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Fertilizer BMPs to Minimize Impacts on Water Quality: A Shared Vision

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Abstract:

The proportion of crop yields attributed to fertilizer ranges from 40 to 60%. Farmers and crop advisers are striving to increase yields and crop and soil recovery of applied nutrients. Losses of nitrogen (N) and phosphorus (P) from agricultural fields can reduce farmer profits and present risks of groundwater contamination and eutrophication of surface waters and shallow coastal waters. Fertilizer best management practices (BMPs) can help reduce N and P losses and minimize impacts on water quality. A global fertilizer BMP framework has been developed by the International Plant Nutrition Institute, guidance on nutrient use efficiency evaluation by farmers and crop advisers has been published, and other nutrient management educational articles have been delivered. These educational products were designed to encourage BMP implementation and have been disseminated through outreach efforts within the industry, to crop advisers, agricultural consultants, leading farmers, extension workers, and the public. Progress in protecting water quality and improving water use efficiency is most likely to occur through system level changes which include fertilizer BMP implementation, rather than through a focus on specific nutrient criteria or any one environmental indicator. In the Mississippi River Basin (MRB), crop production and nutrient management activities have resulted in declining N and P discharge trends during 2000-2005. Further reductions in N and P discharge may be expected with improved fertilizer BMP implementation. Continued research and education efforts, aimed at enhancement of nutrient use efficiency and effectiveness, are needed to help protect local water quality and to reduce downstream impacts like hypoxia in the Gulf of Mexico. Productivity needs, economic factors, and water quality goals must all be considered at agronomic and policy levels to achieve continued improvements in water quality

Impact Statement:

Farmers and crop advisers are using fertilizers more efficiently and effectively as a result of research and education programs, aimed at improved fertilizer BMPs, which are conducted by the International Plant Nutrition Institute in collaboration with Land Grant universities, the USDA, and other public and private agencies.

Category: Agricultural BMPs

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