

# Soil Fertility Management Helps Ease Farming Costs

## MISSISSIPPI STATE, MISS.

**M**ississippi farmers have no control over volatile fertilizer costs but they can use good soil fertility management to offset the effect on production expenses.

"We have to be efficient users of fertilizer, and that doesn't mean just this product's application rate," said Larry Oldham, soil specialist with the Mississippi State University Extension Service. "This concept includes the whole production system of seed, soil, water, climate, pests, labor and capital."

Fertilizer prices have carved out big chunks of most farm budgets in the last 18 months. One reason for the increase has been the widespread switch to corn, which has a higher fertilizer requirement than other major agricultural row crops. The interest in corn and subsequent increase in acres planted drove up fertilizer prices.

"Corn requires about one third more nitrogen fertilizer than cotton does," Oldham said.

India, China and Brazil intensified their agricultural production, which increased worldwide demand for fertilizer. Crude oil and natural gas markets turned volatile, and energy prices rose. The decline in the value of the dollar overseas helped push up fertilizer costs because most of the product's ingredients are imported.

"Everything goes back to the basic principles of supply and demand," said Gregg Ibendahl, Extension agricultural economist. "Increased demand for products leads to higher prices."

Farmers found themselves in a no-win situation.

"In late 2007, farmers would have been better off if they had made purchasing decisions sooner," Ibendahl said. "They did not have a crystal ball to predict what happened with prices."

Farmers have no control over market forces that determine fertilizer prices, but they can improve their situation by paying attention to soil fertility, Oldham said.

To reduce fertilizer expenses and increase production efficiency, a producer should follow these steps:

1. Decide if fertilizers are necessary to produce a crop,
2. Identify the amount of fertilizer needed,
3. Investigate what types are available,

4. Establish the best time for application, and
5. Verify the best application method.

Farmers should invest in soil testing every other year or at least every three years, Oldham said. Soil tests give information on soil pH, liming needs and availability of plant nutrients such as phosphorus and potassium.

A soil test reveals the pH, or acid-alkaline level, of the soil, which is important information for managing fertility issues. Soil pH controls the availability of soil nutrients to plants. The acidity or alkalinity of the soil can be adjusted by the addition of lime. Without knowing the correct pH, farmers may waste money adding fertilizer that plants will not be able to use.

Lime prices have not been as high as those for fertilizer. Cost depends upon the type of lime that farmers choose.

Hard lime products, which are made up of limestones containing large amounts of calcite or dolomite, are not produced in Mississippi. Hard lime must be shipped in by train, truck or barge. The cost of transportation of the material is included in the price.

Soft lime, or marl, is manufactured in Mississippi and readily available. It has a lower chemical neutralizing capacity than hard lime, however.

"Marl is a good product, but you have to use more of it," Oldham said.

A soil test that reveals high levels of phosphorus or potassium indicates no need for the farmer to buy fertilizer that contains these nutrients because the soil has enough of them to grow plants. Farmers would waste money if they spent additional money on a fertilizer containing phosphorus or potassium.

Precision technologies can provide more efficient fertilizer management because farmers can use them to map nutrient-deficient or acidic areas of soil in a field. Such technologies can be a significant investment.

Maintenance and calibration of application equipment are fundamental to limiting costs and improving efficiency. These actions also help control production expenses and prevent possible contamination of surface water.

"All these things can come together to provide farmers with useful tools to become more efficient and competitive," Oldham said. Δ