we are moving our services online! VDACS online services actually began in October 2021 with the option to submit new and renewal applications for pesticide product registration and will continue in 2022 with the addition of both online pesticide applicator certification, and pesticide business licensing.

While use of the system will remain optional, the numerous benefits offered by the online system include:

- Reduction in overall time between submission and receipt of the submission in the Office of Pesticide Services (OPS). Since everything is done electronically, there is no need to mail a submission which can add days to the overall process!
- Communications between the user and OPS will also be electronic, including the issuance of authorizations to take the applicator exam(s) and pesticide applicator certificates. These will be sent to the user electronically to be downloaded and printed by the user. This will further reduce the overall time for prospective applicators, as there will be no need for us to mail these items!
- Ability to pay online using a credit card or ACH transaction. No more writing a check or getting a money order! Also, the system will automatically calculate the fees associated with the transaction thus reducing issues with under or over payment which can add time to the overall process!
- Assurance the applicant is submitting all the required information. The online system's validation rules will help ensure that the applicants has all of their i's dotted and t's crossed. Missing information can cause delays in processing!
- Fees remain the same, and there are no service or convenience fees to utilize the online services. Apart from the required application fees, use of the system is FREE!

As with paper applications, all electronic submissions are required to be reviewed by OPS staff to determine if the prospective applicator has met all the requirements before the issuance of their documents (e.g., a letter of authorization to test) or credentials (e.g., a certificate) can be issued.

VDACS and OPS staff are currently working on final preparations for the 2022 releases. Once complete, online services will go live one at a time starting with pesticide applicator certification followed by pesticide business licensing. Once the specific service is available, we intend to distribute additional information broadly through our website, notifications to stakeholder groups, and upcoming events including recertification courses. Information will also be included in correspondence directly to the industry.

In addition to our online services, OPS is considering the feasibility of adding a remote testing option to its current applicator testing options (which includes computerized testing at Department of Motor Vehicles Customer Services Centers and in person testing with Pesticide Investigators, Virginia Cooperative Extension, and other select events). With remote testing, prospective applicators would be given the option to utilize a secure online testing environment that is limited to authorized users only. This would allow users access to testing opportunities from any location and at any time. This type of testing, which would be provided by a third party with a convenience fee paid by the prospective applicator, has the flexibility to address security issues regarding examinations and allows maximum flexibility for pesticide businesses and prospective applicators for testing. Online testing is not new and has been widely used in academia. It is expanding and is currently being used by a number of other state pesticide regulatory agencies for applicator certification testing. Should VDACS decide to seek to add this options, a request for proposal will be issued. Stay tuned for more information!

As always, for the most current information, please visit: www.vdacs.virginia.gov/pesticides.shtml.

Questions can be sent to opsclrt.vdacs@vdacs.virginia.gov.

NATIONAL PESTICIDE SAFETY EDUCATION MONTH

Celebrate National Pesticide Safety Education Month during February!

Organized by the National Stakeholder Team for Pesticide Safety Education Program Funding, this month-long awareness campaign aims to reinforce safe pesticide use with a wide variety of audiences.

DID YOU KNOW?*

- There are about 1 million certified pesticide applicators in the U.S.
- 11,000-15,000 pesticide products are registered for use in each state.
- Common consumer products that contain pesticides include flea collars, ant and roach traps, and some lawn care products like weed and feed.
- Pesticide Safety Education Programs (PSEPs) are housed at land-grant universities.

**Facts provided by National Stakeholder Team for PSEP Funding*

> Visit vtp.org for more information and resources
> [5th Annual NPSE Month - Pesticide Stewardship](#)