Pesticide Storage

Safety, security and environmental impact are the major concerns when storing pesticides. Proper storage can prevent accidents that could cause property or environmental damage. Check with local regulators for the requirements in your state.

A well-designed storage facility has four components:

1. A storage cabinet, room or building.
2. A mixing area.
3. An area for loading and rinsing spray equipment.
4. A place to store and secure equipment and records.

Size
When planning a pesticide storage facility, consider the need for keeping a large inventory of chemicals. Purchase chemicals in smaller quantities or on an as-need basis. The storage facility should be large enough to accommodate new chemicals, opened containers and unused material awaiting disposal.

Location
The best location for storage is in an area that isolates chemical fumes and dust from employees. This is often a separate building protected from flooding and the potential of fire from other buildings.

Some states have regulations that restrict the distance the storage is located from surface water, public water supply, private wells and farm buildings. If a storage cabinet or room is located in the headhouse, place it away from the office and work areas. Place it along an outside wall so ventilation can be provided.

Storage design
For small quantities, a steel cabinet is all you need, and it should have a containment area in the bottom to catch any spills or leaks.

For larger quantities, a storage locker is a good choice. These are waterproof structures that can be located either inside or outside. Most are made in a modular size so they can be expanded. They also have floor containment and a ramp for access.

Cabinets and lockers can be purchased as fire rated or non-fire rated units. Before making a purchase, review Material Safety Data Sheets to determine if the stored pesticides are flammable. If so, the storage cabinet should be UL-rated or Factory Mutual System approved. This will lower insurance costs.

Home-built units (wooden utility sheds or metal buildings) cannot be fire rated. A concrete floor with 2- to 4-inch perimeter curb containment and an epoxy coated floor are needed to hold any spills.

Environment control
Pesticides should be stored between 40ºF and 90ºF. A small electric heater with a thermostat and fan works well to maintain the temperature above freezing in a small unit. A hot-air furnace may be needed in a larger facility.

Good ventilation removes excess heat, chemical vapors and moisture from the storage area. A two-speed fan, ducted to the outside, can be used. Operation at a continuous low-speed rate of about one room volume change per hour helps prevent a buildup of toxic fumes. The higher rate (about six air changes per hour) can be activated together with the light switch when the area is occupied. A motorized intake shutter about 1.5 times the fan area should be installed in the wall opposite the fan. It should open when the fan turns on. A relay that turns off the furnace when the fan is on should be installed.

Herbicides and fertilizers should be stored in a separate cabinet or locker to prevent cross-contamination. Metal shelves, which are easier to decontaminate, are preferred. Leak-proof plastic trays under the containers work well to contain spills.

Mixing area
The best location for the mixing area is near where the pesticides are stored. If it is inside the headhouse, it is best to provide an isolated room with ventilation. The mixing area should contain a work surface with measuring equipment. A water supply and sink are needed for chemical preparation and clean-up. Install a fume hood over the mixing table to draw fumes away from the person preparing the spray material.

Sprayer loading and rinse pad
The loading area can be part of the mixing area or can be separated. It should be large enough to hold the largest sprayer. Its purpose is to collect any spills while loading, and provide an area for emptying and washing the sprayer. A drench shower and eye wash should be nearby.

The base of the loading area is usually constructed of concrete with a watertight surface impervious to chemicals. A surface coating of epoxy is used to seal the concrete. A berm around the base should be installed to provide containment, and provide a volume of 110 percent of the capacity of the largest sprayer.

A sump should be installed in one corner to collect any spilled material. The liquid can be pumped to a storage tank for use in subsequent applications.

Portable containment pads made of vinyl or nylon-reinforced elastomer are available. They should be placed on a level surface while filling or cleaning equipment.

Equipment room
A separate area or room is recommended for storing protective clothing, equipment and records. It may also contain a shower, restroom, desk and phone. This is the best place to keep MSDS and other information for applying and storing chemicals.

Security
With heightened security awareness and the potential for vandalism and theft, it is important to keep the pesticide storage locked when not in use. Warning signs should also be posted. In larger storages, a fire alarm and heat-activated sprinklers should be installed.

An emergency response plan with copies to key employees and the local fire and police departments will minimize the risk of injury or environmental contamination in the event of a fire or spill. For larger facilities, an agreement needs to be developed among the owner, fire department, environmental agency and insurance company about what action to take if a fire starts.

A pesticide spill kit with absorbent mats, pillows, granular absorbent, hydrated lime, sodium hypochlorite and a drum patch kit should be on hand for small spills. A broom, shovel, squeegee, plastic pails and bags will help in cleanup.