It is estimated that every year 1 million plastic agricultural pesticide containers are used in Nebraska. Effective rinsing of these containers saves money, protects the environment, and meets federal and state regulations for pesticide use.

Proper rinsing of pesticide containers is easy, saves money, and contributes to good environmental stewardship. Rinsing containers when preparing spray solutions prevents potential problems with unrinsed containers, storing rinse solution (rinsate), and generating hazardous waste. Even during a busy season, the few extra minutes it takes to properly rinse empty pesticide containers is time well spent. For example:

- Rinsing pesticide containers efficiently and economically uses all the pesticide that you purchased. When the rinsate is added immediately to the load and sprayed on a labeled site, you eliminate the need to store and later dispose of it.
- Rinsing pesticide containers immediately after emptying easily removes leftover concentrate. If the container is not rinsed immediately, remaining pesticide mixtures may dry inside the container and be difficult to remove.
- Rinsing containers removes potential pesticide exposures to people, wildlife, and the environment.
- Proper rinsing is required by federal regulations and is a sound management and environmental practice.

Rinsing Saves Money

It is very easy to leave 6 ounces or more of pesticide product in a 2.5-gallon container. That is about 2 percent of the container’s capacity. If you do not rinse, you either apply 2 percent less product, which can affect performance of the pesticide, or incur 2 percent more cost for the application. Neither option is good.

Delayed rinsing of used pesticide containers means more difficulty removing product from the containers. More difficulty means more time is required, and time is money. Removing pesticide product from containers that were not rinsed immediately may also require additional cleaning agents. These added chemicals are costly and some may even cause injury if applied to the target site.

Rinsing Helps Protect the Environment

Properly rinsing pesticide containers reduces the risk of contaminating soil, surface water, and groundwater. Contamination harms plants and animals and affects water supplies. Preventing environmental contamination is always better and less expensive than cleanup.

Rinsing is NOT Optional

Federal regulations require the rinsing of liquid pesticide containers. Violation of these regulations is punishable by criminal and/or civil penalties. When an empty container is recycled, or disposed of according to label directions, it must be properly rinsed. Approved pesticide container recyclers can accept only properly rinsed containers. Some landfill operations may not accept any pesticide containers, rinsed or unrinsed.

Types of Pesticide Containers

The most common agricultural pesticide containers are plastic drums in 15-, 30-, and 55-gallon sizes, and portable refillable containers (minibulks, shuttles, totes, etc.), which are usually larger than drums. The 2.5-gallon plastic containers also remain popular. Portable refillable containers
are intended to be returned and reused by the supplier. Applicators returning these containers are not required to rinse them. Instead, it is the supplier’s responsibility to rinse the containers. If the supplier intends to refill the container with the exact same formulation as it held previously, they may choose not to rinse. Granular and dust insecticides are sold in waxed-paper bags or other water-resistant containers. Nearly all pesticide products used on animals and in households are sold in plastic containers.

Plastic drums and 2.5-gallon containers may be recycled after the pesticide materials have been removed by rinsing. Properly rinsing plastic pesticide drums and containers removes more than 99 percent of any pesticide residue after they have been emptied. Two commonly used procedures are effective for rinsing pesticide containers: triple-rinsing and pressure-rinsing.

**Triple-Rinsing**

Triple-rinsing means rinsing the container three times. This method can be used with all plastic containers.

**How to Triple-Rinse**

**2.5-Gallon Containers (Figure 1)**

1. Wear the same personal protective equipment (PPE) while rinsing containers as the pesticide label requires for handling and mixing.
2. Remove the cap from the pesticide container. Empty all pesticide into the spray tank, allowing the container to drain for 30 seconds. Begin rinsing immediately or the product may be difficult to remove. If you are unable to rinse the container immediately, replace the cap until you can.
3. Fill the container 10 percent to 20 percent full of water or rinse solution (i.e., fertilizer solution).
4. Replace the cap on the container.
5. Swirl the liquid within the container to rinse all inside surfaces.
6. Remove the cap from the container. Pour the rinsate from the pesticide container into the spray tank and allow it to drain for 30 seconds or more.
7. Repeat steps 3 through 6 **two more times**.
8. Puncture or crush the container so it cannot be reused. Keep any puncturing or crushing tools with the pesti-

![Figure 1. Triple-rinsing procedure for plastic pesticide containers. Used with permission from Fred Wrightford, Purdue University. Scott Dallas and John Metzinger, illustrators.](image)
icides. Never use these tools anywhere else, especially in the kitchen or household.

9. Replace the cap and dispose of the pesticide container according to label directions.

10. If recycling, remember that caps and containers are made from different materials; therefore, caps cannot be recycled. Ensure that caps are clean before disposal as regular solid waste.

**How to Triple-Rinse Drums**

First, reread the procedures for triple-rinsing containers because they contain important information not listed here. Triple-rinsing a drum may require two people.

1. Empty the drum as much as possible.
2. Fill the drum with water to 25 percent of capacity. Replace and tighten bungs (plugs) to seal the drum.
3. Tip the drum on its side. Roll it back and forth for 30 seconds, ensuring at least one complete revolution.
4. Stand the drum on end and tip it back and forth several times to rinse the inner edging.
5. Turn the drum over, onto its other end, and repeat this procedure.
6. Carefully empty the rinsate into the spray tank.
7. Repeat steps 2 through 6 **two more times**.
8. Carefully rinse the bung(s) over the spray tank opening and then dispose of as regular solid waste.
9. Puncture the base of the drum with a drill so that it cannot be reused. Keep a drill bit with the pesticides for this purpose and this purpose only.
10. Store rinsed drums under cover where they will be protected from rain.

**Pressure-Rinsing**

Use a pressure rinser with an anti-siphon device to flush the remaining pesticide from the container. Use a special nozzle with a spear-point generally available from your pesticide supplier or other sources. Attach it to the end of a water hose and force water under pressure into the pesticide container. Pressure-rinsing is faster and easier than triple-rinsing and can be used most effectively with plastic 2.5-gallon pesticide containers.

1. Wear the same PPE while rinsing containers as required on the pesticide label for handling and mixing.
2. Remove the cap from the pesticide container. Empty all pesticide into the spray tank. Turn the container so that any product in the handle flows out. Allow the container to drain for 30 seconds. Begin the rinsing procedure immediately or the product may be difficult to remove. If you are unable to rinse the container immediately, replace the cap until you are able to rinse the container.
3. Insert the pressure-rinsing nozzle, which should be equipped with a flow control, by puncturing a hole through the lower side of the pesticide container.
4. Hold the pesticide container upside down over the spray tank opening, turn on the flow of water, and allow the rinsate to run into the spray tank.
5. Rinse for the length of time recommended by the manufacturer (usually 30 seconds or more). Rotate or rock the nozzle to rinse all inside surfaces.
6. Rinse the cap separately in a bucket of water and pour this rinse water into the spray tank.
7. Replace the cap and dispose of the pesticide container according to label directions.
8. If recycling, remember that caps and containers are made from different materials; therefore, caps cannot
be recycled. Dispose of cleaned caps as regular solid waste.

Storing Empty Pesticide Containers

- Unrinsed empty pesticide containers should be stored in the same way as containers with pesticides still in them. Replace the cap and store unrinsed containers upright in a roofed or covered and secure (locked) structure over an impervious surface.
- Pressure-rinsing creates a hole in the container. Store pressure-rinsed containers indoors to prevent water, rain, or snow from entering the containers. Remove the caps to allow the containers to completely dry out during storage.
- Triple-rinsed containers should be stored outside only if you replace the cap. Triple-rinsed and capped containers do not need to be stored on impervious surfaces.
- When you are ready to offer rinsed, empty pesticide containers for recycling, remove the caps (they cannot be recycled) and any labels, plastic sleeves, or wrappers attached to the container. Dispose of these materials in an approved landfill.

Container Recycling

Recycling clean agricultural pesticide containers protects Nebraska's environment. Several locations in Nebraska accept rinsed plastic agricultural pesticide containers for recycling. All containers are thoroughly inspected before acceptance.

Any pesticide container with pesticide residue that can be rubbed off with a neoprene- or nitrile-gloved hand will be rejected. Properly rinsed containers that are stained will be accepted. Do not include pesticide containers in household or curbside recycling programs. Check with your Nebraska Extension educator, other local officials, or http://pested.unl.edu/recycling to determine the locations and availability of plastic pesticide container recycling sites in Nebraska.

Remember

- Read and follow all pesticide label directions. Federal regulations require rinsing of liquid pesticide containers.
- **Never** dispose of rinsate on a site the pesticide product label doesn't allow. Instead, use the rinsate generated by triple- or pressure-rinsing pesticide containers as part of your spray mixture. Do not exceed labeled application rates.
- Store pesticides only in their original, labeled containers. Never reuse a pesticide container for any purpose. Never use other containers (e.g., soda bottles) to store pesticides. Children, as well as adults, have died from drinking these, thinking they were food beverages.
- Wear appropriate PPE as required by the label.
- Always use an anti-siphon or backflow prevention device when filling spray tanks or rinsing pesticide containers.
- Mixing and loading sites should be at least 150 feet away from all wells. Review pesticide labels. Be aware of requirements for specific setbacks from wells regardless of whether the well is active or not.

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