

Safely storing pesticides

By Stephen H. Futch

This CEU article grants one General Standards (Core) CEU when submitted and approved toward the renewal of a Florida Department of Agriculture and Consumer Services restricted use pesticide license.

All agricultural operations should safely store pesticides in a manner that protects those products from damage as a result of environmental conditions and/or from unauthorized use. To properly store pesticides, they should be secured in a locked area that prevents environmental damage, potential theft, vandalism, sabotage or unauthorized entry into the storage area.

STORAGE AREA

The storage area should be a structure that is roofed, with sides that prevent rain from entering, a concrete floor and a lockable entryway. Anything you can do to minimize loss, theft or damage is an investment worth your time and consideration. These actions will not only protect the stored pesticide product, but also the environment, while minimizing potential legal issues.

While some agricultural companies may use an existing building or barn to store their pesticides until their ultimate use, they should consider a separate, well-designed building or storage area that properly protects and secures all pesticide products.

A proper pesticide storage area should be designed and maintained to ensure that:

- People and animals are not exposed to pesticides.
- Pesticides do not leak or spill into the environment.
- Pesticides are not stored in a manner that exposes them to temperature extremes from cold (freezing) or hot temperatures, which can impact quality and storage life of the products.
- Pesticides are not stored in a manner that exposes them to moisture from blowing rain or leaking roofs.
- Actions are properly taken to safeguard the products from unauthorized use, from theft or vandalism.

While the above actions may not totally prevent loss or damage, they can certainly reduce the risk of product

loss and associated liability from spills, damage, theft or improper use.

SECURING THE SITE

Unauthorized people, pets, stray animals and livestock should be excluded from pesticide storage areas. Regardless of the size of the storage area, whether a cabinet, large room or building, it should be secured by locking all entry points or doors.

The pesticide storage area should be posted with warning signs that are highly visible on doors or other entry points to alert people that pesticides are being stored in that area. The signs should include “no smoking” warnings, as some pesticides are highly flammable.

PREVENT WATER DAMAGE

When selecting the site for the pesticide storage area, it should be located at least 50 feet away from creeks, streams, canals, bodies of water or flood-prone areas. This setback distance away from environmentally sensitive areas will aid in minimizing surface or groundwater contamination in the event a spill or leak were to occur or from firefighting activities, if necessary.

The pesticide storage facility should be constructed to minimize water damage from leaks or windblown rain. The area should also exclude water from leaking pipes or from rising water in the event of



Pesticide storage areas should be posted with highly visible warning signs.

flooding conditions. If located in a low area, consider building the area up with soil to an elevation level higher than the flood plain level prior to construction of the storage facility.

Some of the ways water or excessive moisture can damage pesticides and/or their containers are as follows:

- Cause the metal containers to rust, allowing them to release the pesticide.
- Cause the paper bag, carton or box to split or break.
- Make the label unreadable. Once the label is damaged beyond recognition, you may not be able to determine what was in the container and have no idea how to use or apply the product or what crops the pesticide was labeled for.
- Damage the contents of the container in a manner to make the pesticide unusable.
- Cause a dry material to become hard or clump together, thereby making it difficult to properly measure or dissolve into the tank.
- Slow-release materials could begin to release their active ingredients if they become moist from high-humidity conditions.

TEMPERATURE CONTROL

The storage area should be well ventilated and insulated to avoid high and low temperature extremes. Either temperature extreme can damage pesticides. In the case of freezing temperatures, glass or plastic containers could rupture or leak resulting in spills. Excessive heat may cause containers to become weakened and explode, thereby releasing contents into the environment. Once the chemicals are released into the environment, they move from the storage area, volatilize and/or drift away, resulting in injury or environmental damage.

Chemicals stored in direct sunlight can also be damaged, as the contents can become extremely hot and impact the quality of the pesticide. If you don't think that containers can become excessively hot, just place your hand on your vehicle when parked

in a sunny location on a hot summer day and you will quickly feel how hot metal can become.

To aid in ventilation, an exhaust fan should remove air from inside the storage area and direct that air outside to aid in removal of harmful vapors or dusts. Air from the storage area should never be directed toward or into areas that contain people or livestock.

ADEQUATE LIGHTING

Make sure that the storage area has adequate lighting to allow easy entry and to avoid trips or falls when entering the storage area. Proper lighting will aid in making it easy to read labels of stored products. Adequate lighting will also facilitate the inspection of containers for any leaks or damage and allows for complete and thorough cleanup, if required.

SHELVING

All shelving inside the storage area should be made of a non-corrosive material and have adequate strength to support the weight of all products placed upon each shelf. When storing liquid materials that are in small containers (quarts to several gallons), consider placing a plastic tray that has a lip under all containers on the shelf. This tray should be able to contain any small leak from spilling onto the floor or the pesticide on the shelf directly below. Liquid materials should never be stored above dry products, as any leakage onto the dry pesticide would render it useless.

When placing pesticides on storage shelves, place the heaviest containers on the lower shelving. Never allow the containers to extend beyond the edge of the shelving, as this could allow the material to be contacted or knocked off the shelf.

Never store manuals, personal protective equipment (PPE) or other supplies in the pesticide storage area. In addition, this storage area should not have any seed, food, fertilizer or animal feed stored in it.

FLOOR CONSTRUCTION AND MAINTENANCE

The floor in the storage area

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should be constructed of a non-porous material and then sealed with a protective coating to aid in any required spill cleanup. Wood or other materials that could absorb pesticides should never be used as flooring or used inside the storage area, as they can make it difficult to clean up or decontaminate.

The floor should be inspected periodically to make sure that the area is free of any cracks or other damage that would allow spilled materials to move to the soil or out of the storage area. The design of the flooring should be recessed and sloped to allow materials to enter a lower point in the area that would capture them. Recessed floors will also aid in keeping the pesticide from moving outside the storage area if a leak was to occur.

SPILL CLEANUP MATERIALS

Spill cleanup materials should be kept just outside of the storage area to aid in cleaning up any leaks or spills. The kit should include absorbent material (pet litter, fine sand, etc.), shovels, brooms, heavy-duty plastic bags and containers to place contaminated material into when addressing any leaks or spills. The PPE should be easily accessible and properly used prior to attempting any cleanup action.

CONTAINER INSPECTION

Stored pesticide containers should be inspected on a regular basis for any tears, spills, breaks, leaks, rust or corrosion. During this inspection, check all labels to make sure they are still intact and legible. Any label that is damaged should be replaced with a new label.

If a container is damaged, place it into a larger container to prevent any leaks or movement of the product from the container in which the pesticide was originally packaged. Be sure to clearly mark the outside of the new, larger container with a notation of what material has been placed inside. This marking will aid in determining how to later use the material or aid in proper disposal. After the container has been properly marked, obtain a complete label and place it on the outside of the new container as soon as possible.

CONTAINER STORAGE

All pesticides should be stored in their original containers until use. When removing pesticides from large bulk containers and placing them into smaller containers for field use, be sure to write the trade name, common name, EPA registration number and signal word on the outside of the smaller container. When transferring pesticides to smaller containers, never use items that could be confused with drink containers like milk jugs, cold drink bottles, jars or containers commonly used for other purposes. Placing pesticides inside this type of container could lead to poisoning a person who mistakes it for a drinking container.

Be sure that all containers can be properly closed when not in use. This will minimize spills if the container is turned over as well as minimize moisture from contacting dry products. Once bags have been opened, consider placing the opened bag into a larger sealable plastic bag that can be resealed to aid in storage until the entire dry product can be properly used.

Store all pesticides in a manner to avoid cross-contamination with other materials that may be located nearby. This is especially important for fertilizers and seeds.

RECORD RECEIVING DATE

Each pesticide container should be marked to indicate the date the material was accepted into inventory. Products may have different shelf lives. If you are unsure of how long a product can effectively be stored, contact the dealer or manufacturer.

When mixing pesticides, watch for any unusual mixing conditions. Old pesticides may not mix well into the spray mixture and may cause clumping, layering or abnormal coloration during the mixing process. If the pesticides do not mix properly, they will most likely not provide adequate pest control or possibly damage the crop.

When ordering pesticides, only purchase quantities that can be used within a reasonable length of time. Rotate the pesticide inventory by using the older products first to avoid having products stored for a lengthy period of time.

RECORD KEEPING

To aid in record keeping, inventory all stored pesticides on a scheduled basis. Be sure to have duplicate copies of labels and MSDS (material safety data sheets) or SDS (safety data sheets) of all stored pesticides readily at hand in the event of any emergency. Additional rules for record keeping are required under Worker Protection Standards.

DECONTAMINATION SUPPLIES

At the pesticide storage site, you should have adequate decontamination supplies like an eyewash station, water, soap, single-use towels, PPE, fire extinguisher rated for chemical fires, first-aid equipment, clean change of clothing and emergency telephone numbers easily accessible at all times. These decontamination supplies are extremely important in the event of a spill or contamination while working in or around the pesticide storage area.

WHAT YOU DO DOES MATTER

In storing pesticides, what you do does matter! Simple actions and proper planning can make a big difference in the safety of your operation and how safe your pesticides are stored. Proper actions of safely storing pesticides can pay big dividends and may save thousands of dollars in the event a spill or leak was to occur. The time to plan and take action is before a mishap happens. 🍊

Source: Applying Pesticides Correctly (SM1) by Fred Fishel, published by the University of Florida.

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Please mail the answer sheet or a copy of the form to:

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If you have questions regarding this form, test or CEUs, e-mail Steve Futch at shf@ufl.edu or call 863-956-8644. Please allow two weeks to process your CEU request.

'Safely storing pesticides' test

To receive one Core continuing education unit (CEU), read "Safely storing pesticides" in this issue of *Citrus Industry* magazine. Answer the 20 questions on the magazine's website (www.citrusindustry.net) or mail the answers and application information to the address at the bottom of the page. The article and test set are valid for up to one year from the publication date. After one year, this test will no longer grant a CEU.

1. Only commercial agricultural operations are required to store pesticides in a manner that protects them from damage or unauthorized use. T F
2. A pesticide storage area should be designed to prevent pesticides from being exposed to temperature extremes. T F
3. All entry points to the pesticide storage area should be secured with a simple door that does not need to be locked. T F
4. When selecting your pesticide storage site, the location of the site does not matter as long as it is a secured structure. T F
5. The pesticide storage area only needs a roof over the area to protect it from rain. T F
6. Excessive moisture can damage pesticide containers. T F
7. The storage area does not require ventilation. T F
8. Storing pesticides in direct sunlight will not impact useful life of the pesticide. T F
9. To aid in ventilation, a fan should be placed inside the storage area to only mix the air inside the room. T F
10. The type of material the shelving is made of is not important as long as it will support the weight of the materials placed upon the shelf. T F
11. Liquid material should be stored above dry products inside the pesticide storage area. T F
12. Personal protective equipment should be stored inside the pesticide storage area. T F
13. Spill cleanup materials should be stored just inside the storage area to make it easy to find in the event they are needed for cleanup procedures. T F
14. Stored pesticide containers should be inspected on a regular basis for any spills or leaks. T F
15. If a pesticide container is found to be damaged, just pour contents into any container that will hold the entire mixture and then place back on the shelf until it can be used. T F
16. All pesticides should be stored in their original containers until use. T F
17. Each pesticide container should be marked to indicate the date it was accepted into inventory. T F
18. When ordering pesticides, you should purchase the largest quantity possible to get the best price and store the remaining product until it is needed next year. T F
19. You are not required to have decontamination supplies at the pesticide storage site, just at the mix-load site. T F
20. In storing pesticides, what you do does matter. T F

Please circle the number below to rate this article and test:

Not Very Useful 1 2 3 4 5 6 7 8 9 10 Very Useful

Pesticide Applicator CEU Form

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