

FARMERS ADVOCATING RESOURCE MANAGEMENT



DELTA F.A.R.M.

PROGRAM MANUAL

AGRICULTURE BEST MANAGEMENT PRACTICE GUIDE

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PROGRAM MANUAL

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MISSION STATEMENT

Delta F.A.R.M. or Delta Farmers Advocating Resource Management is an association of growers and landowners that strive to implement recognized agricultural practices which will conserve, restore, and enhance the environment of Northwest Mississippi. In joining this association, growers and landowners agree to use Delta F.A.R.M.'s environmental program to assess their farms and to guide them in attaining the highest possible level of land and water resource stewardship in order to ensure a more sustainable and profitable future for agriculture.

GOALS

- 1) Elevate the existing environmental stewardship level of the landowners and farm operators by implementing additional conservation practices, which will conserve, protect, and enhance the natural resources of this region without reducing productivity or profitability.
- 2) Improve existing conservation practices in this region.
- 3) Improve the overall environmental health of this region.
- 4) Educate producers on production systems, which will benefit both the environment and their bottom line.
- 5) Document the current conservation practices being implemented in this region and improvements over time.
- 6) Educate the consumer public on the conservation efforts of producers in Northwest Mississippi.
- 7) Elevate the image of agriculture.
- 8) Establish a respected environmental organization, which will give the producers of Northwest Mississippi a voice when environmental issues are being discussed at the state and national level.

SPONSORS

Syngenta
Monsanto Company
Farmers Grain Terminal

COOPERATORS

Delta F.A.R.M. was established by farmers with the technical support and assistance of several private, state, and federal agencies. These agencies have continued to support Delta F.A.R.M. by providing technical information and staff support.

Careful by Nature
Delta Council
Delta Wildlife, Inc.
Mississippi Association of Conservation Districts
Mississippi Department of Agriculture and Commerce, BPI
Mississippi Department of Environmental Quality
Mississippi Department of Wildlife, Fisheries, and Parks
Mississippi Farm Bureau Federation
Mississippi State Chemical Laboratory
Mississippi State Health Department
Mississippi State University, DAFVM, ES, MAFES, DREC
National Farm-A-Syst Program
United States Department of Agriculture, ARS, NRCS, FSA
United States Environmental Protection Agency
Yazoo-Mississippi Delta Joint Water Management District

ENVIRONMENTAL LAW

All members of Delta F.A.R.M., farm operators, landowners, and the general public are subject to certain laws effecting natural resources, human health, and the environment. A representative of Delta F.A.R.M. will assist each member to assure compliance. It is critical that all members be in compliance with the law before expanding efforts to best management practices (BMPs) outlined in the Delta F.A.R.M. program. Please be aware that current laws and regulations constantly change. If there are any question you might have concerning current laws, contact the Mississippi Department of Environmental Quality. (601) 961-5203

The following section represents a summary of current environmental regulatory laws. If you have any questions, or if you are unsure about the literal translation of the law, please contact either Delta F.A.R.M. or the appropriate agency.

Worker Protection Standard

In 1994, the Worker Protection Standard (WPS) was adopted by the Environmental Protection Agency (EPA) to assist agricultural operations in establishing protocols to better inform farm laborers and protect them from the risks associated with pesticide use. The WPS covers pesticide usages on farms, forestry, nurseries, and greenhouses.

The WPS is in place to help reduce the risk of pesticide-related illness and injury to workers. There are 6 basic steps required by the WPS that farm, nursery, or greenhouse owners/operators must adhere to:

1. Central Information Display:
2. Record of pesticide applications
3. EPA approved WPS Safety Poster
4. Training: Training must be provided for all handlers and workers
5. Protective Equipment: Workers must be provided with personal protective equipment (respirator, gloves, boots, etc.)
6. Decontamination Stations: Must be within $\frac{1}{4}$ mile of the work area for workers
7. Emergency Assistance must be provided in the event of an accident
8. Notifications: Depending on the label, you must post the treated area or verbally notify your employees that it has been treated.

Pesticide Applicator Certification

Pesticide applicators must be certified to purchase and use restricted-use pesticides. Pesticide applicators who use restricted use pesticides for the purposes of producing an agricultural commodity on property owned, rented or controlled by him is a private applicator. Pesticide applicators that use restricted use pesticides for any other purposes are commercial applicators. Aerial applicators should contact the Agricultural Aviation Board.

Technical Assistance Contact:

Mississippi Department of Agriculture and Commerce
Bureau of Plant Industry
(662) 325-3390

Surface and Groundwater Permits

There are several permits that are required by the landowner to use water from the surface and from the ground. A groundwater permit is required for any well six inches or more in diameter. This applies to wells used for row crops, catfish farms, and even pumping water for waterfowl in the winter. A surface water permit is required for irrigation that is done from a river, stream, or lake.

In addition, a surface water permit is required for the use of water from a dam. Any individual wishing to construct a dam on a stream to impound water for irrigation will need authorization to build the dam and a permit to withdraw the water.

Technical Assistance Contacts:

Mississippi Department of Environmental Quality
Office of Land and Water Resources
(601) 961-5332
(601) 961-5202

Yazoo-Mississippi Joint Water Management District
(662) 686-7712

Above Ground Petroleum Tank Storage

There are permit requirements depending on the type of tank. An above ground tank that exceeds 660 gallons is required to have a Federal Spill Prevention Control and Countermeasure Plan (SPCC). This written plan addresses spill prevention measures and action to be taken in case a spill occurs. A containment wall is a part of the SPCC plan. Delta F.A.R.M. can provide landowners with an official document written by the EPA that instructs individuals on how they can prepare a SPCC plan themselves.

Technical Assistance Contact:

Mississippi Department of Environmental Quality
Emergency Services
1-800-222-6362

Underground Tank Storage

Any underground storage tank that holds 1,100 gallons or more must meet requirements for proper location, corrosion, protection, construction, leak detection, overfill prevention, and spill prevention.

Technical Assistance Contacts:

Mississippi Department of Environmental Quality
(601) 961-5282
(601) 961-5421

Wastewater

State law prohibits the discharge of wastewater to state waters without a permit. Examples include domestic wastewaters, wasterwaters generated from the maintenance of equipment, pesticide container or tank washwater, or wastewaters generated from the processing of farm products such as catfish.

Technical Assistance Contacts:

Mississippi Department of Environmental Quality
Agricultural Branch of the Environmental Permits Division
(601) 961-5171

Storm Water

A storm water permit (NPDES permit) is required for the construction of a swine or poultry house if the construction disturbs more than five acres. Other constructed storm water drains may also require a permit.

Technical Assistance Contacts:

Mississippi Department of Environmental Quality
General Permits Branch of the Environmental Permits Division
(601) 961-5171

Solid Waste

Garbage, rubbish, waste tires, pesticide containers, and other solid wastes generally should be disposed at a permitted solid waste facility or taken for recycling at a local recycling or collection center. Under no circumstances should any solid waste be buried or burned.

Technical Assistance Contact:

Mississippi Department of Environmental Quality
Solid Waste Branch of the Office of Pollution Control
(601) 961-5171

Spills

There are numerous federal regulations pertaining to oil or chemical spills that occur on water or land. If the spilled material causes a pollutant or causes sheen on water, immediately notify:

Mississippi Emergency Management Agency
(601) 352-9100

Mississippi Department of Environmental Quality
Emergency Response Section of the Office of Pollution Control
(601) 961-5171

National Response Center
1-800-424-8802

Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA)

Do not detach, deface, alter, or destroy pesticide labeling. Maintain application records, where required. Do not use any registered pesticide in a manner inconsistent with its labeling, including but not limited to rates of application, correct crops/sites, storage, and handling as well as endangered species restrictions. Comply with Worker Protection standards for handlers and workers where applicable to farming operations (Notification of treated areas, posting of treated areas, providing proper protective equipment, etc...).

Technical Assistance Contact:

Mississippi Department of Agriculture and Commerce
Bureau of Plant Industry
(601) 325-3390

FACT ACT (USDA Farm Bill of 1990)

You must maintain application records on all restricted-use pesticides for two (2) years. The records must contain the following information:

- 1) EPA product number
- 2) Total amount applied
- 3) Description of the application site (name)
- 4) Total number of acres treated
- 5) Date and time of application
- 6) Name of the product applied
- 7) Certification number and name of the applicator
- 8) Name of the crop or commodity treated

Technical Assistance Contact:

Mississippi Department of Agriculture and Commerce
Bureau of Plant Industry
(601) 325-3390

Federal Endangered Species Act

Do not use a pesticide in such a manner as to endanger, harm or destroy an endangered species or its habitat.

Technical Assistance Contact:

Mississippi Department of Agriculture and Commerce
Bureau of Plant Industry
(601) 325-3390

Livestock Disease

Dead and diseased livestock should be reported.

Technical Assistance Contact:

Mississippi Board of Animal Health
1-888-646-8731

Mississippi Board of Animal Health
Foreign Animal Disease Reporting Hotline
1-888-722-3106

Transporting Fuel and other Hazardous Materials

Recent terrorism attacks have caused the Department of Transportation to implement new rules for the transport of fuel and other hazardous materials. When transporting diesel, propane, anhydrous ammonia, gasoline, ammonium nitrate, and pesticides in excess of 119 gallons, any amount of dynamite, or 1,000 lbs. of detonators, you will need to contact the DOT at www.hazmat.dot.gov.

Other Helpful Information

- For technical assistance with agricultural ammonia tanks, contact the Mississippi Department of Agriculture and Commerce (601) 359-1100.
- Weather, especially storms, can play a major part in non-point source pollution. It will be handy to have “real time” weather information at your fingertips if a spill takes place to complete your Emergency Response Plan.

BEST MANAGEMENT PRACTICES

One of Delta F.A.R.M.'s main objectives is to provide producers and landowners with technical information and assistance on recognized agricultural practices, which yield the most significant environmental and economic benefits and are the most practical for the Delta region. The following list represents Best Management Practices (BMPs), which are advocated by Delta F.A.R.M. To learn more about specific BMPs and potential cost-sharing opportunities, contact Delta F.A.R.M. at (662) 686-3370 or visit www.deltafarm.net.

Soil Conservation, Water Use & Water Quality

Soil Conservation Plan

Comprehensive plan developed in cooperation between landowners and the USDA to best address natural resource issues specific to your property. Quite often, Soil Conservation Plans are developed as a part of or as a prerequisite to enrolling in USDA cost-sharing Conservation Programs.

Filter Strips and Waterways

These BMPs are two of the most economical and efficient mechanisms to treat non-point source agricultural runoff. These practices can also be used to enhance wildlife habitat. Grasses, shrubs, and even trees can be established to create filters.

Terraces or Contour Farming

In areas with steep slopes like the Bluff Hills, it may be necessary to install terraces or farm perpendicular to the slope to minimize erosion.

Conservation Tillage Practices

Conservation tillage, including reduced tillage, minimum tillage, and no tillage are becoming more and more popular as the economics justify the practice. Additionally, these practices help to improve soil quality, reduce erosion, and reduce irrigation needs. From an environmental standpoint, conservation tillage is one of the most beneficial BMPs.

Water Control Structures

Water control structures are often attached to the end of a drainage pipe and can be used to control water and/or impound water. Any mechanism that slows water down allows sediments to fall out before they reach streams and lakes, thereby improving water quality. Water control structures also can be used for irrigation purposes, to impound water for ducks, and reduce spring herbicide needs.

Crop Residue Management

Managing crop residue is important in the fall and winter to build organic matter and reduce soil erosion. The practice also reduces habitat for overwintering insects and reduces early season insect control requirements.

Sub-soiling and Chiseling

Just as no-tillage can be good, so can deep tillage. Sub-soiling and chiseling breaks up the hard pan and allows winter rains to drain into the soil rather than running off the field, preventing erosion. This also provides better sub-soil moisture in the spring, reducing the need for irrigation.

Land Forming

Although expensive, this practice can provide significant economic returns while reducing erosion and water use.

Crop Rotation

Crop rotation can be used to improve soil fertility and serves as an excellent pesticide resistance management tool.

Tree Planting

Tree planting can be used to establish riparian buffers for erosion control or enhance wildlife habitat.

6/3 Water Management System for Catfish Ponds

This water management system reduces water use by maximizing a ponds rainwater catching capabilities.

Grass Cover on Exterior Catfish Pond Levees

This simple practice can be used to reduce erosion and prolong the life of ponds.

Extend Catfish Pond Drains Past the Toe of the Levee

This simple practice prolongs exterior pond levee life and prevents subsequent erosion from polluting tail ditches.

Straight Levees

Straight levee production is associated with precision land forming and reduces irrigation water use and improves effluent water quality by creating a closed system.

Water Quality Testing

Drinking water at farm shops and labor housing that are on community water systems are tested for water quality. Those shops and labor houses that are on private water systems should be tested by the owner.

Surface and Tail Water Recovery Systems

Converting from groundwater irrigation to surface water irrigation is a good way to conserve our groundwater resources. Another way is to construct a tail water recovery system and recycle irrigation water.

On Farm Storage of Irrigation Water

Surface water can be captured and stored in on farm storage units to be used during the irrigation season.

Sealing Abandon Wells

Groundwater irrigation wells that have been abandoned should be plugged to prevent any direct contamination of our ground water supply.

Zero Grade

While not fully embraced by all rice producers, zero grade rice production requires less irrigation water than all other systems.

Side Inlet Irrigation

This system greatly reduces water used in straight level rice production.

Flow Meters

Flow meters may be used to track water use from an irrigation well. By tracking water use, producers and resource managers can better understand the effects of water conservation BMPs on a specific field and use those items that work best. They are also need to determine flow rates to best apply Phaucet and other irrigation efficiency tools.

Timers

In expensive timers can be installed on irrigation wells to automatically shut off as designated times. If used properly, this tool can save water, labor, and fuel costs.

Sprinkler Irrigation Systems

While most producers prefer furrow irrigation, pivots and other sprinkler irrigation systems use much less water.

PHAUCET Program

A computer program that helps producers more efficiently manage furrow irrigation systems through polypipe hole diameter sizing and timing of well use based on simple parameters like row length.

Surge Valves

These may be added to your furrow irrigation sets to increase irrigation efficiency by moving the water more quickly and uniformly across the field.

Soil Moisture Probes

These detect the amount of water that is stored in the soil profile and available to the plant for uptake. If used properly, they can be an extremely accurate irrigation management tool.

Irrigation Scheduling Tools

Mississippi and Arkansas both have irrigation scheduling tools that help producers better time irrigation events.

Pesticide, Fertilizer, and Petroleum Stewardship

Precision Technologies

Various precision technologies have been developed to better manage farm inputs of all types, including fuel, fertilizer and pesticides.

Filter Strips Around Mixing Facilities

Most chemical mixing facilities have drains. These drains, above all others, should contain some type of vegetative filter to trap dilute pesticides and wastewater from washing equipment.

Proper Chemical Mixing Facility

Mixing facilities should be closed systems, without drains as mentioned above. Designs for these types systems can be requested from the USDA-NRCS.

Back-Siphon Check Valves

These valves should be placed on wells and water trailers used to fill up spray tanks on ag equipment and prevent any backwash from getting into the ground water supply or water tank. They are cheap and can be purchase at most farm supply stores.

Crop Rotation

Crop rotation can be used to improve soil fertility and serves as an excellent pesticide resistance management tool.

Crop Residue Management

Managing crop residue is important in the fall and winter to build organic matter and reduce soil erosion. The practice also reduces habitat for overwintering insects and reduces early season insect control requirements.

Loading of Pesticides at least 100' from Water Source

The further you are away from a water source, the harder it is for chemicals to contaminate water supplies.

Store and Fill Fuel on Concrete/Hard Surface 100' from Water Source

Again, the best way to keep contaminants out of groundwater supplies is to keep them away from wells.

Store Pond Additives/Chemicals Properly (Aquaculture)

Just like row crop farming, catfish farmers should store additives and chemicals properly. Additives such as salt should not be left out in the open to be washed into adjacent ditches and streams.

Closed Mixing Systems

These systems are becoming more common as chemical companies are packaging products exclusively for “lock and load” systems. Any system that does not require open exposure to chemicals is considered a closed system and should be used.

Rinse and Dispose of Pesticide Containers Properly

All used pesticide containers should be triple rinsed, hole punched, cleaned of any labeling and sent to a recycler.

Emergency Response Plan

Required by law. An example plan can be found at the end of this manual.

Test for Leaks in Underground Tanks

There are many rules pertaining to underground storage tanks. Please be aware of these rules by seeing the Regulatory Section of this manual and contacting the appropriate agency.

Winter Water

Holding water on fields and wetlands during the winter is a good practice to attract and hold migratory waterfowl, as well as, reduce spring herbicide needs.

Mixed Fertilizer Applications

Soil testing for N-P-K is recommended. This is best accomplished through precision soil sampling methodologies and the using variable rate application techniques for mixed fertilizers. Good soil fertility makes for healthy plants that typically do not require as many pesticide applications.

Spring Burn Down Applications

The “spring burn down” ultimately reduces the potential need for early season insecticide applications because it eliminates winter and spring weeds that provide refuge for overwintering insects.

Resistance Management

Multiple chemistries and approaches should be taken when managing pests of any kind. Examples of some cost effective techniques may include crop rotations and rotating weed control systems with residual herbicides.

Optimize Planting Times

General consensus among professionals suggests that planting should occur as early as possible within regional, state, and varietal guidelines. This is the first critical step in producing a crop that is ready to harvest as early in the growing season as possible. This reduces risks associated with late season pests and associated late season insecticide and foliar fungicide applications.

Seed Treatments

Fungicide and insecticide seed treatments generally replace the need for early season insect applications in most primary MS Delta crops.

Split Nitrogen Applications

When applicable to the crop needs, multiple applications of Nitrogen fertilizer is much better than one application to ensure maximum Nitrogen uptake, ensure health crops, early maturity and reduce the potential need for late season pesticide applications.

Variety Selection

Proper variety selection is critical to reduce potential pesticide applications throughout the growing season. Genetics packages should be considered that reduce total pesticide application and/or replace a higher risk pesticide. Beyond yield potential, many other genetic traits may also provide significant benefits depending on the crop.

Irrigation

Timing, duration, frequency and volume of irrigation are critical to foster rapid and healthy plant growth through maturity. Healthy plants are much more resistant to pest pressure and can go without pesticide applications often times when non-irrigated, drought stressed plants require applications.

Independent Crop Consultants

Crop consultants can often help producers reduce unneeded pesticide applications through targeted and comprehensive pest management strategies.

Solid Waste Disposal

Recycling Programs

Polypipe, used oil, pesticide containers, batteries, tires, and other items used on farms should be recycled. All items listed can be recycled at no or little cost to the farmer.

Wildlife Management and Wildlife Habitat Enhancement

Wildlife Management Plans

Any landowner that is not using 10% or more of their land for production should have a comprehensive wildlife management plan. Such plans can be used to identify wildlife resources and enhance them to maximize wildlife benefits, whether it is for deer, ducks, quail, dove, or all species.

Deer Management Assistance Plan

For landowners that have substantial deer populations and harvest deer annually should consider contacting the MDWFP to enroll in the DMAP program. This program is used to monitor deer harvest data, herd health, and manage deer.

Leave Crops for Wildlife

Some crops can be left in low areas that are flooded in the winter for waterfowl. Crops can also be left un-harvested around woods and other riparian areas for deer, turkey, quail and other wildlife.

Food Plots

Food plots can be established to attract, hold, and manage various wildlife species.

Winter Water

Holding water on fields and wetlands during the winter is a good practice to attract and hold migratory waterfowl, as well as, reduce spring herbicide needs.

Constructing Wildlife Habitat

Almost every landowner has an area that is not in production that can be enhanced for wildlife. These areas can be wetlands or upland and can be developed for many different types of wildlife.

EMERGENCY RESPONSE PLAN

The purpose of this plan is to develop a basic strategy to address spills of oil (diesel, motor oil, gasoline, etc...) or chemicals (pesticides, fertilizers, etc...). This plan should be utilized whenever a spill occurs while equipment and materials are in transit, in storage, or in field operations. Financial and environmental liability can be reduced significantly by following the procedures below.

1. **Stop the spill at its source and contain the spilled product in the smallest area possible.**

(If a material is spilled into a water source like a ditch, pond, creek, or slough, isolate by constructing an earthen dam.)

2. **Notify the farm manager or owner and report the following information.**

Material spilled _____
Quantity spilled _____
Container type _____
Location of the spill _____
Containment measures taken _____
Equipment, materials, and/or labor needed to contain spill _____
Phone numbers of all persons involved _____

3. **Begin cleanup of spilled material, contaminated soil and debris. If spill does not pose a health threat to workers and is small enough to be addressed by farm personal.**

(Always list equipment used to clean up a spill, and always wear the proper safety equipment.)

4. **Immediately report spill to the Mississippi Department of Environmental Quality Emergency Services Branch.**

Day Phone: 601-961-5171
After Hours Phone: 601-352-9100

Disclaimer: This emergency response plan was written by the Mississippi Department of Environmental Quality. This agency has been given the authority to regulate spills in the state of Mississippi by the United States Environmental Protection Agency. Be aware that you and/or your employees are required by state and federal laws to report and provide proper responses to spills of oil and chemical substances. Not reporting or not taking proper response measures could possibly cause either criminal or civil action to be filed against the farm and/or its employees.

FOR MORE INFORMATION:

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