Increasing Price of Nitrogen

- Nitrogen fertilizer is often the largest contributor to the cost of production for most crops. For Texas crop producers trying to manage input costs and remain competitive, the volatile and upward trending price of nitrogen is a major concern.

- Effective nitrogen management promotes efficient water use by plants which is critical during periods of limited rainfall.

- Improved nitrogen-application efficiency would reduce both production costs and surface and groundwater contamination risk.

Extension’s Response

- The amount of additional nitrogen (and other soil nutrients) needed for a crop is determined by conducting a soil test. Traditionally, soil samples have been taken to a depth of six inches to evaluate residual nitrogen available in the soil.

- In light of increasing nitrogen prices, the Texas A&M AgriLife Extension Service and A&M AgriLife Research began studying the residual-soil nitrogen-recovery capabilities of cotton, corn and grain sorghum at greater soil depths.

- Studies found that cotton, corn and grain sorghum can efficiently recover residual-soil nitrogen measured to depths of up to 24 inches, which enables more effective use of carryover nitrogen in the soil and reduces nitrogen-application rates and associated costs.

- Since 2007, the importance of deep-soil testing for nitrogen management has been communicated to agricultural producers across Texas through 17,790 contacts (14,662 contact hours) at more than 285 educational events; the distribution of more than 5,700 publications; and access to web-based guidance on deep-sampling methods and procedures.

Economic and Environmental Impact

- The economic impact of deep-soil testing was measured in terms of increased net returns resulting from reduced nitrogen application rates and costs.

- Producers are using deep-soil testing on an estimated 104,500 acres of cotton and 129,000 acres of corn and grain sorghum.

- The average nitrogen fertilizer cost savings is estimated at $23 per acre for cotton and $31 per acre for corn and grain sorghum, resulting in increased net returns of more than $6.4 million in 2012.

- Efficiently using nitrogen resulted in a reduction of nitrogen applied by more than 9.2 million pounds, reducing the potential for adverse effects on surface and groundwater resources.

- Expanded adoption of deep soil sampling on more acreage is expected in the future, leading to a broader economic benefit, greater water use efficiency, and further reducing potential contamination of vital water resources.

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