

The Quarterly Journal of the Florida Native Plant Society

Palmetto



More Nitrogen Leached from Landscape Plantings than Lawns

A critique of a University of Florida experiment

By Richard Poole and Christine Brown

Nitrogen (N) is the major component of fertilizer applied to lawns and ornamental plants. Other major components of fertilizer are phosphorus (P) and potassium (K). Nitrogen leaches readily from the soil, especially the sandy soil that comprises much of Florida's lawns. When nitrogen leaves the soil it enters the aquifer, and streams and lakes, where it frequently produces algae blooms and eutrophication. Phosphorus also contributes to the decline of our waterways (Pope and Milligan, 2002).

To maintain lush green lawns desired by most homeowners and required by many homeowner associations, large quantities of water and fertilizer are applied. As a result, harmful fertilizers are added to our water supply.

A University of Florida study by Erickson et. al., 2001, states that more nitrogen is leached from ground covers, shrubs and trees than lawns. Their abstract states: "The results from the newly established landscapes presented here indicated that St. Augustine grass was more efficient at using applied nitrogen and minimizing nitrogen leaching compared with the alternative landscape."

Let's examine the *Materials and Methods* section of the paper. The experiment was conducted at the University of Florida's Fort Lauderdale Research and Education Center. Plants chosen were approximately half Florida native plants and half exotic plants commonly used in Florida landscapes. A comparison was made between plots completely covered with St. Augustine and plots with 71 plants whose roots initially covered about 5% of the test plots. The root zone mix used to grow the plants was a medium fine sand with relatively high infiltration rate. The rate of irrigation used was uniform across all

plots for five months. Nitrogen was applied at the rate of approximately 44 pounds per acre per application, a moderate amount for south Florida. Grass received twice as much fertilizer as the landscape plants.

Guidelines for native plant maintenance recommend that an initial dose of dilute fertilizer to get the plants off to a good start is sometimes beneficial, but routine fertilizing of native plants is not recommended (Osorio, 2001). Once established a water-conserving yard may require only moderate amounts of supplemental fertilizer. Over-fertilizing aggravates pest problems, stimulates excessive growth and requires frequent watering. Fertilizers carried by irrigation water or rain can leach into ground water and our waterways (Waterwise, 2003). Other sources suggest requirements for soil, light and temperature but make no suggestions for fertilizer application (Huegel, no date; Traas 1999). Saint John's River Water Management District promotes 'Think Two' – watering twice a week for St. Augustine grass. However, once established, native plants do not require irrigation, and exotic ornamentals will thrive with less than twice weekly irrigation.

In the experiment, initial plots of grass had 100% vegetation coverage, whereas the initial plots of mixed plants had approximately 5% coverage. Much of the fertilizer in the mixed plots was applied to medium fine sand with no vegetation coverage.

More water was applied to the mixed plants by Erickson et.al. than necessary. More fertilizer was applied than needed by the mixed planting and much of the fertilizer was applied to sand with no vegetative cover or roots. Erickson et.al. suggest "it is possible that too much fertilizer was applied to

the mixed species landscape plants." Under the conditions of the experiment nitrogen leachate would be expected to be greater for the mixed plants.

The abstract should have read: *Results from the newly established landscapes presented here indicated that St. Augustine grass was more efficient at using applied nitrogen and minimizing nitrogen leaching compared with the alternative landscape when excessive amounts of nitrogen and water are applied to landscape plants and sand.*

To properly evaluate nitrogen leachate of native and landscape plants, fertilizer or no fertilizer should be applied to the plant root zones. Water should be applied less than twice a week.

The experimental plots as designed by Erickson et. al. to test nitrogen leachate from grass and landscape plants favors lawns.

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The purpose of the Florida Native Plant Society

is to conserve, preserve, and restore the native plants and native plant communities of Florida.

Official definition of native plant:

For most purposes, the phrase Florida native plant refers to those species occurring within the state boundaries prior to European contact, according to the best available scientific and historical documentation. More specifically, it includes those species understood as indigenous, occurring in natural associations in habitats that existed prior to significant human impacts and alterations of the landscape.

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We welcome articles on native plant species and related conservation topics, as well as high-quality botanical illustrations and photographs. Contact the editor for guidelines, deadlines and other information.

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