

CHEMICAL LOG

Safe and Secure: Proper Pesticide Storage

By Sarah H. Bundschuh

Unsafe pesticide storage practices are a leading contributor to pesticide contamination of the environment, as well as human and animal pesticide exposures and poisonings. In many cases, the exposed individuals are non-users of the products. It is the responsibility of those involved with these chemicals to ensure that accidents are prevented by storing pesticides in a safe and proper manner.

Several states have clear guidelines for pesticide storage. However, many do not. Prior to storing pesticides, you should contact your state Department of Agriculture, cooperative extension service and local fire department for regulations that affect pesticide storage in your state.

Three objectives must be met when storing pesticides in any quantity. You must:

1. Protect employees from exposure;
2. Protect the public, including humans, livestock, pets and wildlife, from exposure;
3. Protect the environment from contamination.

Protecting Your Employees

The pesticide storage room should only be used for storing pesticides. Weighing chemicals, reading labels and MSDS's, etc. should be done in other designated areas outside of the pesticide storage room.

A work area should be set up adjacent to the pesticide storage room for employees to prepare for applications and complete paperwork after applications. This area should include a desk, pesticide label manuals, a catalog of pesticide Material Safety Data Sheets (MSDS) and application record forms to be completed for each application. Personal protective equipment, including spray suits, face shields, safety glasses, chemical-resistant gloves, rubber aprons, spray boots and respirators, should be kept

Pesticides should be stored in a location where natural runoff from the area will not contaminate residential sites, streams, ponds, groundwater, crops, other buildings and feedlots.

here. Never store personal protective equipment in the pesticide storage room.

Measuring of pesticide products should be done in a fill area after the person performing the fill has been fully clothed in the personal protective equipment recommended for the pesticide(s) he or she is handling. A sink equipped with a foot pedal for turning water on and off should be located in the fill area. This sink should be used for cleaning personal protective equipment after contact with the pesticides. The foot pedal will prevent the exposure of unprotected hands to pesticide residues that can be left on faucet handles.

An eye wash and emergency shower should be set up immediately outside the pesticide storage room in case of an accidental exposure.

The most important factor in protecting employees from pesticide exposure is proper and thorough training. Employees must be trained to read and use the information contained on labels and MSDS's. They must be trained on the proper techniques for using personal protective equipment, the eye wash and emergency shower and the spill kit. Training must also include the hazards associated with pesticides and how all employees can protect themselves from these hazards.

Protecting the Public

Access to the pesticide storage area should be limited to designated trained employees. The door(s) should be locked at all times, except when the area is under the direct supervision of one of these designated employees.

A durable, prominent, legible sign must be affixed to each door identifying

the area as a pesticide storage area. The sign must display the word PESTICIDES. When a highly toxic pesticide is present, the word POISON and the skull-and-crossbones must be added to the sign. A NO SMOKING sign should also be mounted on the door. If you are in an area where a significant portion of the population

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does not speak English, it is wise to have these signs in the predominant second language, as well as English.

Protecting the Environment

Any release of a pesticide that is not in accordance with label directions can potentially cause environmental contamination. The greatest risk of environmental contamination results when a fire, tornado or other natural disaster strikes a pesticide storage facility. Consider how a disaster like this could affect the facility and the environment when choosing a location and designing your storage facility.

Pesticide storage areas and mixing/loading sites should be located at least 150 feet from wells, streams, ponds and ditches. They should be located in an area that is not subject to flooding. Pesticides should be stored in a location where natural runoff from the area will not contaminate residential sites, streams, ponds, groundwater, crops, other buildings and feedlots. If possible, they should be stored downwind and isolated from local residences.

Regulations have been proposed at the federal level to require secondary containment for pesticide storage facilities and mixing/loading sites. These regulations are at least two years away. An example of secondary containment would be a watertight, low-permeability concrete floor surrounded by a 4- to 6-inch-high concrete retaining wall around the perimeter of the storage facility and the mixing/loading site.

The purpose of secondary containment is to allow for all releases of pesticides at these sites to be captured and reused or disposed of according to label directions. The goal is to prevent any pesticide released at the storage and/or mixing/loading site from leaving the area and contaminating the environment. Secondary containment will offer a facility owner significant savings in the event of a pesticide release that otherwise might have moved into the surrounding soil, streams and ponds, requiring very costly clean-up.

If you store large quantities of pesticides, the best option for storage is a detached, single-story, non-combustible structure. If you store moderate quantities of pesticides, you can store them in a first-story corner room of an exist-

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ing facility. This room should have a door that opens to the outside of the building. If you store very small quantities of pesticides, these can be stored in a fireproof cabinet that can be locked. The cabinet should be located in a well ventilated room with direct access to the outside.

For storage of moderate to large quantities of pesticides, the storage area should be constructed of concrete block walls, a sealed concrete floor and metal shelves. Windows and skylights should be avoided to prevent security risks and potential product damage from sunlight exposure.

Any drains located in the storage facility must empty into a containment basin for capture and disposal according to state and federal regulations. There must be a "lip" at all doors to prevent any spilled product from seeping out beneath the door. Electrical fixtures should be dust and explosion proof.

The pesticide storage room should be well ventilated such that ventilation automatically initiates once the door is opened. The fan(s) and vent panel(s) should allow for complete air exchange a minimum of six times per hour.

Temperatures within the storage area should be maintained between 40 and 100 degrees F to prevent damage to the pesticide products.

The pesticide storage room should have adequate lighting to allow for ready identification of pesticide containers.

The various types of pesticides should be stored separately (i.e. herbicides, insecticides, fungicides, etc.). Dry formulations should be stored on shelves above liquid formulations to prevent contamination in case of a container leak. Pesticide containers should be stored off the floor to prevent deleterious contact with moisture.

Pesticides should be stored in their original and labeled containers. These should be stored with the labels clearly visible

for accurate identification, and they should be inspected regularly for any damage that could cause a pesticide release.

Inventory control is very important when storing pesticides. Keep a current inventory list of pesticide names and quantities at all times. Date all pesticide containers when they are entered into inventory and use the oldest container first. Try to buy only the quantity of product you will use in one season. Oftentimes, pesticide re-salers will ask you to try a small amount of a new product. Accept the product only if the re-saler agrees to take back any you do not use.

A spill kit should be located outside the pesticide storage room. This kit should include absorptive material such as vermiculite, activated charcoal or cat litter, a drum with a lid for storing the contaminated material, a shovel, and personal protective equipment including a spray suit, rubber apron, rubber boots, chemical-resistant gloves and eye protection. Designate the spill kit "EMERGENCY USE ONLY" and do not allow workers to take items from the kit for other purposes.

How does your pesticide storage facility rate? Are your pesticide storage practices meeting the three objectives: protecting employees, the public and the environment from contamination?

If not, you need to develop a step-by-step plan addressing the most critical needs first, followed by additional needs. Then, put this plan into action. Develop a budget that will allow you to meet the goals within a reasonable time frame.

Information on the proper storage of pesticides in your state is available at your cooperative extension service, state Department of Agriculture and your local fire department. □

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