

# Safe Handling of Pesticides

*Paul E. Sumner*

Whether you are a farmer or commercial applicator, proper transportation and storage are important aspects of safe pesticide use.

## Transportation

Pesticides should never be transported inside the passenger compartment of an automobile or truck cab; put them in the trunk or in the back of the truck. Never transport pesticides where they could come in contact with groceries, livestock feed or other products which might become contaminated. A vehicle carrying more than 1,000 pounds of material classed as a "Hazardous Material" must have a placard attached to it.

When transporting pesticides in a truck, see that they are secured to prevent spillage or loss due to sudden starts, stops, turns, etc. Should there be an accident or spill, immediately inform the local police and fire officials of the quantity and name of the pesticide involved. Large spills, particularly of "Restricted Use Pesticides," should be reported to the Georgia Department of Natural Resources, Environmental Protection Division (EPD) (1-404-656-4300), CHEMTREC (1-800-424-9300) and/or the manufacturer.

Applicators of pesticides, particularly in heavily populated areas, must take special precautions to secure products, transported to the application site. Allowing containers of pesticides to remain unattended on the back of an open truck is inviting an accident -- and a costly lawsuit.

Commercial transporters of pesticides must meet special requirements: vehicles must carry placards, bills of lading, labels of the product, etc. Consult the Georgia Department of Transportation regarding these requirements.

## Storage

Nearly three-fourths of all pesticide accidents involve nonusers of the materials. Many of these involve children. In addition, each year there are several cases of livestock and pet poisonings from contact with improperly stored pesticides. These accidents not only cause human suffering and economic losses, but improper storage is contrary to federal regulations. **READ THE LABEL: IT IS THE LAW.**

Whether you are a homeowner, producer or applicator of pesticide, there are basic safe storage rules to follow:

- Keep pesticides, other poisons, and related materials locked in a cabinet, room or separate building designated solely for the storage of these materials. Metal storage cabinets, such as discarded school lockers, provide excellent storage for homeowners or other users of small amounts of pesticides.
- Post the facilities with a sign: "PESTICIDES - POISONS, KEEP OUT," or similar signs.
- Control access to this facility to highly trusted, responsible and informed individuals.
- Never store pesticides where food, feed, seed, fertilizers or other products can become contaminated.
- Store pesticides in their original containers. It is the law.
- The facility should be reasonably fireproof and well ventilated. Temperatures should be kept between freezing and 100 degrees F.
- Sealed concrete floors, concrete block wall and metal shelves are recommended over wooden structures.
- With shelf storage, store dry pesticides on the top shelves, liquids on the lower shelves.
- Electrical fixtures should be of the dust- and explosion-proof type.
- Provide adequate space for the secure storage of empty pesticide containers until proper disposal.

## **Mixing and Loading**

Mixing and loading pesticides are among the most dangerous tasks involving work with these products, because it is at this time that people are working with open containers of concentrated pesticides.

For this reason, individuals employed to perform this activity should be well-informed of the dangers involved and work under the supervision of a properly certified, licensed applicator whenever handling "Restricted-Use Pesticides."

Mixing and loading should never be done without a full understanding of the pesticide label and with the use of all recommended personal protective equipment. The label will identify the dangers involved and the precautions to follow, may indicate the signs and symptoms of poisoning and recommend first aid practices, should one be exposed to the product.

Before you begin to mix, load and apply pesticides, and after you understand the label directions, make certain you have taken the following precautions:

1. Have detergent or soap and an adequate supply of water available.
2. Know the early symptoms of poisoning for the pesticide you are using.
3. Know the first aid procedures and make certain that materials and supplies are available.
4. Be certain that materials are available to handle spills.
5. Make certain that all equipment is functioning properly.
6. Do not work alone; be sure help is available if you get into trouble.
7. Have all the recommended protective clothing and equipment. Double-check that the respirator fits properly and has the correct canister cartridge.
8. Never eat, drink, smoke, or go the bathroom while working with pesticides, without first washing your hands.

You are now ready to begin mixing and loading. Follow these suggestions:

1. Reread the label and follow the directions; pay special attention to the warnings and precautions.
2. Make sure only authorized mixers, loaders and/or supervisors are in the mixing and loading area. No other people or animals should be there.
3. Work only in a well-ventilated, well-lighted area.
4. Pesticide containers should be in a secure position when opening, to prevent any spillage. Be sure everyone is wearing the proper personal protective equipment.
5. Mix and pour concentrated pesticides down low, preferably below waist level. **Never pour pesticides at eye level.** A spill or splash could be disastrous. Always remove clothing and wash yourself and your clothing thoroughly, immediately (within two minutes), if pesticides are spilled or splashed on you.
6. Stand with your back to the wind -- upwind -- so that any fumes or dusts are blown away from you.
7. Pour the pesticide into water, never water into the pesticide.
8. If stirring is necessary, use a stir stick, never your hands.
9. Mix and load on a concrete slab where spills can be contained. Avoid mixing or loading near surface water or near a well-head.
10. Never pour pesticide directly into a spray tank. Always mix and dilute in a small container.
11. When pouring, keep your head well above the spray tank, to prevent pesticides from splashing in your face. Protect your eyes with splash-proof goggles.
12. **Never** overflow a spray tank. The cleanup could be an all-day, all-night task - costly and dangerous.

After the mixing-loading task has been completed, your responsibility continues:

1. Securely close pesticide containers immediately after use. Return unused pesticide to its proper storage.
2. Clean up all spills, no matter how small the amount.
3. Wash mixing and loading pails, measuring devices and stirring equipment or tools in strong detergent water, rinse in clear water, air-dry and store.
4. Wash your personal protective equipment in detergent, rinse and hang to air-dry.
5. The wash and rinse water used in steps 3 and 4 can best be disposed of by pouring it into the spray tank. Do not overfill the spray tank; leave room for the rinse water.
6. Remove your clothing and launder separately with heavy-duty liquid detergent and hot water. **DO NOT USE BLEACH** as it could cause a dangerous chemical reaction. Line-dry the clothing where it is exposed to sunlight.
7. Take a hot shower using a detergent-type soap. Do not forget to wash your hair. Put on clean clothing.

# Application

When applying pesticides, you are not generally exposed to the same high concentration of pesticide as during the mixing and loading operation. However, the time-length of exposure is much longer, thus the cumulative exposure may be equal to or greater than during the mixing-loading operation.

Pesticide applications are made with everything from hand sprayers and dusters, to irrigation equipment and aircraft. Whatever equipment is used, many of the safety precautions are the same. These include:

1. Read and follow the label. Applications made which vary from label requirements are a violation of federal law.
2. Use the correct equipment, and make sure it is properly maintained and adjusted. Screens, strainers and nozzles should be clean and functioning properly. Nozzles should be of the right type and properly adjusted and all lines, valves, seals should be checked for leaks.
3. The application equipment should be accurately calibrated on a regular basis. Whenever you have any suspicion that the equipment is applying an inaccurate amount, recalibrate it. Information on calibration is provided within this guide.
4. Wear the proper protective clothing and equipment.
5. Check the weather forecast frequently to determine if conditions will be favorable for the application and effectiveness of the pesticide. The National Weather Service provides a continuously updated weather forecast.
6. Avoid spraying near sensitive areas where drift could damage neighboring crops or the environment. When spraying must be done in these areas, attempt to spray when the air is still, humidity is high and any potential drift will be away from sensitive areas.
7. Lower pressures, proper boom and nozzle adjustments, larger nozzle size and drift reducing additives (if the label permits) will reduce drift.
8. Do not make field adjustments to the sprayer in a recently sprayed, still-wet area. Move to an unsprayed area.
9. Never attempt to clean a nozzle, screen or hose by blowing or sucking on it with your mouth. Use small soft-bristle brushes and/or an air pressure bulb for these purposes.
10. Always empty a tank by spraying the **entire** contents onto the vegetation or other area for which it was intended. Never drain a spray tank onto the ground. **Important:** Never mix more than you need!

# Pesticide Containers and Disposal

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Pesticide containers have become one of the major issues with county landfills. The 1976 Resource Conservation and Recovery Act (RCRA) and 1979 Georgia Hazard waste Management Act define the current laws concerning this issue.

## **Prohibited**

It is against the law to open dump pesticide containers (rinsed or not). The pouring of rinse water, unused mixtures or unused concentrates onto the ground or water is illegal. These constitute the generation of hazardous waste.

## **Container Disposal**

In order for pesticide containers to be classified as solid waste rather than hazardous waste the pesticide containers must be properly rinsed. Once the container can be classified as a solid waste product it can be legally disposed at a sanitary landfill. In the case of liquid pesticide, the containers must be immediately rinsed after the seal has been broken on the container. After the container is cleaned, it should be punctured and/or crushed. Applicators have two options available to clean containers.

### **Pressure Rinse**

A pressure rinse nozzle screws into a hose as does a garden nozzle, but it is much heavier, has a sharp point for puncturing the container, and sprays water in several directions to ensure good rinsing. To pressure rinse, allow the container to drain into the spray tank for 30 seconds. While holding the container over the tank opening, rinse the cap, threads and exterior of the container. Next, insert the probe of a pressure rinse nozzle into the bottom of the container. For plastic containers, insert near corner or edge of bottom. For metal containers, make an initial hole through bottom with punch or chisel (especially larger than 5 gallon sizes) then insert through hole. Turn rinse unit "ON" to allow water to rinse container. Rotate nozzle slowly allowing water to reach all sides of container and continue to flush for sufficient time (20-30 seconds) to allow adequate rinsing of container. Turn water "OFF." Allow all rinsed contents to drain from the container into the spray tank. Remove the nozzle from the container. The container has been sufficiently cleaned.

### **Triple Rinse Method**

Drain the container for 30 - 60 seconds into the spray tank. While holding the container over the tank opening, rinse the cap, threads and exterior of the container. Fill the container 1/4 to 1/5 full of water. Replace the cap and vigorously shake for 30 seconds. Remove the cap and drain the contents into spray tank for 30 seconds. Repeat this rinsing **two more times**. Puncture and/or crush the container to ensure it will not be used again.

## **Bag Disposal**

Empty contents of bag into the applicator tank or hopper until all the pesticide has been removed. Tear open the container to make sure it is completely empty. Wrap the container in paper and place in a solid waste collection system or carry to a sanitary landfill. **It is illegal to dispose of these by open burning in Georgia.**

## **Disposal of Unused Mixtures**

Try not to mix up more than is needed. If spray mixture is left over, spray onto a labeled crop or site. One option is to leave the spray mixture in the tank of the sprayer. This is undesirable since some pesticides will break down not long after mixing, some are corrosive of equipment if not flushed out, and user may forget what was left in the tank. Another option is to transfer unused mixture into a rinsate holding tank. The tank should be label of chemical type and crop sprayed on. This can then be used as make up water for subsequent tank mixtures. Only 20 percent of rinsate can be used for make up water and the rest must be clean water.

## **Cleaning out Sprayer Tanks, Lines and Nozzles**

Approximately 40 to 70 gallons of clean water is required to clean 4 - 12 gallons of mixture from a spray tank. This mixture can then be sprayed out over a labeled crop or site. Or collect spray mixture and hold in rinsate tanks.

## **Warning**

While Environmental Protection Division approves the various recommendations for the disposal of containers, it is possible local landfills may have further restrictions. Locally owned or run landfills have the right of refusal.

## **Recycling Empty Containers**

A number of counties in Georgia have been participating in a pesticide container recycling program. This program is sponsored by the University of Georgia Cooperative Extension Service, Georgia Department of Agriculture and the Agricultural Chemical Association of Georgia. In counties who have the program, clean containers are brought to an initial inspection site and collected. This may be the local landfill, airport or other designated site for container collection. The clean containers are stored until the container granulator can be brought to the site for chipping the containers. The resulting material is used in the making of more pesticide containers.

For more information on starting a container recycling program in your area, contact the Georgia Department of Agriculture (912) 386-3142.

# Pesticide Recordkeeping Requirements

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USDA released the final ruling on pesticide recordkeeping requirements for private applicators of **Restricted Use Pesticides (RUPs)**. The requirements became effective and enforceable May 10, 1993.

These regulations mostly impact private applicators because, commercial applicators were already required to keep records. However, the new regulations now require commercial applicators to provide a copy of their RUP pesticide application records to the client within 30 days.

Here is a summary of requirements for private applicators. Applicators must record the following information for federal RUPs:

- the month, day, and year of the application
- the pesticide brand or product name
- the EPA registration number
- the crop, commodity, stored product, or site that received the application
- the total amount of RUP applied
- size of the area treated
- name and certification number of the certified applicator
- location of the application

Records must be kept two years after application. Information should be recorded within 30 days of application. There is no required form. There is no reporting requirement. However, records must be submitted if requested by:

- USDA
- Georgia Department of Agriculture
- Licensed health care professional who requires the information to treat a person who may have been exposed to the RUP for which the record is maintained.

The law provides for penalties for failure to keep RUP records. For the first violation, the penalty is not to exceed \$500. For subsequent violations, penalties will not be less than \$1000, unless it is determined that a good-faith effort had been made to comply.



## **Pesticide Application List**

The employer must display a list of pesticide applications and make it accessible in a central location to agricultural workers and pesticide handlers employed on the establishment.

## **Notifying Agricultural Workers of Pesticide Applications**

Agricultural workers must be notified of pesticide applications. In most cases, the employer can choose to notify workers either verbally or by posting the field warning sign at the entrances to the pesticide treated area.

Some product labels will require both verbal and posted notification. When the label allows the employer to choose the type of notification, workers must be told which type is being used.

## **Verbal Notification Content**

Agricultural workers must be told the location and description of treated area; the time when entry is restricted; and not to enter the treated area until the REI has expired.

This information must be provided in a way workers can understand.

## **Timing of Posted Notification**

Field warning signs can be displayed no sooner than 24 hours before the scheduled application and must remain displayed throughout the application. The signs must be removed within three days after the REI or after the end of the application in cases where no REI exists. Agricultural workers may not be permitted to enter the treated area until the signs are removed.

## **Exceptions to Providing Notification to Workers**

Agricultural workers need not be notified about pesticide application in the cases:

- On farms when no agricultural workers will be in the treated area or will walk within 1/4 mile of that area during the pesticide application or during the REI.
- When the agricultural worker who applied (or supervised the application of) the pesticide knows the information required to be provided in the notification.
- When no agricultural workers will be in a greenhouse when pesticides are being applied or during REI.

The pesticide label will give actual requirements for PPE needed to apply the material. Always read the label first before mixing and applying any pesticide.

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