

Research Topic:

Field Evaluation of Different Fertilizer Formulations Including Various Combinations, and Nitrogen Sources and Rates on Recovery of Tifeagle Bermudagrass from Core Cultivation (2008). J. Sartain, University of Florida

Tifeagle is a relatively new ultradwarf bermudagrass that is becoming the turfgrass of choice on putting greens of high-end golf courses in Florida. This turfgrass requires intensive management practices to limit thatch accumulation and maintain superior turfgrass quality and putting conditions. Core cultivation is one of the mechanical means used to remove thatch, however represents a mechanical cultivation practices capable of producing significant injury to turfgrass. Rapid regrowth following core cultivation with nitrogen (N) fertilization remains a key factor to speed up the recovery process. An N source capable of promoting regrowth and enhancing turfgrass quality would ease the management difficulties following core cultivation. Turfgrasses respond differently to N sources depending on their solubility and release characteristics. **A field study was established on Tifeagle bermudagrass following core cultivation to determine the influence of different soluble and controlled release N sources and rates on turf recovery rate, visual quality, and regrowth.**

Four (4) N sources (*Green Spec* 16-4-8 and 7-7-7, 60% Nutralene + 40% ammonium sulfate (AS), and GreenEdge (bio-solid) were applied at 0.75 and 1.5 lb N/M, respectively. Plots (6X9) were arranged in a randomized complete block design with four (4) replications. Prior to treatment applications, turfgrass was core cultivated using 5/8 inch tines. Cores were removed and the area topdressed with sand to a depth of approximately 1/8 inch. Visual ratings were taken weekly for recovery ratings and visual quality. Clippings were collected every 14 days for growth rate estimates. N sources were applied once and turfgrass evaluated until complete recovery was observed.

In general, turfgrass treated with 1.5 lbs N/M recovered faster than turf treated with 0.75 lbs N/M. *Green Spec* 16-4-8 and 7-7-7 provided significantly faster recover than the 60% Nutralene plus 40% AS and GreenEdge after application of 0.75 lb N/M, including ~ 80% after 30 days compared to ~60% recover for the other N sources and the untreated control (Figure 1). When 1.5 lb N/M was applied, the 60% Nutralene plus 40% AS treated turf performed closer to the *Green Spec* fertilizer, however still did not recover as quickly (Figure 2). A similar response of N sources based on N rate was observed with respect to overall turf quality (Figures 5 and 6). Mean growth rate was higher for turf treated with 1.5 lbs/N/M compared to 0.75 lbs/N/M for all N sources except the GreenEdge. For the 0.75 lb N/M N rate, the 16-4-8 and 7-7-7 *Green Spec* N source provided the highest mean clipping yield, while the other N sources remained statistically similar to the untreated control (Figure 9). For the 1 lb N/M N rate, the 16-4-8 and 7-7-7 *Green Spec* N source provided the highest clipping yield, but was statistically similar to the 60% Nutralene plus 40% AS treatment. All three these N sources provided a higher mean growth rate than turf treated with GreenEdge and untreated control (Figure 10).

For turfgrass recovery, quality, and growth rate the *Green Spec* 16-4-8 and 7-7-7 produced statistically equivalent and superior responses following core cultivation of Tifeagle bermudagrass. When applied at 0.75 lbs N/M the mixture of 60% Nutralene plus 40% AS and the biosolid N sources induced responses statistically equivalent to the untreated control, which received no fertilization. However, when applied at 1.5 lbs N/M the 60% Nutralene plus 40%AS N source produced intermediate results between the *Green Spec* 16-4-8 and 7-7-7 and the control. The biosolid did not differ from the control even when applied at the higher rate of N. Based on the observed recovery rates and the visual quality responses it appears that the turfgrass would recovery to acceptable levels more rapidly when 1.5 lbs N/M are applied rather than 0.75 lbs N/M, however better results should be expected with *Green Spec* fertilizers if <1.5 lb N is applied after core cultivation.

FIGURE 1.

EFFECT OF N SOURCE ON TIFEAGLE RECOVERY (0.75 # N)

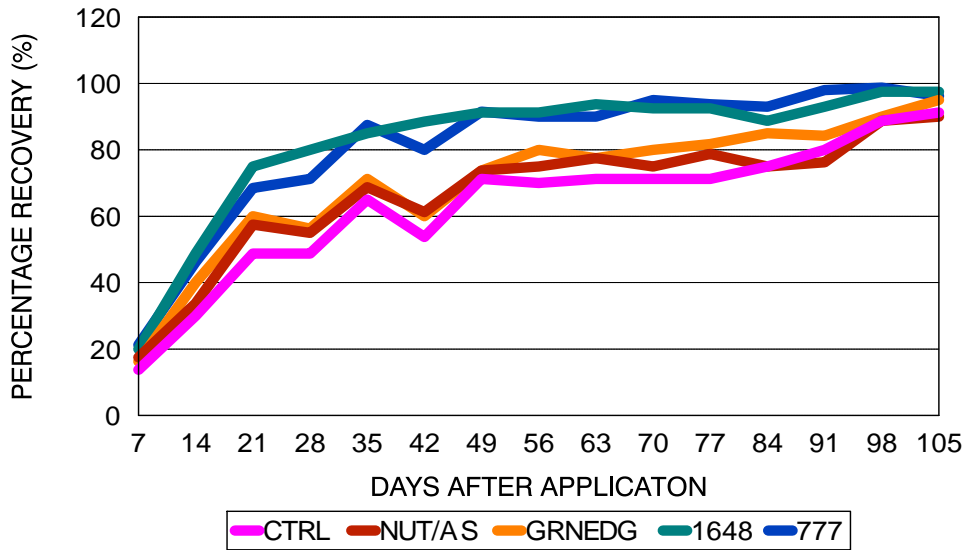


FIGURE 2.

EFFECT OF N SOURCE ON TIFEAGLE RECOVERY (1.5# N)

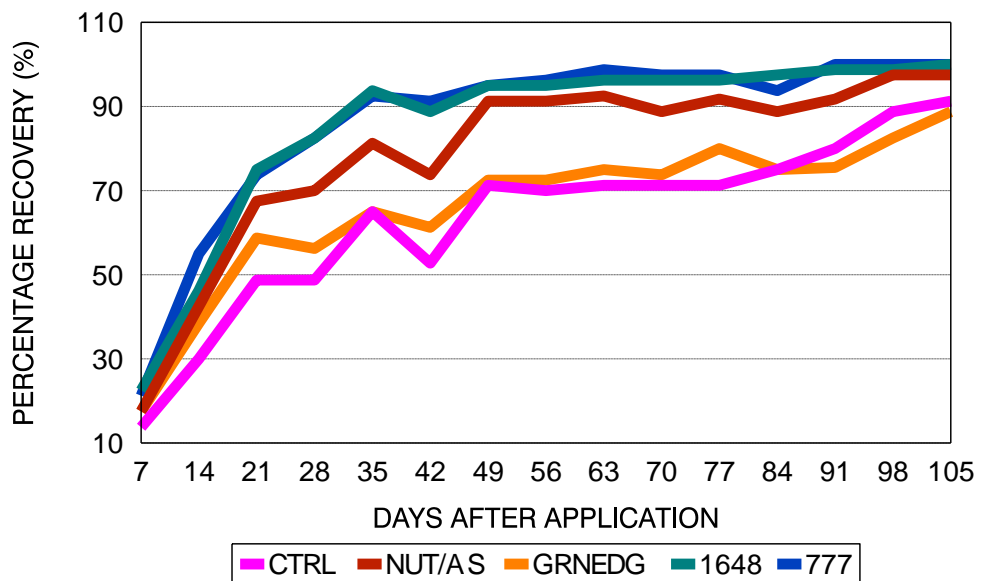


FIGURE 5.

**EFFECT OF N SOURCE ON TIFEAGLE VISUAL QUALITY
(0.75 # N/1000 SQ FT)**

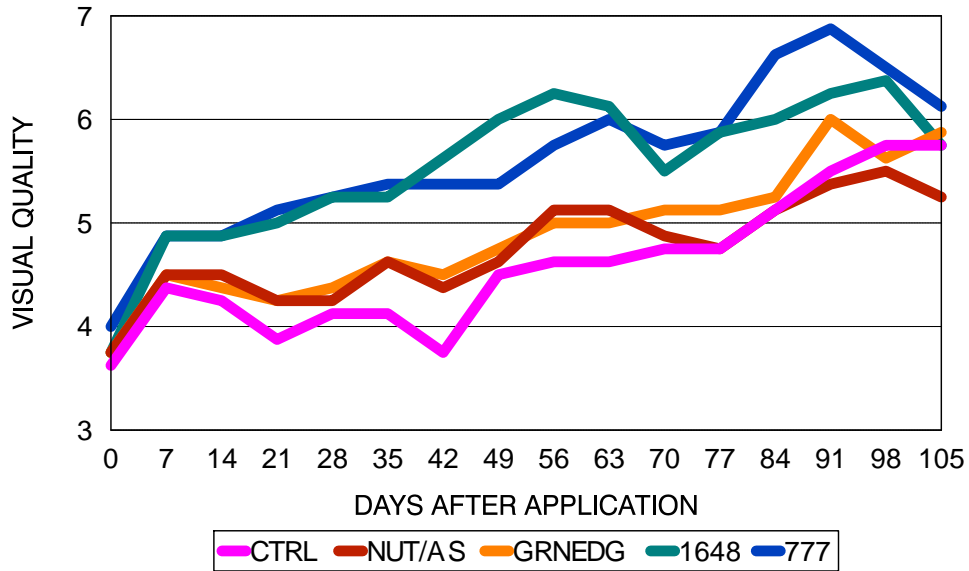


FIGURE 6.

**EFFECT OF N SOURCE ON TIFEAGLE VISUAL QUALITY
(1.5 # N/1000 SQ FT)**

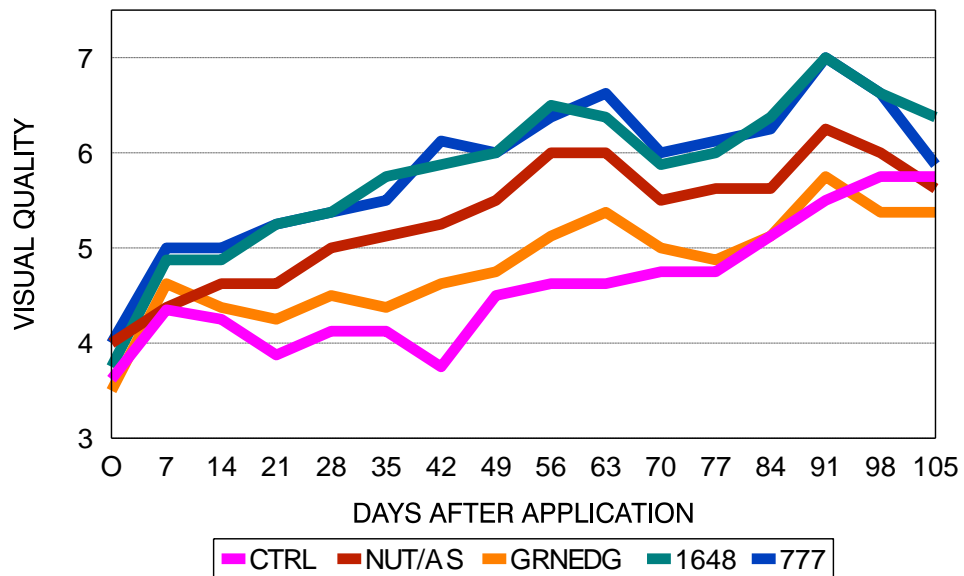
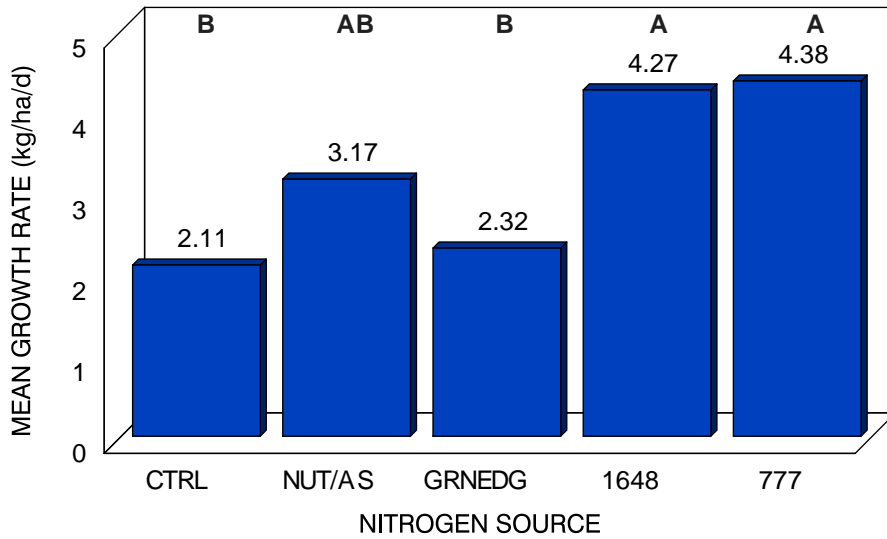


FIGURE 9.

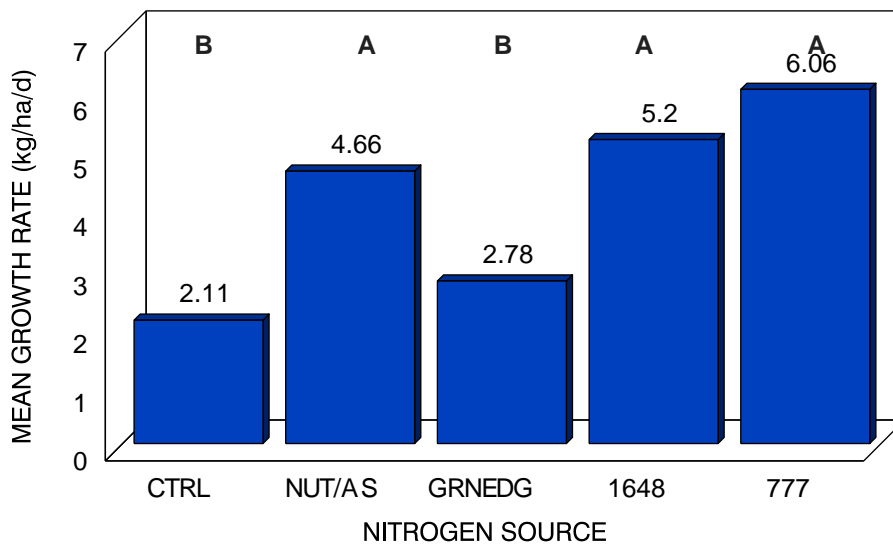
EFFECT OF N SOURCE ON TIFEAGLE MEAN GROWTH RATE OVER 105 DAYS (0.75 # N/1000 SQ FT)



*Means followed by a same letter are not significantly different

FIGURE 10.

EFFECT OF N SOURCE ON TIFEAGLE MEAN GROWTH RATE OVER 105 DAYS (1.5 # N/1000 SQ FT)



*Means followed by a same letter are not significantly different

