

WHAT'S AHEAD? SOIL CONSERVATION SERVICE
NUTRIENT MANAGEMENT PLANS

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Introduction

Farmers have been going through a major change in their relationship with Government during the past ten years. Many in the agricultural community are anticipating possibly more changes in the future from such Legislation as the Clean Water Act and the Endangered Species Act. Each act has potential of having even more impact on the agricultural community. Immediately following those two acts will be the 1995 Farm Bill. The last two Farm bills have been slanted more to environmental concerns than in the past. Some of these acts may consider a regulatory process to assure that farming operations do not adversely affect the environment and public health. Water Quality, endangered species and the health of individuals will be primary environmental issues during the next 2-3 years. Government, universities and private sector must provide the best technical information possible to the farmers and ranchers on how to prevent environmental problems.

Nutrient Management Plans of the Future

For the most part, past nutrient management recommendations were designed to maximize agricultural production. Maximum production was a viable objective because commodity support payments were based on the total yield. Unfortunately, some farmers have gone a little overboard with nutrient application in sensitive ecosystems, and over application has caused some water quality problems. Application of nutrients from fertilizer or organic waste to levels much greater than any possible yield for the site created a surplus of nutrients in the soil. When rains came or irrigation occurred, any excess water that left the site carried some of those nutrients to the surface, ground water or both.

Nutrient management plans of the future must consider off-site effects of the nutrient application process and how to minimize those off-site affects. The plan must deal with cost-effective yield for the site and should not be striving for maximizing yields. The plan must be based on realistic yields and on applying the nutrients in a safe manner to ensure that the plant consumes as much of the nutrients as possible. In some areas restrictions on nutrients may be enforced by the State because of the site sensitivity to potential surface or ground water pollution.

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Soil Conservation Service (SCS) Nutrient Management Practice

The Soil Conservation Service has been working with the State Cooperative Extension Service, universities and others in each state to develop Nutrient Management Practices standards and specifications. Progress to date follows:

<u>Region</u>	<u>States with Approved Nutrient Management Standards</u>
Midwest Region	10 out of 12 states
Northeast Region	3 out of 13 states
South Region	All 13 states
West Region	9 out of 14 states
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Total	35 states out of 52 states and Pacific Basin and Puerto Rico have approved nutrient management standards.

These nutrient management practices recognize the variabilities that exist in each state. Training for implementing these standards is still being given and additional training is being considered.

Basically the nutrient management practices include establishing realistic yield goals, accounting for all nutrients and water movement and consumption, nutrient placement and timing, and other factors necessary to maximize nutrient plant uptake and reduce off-site loss of nutrients.

The practice encourages the development of nutrient management plans for each field and the crops grown on the field. Not only is the accounting for nutrients applied and consumed important but water management is just as important. Water is the driving force that moves the nutrients from the field in either surface, ground water or both. Managing the water to reduce movement or understanding the movement is extremely important in scheduling nutrient application.

The Soil Conservation Service is developing operational computer software and other tools to facilitate the development of nutrient management plans. Some of these tools are:

- Nitrogen and Phosphorus screening tool to determine relative sensitivity of a site to delivery of nitrogen or phosphorus offsite

- Water budget models for irrigated and non-irrigated crops. Some irrigation models are already available.

- N-LEAP computer model developed by Agricultural Research Service to account for nitrogen uptake and movement. The model is now being used in some states to develop the nutrient standard.

- An Expert Decision making support system to account for nutrient management.

- An animal waste management utilization module to develop detailed animal waste utilization plans.

Detail Nutrient Management Plans:

The Nutrient Management Plan should consider the following:

1. Determine Site Sensitivity to offsite water quality effects - ground and surface waters.
2. Develop Nutrient Budget - The budget should balance realistic crop yield goals with nutrient application and availability from all sources.
3. Establish nutrient application timing to match crop up take where feasible.
4. Evaluate water movement (runoff and leaching) verses nutrient availability for transport.
5. Determine remaining soil nutrients after crop harvest - some water quality sensitive areas may require "catch" crops to consume excess nutrients and water to reduce off site effects.

The implementation of the 1985 and 1990 Farm Bill has delayed the implementation of the nutrient management standard development. But, this has given the agency time to carefully develop the standards in cooperation with Cooperative Extension Service and universities. Training and guidance to the field staff is progressing. Recently a notice was sent to the State staffs informing them of training available in the private sector.

With the impending pressure to reduce offsite nutrient water quality effects, it is necessary to get the best available information to the farmers. I hope, they will make the best decision to reduce offsite effects. If the agriculture community does not reduce the problem of excess nutrients in water, it is almost certain that nutrient management regulations and other restrictions will be required.

Summary

Water quality is a major concern to the general public and farmers are only 2 percent of the population. Controlling industrial and municipal pollution by a regulatory process has been the normal pollution abatement process. The agricultural community must take charge of their destiny by solving water quality concerns or face the untenable problem of farming with regulatory constraints.

The Soil Conservation Service is trying to provide the best information possible to farmers so they can make good decisions and recognize the offsite effects of their actions. The farmer needs the assistance of everyone to help avoid further regulatory constraints. Everyone in the agriculture community must strive to do the best job possible to help the farmers improve water quality problems.

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