

Nitrogen Uptake in Kentucky Bluegrass

Nitrate leaching into ground water is a major concern for the turfgrass manager. The nitrogen uptake rate (NUR) for Kentucky bluegrass plants is an important factor in selecting plants that can reduce the amount of nitrate leached into ground water. Since nitrate leaching is of particular concern during establishment, researchers at the University of Rhode Island studied six cultivars of Kentucky bluegrass at the seedling, as well as mature plant, stage.

In addition to comparing NURs among and within the cultivars, the study also investigated the relationship between seedling NUR and mature plant NUR. The ability to select cultivars with high mature plant NUR based on seedling NUR would decrease the amount of time required for selection and development.

The six cultivars (Blacksburg, Barzan, Conni, Dawn, Eclipse, Gnome) were screened for NUR beginning at 30 days after seeding. Seedling NUR was positively correlated with total length and total area of leaves and roots of the seedlings. There were significant differences in seedling NUR both among and within the cultivars. The removal of shoot tissue significantly and immediately reduced NUR, but rates generally increased to initial levels within a week.

For the most part, however, the results did not show a significant correlation between seedling NUR and mature plant NUR. Therefore, seedling NUR may not be a good predictor of mature plant NUR in all cases. This is likely due to the fact that mature plants have characteristics that the seedlings do not, such as the ability to produce tillers and rhizomes, both of which would influence NUR.

With the issue of water quality being such a high priority in this industry, growing turfgrass cultivars that are genetically programmed with high NURs is an important tool in reducing the risk of leaching.

From: Jiang, J., W.M. Sullivan. 2004. Nitrate uptake of seedling and mature Kentucky bluegrass plants. Crop Sci. 44:567-574.

Residential Fertilization Practices Surveyed

The scarcity of data on residential lawn care practices makes it difficult to evaluate fertilizer, pesticide and water use. With concern growing throughout the United States over surface and ground water contamination from both nutrients and pesticides, this information is critical for establishing sound turf management guidelines and educational outreach programs.

In an effort to characterize how turf fertilization practices in residential areas may contribute to water pollution, researchers at North Carolina State University conducted a survey in five North Carolina communities. Homeowners and lawn care companies were asked specific questions about how they fertilize lawns.

More than half of urban homeowners surveyed use fertilizer on turf. Some households used lawn care services, with the highest frequency of use occurring in the community with the highest median income. High and medium income households had significantly higher fertilizer rates than low-income households. Fertilization was based on soil testing for only 20% of the households, and none of the lawn care companies surveyed used soil tests on a routine basis.

Generally, fertilization rates for tall fescue lawns were appropriate, but for grasses with low N requirements, such as centipede grass, excess fertilizer was often applied. Both homeowners and lawn care services tended to fertilize during the wrong season. On average, only 52% of households removed fertilizers from impervious surfaces such as driveways and sidewalks.

The results of this study indicate areas of concern that can be addressed in order to reduce negative environmental impacts of fertilizer use. Surveys in other areas of the country would no doubt yield information necessary for educating people about safe lawn care practices in their own communities.

From: Osmond, D.L., D.H. Hardy. 2004. Characterization of turf practices in five North Carolina communities. J. Environ. Qual. 33:565-575.

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