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Farm Nutrient Management

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FARM NUTRIENT MANAGEMENT

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Nutrient management is becoming a buzz word in today's vocabulary of crop and livestock production. In the past it was applied to efficient management of all nutrient sources used for crop production. More recently it is being used to account for all nutrients used for crop production that are brought onto the farm, removed from the farm in crop and animal products, and reallocated within the farm unit. Nitrogen, phosphorus, and potassium are the nutrients of concern with nitrogen and phosphorus being most important.

The benefits of nutrient management are in reducing input costs for crop production, increasing efficiency of farm produced animal wastes, and reducing the potential concerns in contaminating ground and surface waters. Also, the 1990 Farm Bill has some provisions that may require development of a farm nutrient management plan in conjunction with SCS as part of conservation planning for some programs.

Nutrient management begins with an assessment of the nutrient balance of a farm. Nutrient assessment starts with a good soil testing program to identify soil fertility levels at the present time. Other information such as the past crop rotation, crop and crop product yields by field from the past 2 to 3 years, nutrient content and application rate of manures applied to each field, fertilizers applied to each field, and nutrient content of crop and animal products sold are needed to complete this assessment.

The first step is to make a simple accounting of whether additions to the farm (feed and fertilizer nutrients) are equal to, less than or greater than the nutrients that leave the farm (tobacco, grain, forage, meat, milk, eggs, etc.). The second step is to conduct a field by field assessment that identifies any specific imbalances within the farm unit due to uneven distribution of fertilizers or farm produced manures.

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Farms that have intensive livestock enterprises, or have large purchases of fertilizer for crop production may have a whole farm nutrient excess. Farms that sell large amounts of forage or crops with low fertilizer purchases, or have a large dependence on rotations with less than 50% grain crops may have a nutrient deficit. Regardless of the direction of the imbalance, the assessment should include the field by field evaluation.

Once these assessments have been completed, management options for dealing with any imbalances can be explored and developed as part of a nutrient management plan. If the farm is near to being in balance, a field by field plan will be the priority. When there is a farm nutrient deficit, the plan can emphasize maximizing efficiency of manures produced or fertilizers purchased. If the farm has nutrient excess, the plan should emphasize reducing fertilizer purchases, or getting rid of animal wastes off the farm. Developing a plan to address field by field imbalances should emphasize the redistribution of nutrient sources between fields.

An important part of this plan is balancing nutrients removed in different crops that are to be grown on each field. Also, nutrient sources such as animal manures often provide an imbalance of nutrients as related to those removed in crop products. In some cases, a management plan may suggest a need for changing crop species in order to reduce potential excess nutrient buildups on some fields. Understanding farm nutrient flow can be very useful in developing a nutrient management plan. With cash grain or tobacco, the nutrient leaves the farm in the crop produced and fertilizers are brought onto the farm to replace this removal. With a livestock enterprise that largely depends on farm raised feedstuffs, crop products are used as feed, protein supplements and fertilizer are purchased, and meat, milk or eggs leave the farm. The primary nutrient flow is from the field to the livestock (plus supplements) and back to the field as manure. When livestock enterprises depend on a high proportion of purchased feed (poultry and some hog farms), the nutrient flow out in meat is a small portion of that purchased, thus there is a potential for major excesses to occur especially when land area is rather limited.

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