


## Research Summary

### Turf Versus Ornamental Landscape Nutrient Loss

There are many claims by certain environmental activists that nitrogen leaching is reduced via the use of mixed ornamental species in comparison to a turfed landscape. An investigation was established to evaluate the nitrogen leaching and runoff loss between a St. Augustinegrass (*Stenotaphrum secundatum*) turf versus a mixed species landscape composed of 11 different dicotyledons. The alternate mixed ornamental species were chosen by the Florida Yards and Neighborhoods Program based on their theories of low nitrogen requirements. Included were two species of ground covers, one ornamental grass species, six shrub species, and three tree species. Seven of the twelve species were native to Florida. The plot size was 50 m<sup>2</sup> (538 ft<sup>2</sup>), with a typical medium-fine sand root zone having a depth of 75 cm (30 inches). The two comparative landscape treatments were replicated four times at the Fort Lauderdale Research and Education Center of the University of Florida. Both surface runoff and subsurface percolate were collected and analyzed for nitrogen content of the ammonia and nitrate fractions. The various species used were commercially available and purchased locally. A eucalyptus mulch was applied to a depth of 7.5 cm (3.0 in.) on all the mixed ornamental species plot areas. Construction of the experimental site was conducted in the autumn of 1998, which included a 10% slope for collection of surface runoff. Irrigation was applied as needed. A 26-3-11 (N-P<sub>2</sub>O<sub>5</sub>-K<sub>2</sub>O) fertilizer was applied at a rate equivalent to 300 kg N ha<sup>-1</sup> yr<sup>-1</sup> (6.0 lbs N/1,000 ft<sup>2</sup> yr<sup>-1</sup>) for the St. Augustinegrass turf and 150 kg N ha<sup>-1</sup> yr<sup>-1</sup> (3.0 lb N/1,000 ft<sup>2</sup> yr<sup>-1</sup>) for the mixed ornamental species. The rates used were typical of those recommended by landscape specialists in Florida.

**Results.** The results throughout the first year following installation of the landscapes revealed that the

fertilizer nitrogen loss via surface runoff was insignificant. In contrast, nitrogen leaching losses were significantly greater on the mixed ornamental species landscape than from the St. Augustinegrass turf, with annual total losses of 48.3 kg N/hectare versus 4.1 kg N/hectare (0.96 lb vs. 0.08 lb N/1,000 ft<sup>2</sup>), respectively. This represents more than a 10-fold greater loss of nitrogen by leaching from the mixed ornamental landscape compared to the St. Augustinegrass turf during the initial year following establishment. This occurred even though the turfgrass was fertilized at twice the rate for the mixed ornamental species landscape.

**Comments.** Obviously these results are the direct opposite of the theories expounded by many so-called environmentalists who have a basic anti-turf philosophy. More studies of this type are needed in other areas of the country to document the true situation relative to nitrogen leaching from turfgrass versus alternate ornamental landscapes. This study was conducted with a high-sand root zone, a condition typical of Florida. Studies with finer-textured soils are also needed. Research has shown that nitrate levels in groundwater are elevated in areas where human population densities are higher. Accusations have been made that this is a result of fertilizing turfgrass areas. In contrast, this study indicates that this in fact is not the case. It emphasizes the importance of basing strategies for the use of landscapes on sound research rather than ill-conceived theories promoted by well-funded environmental activists. 

**Source.** J.E. Erickson, J.L. Cisar, J.C. Volin, and G.H. Snyder. 2001. Comparing nitrogen runoff and leaching between newly established St. Augustinegrass turf and an alternative residential landscape. *Crop Sci.* 41:1889-1895.

### Large Patch of Zoysiagrass

*Continued from page 5*

to reduce leaf wetness duration and disease severity. Improve drainage and prune or remove trees and brush in sites where large patch is a chronic problem.

Fungicides assist in blight reduction, but generally do not prevent the disease. A fungicide application in late September to mid-October is recommended where the disease is chronic. Azoxystrobin (Heritage<sup>®</sup>), flutalonil (ProStar<sup>®</sup>), iprodione (Chipco 26 GT<sup>®</sup>), PCNB (Penstar<sup>®</sup>, Terraclor<sup>®</sup>), myclobutanil (Eagle<sup>®</sup>), propiconazole (Ban-

ner MAXX<sup>®</sup>), triadimefon (Bayleton<sup>®</sup>), and triticonazole (Triton<sup>®</sup>) have been shown to provide satisfactory disease suppression and their use is associated with more rapid turf recovery from the disease. Flutalonil is the preferred fungicide for curative treatment of large patch in the spring. Curative control may require several applications of high fungicides rates. Preventive applications of fungicides to sites where the disease is a chronic problem are the best approach to large patch management. 