3.2.2 Agricultural Business: Pesticide Applicators

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.
- Use **separate buildings** for storing pesticides and fertilizers.
- Make a scale drawing of your **site plan** showing locations of 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.

3.2.2 Agricultural Business: Pesticide Applicators

Tip Sheet #2

WASTE ORIGIN: **Chemical Storage and Handling**
WASTE TYPES: Damaged Chemicals, Expired or Unusable Pesticides, Spills, Residuals in Containers, and Empty Containers/Packages

WASTE REDUCTION AND RECYCLING METHODS:

- Buy **only the amount you will use** in one growing season.
- **Store chemicals properly**: seal and close, store in original containers, and protect from weather in dry, well-ventilated area.
- **Triple rinse all containers** and empty all concentrate into sprayer tank, letting it drain thoroughly (at least 30 seconds) by adding diluent to about 1/4 volume of container, swirl thoroughly, then pour into spray tank.
- Purchase chemicals in **reusable, returnable containers** (dedicated, "mini-bulk" containers).
- Purchase chemicals in **containers which can be dissolved** in the tank.
- Use **Integrated Pest Management (IPM)** techniques such as: crop rotation, disease or pest-resistant crop varieties, and drought-resistant cultivars; maintain plant health through proper watering, fertilization, etc.; accelerate crop maturation (e.g., through early planting); avoid excess fertilizer; mechanical cultivation and use organic/natural pest controls.
  - IPM practices for ***turf*** include proper site selection and preparation, grass selection, timing of seeding, fertilization, irrigation, mowing and verticutting, aerifying, and top-dressing.
- Carefully **calculate the volume** you will use and load only this amount.
- Keep the end of the fill hose above the fluid level in the spray tank to **prevent back-siphoning**.

Sources:

All Fact Sheets from *Pesticides and Water Quality*, North Carolina Agricultural Extension Service, 1988:
Fact Sheet 1: *Chemigation Practices to Prevent Groundwater Contamination.*
Fact Sheet 2: *Design for In-Field Sprayer Rinse System to Reduce Pesticide Waste.*
Fact Sheet 3: *Pesticide Container Disposal*.
Fact Sheet 4: *Disposal of Unused Pesticides, Tank Mixes and Rinsewater*.
Fact Sheet 6: *Protecting Mountain Springs from Pesticide Contamination.*
Fact Sheet 7: *Preventing Pesticide Pollution of Surface and Ground Water*.
Fact Sheet 8: *Reducing Pesticides and Saving Money Using IPM*.
Fact Sheet 10: *Protecting Groundwater from Contamination by Pesticides.*
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).

3.2.2 Agricultural Business: Pesticide Applicators

Tip Sheet #3

WASTE ORIGIN: **Application and Equipment Cleaning**
WASTE TYPES: Unused Diluted Sprays and Rinsewater

WASTE REDUCTION AND RECYCLING METHODS:

- **Substitute less toxic**, less persistent, or less "leachable" pesticides.
- Use **well-timed spraying** only as needed based on accurate pest identification.
- Do **remedial spraying** based on field scouting; maintain field maps or records of previous pest problems.
- Do not exceed **recommended application rates**.
- **Calibrate** application equipment.
- Make sure **application rate is uniform** over field; avoid overlapping.
- Use **row banding application** techniques where appropriate (e.g., corn).
- Strategically **spot treat** where problem exists.
- Avoid **wind drift**.
- Make sure **equipment is in good working order** at all times; check for leaks.
- Use **gravity flow system or pressure flow system** for rinsing sprayer tank and lines before leaving field, spray on field boarders, row ends, or back over portion of the crop as long as labelled rates are not exceeded.
- Rinse **before pesticide dries** on walls of tank and lines.

Sources:

All Fact Sheets from *Pesticides and Water Quality*, North Carolina Agricultural Extension Service, 1988:
Fact Sheet 1: *Chemigation Practices to Prevent Groundwater Contamination.*
Fact Sheet 2: *Design for In-Field Sprayer Rinse System to Reduce Pesticide Waste.*
Fact Sheet 3: *Pesticide Container Disposal*.
Fact Sheet 4: *Disposal of Unused Pesticides, Tank Mixes and Rinsewater*.
Fact Sheet 6: *Protecting Mountain Springs from Pesticide Contamination.*
Fact Sheet 7: *Preventing Pesticide Pollution of Surface and Ground Water.*
Fact Sheet 8: *Reducing Pesticides and Saving Money Using IPM*.
Fact Sheet 10: *Protecting Groundwater from Contamination by Pesticides.*
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).