VTPP Quarterly

A Newsletter From Virginia Tech Pesticide Programs

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Proper Pesticide Storage and Disposal

Kathleen Miller – Extension Associate

As harvest season comes to a close, it's a great opportunity to assess your pesticide storage situation and determine if any pesticides or their containers must be disposed of.

Pesticide Storage

An effective pesticide storage site should protect people, animals, and the environment from accidental pesticide exposure or contamination. Larger agricultural operations requiring substantial pesticide storage should consider establishing a separate building designated solely for this purpose. Smaller agricultural or household operations can safely store pesticides in a secure area, such as a locked cabinet. Make sure the storage site has adequate lighting so you can detect spills or leaks and read pesticide labels clearly.

A proper pesticide storage site also protects the pesticides from environmental threats, such as temperature extremes or water damage. Pesticide containers can crack during extreme temperature changes, potentially causing accidental spills. Temperature extremes can also reduce the efficacy of the pesticides in storage. An ideal pesticide storage site should be well-ventilated, and insulated or temperature controlled. To prevent water damage, the storage site should be located in an area not prone to flooding. Use pallets, shelves, and secondary containment to keep pesticides off the ground and away from water if flooding occurs. In addition, pesticide storage sites should be situated away from waterways and wells to minimize the risk of

contaminating water sources.

Ensure that your storage site is secure and well-marked. Whether it is a cabinet or a designated storage building, the site should be locked to prevent theft and accidental exposure. Clearly post warning signs indicating that pesticides are being stored in the area (fig. 1). All pesticide containers within the storage site must also be clearly labeled. Whenever possible, use the original pesticide container and label. If the original container or label is destroyed, label the new container with at least the following information:

1. Product or brand name.
2. EPA registration number.
3. Name and percentage of active ingredient.
4. Signal word.

Figure 1. Clearly marked pesticide storage area.

Pesticide Disposal

While surveying your pesticide storage site, create a detailed inventory of your products and keep it regularly updated. If you come across waste items, such as unusable pesticides, rinsates, or pesticide containers, store them in a separate section of the site to prevent accidental use. Excess pesticides and waste products can accumulate easily. To avoid large amounts of waste, purchase only the amount of pesticide needed for the year or season, and carefully calculate the amount of diluted pesticide needed for the specific application. Additionally, do not keep pesticide rinsates. Rinse pesticide containers immediately after emptying them. Rather than collecting the rinsates, incorporate them into your overall tank mix and apply them to the target area. This reduces waste and minimizes the amount you need to dispose of.

If you find unusable excess pesticides or rinsates, always dispose of them as wastes. Never pour pesticides or rinsates down the drain. Refer to the pesticide product label for specific disposal instructions. In some areas, you may be able to dispose of pesticide wastes at a landfill permitted for hazardous materials. If such a landfill is not available in your area, consider participating in the Virginia Department of Agriculture and Consumer Services (VDACS) Pesticide Collection Program. This program is held annually, rotating through one of five regions in Virginia each year. To participate, you must transport any pesticide wastes to a designated collection site. Participants are also encouraged to complete a pesticide collection registration form prior to the collection event. If immediate disposal is not possible, safely store the pesticide waste in a designated "pesticide wastes" area and ensure it is properly labeled. For more information on the VDACS pesticide collection program, visit www.vdacs.virginia.gov/pesticide-collection.shtml.

Advice for Winterizing Spray Equipment

Stephanie Blevins Wycoff – Extension Associate

During colder months, questions often arise on how to store pesticide application equipment. Unless you take the right winterization steps, freezing temperatures can damage spray equipment, especially when water is not purged from the system. In Virginia, the climate can vary greatly among our different geographic regions. This can lead to unpredictable weather and drastic temperature swings. It is better to prepare for these everchanging conditions than risk damaging expensive spray equipment.

What Does It Mean to Winterize?

In terms of spray equipment, winterizing means to remove water. Leaving water in a sprayer during freezing conditions can damage critical components. As the water freezes, it expands and creates pressure which can crack parts like the pump, hoses, and nozzles (fig. 2). Water can also cause other damage when left in sprayers for long periods, like rust on strainers in nozzle bodies (fig. 3). Removing as much

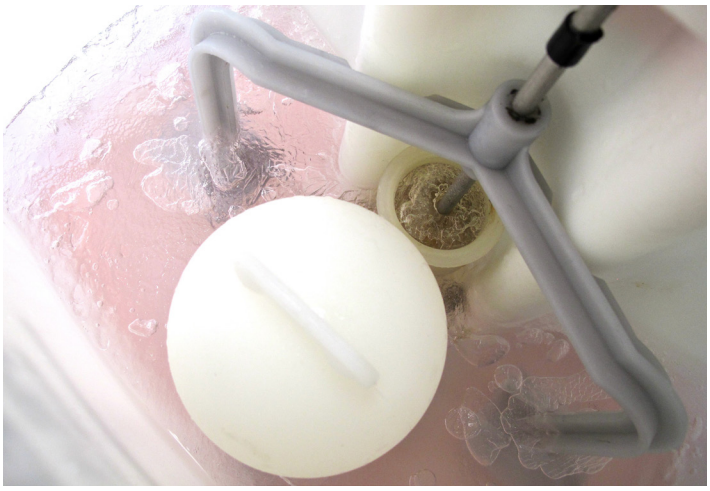


Figure 2. Frozen water inside the tank of a backpack sprayer.

Figure 3. A nozzle strainer that has been damaged over time from constant contact with water.

water from the system as possible will decrease the chance of freeze or other water damage.

Steps to Winterizing

There are four main steps when winterizing spray equipment:

1. Wear appropriate personal protective equipment (PPE).
2. Clean the sprayer to remove pesticide residues.
3. Empty as much water from the system as possible.
4. Safeguard the sprayer by adding antifreeze.

Let's take a quick dive into each step.

Step 1. Wear Appropriate PPE

As always, make sure you wear PPE to protect yourself from splashes while cleaning pesticide application equipment. Read the pesticide label to determine the appropriate PPE to use. Chemical-resistant gloves, eyewear, and an apron are important items to use even if they are not listed on the label.

Step 2. Clean the Sprayer to Remove Pesticide Residues

This step should happen not only before winterizing, but between spray applications throughout the season. Regular cleaning of a sprayer ensures optimal performance and helps preserve its critical components over time. Use clean water to rinse out the sprayer and refer to the pesticide product label to see if cleaning agents are recommended. The rinsate should either be diluted and sprayed on an intended application site listed on the pesticide label, or collected and disposed of as hazardous waste. Ideally, the nozzles, screens, and strainers should be removed and cleaned separately.

Step 3. Empty as Much Water From the System as Possible

Once the system is clean, you must remove the water. It can be difficult to empty every drop of water from the system, but try to remove as much as possible. Let the pump run to push water out of the tank. Then open all valves and let water continue to drain. Remove any strainers and nozzle bodies as well. Check the owner's manual of the sprayer system for special instructions on protecting the pump.

Step 4. Safeguard Your Sprayer by Adding a Winterizing Agent

Even after draining the system, some small amounts of water could remain. Adding a winterizing agent like antifreeze to the sprayer can prevent any remaining water from freezing. Generally, RV antifreeze (propylene glycol) is recommended because it does not damage rubber and plastic parts, is considered relatively non-toxic, and protects against freezing even in extremely cold temperatures.

Always consult the owner's manual of the sprayer for specific recommendations on appropriate winterizing agents. If a winterizing agent like RV antifreeze is listed, pour the recommended amount into the spray tank. Turn on the system and allow the antifreeze to circulate between the tank and the pump. Then open and close all valves to allow antifreeze to flow through all areas of the sprayer. At first, liquid flowing out of the spray gun or nozzles (boom or boomless)

will be a light color as remaining water is pushed out of the system. When you begin to see the bright color of the antifreeze liquid, you will know the antifreeze has thoroughly moved through the system and the sprayer is winterized. Always record the amount of antifreeze you use to winterize the system (if not listed in the sprayer owner's manual) so you will know how much you will need in the future.

De-Winterizing in the Spring

When preparing to use the sprayer again in the spring, you must decide what to do with the antifreeze in the system. One option is to dispose of the antifreeze. Collect as much antifreeze from the system as possible and take it to a licensed facility for disposal. Another option is to collect and reuse the antifreeze the following year. Keep in mind, this method may not work long term since the antifreeze will eventually become diluted and less stable.

Conclusion

Winterizing your spray equipment may seem like a daunting task. However, this extra step can save time and money in the spring and keep you from having to replace critical sprayer components. For further information, please consult the following source:

- Preparing Spray Equipment for Winter Storage and Spring Startup – Purdue Pesticide Programs: https://ag.purdue.edu/department/extension/ppp/ppp-publications/ppp-121.pdf.

Blast From the Past

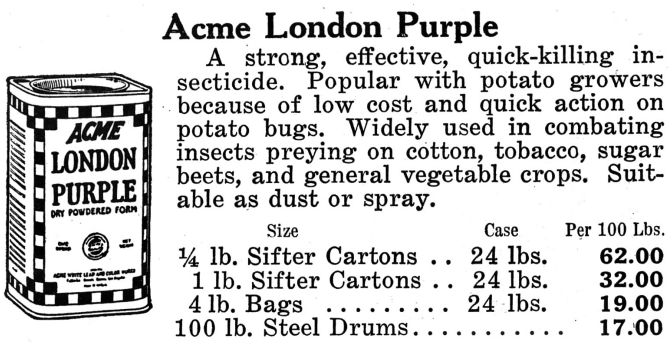
Stephanie Blevins Wycoff – Extension Associate

London Purple Insecticide

London Purple (figs. 4 and 5) was used as an insecticide in the late 1800s to early 1900s. This chemical was once a byproduct of dye production, and it was later tested to control certain pests. The European company Hemingway's London Purple Company, Ltd. of London, England trademarked London Purple for its insecticidal properties in 1878. This company was the predecessor to Hemingway & Company, Inc. of Bound Brook, New Jersey which trademarked London Purple for U.S. markets in the early 1900s. It was manufactured and sold in the U.S. for many years and marketed as "poison for the potato bug, cotton worm, and canker worm" (fig. 6).

Figure 4. London Purple container (front view), circa 1904.

Figure 5. London Purple container (back view), circa 1904.



Acme London Purple

A strong, effective, quick-killing insecticide. Popular with potato growers because of low cost and quick action on potato bugs. Widely used in combating insects preying on cotton, tobacco, sugar beets, and general vegetable crops. Suitable as dust or spray.

Size	Case	Per 100 Lbs.
¼ lb. Sifter Cartons ..	24 lbs.	62.00
1 lb. Sifter Cartons ..	24 lbs.	32.00
4 lb. Bags	24 lbs.	19.00
100 lb. Steel Drums.....		17.00

Figure 6. An advertisement for London Purple, circa early 1900s.

The label on this container states that it contained 70% active ingredients of calcium arsenate and calcium arsenite. It was sold as a dry powder and was bright purple in color. London purple could be mixed with water and applied as a spray application, or it could be applied as a dry application. As an arsenical pesticide, it was known that London Purple was quite toxic. However, it continued to be used until the early 1940s and was phased out with the discovery of DDT.

References

Roark, R. C. (1942). What Is London Purple? *Journal of Economic Entomology*, 35 (2), 287-288.

Program Updates

VTPP Updates

Private Applicator Recertification Course Approval

As the private applicator recertification (PAR) season approaches, review the reminders below about how to plan and host a successful PAR course.

Before the Course

- Plan out your course. The course length should be a MINIMUM of 2.5 hours. Course content must include three components, each with a minimum of 45 minutes of instruction.
  - Legal Update. Contact a Pesticide Investigator in advance to deliver the Legal Update.
  - Pest Management and Application Technology.
  - Pesticide Safety. DO NOT DOUBLE COUNT CONTENT – mentioning safety during the Legal Update or a Pest Management and Application Technology talk does not count. You need to have 45 minutes dedicated to the topic of pesticide safety.
- Secure a location(s) and date(s) for your course and confirm with guest speakers and the investigator(s). Submit a PAR Course Credit Request form using the QR code or link in figure 7. You can bypass much of the form if you upload an agenda or brochure for your course! If you have not heard back from Rachel Parson within one week of submitting the form, contact Rachel Parson and Jackie Brown (rparson@vt.edu, jbrown06@vt.edu).
- Print copies of the Course Roster, Application for Recertification Credit, Course Evaluation, and Applicator Change of Information form. Be sure to have more than enough copies for your estimated attendance. DO NOT USE OLD PAPERWORK FROM PREVIOUS YEARS. Print on light-colored paper.

Figure 7. PAR Course Credit Request form: https://vce.az1.qualtrics.com/jfe/form/SV_3TL5I8GSkowSFls.

Day of the Course

- Bring black ink pens to give to the attendees when they fill out any course paperwork.
- At the start of the course, have attendees fill out the Course Roster.
- At the end of the course, have each attendee fill out an Application for Recertification Credit, Course Evaluation, and, if needed, an Applicator Change of Information form. Make sure they include their signature on the credit application and change of information forms.

After the Course

- Organize the Applications for Recertification Credit in the order that attendees signed the Course Roster. Double check that each form has been filled out and signed. If an applicator attended the entire recertification but did not sign in, you can write their name on the Course Roster. Cross out the name(s) of anyone who left early (do NOT use white out). If an Application for Recertification Credit form or signature is missing, contact the applicator to obtain the completed document. You may NOT sign the application form for them. Their friends, family, or coworkers may NOT sign for them either.
- Make a copy of the Course Roster, Applications for Recertification Credit, and any Applicator Change of Information forms for your records.

- Mail the original Course Roster, Applications for Recertification Credit, and Course Evaluations to: Rachel Parson, 302 Agnew Hall, 460 West Campus Dr., Blacksburg, VA 24061.
- Email Rachel Parson and Jackie Brown or call the VTPP office (540-250-6543) to let us know the forms are in the mail. Do not staple the originals together.
- Mail the original Applicator Change of Information forms to: VDACS-OPS, P.O. Box 1163, Richmond, VA 23218.

2024-25 Online Course for Private Applicator Recertification

For the 2024-25 private applicator recertification season, VTPP will be managing a PAR online course for interested Virginia private pesticide applicators. The 2024-25 PAR online course will give private pesticide applicators full credit in Categories 90 and 91 if completed. Each user enrolling in the course must have their own unique email address. Recertification credits can only be provided to a single individual registered under that email address (only one registrant per email address). Access to the course will be given through an emailed VCE Canvas guest account invitation following registration and confirmation of enrollment. The PAR online course enrollment information is as follows:

- Link: tinyurl.com/VCE-VTPP-PAR-90-91 (same as last year).
- Email Jackie Brown if you would like a QR code for the enrollment link.
- Title: VTPP-PAR-01-2024/2025 Online Private Pesticide Applicator Recertification.
- Cost: $30.
- Enrollment period: Oct. 1, 2024 - Feb. 26, 2025.
- Deadline to complete the course: Feb. 28, 2025.

Applicators with certificates that expire on Dec. 31, 2024, must retest if they do not complete a recertification course before March 1, 2025. No extensions will be given. The public can find the registration information at register.ext.vt.edu/ by searching under “Programs,” and then under “Agriculture” or “Natural Resources” or by using specific keywords (e.g., pesticide, applicator, private, recertification, PAR, private applicator, VTPP, Category 90, or Category 91). For guest account issues, please contact the VCE helpline (vceprograms@mail.ext.vt.edu). For questions about course content, please contact Rachel Parson or Jackie Brown.

Note for Spanish speakers: The 2024-25 Online Private Applicator Recertification Course provides the option for Spanish language General Safety and Pest Management & Application Technology content.

2024-25 Correspondence Course for Private Applicator Recertification

New for 2024-25, VTPP will make available to VCE agents a PAR correspondence course for distribution to interested Virginia private pesticide applicators. The course contents include reading materials, a quiz, evaluation, roster, and recertification application. Private pesticide applicators will receive full credit in Categories 90 and 91 if they complete the course before Feb. 28, 2025. For agent instructions or additional questions about the course, please contact Rachel Parson.