

EFFICIENT UTILIZATION OF FERTILIZERS ON TURF

Paul E. Rieke, Crop and Soil Science Dept.
Michigan State University

Many factors contributed to the general shortage of fertilizers experienced during 1974. The greatest pressure occurred with nitrogen fertilizers, resulting in markedly increased and, in some cases even highly inflated nitrogen prices, as well as limited availability of nitrogen fertilizers in some areas. With continued demand for nitrogen and higher prices it is obvious that the turf manager must utilize fertilizer as efficiently as possible. Several points are presented for consideration.

1. Return clippings to the turf if this is feasible. As high as 6 pounds of nitrogen, 1.5 pounds of P_2O_5 and 3.5 pounds of K_2O could be removed in the clippings of Kentucky bluegrass per 100 square feet per year, although most turfs would not yield as high nutrient removal. Proper mowing frequency allows short clippings to fall back into the turf for decomposition and recycling of the nutrients.
2. Design the fertilizer program to provide nitrogen when needed by the turf. When water soluble nitrogen sources (such as ammonium nitrate, urea or ammonium sulfate) are used, lower rates per application and more frequent applications will reduce potential losses. Slow release nitrogen sources will reduce nitrogen losses when grass is not actively growing.
3. Irrigate carefully to prevent leaching of nitrogen. When more water is applied than is needed to rewet the soil in the effective rooting zone, nitrate (NO_3) nitrogen can be leached out of the root zone. This is more important on sandy soils through which water moved readily. Sufficient water is needed however, to maintain good quality turf.
4. Use low nitrogen requiring turfgrasses. When establishing a new turf or when overseeding an existing turf, use lower nitrogen requiring grasses if this is feasible. Some varieties and species of grasses have higher nitrogen requirements to maintain good quality turf than do others. Always use the correct grass for the given site and use in question.
5. Soil Test. A soil test is necessary to determine the proper needs for P_2O_5 and K_2O . If other nutrients are limiting turf growth, nitrogen cannot be utilized efficiently.
6. Apply fertilizer carefully. Fertilizer which falls on sidewalks, driveways and streets is lost for turf use and may contribute to pollution problems.
7. Store fertilizers properly. Improper storage of fertilizers can lead to poor quality of fertilizer which may even have to be discarded.
8. Consider alternate nitrogen sources. There are a number of organic materials which could potentially be used as fertilizer sources. Many of these present significant handling and spreading problems, but they could serve as low cost nitrogen sources.
9. Follow good maintenance practices. Diseases and insect problems, for example, must be controlled in order to use fertilizer efficiently.
10. Use no more nitrogen than is necessary to maintain good turf. Too much nitrogen shortens root systems especially in warm weather, increases growth rate leading to more mowing and increases turf susceptibility to many stress conditions. Somewhat lower nitrogen rates may be feasible on some turfs, especially for a year or two, without seriously reducing turf quality. The quality of turf desired is a personal matter.