

3.2.1 Agricultural Business: Farms and Suppliers

Tip Sheet #1

WASTE ORIGIN: General Operations

WASTE TYPES: Petroleum Products and Farm Chemicals

WASTE REDUCTION AND RECYCLING METHODS:

- ! Locate tanks and storage **away from major traffic flow** areas.
- ! Isolate farm **chemical and petroleum storage** tanks from feed, seed, shop, office, and other storage areas.
- ! **Minimize distance** between chemical mixing and loading areas.
- ! Store pesticides and fertilizers in **separate buildings**.
- ! Make a scale drawing of your **site plan** to locate storage tanks, utilities, and other important features. The drawing should include:
 - ! Underground and above-ground **fuel tanks**, other flammable liquid storage tanks, and associated pipelines;
 - ! **Water** wells, fire hydrants, and water lines;
 - ! **Propane** tanks, natural gas lines, and main gas shutoff valve;
 - ! **Sewer** lines, septic tank, and sewage lagoons;
 - ! **Natural features** like drainage pattern of site, ponds, creeks, rivers, lakes, or prevailing seasonal wind directions;
 - ! **Electrical service** lines, transformers, and service disconnect;
 - ! **Containment or pad** areas designated for storage, mixing, or loading;
 - ! **Road**, driveways, property lines, or easements.
- ! **Train employees** in safe handling of farm chemicals, equipment and wastes; laminate and post procedures as easily-read, quick references.
- ! Develop an **emergency response plan**; train employees to handle spills and leaks; post emergency phone numbers for assistance.
- ! Reduce **evaporation loss and chance of spills** with tight-fitting bungs and lids.
- ! Use spigots and pumps for **dispensing new materials** for more precise dispensing and less waste.
- ! Use funnels for **transferring wastes** to storage containers.
- ! Use **tanks and containers** only according to manufacturer's instructions and only for their intended purpose.
- ! Periodically test **overflow alarms on storage tanks**; periodically test and monitor underground tanks for leaks (monitoring wells, vapor monitoring, and automatic tank gauging systems).
- ! Install an adequate **leak-detection system** if an existing tank is near a drinking water well.

Sources:

Fact Sheet 6b: *Petroleum Product and Farm Chemical Storage*, Pollution Prevention Tool Kit, University of Nebraska-Lincoln Cooperative Extension & Biological Systems Engineering, January 1995.

Fact Sheet 6c: *Pollution Prevention: In the Farm Cooperative through Improved Basic Operations*, Pollution Prevention Tool Kit, University of Nebraska-Lincoln Cooperative Extension & Biological Systems Engineering, January 1995.

3.2.1 Agricultural Business: Farms and Suppliers

Tip Sheet #2

WASTE ORIGIN: Chemical Storage, Mixing, and Loading

WASTE TYPES: Fertilizers and Pesticides

STORAGE PRACTICES:

- ! Use **labels on windows or doors** to alert emergency personnel that pesticides, fertilizers, or other products are stored in the structure.
- ! Lock storage areas or buildings to provide **security and prevent accidental spills** or unauthorized use of chemicals.
- ! Store materials on pallets for **clear leak detection**.
- ! Store drums off concrete floors to **prevent corrosion** from moisture.
- ! Use easier to clean and sturdier **steel shelving**.
- ! **Stack containers** according to manufacturer's instructions.
- ! Store **dry products** above liquids.
- ! Store herbicides, insecticides, and fungicides on **separate shelves or areas**.
- ! Arrange storage space so **aisles are wide enough** for safe maneuvering; keep jugs and bags clear from high traffic areas.
- ! **Securely cover** all containers to prevent spills, evaporation loss, or fumes.
- ! Properly store products to **preserve their shelf life**.
- ! **Dry, bulk fertilizer** should be stored on an impermeable surface under cover.

WASTE REDUCTION AND RECYCLING METHODS:

- ! **Train employees** in proper chemical handling procedures; employees should wear proper protective clothing at all times.
- ! Use an **impermeable mixing and loading pad** such as sealed, liquid-tight concrete:
 - ! Pad should have a **sloped surface** with watertight walls and curbs;
 - ! Provide **secondary containment** while transferring liquids to spraying equipment or nurse tanks;
 - ! Provide **independent shallow sumps** in each containment area to prevent cross-contamination from spills;
 - ! **Size of the pad** should allow for containing leaks from bulk tanks, washwater from cleaning equipment, and spills from transferring chemicals to the sprayer or spreader;
 - ! Pad should **not allow stormwater** to enter it.
- ! When **unable to use a mixing and loading pad**:
 - ! Avoid handling pesticides **near a well, stream, or wetland**;
 - ! Protect surfacewater by **using a nurse tank** to transport water to mixing and loading site;
 - ! Prevent chemical buildup in the soil by **moving the mixing site** each year within the field of application.

- ! Avoid mixing **incompatible materials**:
 - ! Read product labels when **combining two or more pesticides** in the same tank;
 - ! Reduce **waste from incompatible** chemicals:
 - ! Perform a *small-jar compatibility test* with the carrier to be used in the field;
 - ! Add a *compatibility agent* to the chemical mixture if recommended.
- ! Use a **backsiphon prevention device** on the well or hydrant water supply; provide a 6-inch air gap between the water hose and top of the sprayer tank.
- ! Use a **closed chemical handling system** that transfers pesticide directly from the storage container to applicator equipment through a hose.
- ! Eliminate **leftover premixed pesticide** by using a direct injection system.
- ! **Triple- or pressure-rinse** empty chemical containers immediately; pour rinsewater back into spray tank (suspension formulas that tend to settle and harden in container may need extra rinsing).

Sources:

Fact Sheet 6d: *Pollution Prevention: In the Farm Cooperative through Improved Chemical Handling and Application*, Pollution Prevention Tool Kit, University of Nebraska-Lincoln Cooperative Extension & Biological Systems Engineering, January 1995.

Worksheet #2: *Assessing the Risk of Groundwater Contamination from Pesticide Storage and Handling*, Farmstead Assistance System (Farm-A-Syst), University of Wisconsin-Extension, July 1991 (G3536-2W).

Worksheet #3: *Assessing the Risk of Groundwater Contamination from Fertilizer Storage and Handling*, Farmstead Assistance System (Farm-A-Syst), University of Wisconsin-Extension, July 1991 (G3536-3W).