

Storm-Damaged Agrichemical Facilities ¹

Thomas W. Dean, O. Norman Nesheim, and Fred Fishel²

This fact sheet provides guidelines useful for people or organizations needing to secure pesticides and other agricultural chemicals that have been subjected to severe storm conditions.

Background

Hurricanes and other severe storms can seriously damage agricultural chemical storage facilities and the chemicals they contain. Storm-damaged facilities may adversely affect the environment and people.

Area Security

Following a severe storm, keep unauthorized people away from the chemical storage facility and adjacent areas. Post the area to indicate that potentially hazardous chemicals are present; erect fencing or rope cordons, and inform people entering the property of the presence of an agricultural chemical storage facility. The idea is to keep people and animals out of the surrounding area.

Personal Safety

Make personal safety a priority. When dealing with a storm-damaged facility, wear the personal protective equipment (PPE) needed to protect a person handling the most dangerous material present. This usually means respirator, eye protection, unlined nitrile gloves, rubber boots, long-sleeved shirt, work trousers, and a chemical-resistant apron. Before using ANY personal protective equipment, check to see that it is in serviceable condition. Be alert for SIGNS

or SYMPTOMS of pesticide poisoning: nausea, headache, difficult breathing, pinpoint pupils, or convulsions. If these appear and pesticide poisoning is suspected, seek medical attention immediately.

Site Inspection

As soon as possible, inspect the site for storm damage. Focus on 1) the presence of damaged containers; 2) if and where the storm has moved pesticide containers off site; 3) structural damage to the storage facility; and 4) ways to avoid further weather damage.

Spill Management

Finding broken packages or ruptured containers indicates the need for spill management efforts. To manage spills, use a stepwise procedure and focus on:

- CONTROLLING actively spilling materials by standing containers upright, plugging holes, etc.;
- CONTAINING spilled chemicals by installing absorbent barriers;
- COLLECTING spilled product and absorbents and placing these in sturdy containers; and
- STORING all containers of spilled agrichemicals in an area where disturbance is likely to be minimal.

1. This document is PI9 (originally published as AS054), one of a series of the Food Science and Human Nutrition Department, UF/IFAS Extension. Original publication date April 1993. Revised September 2004 and October 2015. Visit the EDIS website at <http://edis.ifas.ufl.edu>. For additional information, contact the UF/IFAS Pesticide Information Office, PO Box 110710, Gainesville, FL 32611-0720, (352) 392-4721.

2. Thomas W. Dean, Ph.D., assistant extension scientist; O. Norman Nesheim, Ph.D., professor emeritus and former pesticide information coordinator, Food Science and Human Nutrition Department; and Fred Fishel, professor, Agronomy Department; UF/IFAS Extension, Gainesville, FL 32611-0710.

Spill Prevention

Consolidate agrichemicals having intact packaging. Sort these according to package type (glass, paper, plastic, metal), substance type (insecticides, herbicides, etc.) and reactivity group (flammables, corrosives, etc.); then, put them in areas protected from weather, flooding, and building collapse. Consider alternatives such as pallets placed on blocks and covered with tarpaulins or plastic sheeting. The idea is that consolidating intact containers and providing sheltered storage will help prevent container deterioration and subsequent spills.

Product Identity and Labels

Knowing the contents of an agrochemical container is extremely important. Make every effort to preserve and protect container labeling. Containers lacking labeling will likely end up being considered unknowns—and disposal of unknowns is often very costly. Exposure to severe storms, heavy rain, or flood waters, will often cause labels to loosen. Refasten all loose labeling. Use non-water-soluble glue or sturdy transparent packaging tape to refasten loose labels. NEVER refasten labels with rubber bands (they quickly rot and easily break) or non-transparent tapes such as duct or masking tape (they can obscure important product caution statements or label directions for product usage).

As a supplement to marred or badly damaged labels, fasten a baggage tag to the container handle. On the tag write the product name, formulation, concentration of active ingredient(s), and date of product purchase. If there is any question about the contents of a container, set it aside for disposal.

Salvage

If the labeling is legible and secure, agrichemicals in intact waterproof containers, and formulated as liquids, emulsifiable concentrates, flowables, or oil solutions are often salvageable. Check each container for hidden damage. In particular, determine whether or not the pour spout seal has been broken. Upon finding a broken seal, examine the contents for evidence of contamination-- especially water-induced damage. In general, liquid formulations that have a milky appearance have been corrupted by water encroachment. In most cases, these should be set aside for disposal.

Oil solutions, such as livestock sprays, can often be salvaged. Water is easily detected in oil solutions. Since oil floats on water, carefully pour off the oil and leave the water behind. Handle the water as a container rinsate (e.g., use it as make-up water); thereafter, return the oil solution to its original container. Triple rinse the temporary container and handle the rinsate as dilute pesticide (e.g., include in a batch of spray mix.)

The salvageability of dry formulations (baits, dusts, wettable powders, granules, dry flowables, etc.) is more difficult to assess. In general, products held in paper packaging are more vulnerable to severe-storm- induced damage. But, paper is not the sole problem. Plastic and foil-lined bags are also difficult to assess for pinholes and unsound seams. As a rule, avoid opening large quantities of dry formulation packaging and examining contents in detail. Again, when in doubt, set the container aside for later disposal.



Figure 1. Dry product containers damaged following storm event.
Credits: UF/IFAS Pesticide Information Office

Temporary Storage

Temporary storage is another key concern for agrochemical facilities damaged by severe storms. In addition to the aspects of storage discussed earlier (see Spill Prevention), four other points merit mention:

- Designate three separate storage areas, one for salvaged materials, a second for materials intended for disposal, and a third one for materials in the process of being re-collected and evaluated.
- Make sure each storage area is secure and not readily accessible to persons or animals.
- Provide each area with protection from further weather and debris-induced damage
- Keep each of the three stockpiles away from supplies of water, foods, fuels, machinery, and personal protective equipment.

Handling and Transport

All post-storm movement of agrichemicals and their containers (including re-collection of off-site containers) requires care and greater-than-normal safeguards. Labeling must be preserved (even for those that will ultimately require disposal). Storm-damaged packaging is more spill-prone. Also, for certain agrichemicals, moisture increases the reactivity and fire hazard. Handling and transport efforts must take these considerations into account BEFORE movement of the product is attempted. Consult SDS sheets. Finally, before moving agrichemicals whose packaging is suspected to be weakened and likely to spill, have temporary containment vessels (such as garbage cans lined with plastic bags) on hand.

Disposal

Disposal of natural-disaster-induced agrochemical waste should proceed only after proper authorities have been contacted. In certain cases, part of the disposal costs might be paid by disaster-relief funds. Persons having severe-storm-damaged agrichemicals should contact the Florida Department of Environmental Protection (850-245-8705) for information on their disposal.