

'Merely crazy' fertilizer prices demand better management

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Fertilizer prices have moderated in the last year or two from insane to merely crazy, says Mark McFarland, Texas Agrilife Extension soil fertility specialist.

"After 2003, fertilizer got pricey," McFarland said during the annual Ag Technology conference, held on the Texas A&M-Commerce campus. "In early 2008 and 2009, fertilizer prices got ridiculous."

Energy costs, hurricanes, changes in sourcing, and increased competition from other countries all contributed to price hikes for essential crop nutrients. "Price has moderated some," but it's nowhere near normal and still well above 2003 prices, which he said will not return.



MARK MCFARLAND discusses crop fertility and management during the recent Ag Technology Conference in Commerce, Texas.

Better nutrient management becomes increasingly important as farmers struggle to find ways to maintain yields without significant production cost increases that may stem from those high fertilizer prices. McFarland recommends changes in soil testing procedures, sources and types of nutrients as they develop crop production plans.

"We have to do a better job of managing nutrients," he said. "Anything we add to the soil changes the soil chemistry and can change the nutrient balance."

He said healthy, properly fed plants are more resistant to diseases, insects and other stresses. "Fertility affects how competitive a plant can be. Feed it well and it out competes unwanted plants. Or, producers can increase input costs to control weeds."

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He said environmental issues affect fertility. Too much rain may leach nutrients away and drought may limit uptake. He cautioned growers to be cognizant of water contamination issues and be wary of nitrogen and phosphorus near bodies of water.

"If we don't manage nutrients properly, we could be required to get a fertilizer permit and application license. In some areas in the United States, farmers already have to develop a nutrient plan and to obtain a license," he said.

"Agricultural producers are taking care of business and managing nutrients properly. We don't need regulation."

He said producers should consider four keys to fertility management: type, rate, method of application and timing. "Also evaluate fertilizer use efficiency, how much gets into the plant."

Determining the type of fertilizer, and the rate needed should depend on soil test recommendations. "Soil testing is proven scientific technology and works extremely well. With current fertilizer prices, soil testing is essential. If fertilizer is 50 cents a pound, we need to test every year and use those dollars efficiently."

McFarland said accurate soil tests account for nutrient carryover. "Nutrients occur naturally in the soil," he said. "Poor crop years may also leave residual fertilizer for a subsequent crop."

"Measure the amount in the soil and evaluate the needs of the crop and yield goals. Then get a sound recommendation."

Waiting until a deficiency shows up before altering fertilization practices hurts production. "By the time you see a deficiency, the crop is already damaged."

The sample is important. He recommends that producers pull from 12 to 15 cores for each 40 to 50 acres of uniform field area. "Anything larger than 50 acres should be split and split where soil type or textures change."

"Send samples in promptly." He said soil left in a truck for several days will change and will not reflect what was initially available in the sample.

A zero- to 6- inch sample is the standard test depth, but he said pulling deeper samples may identify nutrient carryover and possibly reduce fertilizer cost. "At a 12-inch to 24-inch depth, a significant amount of nitrogen may be available," he said. "Often, a producer can grow a crop with just available nitrogen in

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the soil, especially following a drought and a failed crop."

Reducing nitrogen demand, he said, lowers production costs. Less nitrogen also may promote an earlier crop, and an earlier harvest, especially with cotton.

He said tests show that residual nitrogen in corn land has produced yields equal to similar areas where nitrogen was applied. In multiple years, corn, cotton and grain sorghum responded to residual nitrogen. In a seven-year cotton study on 55 sites, only 13 responded to added fertilization with 100 pounds of residual nitrogen present.

"In one study, the value of residual nitrogen was as high as \$80 per acre," McFarland said.

He recommends producers continue to take the zero- to 6-inch sample every year. And when they pull deeper samples he recommends using two buckets, one for the standard sample and one for the deep one. "Bag the samples separately."

"Farmers will find nutrients, and they will save money on fertilizer," he said. "And they have several tools to help sampling. Some are pre-marked at 6 inches, 12 inches, 18 inches and 24 inches. Cost ranges from \$40 to \$70—maybe less when bought in bulk."

"Also, moisture conditions need to be good for best sampling."

McFarland said farmers have several choices for nitrogen fertilizers. "Pick the cheapest one," he said. "Plants don't care, so buy based on the cost per pound of nutrient."

McFarland said phosphorus is a critical nutrient, especially important for healthy plant root systems. "Phosphorus is very stable, insoluble and does not leach or volatilize. That's a blessing and a curse because it can stratify."

Phosphorus placement may be a factor. McFarland said injection "works extremely well with a substantial response. Producers may reduce the soil test recommendation rate in half. A 60-pound-per-acre broadcast rate may be reduced to 30 pounds injected. Injection is particularly effective in wheat, especially forage wheat."