Effects of sources, rate and timing of nitrogenous fertilizers on nitrate leaching and aesthetic quality of St. Augustinegrass.

Summer bans on nitrogen (N) fertilizer are commonplace in Florida counties and municipalities. An experiment was carried out at the University of Florida (UF) to evaluate the effects of different sources, amounts and timing of nitrogenous fertilizers on nitrate leaching and aesthetic quality of St. Augustinegrass [(*Stenotaphrum secundatum* (Walt.)]. The goal was to determine a fertilization program that would sustain turfgrass health during a summer N ban period with minimal N leaching. Ten treatments, including soluble and polymer-coated controlled-release fertilizers (CRF), were arranged in a randomized complete-block design with four replications. Drainage lysimeters were installed under every experimental unit to collect the leachate which was analyzed for nitrate (NO_3-N). Turf quality rating was determined by the use of NDVI turf color meter and by visual observation. The leaching loss of NO_3-N was comparatively higher during May and early June, just after turfgrass establishment and then was negligible throughout the remainder of the summer. The cumulative NO_3-N leaching for all the treatments was a small fraction of the fertilizer applied and ranged from 1.6 to 10.9 kg/ha/yr. The turf color and quality with the control (no nitrogen) was significantly lower than the turf with other treatments with fertilizers. Highest color intensity was observed under the highest rate, 244 kg N/ha/yr, from CRFs. Color with the UF recommended practice was similar to color with the highest rate of CRFs. We can conclude that several N fertilizer management strategies led to similar turf color and very low N leaching during the summer. These included the UF recommended practice and reduced rates of controlled-release fertilizers.

Abbreviations:

CRF: Controlled Release Fertilizer

Kg/ha/yr: Kilogram per Hectare per Year

NDVI: Normalized Difference Vegetation Index

NO_3-N: Nitrate Nitrogen

N: Nitrogen

UF: University of Florida

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