

TURFGRASS TRENDS

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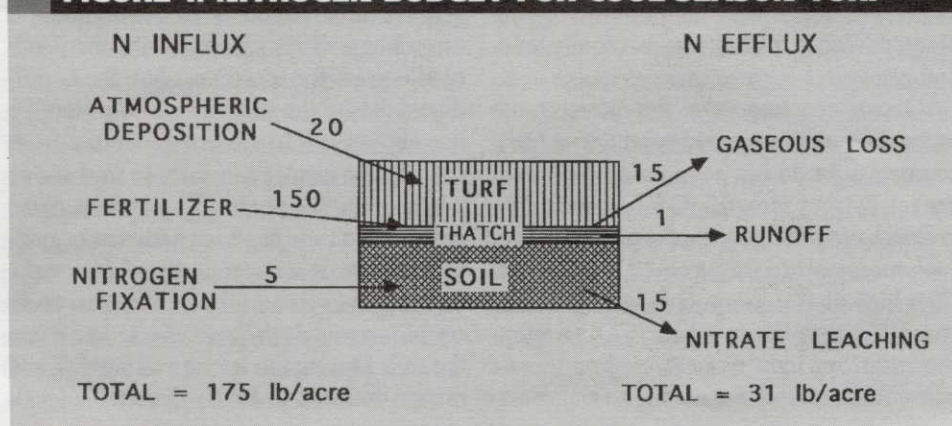
Nitrogen Fertilization Reconsidered

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The use of nitrogen fertilizers in turf management continues to generate controversy and debate. This in spite of the fact that few practices are more widespread or better grounded in agronomic science. One factor which has prompted concern over nitrogen use is the perception that nitrate leaching from turf is a significant contributor to nitrate pollution of ground water. This concern is fueled by reports such as one published recently in which a model was generated to evaluate nitrate loading into estuarine coastal waters (Valiela et al. 1997). This model assumed that 61% of nitrogen applied to turf was ultimately discharged into ground water. It treats nitrogen applied to turf exactly as that used on agricultural lands except there the portion of nitrogen removed in a crop is subtracted. The only other nitrogen losses from turf considered by the authors of this model were gaseous losses which they pegged at 39% of nitrogen applied. The possibility that nitrogen might be accumulating within a turf-soil ecosystem was apparently not considered.

The substantial amount of research on nitrate leaching from turf which was reviewed by Marty Petrovic at Cornell University (1990) apparently was not seriously evaluated in constructing this model. Also not considered was the analysis which we presented a few years ago within these pages (Hull 1995) nor the comprehensive review of water quality impacts by golf course management recently reviewed by Cohen et al. (1997). All of these reports indicate that when reasonable management practices are employed, very little nitrate leaches from a healthy turfgrass sod. For reasons that will be considered later, it is probably safe to assume that no amount of research will convince some that nitrogen

FIGURE 1. NITROGEN BUDGET FOR COOL-SEASON TURF*



* Cool-season turfgrasses fertilized annually with 3.5 lbs. N/1,000 sq. ft. Numbers in lbs. per acre per year.

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