

Site-Specific Nutrient Management

For Nutrient Management Planning To Improve Crop Production, Environmental Quality, and Economic Return

Introduction

Written By:

Agustin Pagani, Post-Doctoral Fellow

John E. Sawyer, Professor

Antonio P. Mallarino, Professor

Department of Agronomy, Iowa State University

Developed in cooperation with:

Lara Moody, The Fertilizer Institute (TFI)

John Davis, Natural Resources Conservation Service
(USDA-NRCS)

Steve Phillips, International Plant Nutrition Institute (IPNI)

Funding provided by the USDA-NRCS and TFI.

... and justice for all

The U.S. Department of Agriculture (USDA) prohibits discrimination against its customers, employees, and applicants for employment on the bases of race, color, national origin, age, disability, sex, gender identity, religion, reprisal, and where applicable, political beliefs, marital status, familial or parental status, sexual orientation, or all or part of an individual's income is derived from any public assistance program, or protected genetic information in employment or in any program or activity conducted or funded by the Department. (Not all prohibited bases will apply to all programs and/or employment activities.)

Introduction

Consistent use of nutrient management planning has been identified by USDA/NRCS as lacking on many farms in the USA (Conservation Effects Assessment Project (CEAP), Assessment of the Effects of Conservation Practices on Cultivated Cropland in the Upper Mississippi River Basin). It has also been shown that all resource concerns are rarely achieved with a single conservation practice. Implementation of site specific nutrient management planning to minimize nutrient loss, conservation practices to control runoff, and practices to trap materials leaving the field should be utilized as a combination of efforts. In combination, these practices have the ability to reduce agricultural non-point source pollution and to enhance economically sustainable crop production. However, increased nutrient management practice implementation requires increased producer awareness and well informed crop advisers.

A team of cooperating organizations and agencies that consists of The Fertilizer Institute (TFI), United States Department of Agriculture Natural Resources Conservation Service (USDA/NRCS), International Plant Nutrition Institute (IPNI), and Iowa State University (ISU) worked together to bring expertise and coordinated outreach in an effort to help producers increase implementation of site-specific nutrient management. The primary goal of this effort was to increase awareness of site-specific nutrient management and concurrent benefits to crop production, environmental quality, and economic return. With such understanding, the number of production acres implementing site specific nutrient management planning is expected to increase the effective and efficient use of nutrients for crop production.

The specific objectives were to: 1) develop an education program, that when implemented, will provide service providers (NRCS employees, Certified Crop Advisers (CCAs), Third Party Service Providers (TSPs), retail fertilizer personnel) and producers with enhanced knowledge about site specific nutrient management planning; 2) develop a set of educational materials to support nutrient management education programs; and 3) develop educational materials for service providers to support producer education programs.

An essential component of the effort was to provide this overview document that outlines the components of soil fertility and nutrient best management. Topics include the 4R nutrient stewardship; soil fertility and plant nutrition overview; nutrient management, including nitrogen, phosphorus, potassium, sulfur, calcium and magnesium, micronutrients; soil pH and liming; soil sampling; and integrated economic and environmental nutrient management.

Having worked together as a cooperating group, the hope is that developed education materials and training curricula will serve as a multiplier of efforts and enhance the variety of groups and number of individuals reached to ultimately increase the number of production acres implementing site specific nutrient management planning. The end result, through increased understanding and implementation of site specific nutrient management planning, will be a benefit to water and air quality as well as production sustainability.