

# TECHNICAL NOTES

UNITED STATES DEPARTMENT OF AGRICULTURE  
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NATURAL RESOURCES CONSERVATION SERVICE  
ALEXANDRIA, LOUISIANA

## AGRONOMY TECHNICAL NOTE NO. 82

### NUTRIENT MANAGEMENT

Nutrient management should be an integral part of most water quality programs. Chemical and natural fertilizers are often identified as a source of pollution of our streams, rivers, and lakes, and more recently are being found in our ground water supplies.

Even though a landuser's main reason for applying nutrients is to optimize forage and crop yields, it is NRCS's responsibility to assist him/her in managing his/her nutrient program to give consideration to the protection of water quality.

The following are items the conservationist should consider when assisting a landuser to develop a conservation plan involving nutrient application.

1. Recognize the existing environmentally sensitive areas and water sources. Refer to Louisiana Department of Environmental Quality's (LDEQ) Non-point Source Pollution Assessment or LDEQ's Section 305b report Water Quality Inventory to identify stream segments with nutrient problems.
2. The nutrient management program should be based upon current LSU Agricultural Center recommendations utilizing the results of soil tests from any reputable lab. The soil tests should be taken at least every 3 years or at the beginning of a different cropping rotation. Basic analysis plus organic matter is the minimum soil test requirements for Louisiana. All sources and forms of plant nutrients being made available for plant growth and production should be considered. These may include crop residues, manure/organic by-products, cover crops, and commercial fertilizers.
3. Nutrient source, timing, and method of application should be manipulated to conform to seasonal variations in plant needs and soil properties to minimize nutrient loss by leaching or transport. Nutrients should be applied to close to the time of greatest crop demand. Split applications of nitrogen may be needed on deep sandy soils or over soils with a seasonal high water table.
4. Where manure or other organic by-products are used as a nutrient source, a risk analysis of the potential for phosphorus transport from the site shall be completed using the Phosphorus Index (PI). Nutrient values of manure and organic by-products shall be determined prior to land application. Manure and other organic by-products shall be sampled for N, P, and K and moisture content. Current nutrient analyses are no older than one year.



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Biosolids (sewage sludge) shall be applied in accordance with U.S. EPA regulations (40 CFR, parts 403 and (pre-treatment) 503 (biosolids) and other state/local regulations regarding the use of biosolids as a nutrient source.

The planned rates of nitrogen and phosphorus application in the final plan shall be based on an annual laboratory analysis of the material being applied minus adjustments for volatilization, leaching, and denitrification.

5. Erosion control and water management practices should be planned to minimize soil loss transport and runoff that may carry attached or dissolved nutrients to surface water. This is important where soils contain high levels of phosphorus.
6. Since soil pH affects the availability of nutrients, the pH should be adjusted to levels best suited for the crops being grown. The recommended pH level should be a part of the soil test.
7. Cover crops can be used to take up excess plant nutrients to prevent their movement out of the root zone. Where organic wastes are applied in the fall, applications should be limited to areas where cover crops, cool season forages, or small grains are being produced. Filter strips and/or field borders should be established along any field margin from which nutrient movement is likely to occur into a stream or other water body.
8. Plant nutrients may be applied as broadcast, starter, surface band, injected band, or foliar. Avoid unnecessary exposure to hazardous chemical fertilizer and organic wastes during handling and application.
9. Disposal of product containers must be in accordance with local and/or state regulations.

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