Protecting Louisiana's Waters *using* Best Management Practices (BMPs)

LSU AgCenter
Research & Extension

Introduction

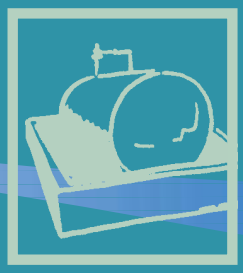
American agriculture enjoys an international reputation for efficient, high-quality food production. Louisiana farmers play an important role in that success. In addition to assuring an abundant and affordable food supply, Louisiana farmers must strive to protect the environment. In Louisiana we are blessed with beautiful and abundant waters to enjoy fishing, hunting, boating or just relaxing on the shore of a lake, river or bayou.

Most of the water in Louisiana rivers and lakes comes from rainfall runoff. As this runoff travels across the soil surface, it carries with it soil particles, organic matter and nutrients, such as nitrogen and phosphorus. Excessive amounts of these materials entering surface or groundwater are called nonpoint source pollutants. Agricultural activities contribute to the amount of nonpoint source pollutants entering streams, lakes, estuaries and groundwater. Runoff from urban areas also contributes to nonpoint source pollution problems. The same technology that helps feed the world has brought increasing pressures on our natural resources. The solutions to controlling runoff will require the efforts of agricultural producers, landowners, government and private organizations.

Research and educational programs on environmental issues related to the use and management of natural resources have always been an important part of the LSU AgCenter's mission. Working with representatives from the agricultural commodity groups, the Natural Resources Conservation Service (NRCS), the Louisiana Department of Environmental Quality (LDEQ), the Louisiana Farm Bureau Federation (LFBF) and the Louisiana Department of Agriculture and Forestry (LDAF), the LSU AgCenter has taken the lead in assembling a group of Best Management Practices (BMPs) for each agricultural commodity in Louisiana.

BMPs are practices used by agricultural producers to control the generation and delivery of pollutants from agricultural activities to water resources of the state, thereby reducing the amount of agricultural pollutants entering surface and ground waters. Each BMP is a culmination of years of research and demonstrations conducted by agricultural research scientists and soil engineers. BMPs and accompanying standards and specifications are published by the NRCS in its Field Office Technical Guide.

Agricultural BMPs focus on five main areas: nutrient management, pesticide management, soil and water management, pasture management and general farm BMPs.



Nutrient Management

The objective of nutrient management is to balance all sources of nutrient inputs with a crop's requirements for producing a realistic yield. Although nutrients such as nitrogen and phosphorus are essential for crop production, overabundance of these nutrients in lakes and streams can cause water quality problems.

BMP objectives:

1. Supply plant nutrients for optimum forage and crop production based on realistic yield goals and soil test analysis.

2. Minimize nutrients entering surface and groundwater from agricultural land.

Regular soil testing is the key to proper nutrient management.

Pesticide Management

Pesticides help to increase agricultural productivity by reducing competition from weed, insect and disease pests. Pesticides affect the quality of Louisiana's water resources through runoff into streams or by leaching into groundwater. Pesticides that drift from the application site may affect nontarget plants, fish, birds and beneficial insects negatively.

BMP objectives:

1. Maximize benefits from sound pesticide management and, at the same time, reduce environmental risk.

2. Develop pesticide management programs that are based on pest populations and economic thresholds.

By using Global Positioning System (GPS), pesticides can be applied evenly to a field with minimum overlap of each pass of the aircraft.

Properly calibrated spray equipment ensures a uniform spray pattern and minimizes the risk of overapplication of pesticides.

Soil and Water Management

Sediment is the number one water pollutant from nonpoint sources in Louisiana. Sediment causes water to become muddy, creating a sometimes unsuitable environment for many aquatic species, including fish and even plants. Exposed soil is susceptible to erosion by environmental factors such as rain. Keeping soil on the field and out of surface waters is a top priority for Louisiana farmers.

Filter strips adjacent to plowed fields reduce pollution and protect water bodies by removing sediment and other pollutants from rainwater runoff.

BMP objectives:

1. **Promote conservation tillage and cover crops to protect the soil from erosion.**

2. **Promote the use of grass waterways and vegetative filter strips around streams and ponds to slow runoff, allowing time for sediment to settle out before reaching surface waters.**

Conservation tillage practices can reduce soil erosion by as much as two-thirds.

Pipe drops conserve irrigation water, control erosion and reduce pollution of surface water from agricultural sources.

Pasture Management

Livestock with free access to streams can cause local and downstream environmental problems. Reduced vegetative cover on streambanks increases the potential for soil erosion and threatens instream water quality. Manure deposition in streams may cause nutrient and bacterial problems downstream. The overapplication of livestock manures to pastures, as a source of fertilizer, can lead to overenrichment of nutrients in streams as well as bacterial problems.

Livestock crossings protect streambanks from being eroded by trampling and reduce the risk of nutrient overenrichment, bacteria and turbidity in waterways.

BMP objectives:

1. Promote the fencing out of livestock and the use of cattle crossings in riparian areas on streambanks and in streambeds, to allow for re-establishment of vegetative cover. This vegetation will secure streambanks and trap sediments and eliminate direct pollutant loading from manure depositions in the stream.

2. Develop nutrient management plans for livestock manure application to pastures.

Livestock watering troughs provide high quality water for livestock and reduce water impairment by excluding livestock from streams.

General Farm BMPs

A containment wall will ensure that surface water will not be contaminated in the event of a tank rupture.

Agricultural producers rely on many products to keep equipment and buildings in good condition. These include motor oil, fuels, antifreeze, batteries, tires, paints and wood preservatives. Improper storage and disposal of these products can lead to environmental contamination problems. Fuel storage tanks must comply with state regulations. These include regular inspection as well as a containment wall to capture all fuel in case of a spill.

BMP objectives:

1. Promote the proper storage and recycling of used engine oil, antifreeze, batteries, tires and paints.

2. Promote compliance with state regulations for fuel storage tanks.

*Farm*A*Syst and Home*A*Syst are confidential, self-assessment programs you can use to evaluate your home and property for pollution and health risks.*

Summary

The complex nature of nonpoint pollution means programs designed to reduce its impact on the environment will not be easy to establish or maintain. Controlling these contaminants will require solutions as diverse as the pollutants themselves. Through a multi-agency effort, led by the LSU AgCenter, these BMP manuals are targeted at reducing the impact of agricultural production on Louisiana's environment. Agricultural producers in Louisiana, through voluntary implementation of these BMPs, are taking the lead in efforts to protect the waters of Louisiana. The quality of Louisiana's environment depends on each of us.

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