

*Best Management Practices  
for  
Agrichemical Handling and Farm Equipment Maintenance*



*by the*  
Florida Department of Agriculture and Consumer Services  
*and the*  
Florida Department of Environmental Protection

May, 1998

## FOREWORD



I am very pleased to support the distribution and implementation of the Best Management Practices manual developed jointly by the Department of Agriculture and Consumer Services, the Department of Environmental Protection, the University of Florida and several private industry partners. This manual is an excellent example of the Department's commitment to protect vital uses of pest control products while also protecting the environment through the implementation of non-regulatory educational programs.

I encourage you to follow the recommendations contained in this manual. They will protect our fragile environment, they will preclude the need for future regulations and they will continue to promote agriculture's commitment to good stewardship.

Bob Crawford, Commissioner of Agriculture  
State of Florida



The Department of Environmental Protection is proud of its partnership with the Department of Agriculture and Consumer Services, the land grant universities, and the agricultural community in the third printing of *Best Management Practices for Agrichemical Handling and Farm Equipment Maintenance*. More than 40,000 copies have been distributed to the agricultural community and demand continues to be strong, showing the level of interest in the environment. Working together, we are helping to make Florida a leader in farming while continuing to protect the environment.

We are confident that this manual will continue to assist Florida's farmers in their proud tradition as stewards of our environment. The best management practices manual contains success stories that will benefit us now and in the years to come.

David B. Struhs, Secretary  
Department of Environmental Protection

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## **DISCLAIMER**

Mention of a specific product or company is for information purposes only and does not constitute an endorsement of that product or company.

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# Best Management Practices for Agrichemical Handling and Farm Equipment Maintenance

## INTRODUCTION

Farm maintenance areas are those sites where pesticides are mixed and loaded into application equipment; tractors and other pieces of farm equipment are serviced; or pesticides, fuel, fertilizer, and cleaning solvents are stored. These are the areas of the farm where accidental pollution of soil, surface water, or ground water is most likely to occur.

The purpose of this document is to familiarize farmers, farm managers, and farm workers about Best Management Practices (BMPs) and pollution prevention actions that can be implemented at farm maintenance areas to further protect the environment and improve the efficiency of the farm. **Although certain rules are mentioned, this publication is an educational, not a regulatory, document.** Always check with state and local authorities, because local ordinances may be more restrictive than federal or state regulations.

Most pollution from farms is called nonpoint source pollution. Unlike point sources, which include factories and sewage treatment plants, nonpoint pollution is from diffuse sources and is associated with the long term effects of every day activities, such as stormwater runoff from roads, parking lots, suburban areas, and farms. Water is the primary mechanism for the transport of dissolved chemicals through the soil. Nonpoint source pollution is carried primarily by rainfall and irrigation water, causing pollutants which have accumulated on the land surface to run off into surface water or to leach into the ground water.

Many of Florida's water resources are particularly susceptible to pollution because of the State's unique geology. Floridians obtain almost all of their drinking water from ground water via wells. Ground water supplies often lie near the surface and may be overlain by nothing but sandy soil. With repeated spills over a period of time, these ground water supplies can become contaminated. In addition to all of the crop-based factors, users of agrichemicals need to consider the soil's susceptibility to leaching, the distance to the water table, the slope of the land, and the distance to surface waters, especially sinkholes, which provide a direct pathway to ground waters.

Clay or muck soils which are capable of binding certain pesticides very tightly (making leaching less likely), may have problems with soil contamination due to repeated small spills over a long time. This can create a hazard for people exposed to the soil through dust or other pathways.

Contamination can occur when pesticides, lubricants, solvents, or other chemicals are spilled, rinsewater from container or equipment cleaning is dumped on the ground or discharged into surface water, or improperly cleaned containers are stockpiled or buried. Proper management of farm maintenance areas is an important part of responsible chemical and pesticide use. Proper handling and disposal practices at these sites can help avoid serious environmental problems, protect the farm's water supply, reduce exposure of the owner to legal liability for contamination

and cleanup (including penalties and fines), and foster a good public image for agriculture. Certain kinds of management practices, implemented at these farm maintenance areas, can prevent the contamination of soil, surface water, and ground water by the materials stored and handled at these sites. This document describes a number of “Best Management Practices” (BMPs) which can be put into practice through proper design and operation of the maintenance facilities and equipment.

For additional information on safeguarding your farm and water supply, obtain a free copy of the FARM-A-SYST self-evaluation package from your county extension agent. The FARM-A-SYST guide contains a series of fact sheets and matching worksheets to help you assess your farm and safeguard your family and your water supply.



## BEST MANAGEMENT PRACTICE PRINCIPLES

While this document covers a number of specific BMPs, it cannot address each and every situation that may have the potential for causing pollution. Three guiding principles can help you to develop BMPs for your own situation.

1. **Isolate** all potential contaminants from soil and water.
2. **Do not discharge** any waste material onto the ground or into surface water bodies.
3. Develop and implement a **Conservation Plan** and an **Integrated Pest Management (IPM) Program** to maximize efficient use of irrigation, fertilizers, and pesticides. Seek the assistance of your county extension agent or independent consultant and the USDA Natural Resources Conservation Service to develop specific plans for your farm.

### 1. Isolate Materials

Identify all the materials stored or handled on a farm that could cause environmental contamination. These materials include pesticides, fuels, lubricants, degreasers, solvents, fertilizers, paints and antifreeze. Some materials, like pesticides and fertilizers, are meant to be applied to soil. However, the amount applied to an area in a given time determines whether they are beneficial or harmful.

Create an inventory which lists these materials and where they are stored and used. Then develop management practices which isolate these materials from soil and water during storage, handling, and disposal.

Minimize the need for storage by carefully planning and ordering chemicals only as they are needed. Store chemicals in covered, lockable storage areas. Handle them over impermeable surfaces. Clean up spills promptly and properly. Recycle spilled materials where practical.

Properly managing these materials will keep them from getting into stormwater runoff or contaminating soil or water.

### 2. Minimize Discharges

Eliminate the discharge of materials such as equipment wash water to ground or surface waters. Surface water contamination can occur directly through discharges to a lake or canal, or indirectly through discharges to stormwater drains or to field drains, ditches, or swales. Discharge to ground water may occur by percolation through highly permeable soils from repeated activity at a single location, or by flow into sinkholes, improperly constructed wells or other direct conduits to ground water. Discharges to surface or ground water should be eliminated through containment, collection, and proper management (recycle if practicable). Stormwater may be discharged to a

swale, detention pond or retention area, provided that the area neither connects to a surface water body nor includes a direct conduit to ground water. Where allowed by the local Department of Environmental Protection (DEP) District office, Water Management District, and local authorities, limited amounts of equipment washwater (other than that from pesticide application equipment) may also be discharged in this manner.

### **3. Conservation**

Optimize the efficient use of fertilizers, pesticides and irrigation water by implementing the BMPs in your conservation plan and IPM program. These measures reduce the amount of materials used, which helps to reduce expenses and promotes good environmental stewardship.

\*\*\*\*

The remainder of this document is divided into sections covering pesticides, fertilizers, and equipment repair and maintenance. A reference section, included at the end, describes sources where you may obtain further information. Crop-specific practices, such as pesticide or fertilizer types or application rates, and equipment-specific practices, such as spray drift reduction, are beyond the scope of this document. Consult your County Extension agent, agrichemical dealer, independent consultant, and similar sources for further information on these topics.

***Remember, an ounce of prevention is worth many dollars of cure!***

# SPECIFIC BEST MANAGEMENT PRACTICES

## 1.0. BMPs for Pesticides

Pesticides are designed to kill or alter the behavior of pests. When, where and how they can be used safely and effectively is a matter of considerable public interest. If they are not used wisely, pesticides may pose risks to pesticide applicators and exposed farmworkers, and may pose long term environmental problems.

Pesticide spills can be especially problematic. Even pesticides designed for rapid breakdown in the environment can persist for years if present in high concentrations. The results can be contamination of drinking water; fish kills and other impacts to nontarget organisms; and administrative fines and legal remedies. It is important that pesticide users protect themselves from all of these hazards. This section will discuss several ways to prevent problems with pesticides. It will address pesticide selection, storage, safe practices for mixing and loading, and waste disposal.

The most obvious method to reduce the risk from pesticides is to use them only when necessary. Determine which pesticides are the most useful and least environmentally harmful for a given situation. Apply them properly and effectively to minimize costs and the effects on public health and the environment while maximizing crop production. Give particular attention to the vulnerability of your farm to ground or surface water contamination from leaching or runoff.

**Always follow the directions on the label.** These directions have been developed after extensive research and field studies on the chemistry, biological effects, and environmental fate of the pesticide. The label is the single most important document in the use of a pesticide. **Following label directions is required by state and federal pesticide laws!**

To determine which pesticides are most appropriate for use on your farm, and when and how to use them, you should consult the appropriate pesticide selection guides produced by the University of Florida Institute of Food and Agricultural Sciences (IFAS) and talk with your county extension agent, your agrichemical dealer, or an independent crop consultant.

### 1.1. Integrated Pest Management (IPM)

IPM is a philosophy of managing pests that aims to reduce farm expenses, conserve energy, and protect the environment.

IPM is a broad, interdisciplinary approach using a variety of methods to systematically control pests which adversely affect people and agriculture.



IPM does not, as many believe, mean that no pesticides are used. Rather, it means that pesticides are only one weapon against pests and that they should be used judiciously, and only when necessary.

The goals of an IPM program are:

- (1) Improved control of pests, through a broad spectrum of practices that work together to keep pest populations below economically significant thresholds.
- (2) More efficient pesticide management, through less frequent and more selective use of pesticides.
- (3) More economical crop protection, from reduced chemical costs and more efficient protection.
- (4) Reduction of potential hazards to farmers, workers, consumers, and the environment, through reduced pesticide exposure.

IPM accomplishes these goals using resistant plant varieties, cultural practices, parasites and predators, other biological controls such as *Bacillus thuringiensis* (BT), and other methods including chemical pesticides as appropriate.

The basic steps for an IPM program are:

- (1) Identify key pests and beneficial organisms and the factors affecting their populations.
- (2) Select preventative cultural practices to minimize pests and enhance biological controls. These practices may include soil preparation, crop rotation, resistant varieties, changed planting dates, modified irrigation methods, cover crops, augmenting beneficials, etc.
- (3) Use trained “scouts” to monitor pest populations to determine if or when an emergency control tactic might be needed.
- (4) Predict economic losses and risks so that the cost of various treatments can be compared to the potential losses to be incurred.
- (5) Decide the best course and carry out corrective actions.
- (6) Continue to monitor pest populations to evaluate results of the decision and the effectiveness of corrective actions. Use this information when making similar decisions in the future.

**See your county extension agent or independent crop consultant for help in setting up an IPM program for your farm.**

## **1.2. Pesticide Equipment Calibration and Loading**

**Keep application equipment properly calibrated and in good repair.** Correct measurement will keep you in compliance with the label, reduce risks to applicators, farm workers, and the environment, and save you money. **Calibrate using clean water and do not calibrate equipment near wells, sinkholes, or surface water bodies.** Measure pesticides and diluents accurately to avoid improper dosing, preparation of excess or insufficient mixture, or preparing a tankload of mixture at the wrong strength.

Proper application of pesticides will help a farm reduce costs and increase profits. Improper application can result in wasted chemicals, marginal pest control, excessive carry-over, or crop damage. As a result, inaccurate application is usually very expensive.

Most pesticides are applied with hydraulic sprayers. Tractor-mounted, pull type, pickup-mounted and self-propelled sprayers are available from numerous manufactures to do all types of spraying. Spray pressures range from near 0 to over 300 pounds per square inch (PSI), and application rates can vary from less than 1 to over 100 gallons per acre (GPA).

Be aware of the proper application methods, chemical effects on equipment, equipment calibration and correct cleaning methods. **Sprayers should be calibrated when new or when nozzles are replaced**, and recalibrated after a few hours of use, as new nozzles may wear and flow rate may increase rapidly. For example, wettable powders may erode nozzle tips, causing an increase in application rates after spraying as little as 50 acres. **Recalibrate equipment periodically to compensate for wear in pumps, nozzles, and metering systems.**

The amount of chemical solution applied per acre depends upon the forward speed, system pressure, size of nozzle, and spacing of nozzles on the boom. A change in any one of these will change the rate of application. Consult the operator's manual for detailed information on a particular sprayer.

Calibration should be performed by measuring the amount of pesticide applied to a part of an acre and calculate how much would be applied to an entire acre. Be sure to check the flow rates of all nozzles on the sprayer so they are similar.

Several different calibration methods can be found in the University of Florida/IFAS Circular SM38, *Spray Equipment and Calibration*.

### **1.3. Pesticide Record Keeping**

The Florida pesticide law requires certified applicators to keep records of all restricted use pesticides (RUP). The federal worker protection standard (WPS) requires employers to inform employees of all pesticides applied to forests, groves, fields, nurseries and greenhouses. To meet your legal responsibility and to document your production methods you need to maintain accurate pesticide records.

Florida law requires that you record the following items to comply with the restricted use pesticide record keeping requirement:

Brand or product name	Month / day / year of application
EPA registration number	Name and license number of applicator ( If applicator is not licensed, record his/her name and the supervisor's name and license number.)
Total amount applied	Method of application
Location of application site	Name of person authorizing the application, if the licensed applicator does not own or lease the property
Size of area treated	
Crop / variety / target site	

Florida regulations require that information on RUPs be recorded within two working days of the application and maintained for two years from the application date. The WPS requires information on all pesticides to be recorded and posted when a pesticide is about to be applied or has recently been applied. WPS requires that records be made available for 30 days after an expired restricted entry interval (REI).

Required records must be made available upon request to FDACS representatives, USDA authorized representatives, and licensed health care professionals.

#### 1.4. Pesticide Storage

**Design and build pesticide storage structures to keep pesticides secure and isolated from the surrounding environment.** Store pesticides in a roofed concrete or metal structure with a lockable door. Locate this building at least 50 feet from other structures (to allow fire department access). Keep pesticides in a separate facility, or at least in a locked area separate from areas used to store other materials, especially fertilizers, feed, and seed. **Do not store pesticides near burning materials, hot work (welding, grinding), or in shop areas.** Do not allow smoking in pesticide storage areas.



**Figure 1. Pesticide storage room with corrosion-resistant shelving.**

**Store personal protective equipment (PPE) where it is easily accessible in the event of an emergency, but not in the pesticide storage area** (since that may make it unavailable in time of emergency). Check the label and the Material Safety Data Sheets (MSDS) for the safety equipment requirements. **Keep a written pesticide inventory and the MSDS file for the chemicals used in the operation on site.** Do not store this information in the pesticide storage room itself.

Depending on the products stored and the quantity, you may need to register the facility with the Department of Community Affairs and your local emergency response agency. Check with your dealer about Community Right-to-Know laws for the materials that you purchase. **An emergency response plan should be in place and familiar to farm personnel before an emergency occurs**, such as a lightning strike, fire, or hurricane. Individuals conducting emergency pesticide cleanups should be properly trained under the requirements of the Occupational Safety and Health Administration (OSHA). For reporting chemical spills, see the Reference section.

Do not store large quantities of pesticides for long periods of time. **Adopt the “first in - first out” principle, using the oldest products first to ensure that the product shelf life does not expire.**

**Store pesticides in their original containers. Do not put pesticides in containers that might cause children and others to mistake them for food or drink.** Keep the containers securely closed and inspect them regularly for splits, tears, breaks, or leaks. **Arrange pesticide containers so that labels are clearly visible and make sure labels are legible.** All pesticide containers should be labeled. Refasten all loose labeling. Use non-water-soluble glue or sturdy transparent packaging tape to refasten loose labels. Do not refasten labels with rubber bands (these quickly rot and easily break) or non-transparent tapes such as duct tape or masking tape (these may obscure important product caution statements or label directions for product usage). If a label is damaged, immediately request a replacement from the pesticide dealer or formulator. As a temporary supplement to disfigured 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 the date of purchase. If there is any question about the contents of the container, set it aside for disposal.

**Dry bags should be raised on plastic pallets to ensure that they do not get wet. Do not store liquid materials above dry materials.** Store flammable pesticides separately from non-flammable pesticides.

**Segregate herbicides, insecticides and fungicides** to prevent cross-contamination and minimize the potential for misapplication. Cross-contaminated pesticides often cannot be applied in accordance with the labels of each of the products. This may make it necessary to dispose of the cross-contaminated materials as wastes and could require the services of a consultant and hazardous waste contractor.

**Use shelving made of plastic or reinforced metal. Keep metal shelving painted** (unless stainless steel) to avoid corrosion. Never use wood shelving because it may absorb spilled pesticide materials.

**Construct floors of seamless metal or concrete sealed with a chemical-resistant paint.** For concrete, use a water-cement ratio no higher than 0.45:1 by weight, and leave a rough finish to provide adhesion for the sealant. **Equip the floor with a continuous curb to retain spilled materials.** While a properly sealed sump may be included to help recover spilled materials, do not include a drain. Provide sloped ramps at the entrance to allow handcarts to safely move material in and out of the storage area.

When designing the facility, keep in mind that temperature extremes during storage may reduce safety and affect pesticide efficacy. Provide automatic exhaust fans and an emergency wash area. The emergency wash area should be located outside the storage building. Explosion proof lighting and fans may be required by local fire and electrical codes. It is recommended that the light/fan switch be located outside the building so that both are on before entering and until people have left the building.

The BMPs discussed often address the ideal situation of newly constructed permanent facilities. However, the user is encouraged to apply the principles and ideas put forth to existing facilities, and to portable or temporary facilities that may be used on leased land where permanent structures are not practical.

Plans and specifications for pesticide storage buildings are available from several sources, including the Natural Resources Conservation Service (NRCS) of the United States Department of Agriculture, the Midwest Plan Service, and the UF-IFAS Publications Office. These publications also contain recommended management practices for pesticide storage facilities. See the reference section at the end of this publication for information on how to obtain these materials.

## **1.5. Locating Mixing and Loading Activities**

Use extreme caution when handling concentrated chemicals. Spills could result in an expensive hazardous waste cleanup. It is important to understand how mixing and loading operations can pollute vulnerable ground and surface water supplies if conducted improperly and at the wrong site. **Locate operations well away from ground water wells and areas where runoff may carry spilled pesticides into surface water bodies.** If such areas cannot be avoided, protect wells by properly casing and capping them and use berms to keep spills out of surface waters. **Areas around public water supply wells should receive special consideration and may be designated as wellhead protection areas.** Before mixing or loading pesticides in such areas, consult with state and local government officials to determine if special restrictions apply.



**For your own safety, always use all PPE required by the label.**

Described below are several BMPs that can help to prevent contamination at mixing and loading sites. These include field mixing, nurse tanks, portable mixing centers, and permanent mixing and loading structures.

## **1.6. Field Mixing and Nurse Tanks**

**Conducting all mixing and loading operations at random locations in the field away from wells or surface water bodies is an inexpensive way to reduce environmental contamination.** Mixing chemicals at random sites in the field lessens the chance of a buildup of spilled materials in any one place. This will reduce the chance of adversely affecting the natural organisms which biologically degrade pesticides. If concentrated pesticide is spilled at the field mixing site, the soil should be dug up and collected immediately. It can then be diluted with clean soil or fertilizer and applied at the labeled rate (unless prohibited by the label).

**If it is not practical to conduct field mixing operations away from wells, every effort should be made to properly case and cap wells, or retrofit open uncased wells to protect the ground water from spills and runoff.** Check with your local Soil and Water Conservation District (SWCD) or Water Management District (WMD) to see if cost-share grants are available for these activities.



**Figure 2. Nurse tank with pump, chemical inductor tank and emergency fresh water tank.**

Nurse tanks are tanks of clean water transported to the field to fill the sprayer. Nurse tanks make it possible to move the mixing and loading operation away from permanent sites (which are often near wells or surface water) to random locations in the field.

**Never introduce pesticides into a nurse tank.** Instead, inject pesticides into the transfer line or add them to the spray rig during filling. The pesticides may be introduced by conventional pouring, or pumped by a closed system, depending on label requirements and the type of container. **Always use a check valve at the nurse tank to prevent backflow into the nurse tank.**

**Regardless of the water source, an air gap should be maintained whenever practical between the water source and the chemical to provide positive backflow protection.** Where allowed by the label, anti-foaming agents should be used. Always leave adequate headspace (usually 10%) when filling the tank. **Never leave a tank unattended while filling.**



**Figure 3. Portable fabric mix/load pad.**

In some areas of Florida, water is drawn directly from canals or ditches in the field. **In such situations, use a barrier such as a berm or some type of portable containment system to prevent spills from contaminating surface water. Use at least two forms of backflow protection to stop pesticides from siphoning back into the canal.** These could be an air gap at the fill point and a foot valve on the pump, or for a closed system, a double check valve and vacuum breaker.

### **1.7. Portable Mixing Centers**

**Another option for preventing contamination of mixing and loading sites is to use a portable mixing center.** Some are little more than a very durable version of a child's wading pool, while others are made of interlocking steel sections with a custom fitted liner and built in sump. One variation is a self-contained mix/load trailer with a nurse tank at one end and a mix/load area at the other, where the mixture is pumped directly into the sprayer. Another uses portable containment facilities with nurse tanks to set up a temporary mixing/loading site in a remote field, or on leased land where no permanent structure is practical.

**Portable mixing centers usually have no roof, but should be protected from rain.** Since the pad may contain pesticide residues, the accumulated rainwater might have to be applied as a pesticide or disposed as a hazardous waste. A heavy rain could cause the pad to overflow, washing pesticides into the environment. **Clean portables thoroughly immediately after a spill,**



**Figure 4. Portable closed mix/load system.**

Courtesy of Empty-Clean, Cordele, GA.

**because the liner material could be damaged by the pesticide formulation.** Also, a sudden thunderstorm could result in a considerable amount of contaminated rainwater to be dealt with, or even a spill. Where practical, portable pads for mixing and loading should be used away from wells or surface water. **Never leave a tank unattended while filling.**

### **1.8. Permanently Located Mixing and Loading Facilities**

To minimize the risk of pesticides accumulating in the environment from repetitive spills, you may wish to **construct a permanent mix/load facility** with an impermeable surface (such as sealed concrete) so that spills can be collected and managed.

**A permanently located mixing and loading facility, or chemical mixing center (CMC), is designed to provide a place where spill-prone activities can be performed over an impermeable surface that can be easily cleaned and permits the recovery of spilled materials.**



**Figure 5. Typical CMC for agricultural use.**

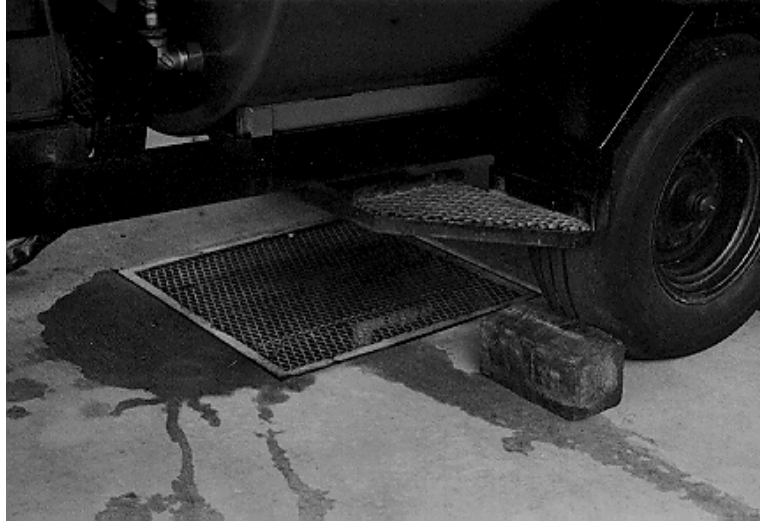
**Where feasible, the mixing and loading facility should be located in close proximity to the pesticide storage building to reduce the potential for accidents and spillage when transferring pesticides to the mixing site. Do not build new facilities on potentially contaminated sites, since subsequent cleanup efforts may require the operation to be relocated.**

In its most basic form, a CMC consists of a concrete pad treated with a pesticide-resistant sealant and sloped to a liquid-tight sump where all of the spilled liquids can be recovered. **When considering a permanent CMC, it is important to assess the level of training and supervision required by the staff that will be using the center, so that it is operated in a safe and responsible manner.**

Even the best designed facility will not prevent environmental contamination if it is not properly managed.

**It is crucial that a CMC facility be properly designed and constructed.** Mistakes can be costly and can result in unintended environmental contamination. Several publications are available to explain design, construction and operational guidelines for permanent mix/load facilities. It is strongly recommended that these publications be consulted before designing any facility. These publications are listed in the reference section.

**It is very important that wherever feasible, a CMC be located away from wells or surface water bodies.** It should also be built above the flood plain. **The first principle of CMC management is that any material that collects on the pad must be applied as a pesticide or disposed as a (potentially hazardous) waste.** Because any water, including rain, that collects on the pad must be used as a pesticide or disposed as a (potentially hazardous) waste, **an open building must have a roof with a substantial overhang (minimum 30 degrees from vertical, 45 degrees recommended) on all sides to protect against windblown rainfall.**



**Figure 6. Spills flow into sump, not onto the ground.**  
Courtesy of John's Island West.

**In constructing a concrete mix/load pad, it is critical that the concrete have a water-cement ratio no higher than 0.45:1 by weight.** This is needed to minimize cracking and to ensure that the concrete does not fail in tension near the sealant-concrete interface. Superplasticizers and/or fly ash may be added to increase workability of the mix, but additional water must not be added. The concrete should receive a light broom finish to provide adhesion for the sealant. See *Designing Facilities for Pesticide and Fertilizer Containment* (reference the publications list) for full details of concrete specifications.

Materials other than concrete, such as steel or durable synthetics, may also be used in some cases. These materials are also used for portable CMCs where a permanent facility is not practicable.

**The CMC sump should be small and easily accessible for cleaning.** There must be a way to pump liquid in the sump to the sprayer or to storage tanks. **Immediate application in accordance with the label instructions is usually the preferred method of handling both spills and rinsate.** If rinsate storage tanks are used, there should be at least one tank for each group of compatible pesticide types. This allows rinsate to be saved and used as make-up water for the next time that type of material is applied.

**Clean up all spills immediately.** For small liquid spills (e.g. when backpack sprayers are being loaded), absorbents such as montmorillonite clays (cat litter) or sand may be used. These can be applied as a top dressing in accordance with the label instructions, or disposed as a (possibly hazardous) waste. Solid materials, of course, can be swept up and reused.



**Pump the sump dry and clean it by the end of each day. Liquids and sediments should be removed from the sump and the pad any time pesticide materials are changed to an incompatible product** (an incompatible product is one that cannot be legally applied to the same crop). Liquids and sediments can then be applied as a pesticide at less than the label rate, instead of requiring disposal as a (possibly hazardous) waste.

### **1.9. Pesticide Application Equipment Washwater**

**Washwater from pesticide application equipment must be managed properly since it will contain pesticide residues.** Wash the **outside** of the equipment at random spots in the field using water from a nurse tank. **Clean the tires and particularly dirty areas of the equipment exterior prior to bringing it into the pad area.** These practices prevent unwanted dirt from getting on the mix/load pad and sump or from being recycled into the sprayer. **Avoid conducting such washing in the vicinity of wells or surface water bodies.** For intensive centralized or urban operations, it may be necessary to discharge the washwater to a DEP permitted treatment facility.

**The inside of the application equipment should be washed on the mix/load pad.** This rinsate may be applied as a pesticide (preferred) or stored for use as make-up water for the next compatible application. Otherwise it must be treated as a (potentially hazardous) waste. **After washing the equipment and before an incompatible product is handled, the sump should be cleaned of any liquid and sediment.**

### **1.10. Pesticide Container Management**

**Rinse pesticide containers as soon as they are empty.** Pressure rinse or triple rinse containers and add the rinse water to the sprayer. Shake or tap non-rinseable containers such as bags or boxes so that all dust and material falls into the application equipment. **Always wear the proper personal protective equipment (PPE) when conducting these rinse operations.**

**After cleaning, puncture the pesticide containers to prevent re-use** (except glass and refillable mini-bulk containers). Keep the rinsed containers in a clean area, out of the weather, for disposal or recycling. Storing the containers in large plastic bags is one popular option to protect the containers from collecting rainwater. **Recycle rinsed containers in counties where an applicable program is available**, or take them to a landfill for disposal. Check with your local landfill before taking containers for disposal, as not all landfills will accept them. For information about pesticide container recycling programs in your area, contact the Pesticide Information Office at the University of Florida (352-392-4721). If permitted by the label and local ordinances, bags, boxes and group 1 pesticide containers may be burned in an open field by the owner of the crops. Burn each day's accumulation and do not store them overnight for later burning. Group 1 containers are containers of organic or metallo-organic pesticides, except organic mercury, lead, cadmium, or arsenic compounds.

## 1.11. Pesticide Spill Management

**Clean up spills as soon as possible.** The sooner you can contain, absorb, and dispose of a spill, the less chance there is that it will cause harm. Always use the appropriate personal protective equipment as indicated on the MSDS and the label. In addition, follow the following four steps:

**CONTROL actively spilling or leaking materials** by setting the container upright, plugging leak(s), or shutting the valve;

**CONTAIN the spilled material** using barriers and absorbent material;

**COLLECT spilled material**, absorbents, and leaking containers and place them in a secure and properly labeled container;

**STORE the containers of spilled material until they can be applied as a pesticide** or appropriately disposed.

**Small liquid spills may be cleaned up by using an absorbent such as cat litter**, diluting with soil, and then applying the absorbent to the crop as a pesticide in accordance with the label instructions.

Farmers, farm managers, and landowners must comply with all applicable federal, state, and local regulations regarding spill response training for employees, spill reporting requirements, spill containment, and cleanup. **Keep spill cleanup equipment available when handling pesticides or their containers.**

If a spill occurs for a pesticide covered by certain state and federal laws, you may need to report any accidental release if the spill quantity exceeds the “reportable quantity” of active ingredient specified in the law. See the sections on “Spill Reporting Requirements” and “Important Telephone Numbers” at the end of this publication.

For emergency (only) information on hazards or actions to take in the event of a spill call **CHEMTREC**, at **1-800-424-9300**. CHEMTREC is a service of the Chemical Manufacturers Association. For information on whether a spilled chemical requires reporting, call the SARA title III help line at **1-800-535-0202** or the CERCLA / RCRA help line at **1-800-424-9346**.

## 1.12. Pesticide Waste Management Summary

The single best practice to handle excess pesticide material is to use it as a pesticide in accordance with the label instructions. However, it is not always possible to avoid generating waste. The appropriate practice to be followed depends on the type of pesticide waste. To summarize, the proper practice for each type of pesticide material is listed below.

Empty refillable containers (minibulks)	Refer to instructions on the label.
Empty non-refillable containers	Properly clean all containers. Shake out bags. Pressure rinse or triple rinse liquid containers and puncture (except glass). Transport to an approved pesticide container recycling facility. If no recycling facility is available, disposal as solid waste or open burning may be allowed. (Consult label and local authorities.)
Excess formulation (raw product)	Use as a pesticide in accordance with the label, return to the manufacturer in accordance with manufacturer's specifications, follow label instructions for disposal, or contact a hazardous waste contractor to remove and dispose if the EPA or State registrations are no longer valid.
Excess mixture	Use as a pesticide in accordance with label.
Material used to contain or collect spills or leaks	Use as a pesticide by applying at or below application rate in accordance with label directions for use. If the material must be disposed as a waste, contact the DEP District
Application equipment washwater	Use tank washwater as a pesticide by applying at or below application rate in accordance with label directions for use, or reuse as a diluent in subsequent applications. Wash outside of equipment at random areas in the field. Alternatively, treat the washwater in a permitted treatment facility. This requires a DEP industrial wastewater permit. (Call your DEP District office.)

## 2.0. BMPs for Fertilizers

If not handled properly, fertilizers can be a significant source of water pollution. The nutrients in fertilizers can lead to algal blooms and stimulate growth of noxious plants in lakes and streams. This can reduce the amount of oxygen available for game fish such as bass and sunfish while promoting less desirable fish.

Nitrate is a special health concern because excessive levels in drinking water can cause methemoglobinemia (blue baby syndrome) in infants. Case studies show that the likelihood of this condition increases rapidly when water contains nitrate above 20 parts per million. Because of the extensive interconnection of Florida's aquifers and surface waters, Florida requires that all potentially potable ground waters meet drinking water standards. For nitrate, federal and state regulations set this standard at 10 parts per million. Extremely shallow wells (less than 50 feet), and old wells that may have faulty casings, are at the highest risk for nitrate contamination.

Guidance on the proper application of nutrients in the field is beyond the scope of this document, and the reader is referred to IFAS crop-specific publications for this information. The practices described below are used when storing and loading fertilizer into equipment. These can help prevent contamination of our water resources from spilled nutrients.

### 2.1. Storage

**Always store nitrogen based fertilizers separately from solvents, fuels, and pesticides since many fertilizers are oxidants and can accelerate a fire.** Ideally, fertilizer should be stored in a concrete building with a metal or other type of flame-resistant roof.

**Take care when storing fertilizer to prevent contamination of nearby ground and surface water. Always store fertilizer in an area that is protected from rainfall.** Storage of dry bulk materials on a concrete or asphalt pad may be acceptable if the pad is adequately protected from rainfall and from water flowing across the pad. Secondary containment of stationary liquid fertilizer tanks larger than 550 gallons is addressed in DEP rule 62-761, Florida Administrative Code (F.A.C.). Even where not required, the use of secondary containment is a sound practice.

### 2.2. Loading

**Load fertilizer into application equipment away from wells or surface water bodies.** A concrete or asphalt pad with rainfall protection is ideal, as this permits easy recovery of spilled material. If this is not feasible, loading at random locations in the field can prevent a buildup of nutrients in one location. **Do not load fertilizers on a pesticide CMC because of the potential for cross-contamination.** Fertilizers contaminated with pesticides may cause crop damage or generate hazardous wastes.



**Clean up spilled material immediately.** Collected material may be applied as fertilizer. At fixed sites, the area can be cleaned by sweeping or vacuuming (or with a shovel or loader, if a large spill), or by washing down the loading area to a containment basin specially designed to permit recovery and reuse of the wash water. Washwater generated should be collected and applied to the crop. **Discharge of this washwater to water bodies, wetlands, storm drains or septic systems is illegal.**

### 3.0. BMPs for Solvents and Degreasers

One of the key principles of pollution prevention is to reduce unnecessary use of potential pollutants. Over time, the routine discharge of even small amounts of solvents can result in serious environmental and liability consequences due to the accumulation of contaminants in soil or ground water. **As little as 25 gallons per month of used solvent disposal can qualify you as a “small quantity generator” of hazardous waste, triggering EPA and DEP reporting requirements.** Whenever practical, replace solvent baths with recirculating aqueous washing units (which resemble heavy duty dishwashers). Soap and water or other aqueous cleaners are often as effective as solvent-based ones. Blowing off equipment with compressed air instead of washing with water is often easier on hydraulic seals and can lead to fewer oil leaks.

#### 3.1. Storage

**Store solvents and degreasers in lockable metal cabinets in an area away from ignition sources (e.g. welding areas, grinders) and provide adequate ventilation.** They are generally toxic and highly flammable. Never store them with pesticides or fertilizers or in areas where smoking is allowed. **Keep basins or cans of solvent covered to reduce volatile organic compound (VOC) emissions and fire hazards. Keep an inventory of the solvents stored and the MSDS sheets** for these materials on the premises, but not in the solvent storage area. Keep any emergency response equipment recommended by the manufacturer of the solvent in a place easily accessible and near the storage area, but not inside the area itself. Follow OSHA signage requirements.

#### 3.2. Use

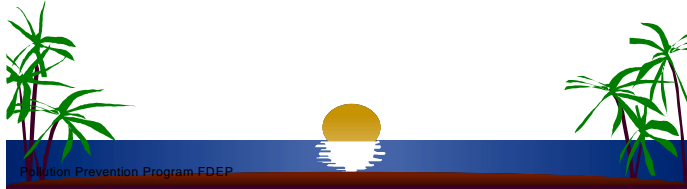
**Always wear the appropriate PPE, especially eye protection,** when working with solvents. **Never allow solvents to drain onto pavement or soil, or discharge into water bodies, wetlands, storm drains, sewers or septic systems, even in small amounts.** Solvents and degreasers should be used over a collection basin or pad that can collect all used material. Most solvents can be filtered and reused many times. **Store the collected material in marked containers until it can be recycled or legally disposed.**

#### 3.3. Disposal

Private firms provide solvent wash basins that drain into recovery drums and a pick-up service to recycle or properly dispose of the drum contents. **Collect used solvents and degreasers, place them into containers marked with the contents and the date, and then have them picked up by a service that will properly recycle or dispose these materials. Never mix used oil or other liquid material with the used solvents.** Use only DEP-approved, licensed contractors. See IFAS publication DSP-2, *Disposal Options for Agricultural Wastes*, for more information.

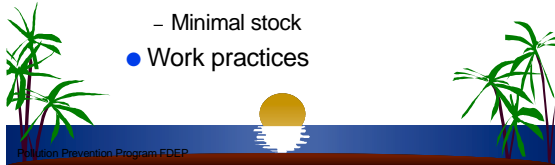
# Tips and Tricks for Solvent Pollution Prevention

- General Cleaner Conservation
- Water Based Cleaners
- Petroleum Based Cleaners



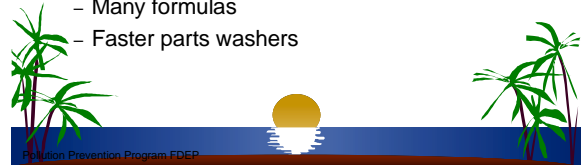
## General Cleaner Conservation

- Cleaning Requirements
  - Minimum acceptable frequency
  - Adequate level of cleanliness
- Inventory control
  - First in first out
  - Minimal stock
- Work practices



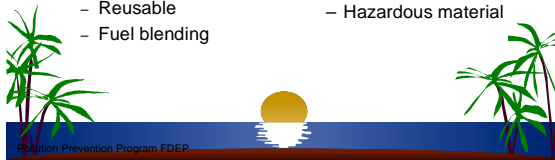
## Water Based Cleaners

- |                        |                  |
|------------------------|------------------|
| ● Advantages           | ● Disadvantages  |
| - Low evaporation      | - Must test      |
| - Low VOC              | - Disposal       |
| - Easy reuse           | - Process change |
| - Lower long term cost | - Capital cost   |
| - Many formulas        |                  |
| - Faster parts washers |                  |



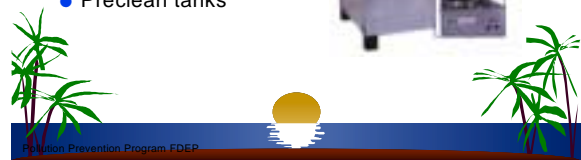
## Petroleum Based Cleaners

- |                       |                      |
|-----------------------|----------------------|
| ● Advantages          | ● Disadvantages      |
| - Standard method     | - Evaporation        |
| - Available           | - VOC                |
| - Broad applicability | - Safety             |
| - Quick dry           | - Long term cost     |
| - Reusable            | - Hazardous material |
| - Fuel blending       |                      |



## Gadgets to Conserve Petroleum Solvents

- Plunger cans
- Filters
- Distillation units
- Lids
- Preclean tanks



#### 4.0. BMPs for Paint

Paints, stains, or other finishing materials may be either oil-based or latex. **The best method of disposal for empty latex paint cans is to allow the can to fully dry and then dispose it in a landfill.** Excess latex paints can often be mixed together, re-tinted, and used. Charitable housing groups will often accept excess latex paint.

When spraying paints, especially solvent or oil-based ones, **use a high-volume low-pressure (HVLP) spray system.** These systems dramatically increase spray efficiency and reduce overspray, volatile emissions, and material costs.

**Oil and solvent based coatings which cannot be used should be disposed as hazardous waste.** Most empty cans may be allowed to fully dry and then disposed in a landfill. However, if the paint contained lead or chromium, or contained mercury as a mildewcide, the can must be disposed as hazardous waste.



**Figure 7. Groups like Habitat for Humanity often use donated paint.**

## 5.0. BMPs for Used Oil, Antifreeze, and Lead-Acid Batteries

**Collect used oil, oil filters, and antifreeze in separate marked containers and recycle.** In Florida, recycling is the only legal option for handling used oil. Oil filters should be drained (puncturing and crushing helps) and taken to the place that recycles your used oil, or to a hazardous waste collection site. Many gas stations or auto lube shops will accept small amounts (including oil filters) from individuals. **Antifreeze must be recycled or disposed as a hazardous waste.** Commercial services are available to collect this material. Do not mix used oil with used antifreeze or sludge from used solvents. See IFAS publication DSP-2, *Disposal Options for Agricultural Wastes*, for more information on this subject.

**Lead-acid storage batteries are classified as hazardous wastes unless they are recycled.** All lead-acid battery retailers are required by law to accept returned batteries for recycling. Used acid from these batteries contains high levels of lead and must be disposed as hazardous waste, unless the acid is contained within a battery being recycled. Make sure all caps are in place to contain the acid. **Store batteries on an impervious surface and preferably under cover.** Remember, spent lead-acid batteries must be recycled to be exempt from strict hazardous waste regulations.



**Figure 8. A safe way to store used oil and filters until they are recycled.**

## 6.0. BMPs for Gasoline and Diesel Fuel

**Design and manage fuel dispensing areas to prevent soil and water contamination.** Place fuel pumps on concrete or asphalt surfaces. Fuel pumps with automatic shut off mechanisms reduce the potential for overflow and spillage during fueling. Do not locate the pumps where a spill or leak would cause fuel to flow onto the ground or into a storm drain or surface water body.

**Stationary fuel storage tanks should be in compliance with DEP storage tank regulations** (Chapter 62-761, F.A.C. ). Call the nearest DEP District office for information on these requirements. In general, underground tanks with volumes over 110 gallons and above-ground tanks with volumes over 550 gallons must be registered and located within secondary containment systems unless of double-wall construction. Local regulations may be more stringent.

While containment is not usually required for smaller tanks, it is still a good practice. Also, roofing and containment for diesel engines is a good idea. (Check with your Water Management District to determine if cost-share funds for these improvements are available.)



**Figure 9. Self contained double wall gasoline and diesel**

**Where permitted by local fire code, secondary containment structures should be roofed to keep out rainfall.** Building the containment structure so that it is tall rather than wide will help minimize rainfall accumulation by reducing the exposed surface area. If the structure is not roofed, water that accumulates must be managed properly. The best option is to remove the water with a portable sump pump. This ensures that removal of water will be actively managed. **If the containment structure has a discharge port (not recommended), make certain that it is closed and locked except when uncontaminated rain water is to be drained.** If a discharge port is used, a spring loaded valve is the best method to prevent the port from being inadvertently left open.

The first line of management is to minimize the possibility of a discharge and the need for disposal. For rainfall, if the containment volume is adequate, evaporation of accumulated rainfall will often be sufficient. Critical levels at which discharge is considered should be established for each facility and the levels marked on the containment wall. This will prevent frequent and unnecessary discharge of small volumes.

**The water to be discharged must always be checked for contamination.** This can be done by looking for an oil sheen, observing any smell of fuel or oil, or through the use of commercially available test kits. **Never discharge to the environment any water that is contaminated.**

Treat contaminated water on-site using commercially available treatment systems, discharge to a DEP permitted off-site industrial wastewater treatment system, or transport by tanker truck to a treatment facility. Never discharge to a sewer system without written permission from the utility. Never discharge to a septic tank. For more information on disposal options, contact the appropriate DEP District office.

If the water is not contaminated, it can be reused, or discharged to a permitted stormwater treatment system, such as a retention area, grassed swale, or wet detention pond, although this practice is not encouraged. Do not discharge it during or immediately after a rain storm, since the added flow may cause the permitted storage volume of the stormwater system to be exceeded.

## 7.0. BMPs for General Equipment Cleaning

(Does not include pesticide application equipment.)

Clippings and dust removed from machinery should be handled separately from other waste materials and equipment washwater. Many manufacturers now recommend the use of compressed air to blow off equipment. This is less harmful to the equipment's hydraulic seals, eliminates washwater, and produces dry material that is easy to handle.

**Wash equipment over a concrete or asphalt pad that allows water to be collected, or to run off onto grass or soil, but not into a surface water body or canal.** After the residue dries on the pad, it can be collected and composted or spread in the field. **To keep crop residue and other debris from becoming contaminated with pesticide, do not conduct such operations on a pesticide mixing and loading pad.**

**Minimize the use of detergents.** Use only biodegradable non-phosphate detergents. The amount of water used to clean equipment can be minimized by using spray nozzles that generate high pressure streams of water at low volumes.

Washwater generated from the general washing of equipment, other than pesticide application equipment, may not have to be collected. **This washwater must not, however, be discharged to surface or ground water either directly or through ditches, storm drains or canals. Always check with local authorities to determine whether other requirements may apply.** Equipment washwater can contain soaps, fertilizer residues, solids, and lubricating oil residues. This washwater should not contain solvents and degreasers, since these materials should be used in a separate, contained operation. (See section 3.0 for information on use of solvents and degreasers.)

BMPs for disposal of washwater (from other than pesticide application equipment, and with no degreasers or solvents) depend on several factors, such as volume of washwater generated, nature of the surrounding area, and the frequency of the operations. **For regular washdown of ordinary field equipment, allow the washwater to flow to a grassed retention area or swale. Do not allow any washwater to flow directly into a surface waters. Any discharge to a surface water body requires a DEP industrial wastewater permit. Discharge to a septic system is not legal.**

Other options are:

- use a washwater recycling system,**
- discharge to a treatment system that has been permitted under DEP industrial wastewater rules,**
- use the washwater for field irrigation.**

If you decide to use a washwater recycling system, care must be taken to operate it properly. **Cleaning of pesticide application equipment using these systems is not recommended.** The introduction of pesticide residues into these systems may result in contamination of the systems and high costs for disposal of contaminated filters and sludges as hazardous wastes.



Oil/water separators can be used, but must be managed properly to avoid problems. Be aware that the oil collected in these systems may be classified as a hazardous waste (due to high concentrations of heavy metals from engine wear), making disposal expensive. **Washing of equipment used to apply pesticides on pads with oil/water separators is not recommended**, since the pesticide residues will contaminate the oil that is salvaged. Oil/water separators are generally not necessary unless the water from the system is to be reclaimed for some particular end use, or large volumes of water are generated and the industrial wastewater permit or receiving utility requires such a system.



**Figure 10. Wash water recycling system.** Courtesy of Collier's Reserve.

## **8.0. BMPs for Application Equipment Storage**

**Equipment used to apply pesticides and fertilizers should be stored in an area protected from rainfall.** Rain can wash pesticide and fertilizer residues from the exterior of this equipment and these residues can contaminate soil or water. Pesticide application equipment can be stored in the Chemical Mixing Center, but fertilizer application equipment should be stored separately. **Blow or wash loose debris off the equipment to prevent dirt from getting on the CMC pad, where it could become contaminated with pesticides.**

## 9.0. BMPs for Air Pollution from Nonroad Agricultural Equipment

Most farm (nonroad) equipment is powered by engines that burn gasoline or diesel fuel. Pollution from these engines comes from by-products of the combustion process (exhaust) and in the case of gasoline, evaporation of the fuel itself.

EPA and industry are working together on a comprehensive strategy to reduce emissions from nonroad equipment. One part of that strategy establishes a regulatory process that sets emissions standards for several categories of nonroad engines. Another part of the strategy is a public information program to show consumers how to prevent pollution from nonroad engines by reducing fuel spillage, and properly sizing and choosing equipment.

Three ways you can keep emissions as low as possible and minimize machinery costs are:

**avoid unnecessary equipment use,  
maintain the equipment properly,  
operate the equipment within the specified load range.**

In IFAS Fact Sheet EES-47, *Farm Tractor and Equipment Maintenance*, one example of the cost of poor maintenance to the farmer is cited by a service engineer for a major farm equipment company: “As a generalization, the farmer is getting about one-fourth to one-half the engine life that some major fleet operators get from engines. The major difference is that the farmer often neglects an engine while the fleet operator has a rigid schedule for maintenance and care.”

Dirty oil is a major cause of wear and therefore indirectly affects emissions in engines. Keeping movable parts greased increases efficiency and contributes to reduced emissions. Adequate combustion air is needed for maximizing fuel efficiency, therefore air cleaners need periodic maintenance. This is particularly critical with diesel engines. Fuel filters should also be cleaned or replaced when appropriate. The use of low sulphur diesel fuel also contributes to lower air pollution.

Internal combustion engines have specific speeds and loads where maximum efficiencies are achieved. Tractors accomplish the most work per unit of fuel when they are fully loaded, because power from the engine increases with engine speed. For light loads, efficiency is usually increased when engine speed is reduced to the point where power developed matches power required. Diesels should not be overloaded by “lugging” the engine. Diesels do not respond well to rapid increases in load. This creates a temporary lugging condition. Tractor efficiency is also a function of both rolling resistance and slip. These properties can be set according to the work the unit is doing.

Tractors and other power units should be periodically tested on a dynamometer to determine peak efficiencies and the need for repairs. Gasoline engines should be periodically tuned-up.

For additional information concerning reduction of emission from nonroad equipment, selection of nonroad equipment for a particular job, or best management practices for nonroad equipment, contact your local county Cooperative Extension Service office or the EPA National Vehicle and Fuel Emissions Laboratory, 2565 Plymouth Road, Ann Arbor MI, 48105, (313) 668-4333.

## REFERENCE SECTION

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Agricultural Engineering Department, University of Florida, Institute of Food and Agricultural Sciences. Gainesville, Florida, 32611. Phone: (352)-392-2468.  
**<http://www.agen.ufl.edu/index.html>**

Florida Department of Agriculture and Consumer Services, Bureau of Pesticides, 3125 Conner Blvd. (Bldg. #6), Tallahassee, FL, 32399-1650. Phone (850) 487-0532. **<http://www.fl-ag.com/>**

Florida Department of Environmental Protection, Stormwater/Nonpoint Source Management Section, MS-3570, 2600 Blair Stone Rd., Tallahassee, Florida, 32399-2400. Phone: (850)-921-9472. **[http://www.dep.state.fl.us/water/Slerp/Nonpoint\\_Stormwater/agsrc/agsrc.htm](http://www.dep.state.fl.us/water/Slerp/Nonpoint_Stormwater/agsrc/agsrc.htm)**

Florida Department of Environmental Protection, Hazardous Waste Management Section, MS-4555, 2600 Blair Stone Rd., Tallahassee, Florida, 32399-2400. Phone: (850)-488-0300.  
**<http://www.dep.state.fl.us/dwm/>**

IFAS Publications Office, University of Florida, Institute of Food and Agricultural Sciences. P.O. Box 110011, Gainesville, Florida, 32611. Phone (352)-392-1764.  
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Midwest Plan Service, 122 Davidson Hall, Iowa State University, Ames Iowa 50011-3080. Phone: (515)-294-4337. **<http://www.mwpsHQ.org/>**  
or: **<http://www.abs.sdstate.edu/ae/mwps/mwps.htm>**

National Response Center. **[http://www.nrt.org/nrc\\_broc.htm](http://www.nrt.org/nrc_broc.htm)**

Pesticide Information Office, University of Florida, Institute of Food and Agricultural Sciences, Gainesville, Florida, 32611. Phone (352)-392-4721. **<http://fshn.ifas.ufl.edu/news.htm>**

Tennessee Valley Authority. Environmental Research Center. Muscle Shoals, AL 35660 (205)-386-2714. **<http://www.tva.gov>**

United States Department of Agriculture-Natural Resources Conservation Service. P.O. Box 141510, Gainesville, FL 32605. Phone: (352)-338-9555. **<http://www.ga.nrcs.usda.gov/fl/>**

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(205)-386-2714

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west Plan Service, 122 Davidson Hall, Iowa State University, Ames Iowa 50011-3080. Phone:  
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Agricultural Sciences, Palm Beach County Cooperative Extension Service. 2976 State Road 15,  
Belle Glade, Fl. 33430. Phone: (407)-996-1655.

*Farm Machinery.* Publication RF-AA100. December 1992. Florida Cooperative Extension Service. IFAS Publications Office, University of Florida, Institute of Food and Agricultural Sciences. P.O. Box 110011, Gainesville, Florida, 32611. Phone (352)-392-1764.

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## Spill Reporting Requirements

Public Law 96-510 and Public Law 92-5000 (CERCLA) require immediate notification of the appropriate agency of the United States Government of a discharge of oil or hazardous substances. “Any such person who fails to notify immediately such agency of such discharge shall, upon conviction, be fined not more than \$10,000 or imprisoned for not more than one year, or both.”

Pursuant to Chapters 376 and 403, Florida Statutes:

-Any owner or operator of a facility who has knowledge of any release of a hazardous substance from a facility in a quantity equal to or exceeding the reportable quantity (see MSDS sheet) in a 24 hour period **shall immediately notify the State Warning Point.**

-The owner or operator having a discharge of petroleum products exceeding 25 gallons on a pervious surface (or any amount in a water body) must report such discharge to the Department of Environmental Protection or the State Warning Point.

***The penalty is not in reporting a spill, it is in failing to report a spill.***

### REPORT THE FOLLOWING INFORMATION

1. Name, address, and telephone number of person reporting
2. Name, address, and telephone number of person responsible for the discharge or release, if known
3. Date and time of the discharge or release
4. Type or name of substance discharged or released
5. Estimated amount of the discharge or release
6. Location or address of discharge or release
7. Source and cause of the discharge or release
8. Size and characteristics of area affected by the discharge or release
9. Containment and cleanup actions taken to date
10. Other persons or agencies contacted



## Important Telephone Numbers

### EMERGENCY REPORTING

For Ambulance, Fire, or Police,

**Dial 911**

<b>State Warning Point</b> (Department of Community Affairs, Division of Emergency Management)	24hrs. Toll-Free or	<b>1-800-320-0519</b> (850)-413-9911
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<b>National Response Center</b> (Federal law requires that anyone who releases into the environment a reportable quantity of a hazardous substance [including oil when water is or may be affected] or a material identified as a marine pollutant, must immediately notify the NRC).	24hrs. Toll-Free	<b>1-800-424-8802</b>
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<b>DEP Emergency Response,</b> (Florida Marine Patrol, district offices)	24 hrs. Toll-Free	<b>1-800-342-5367</b>
Jacksonville	(904)-448-4320	
Orlando	(407)-893-3337	
Ft. Lauderdale	(954)-467-5966	
Ft. Myers	(941)-332-6975	
Tampa	(813)-744-6462	
Panama City	(850)-872-7650	
Pensacola	(850)-595-8300	

### Help line numbers

(For chemical hazard information and regulatory questions)

<b>CHEMTREC HOT LINE (Emergency only)</b>	<b>24 hrs Toll-Free</b>	<b>1-800-424-9300</b>
SARA Title III help line	Toll-Free	1-800-535-0202
CERCLA / RCRA help line	Toll-Free	1-800-424-9346

## Non-Emergency Numbers

### **State Emergency Response Commission (NOT a 24hr #) 1-800-635-7179**

( For state spill reporting requirements. This is for follow-up reporting. In an emergency, call the State Warning Point (page 35). If Federal reporting is required, also call the National Response Center. )

### **Florida Department of Agriculture and Consumer Services**

Bureau of Pesticides (850)-487-0532

Bureau of Compliance (850)-488-3314

Monitoring

### **Florida Department of Environmental Protection**

FDEP Stormwater/Nonpoint Source

Management Section (Tallahassee) (850)-921-9472

FDEP Hazardous Waste

Management Section (Tallahassee) (850)-488-0300

FDEP District offices:

Northwest (Pensacola) (850)-595-8300

Northeast (Jacksonville) (904)-448-4300

Central (Orlando) (407)-894-7555

Southeast (W. Palm Beach) (561)-681-6800

Southwest (Tampa) (813)-744-6100

South (Ft. Myers) (941)-332-6975

### **Water Management Districts**

Northwest Florida (Tallahassee) (850)-539-5999

Suwannee River (Live Oak) (904)-362-1001 or 1-800-226-1066 Toll-free

St. John's River (Palatka) (904)-329-4500 or 1-800-451-7106 Toll-free

Southwest Florida (Brooksville) (352)-796-7211 or 1-800-423-1476 Toll-free

South Florida (West Palm Beach) (561)-686-8800 or 1-800-432-2045 Toll-free

## IFAS County Extension Offices

County	City	Telephone
Alachua	Gainesville	(352)-955-2402
Baker	Macclenny	(904)-259-3520
Bay	Panama City	(850)-784-6105
Bradford	Starke	(904)-966-6299
Brevard	Cocoa	(321)-633-1702
Broward	Davie	(954)-370-3725
Calhoun	Blountstown	(850)-674-8323
Charlotte	Punta Gorda	(941)-639-6255
Citrus	Inverness	(352)-726-2141
Clay	Green Cove Springs	(904)-284-6355
Collier	Naples	(941)-353-4244
Columbia	Lake City	(904)-758-1030
Dade	Homestead	(305)-248-3311
Desoto	Arcadia	(863)-993-4846
Dixie	Cross City	(904)-498-1237
Duval	Jacksonville	(904)-387-8850
Escambia	Pensacola	(850)-477-0953
Flagler	Bunnell	(904)-437-7464
Franklin	Appalachicola	(850)-653-9337
Gadsden	Quincy	(850)-627-6317
Gilchrist	Trenton	(904)-463-3174
Glades	Moore Haven	(863)-946-0244
Gulf	Wewahitchka	(850)-639-3200
Hamilton	Jasper	(904)-792-1276
Hardee	Wauchula	(863)-773-2164
Hendry	LaBelle	(863)-675-5261
Hernando	Brooksville	(352)-754-4433
Highlands	Sebring	(863)-386-6540
Hillsborough	Seffner	(813)-744-5519
Holmes	Bonifay	(850)-547-1108
Indian River	Vero Beach	(561)-770-5030
Jackson	Marianna	(850)-482-9620
Jefferson	Monticello	(850)-997-2986
Lafayette	Mayo	(904)-294-1279
Lake	Tavares	(352)-343-4101
Lee	Ft. Myers	(941)-338-3247
Leon	Tallahassee	(850)-487-3004
Levy	Bronson	(352)-486-2165
Liberty	Bristol	(850)-643-2229

Madison	Madison	(850)-973-4138
Manatee	Palmetto	(813)-722-4524
Marion	Ocala	(352)-620-3440
Martin	Stuart	(561)-288-5654
Monroe	Key West	(305)-292-4501
Nassau	Callahan	(904)-879-1019
Okaloosa	Crestview	(850)-689-5850
Okeechobee	Okeechobee	(863)-763-6469
Orange	Orlando	(407)-836-7570
Osceola	Kissimmee	(407)-846-4181
Palm Beach	West Palm Beach	(561)-233-1712
Pasco	Dade City	(352)-521-4288
Pinellas	Largo	(727)-582-2100
Polk	Bartow	(863)-533-0765
Putnam	East Palatka	(904)-329-0318
Santa Rosa	Milton	(850)-623-3868
Sarasota	Sarasota	(813)-793-2728
Seminole	Sanford	(407)-323-2500
St. Johns	St. Augustine	(904)-824-4564
St. Lucie	Fort Pierce	(561)-462-1660
Sumter	Bushnell	(352)-793-2728
Suwannee	Live Oak	(904)-362-2771
Taylor	Perry	(850)-584-4345
Union	Lake Butler	(904)-496-2321
Volusia	Deland	(904)-822-5778
Wakulla	Crawfordville	(850)-926-3931
Walton	DeFuniak Springs	(850)-892-8172
Washington	Chipley	(850)-638-6180

## Florida Soil and Water Conservation Districts

Alachua SWCD  
5709 NW 13 Street, Ste B  
Gainesville, Florida 32653  
Phone: 352-376-7414

Baker SWCD  
Route 3 Box 1074  
Macclenny, Florida 32063  
Phone: 904-259-2716

Bay SWCD  
6741 Camp Flowers Road  
Youngstown, Florida 32466  
Phone:

Blackwater SWCD  
6285 Dogwood Drive  
Milton, Florida 32570  
Phone: 850-623-3229

Bradford SWCD  
226 North Temple Avenue  
Starke, Florida 32091-1028  
Phone: 352-376-7414

Brevard SWCD  
3695 Lake Drive  
Cocoa, Florida 32926-4251  
Phone: 321-633-1702

Broward SWCD  
6191 Orange Drive, Room 6181-P  
Davie, Florida 33314  
Phone: 954-584-1306

Charlotte SWCD  
6900 Florida Street  
Punta Gorda, Florida 33950  
Phone: 941-639-6233

Chipola River SWCD  
837 Leonard Street  
Blountstown, Florida 32424  
Phone: 850-674-8271

Choctawhatchee River SWCD  
732 N. 9th Street, Suite C  
Defuniak Springs, Florida 32433-3804  
Phone: 850-892-3712

Clay SWCD  
2463 State Road 16 West  
Green Cove Springs, Florida 32043  
Phone: 904-284-6355 ext 6588

Collier SWCD  
14700 Immokalee Road  
Naples, Florida 33964-1468  
Phone: 941-455-4100

Dixie SWCD  
Post Office Box 37  
Bronson, Florida 32621  
Phone: 352-486-2672

Duval SWCD  
260 US Highway 301 N #108  
Baldwin, Florida 32234  
Phone: 904-232-2871

Escambia SWCD  
151 Highway 97  
Molino, Florida 32577  
Phone: 850-587-5404

Flagler SWCD  
111 Yelvington Road  
East Palatka, Florida 32131-8875  
Phone: 904-328-2908

Franklin SWCD  
837 Leonard Street  
Blountstown, Florida 32424  
Phone: 850-674-8271

Gadsden SWCD  
2140 W. Jefferson Street  
Quincy, Florida 32351  
Phone: 850-627-6355

Gilchrist SWCD  
Post Office Box 214  
Trenton, Florida 32693  
Phone: 352-486-2672

Glades SWCD  
Post Office Box 445  
Moore Haven, Florida 33471  
Phone: 863-674-4160

Hamilton SWCD  
Post Office Box 1329  
Jasper, Florida 32052  
Phone: 904-792-1105

Hardee SWCD  
505 Civic Center Drive  
Wauchula, Florida 33873  
Phone: 863-773-9644

Hendry SWCD  
Post Office Box 248  
Labelle, Florida 33935-0248  
Phone: 863-674-4160

Highlands SWCD  
4505 George Boulevard  
Sebring, Florida 33872-5837  
Phone: 863-386-6545

Hillsborough SWCD  
1001 E. Baker Street # 403  
Plant City, Florida 33566  
Phone: 813-759-6450

Holmes Creek SWCD  
103 N. Oklahoma Street  
Bonifay, Florida 32425  
Phone: 850-547-2916

Indian River SWCD  
1028 20 Place, Suite A  
Vero Beach, Florida 32960-5360  
Phone: 561-770-5005

Jackson SWCD  
2741 Pennsylvania Ave, #6  
Marianna, Florida 32448-4014  
Phone: 850-482-3904

Jefferson SWCD  
1250 North Jefferson Street  
Monticello, Florida 32344  
Phone: 850-997-4058

Lafayette SWCD  
Route 3 Box 14  
Mayo, Florida 32066  
Phone: 904-294-1735

Lake SWCD  
32235 Merry Road, Suite C  
Tavares, Florida 32778-4954  
Phone: 352-343-2481

Lee SWCD  
3434 Hancock Bridge Pkwy, Suite 209-B  
North Fort Myers, Florida 33903  
Phone: 941-995-5678

Levy SWCD  
Post Office Box 37  
Bronson, Florida 32621  
Phone: 352-486-2672

Madison SWCD  
1714 East Base Street  
Madison, Florida 32340  
Phone: 850-973-6595

Manatee River SWCD  
1303 17th Street West  
Palmetto, Florida 34221  
Phone: 941-722-6636

Marion SWCD  
2303 NE Jacksonville Road  
Ocala, Florida 34470  
Phone: 352-622-3971

Martin SWCD  
2401 SE Monterey Road # 343  
Stuart, Florida 34996-3302  
Phone: 561-221-1303

Nassau SWCD  
Post Office Box 753  
Callahan, Florida 32011  
Phone: 904-879-3372

Nature Coast SWCD  
20 North Main Street, Rm. 202  
Brooksville, Florida 34061  
Phone: 1-800-728-6374

Ochlockonee River SWCD  
615 Paul Russell Road  
Tallahassee, Florida 32301  
Phone: 850-877-3724

Okeechobee SWCD  
452 Highway 98 N  
Okeechobee, Florida 34972  
Phone: 863-763-3619

Orange SWCD  
2012 E. Michigan Street  
Orlando, Florida 32806  
Phone: 407-896-0353

Orange Hill SWCD  
1424 West Jackson Street, #D  
Chipley, Florida 32428  
Phone: 850-638-1718

Osceola SWCD  
1895 E. Irlo Bronson Mem. Highway  
Kissimmee, Florida 34744-3701  
Phone: 407-847-4465

Palm Beach SWCD  
559 N. Military Trail  
West Palm Beach, Florida 33415-1311  
Phone: 561-233-1720

Pasco SWCD  
1 Pasco Center 30407 Commerce Drive  
San Antonio, Florida 33576  
Phone: 352-521-4260

Peace River SWCD  
10 South Desoto Avenue, Room 200  
Arcadia, Florida 33821  
Phone: 863-494-4040

Polk SWCD  
1700 Highway 17 South  
Bartow, Florida 33830  
Phone: 863-533-7121

Putnam SWCD  
111 Yelvington Road, Suite 4  
East Palatka, Florida 32131-8875  
Phone: 904-328-6522

Santa Fe SWCD  
Post Office Box 2486  
Lake City, Florida 32056  
Phone: 904-755-3194

Sarasota SWCD  
7289-A Palmer Boulevard  
Sarasota, Florida 34231  
Phone: 941-316-1100

Seminole SWCD  
3002 South Gate Drive  
Sanford, Florida 32773  
Phone: 407-321-8212

South Dade SWCD  
15600 SW 288 Street, Suite 402, Box 7  
Homestead, Florida 33033  
Phone: 305-242-1218

St. Johns SWCD  
111 Yelvington Road, Suite 4  
East Palatka, Florida 32131-8875  
Phone: 904-328-6522

St. Lucie SWCD  
8400 Picos Road, Suite 202  
Fort Pierce, Florida 34954-3041  
Phone: 561-461-4546

Sumter SWCD  
32235 Merry Road  
Tavares, Florida 33513  
Phone: 352-343-2481

Suwannee River SWCD  
10096 U. S. Highway 129  
Live Oak, Florida 32060  
Phone: 904-362-2622

Taylor SWCD  
Post Office Box 300  
Perry, Florida 32347  
Phone: 850-294-1735

Tupelo SWCD  
837 Leonard Street  
Blountstown, Florida 32424  
Phone: 850-674-8271

Union SWCD  
Route 3 Box 1074  
Macclenny, Florida 32063  
Phone: 904-259-2716

Volusia SWCD  
3151 E. State Road 44  
Deland, Florida 32724-6409  
Phone: 904-943-7893

Wakulla SWCD  
Post Office Box 40  
Crawfordville, Florida 32326  
Phone: 850-877-3724

Yellow River SWCD  
938 N. Ferndon Boulevard  
Crestview, Florida 32536  
Phone: 850-682-3714



## Notes

## Notes



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