

DEVELOPING AND IMPLEMENTING FERTILIZER BMPS FOR SIX MAJOR U.S. CROPPING SYSTEMS

S.B. Phillips* and H.R. Reetz

International Plant Nutrition Institute, 3500 Parkway Lane, Suite 550, Norcross, GA 30092

*sPhillips@ipni.net

ABSTRACT

With support from a 3-year Conservation Innovation Grant from the USDA-Natural Resources Conservation Service, the International Plant Nutrition Institute and the Foundation for Agronomic Research designed a project to identify fertilizer best management practices (BMPs) for six major U.S. cropping systems. The intent was to help develop the BMP definition process in such a way that environmental objectives are met without sacrificing current or future production or profit potential and in full consideration of the newer technologies relevant to fertilizer use. A series of publications, decision support tools, and internet websites have been developed from this project. The concept of applying the right fertilizer at the “right rate, right time, and right place” is a guiding theme in this series. Details of this project and the publications and other products from it are available on the project website, <http://www.farmresearch.com>.

The following text highlights the specific cropping systems targeted in this project.

Applying the “Four Rights” for Cotton Production in the Midsouth and Southeast

Farmer interest in BMPs is associated with the increasing awareness that how we manage our soils and landscapes can have a large impact on the surrounding environment. As stewards of the land, farmers in the Midsouth and Southeast USA implemented soil conservation practices to improve their soil and water quality. Reductions in soil erosion and increased moisture conservation have led to higher crop yields and enhanced whole-farm economics.

Fertilizer Management Practices for Potato Production in the Pacific Northwest

Potatoes are grown in almost every state and province in North America. Some potatoes are grown for fresh consumption, while others are used for processing into fries, chips, or frozen products. Whatever the end use, the objective of every potato grower is to provide high quality potatoes that meet the market objectives at a price that is economically profitable and environmentally sustainable.

Fertilizing Irrigated Corn in the Great Plains

Irrigated corn production is an important component of agricultural systems in the central and southern Great Plains. Adequate and balanced nutrient inputs are critical to producing optimum yields that result in maximum profit. A 52-page color manual was designed and authored by industry, university, and government soil fertility experts to address fundamental irrigated corn fertility questions to this region. The content is especially timely considering the importance of fertilizer best management practices in managing the risk associated with today's market conditions.

Best Management for Fertilizers on Northeastern Dairy Farms

In the past 10 years, many dairy farms in the humid temperate zone of northeastern North America have implemented best management practices (BMPs) for manure and fertilizer to address concerns about nutrient buildup in soils and nutrient losses that can impact water and air quality. An Introductory Guide was developed, focused on fertilizer BMPs: applying the right source at the right rate, at the right time, and in the right place.

Fertilizer BMPs for Small Grains in the Northern Great Plains

As stewards of the land, northern Great Plains farmers have implemented soil conservation practices that exceed many other resource conservation activities in North America. The resulting reduction in wind and water erosion and moisture conservation have improved soils, and increased crop yields and whole-farm economics.

Fertilizing Corn and Soybean Systems in the Midwest

The dominant cropping system of the Midwest is the largest user of fertilizer and the one perhaps most often targeted for environmental issues. Project focus for this region was on nutrient management decision support tools that would aid farmers and their advisers in managing crop nutrients in this intensive management system to produce optimum yields with a minimum environmental footprint.

Fertilizer Nitrogen BMPs to Limit Losses that Contribute to Global Warming

The right fertilizer N management decisions in producing corn and other crops can help reduce the impact on greenhouse gas (GHG) emissions and global warming potential. These fertilizer best management practices (BMPs) can go a long way toward making the most of applied N, for economic benefit as well as environmental.