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Turfgrass Fertilizer Trial

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Abstract

A fertilizer trial for Ajinomoto USA, Inc. was conducted during the summer-fall months of 2009. The purpose of the study was to analyze the effects of several fertilizers compared with urea and an untreated control. Data collected included weekly visual quality ratings, weekly clipping mass, and analysis of total nitrogen percentage in leaves. Total nitrogen percentage data were determined from combined weekly clippings four times during the study.

Keywords

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Disciplines

Agricultural Science | Agriculture | Horticulture

Turfgrass Fertilizer Trial

RFR-A9053

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Introduction

A fertilizer trial for Ajinomoto USA, Inc. was conducted during the summer-fall months of 2009. The purpose of the study was to analyze the effects of several fertilizers compared with urea and an untreated control. Data collected included weekly visual quality ratings, weekly clipping mass, and analysis of total nitrogen percentage in leaves. Total nitrogen percentage data were determined from combined weekly clippings four times during the study.

Materials and Methods

Research was conducted on Park Kentucky bluegrass. A randomized complete block design was used with 5 ft x 5 ft plots and three replications for each of six treatments. The treatments were an untreated control, two dry experimental fertilizers, urea, AjiGrow liquid fertilizer, and corn gluten meal.

Each plot was treated with 3 lb N 1000 ft⁻² throughout the growing season. The two dry experimental fertilizers and corn gluten meal were only applied to their respective plots twice during the study (May 19 and August 28). Urea and AjiGrow were applied three times during the study (May 19, June 15, and August 28).

The area was irrigated with 0.5 in. of water following each application. Plots were watered to prevent moisture stress throughout the study. Treatments 2 and 3 were applied at 40 lb/in.² (psi) in the equivalent to three gallons of water/1000 ft² using a

CO₂ backpack sprayer with 8002 nozzles. Clippings were collected, placed in paper bags, and dried at 67°C for five days on a weekly basis beginning June 3 and ending on September 10. After drying, the dry clipping mass was measured.

Each week's clippings were stored at room temperature in paper bags. When three to four weeks of clippings had been collected, they were combined, tossed, and ground. Uniform samples of the ground clippings were sent to ISU Soil and Plant Analysis Lab for total nitrogen percentage analysis via combustion.

Quality ratings were visually noted weekly. The quality scale ranged from 9 to 1; 9 = excellent turf quality, 1 = dead turf, and 6 is considered least acceptable turf quality.

Results and Discussion

Quality ratings. The untreated control plots had consistently lower quality ratings. Urea and AjiGrow treated plots received the highest ratings overall (Table 1).

Clipping weights. The untreated control plots had lower mean clipping mass when compared with other treatments on most weeks. Urea and AjiGrow plots had higher mean clipping yield than all other treatments overall (Table 1).

Nitrogen analysis. The untreated control had a statistically lower mean nitrogen percentage than any other treatment. Urea and AjiGrow clippings had the highest percentage total nitrogen. Dry experimental A clippings' nitrogen percentage was less than urea and AjiGrow plots, but not less than dry experimental B and corn gluten meal clippings (Table 1).

Table 1. Overall means for quality ratings, clipping weights, and percentage total nitrogen.^z

<u>Fertilizer treatment</u>	<u>Quality</u>	<u>Clipping weight (g)</u>	<u>% Total N</u>
Control	6.4 c	5.00 c	2.494 c
Urea	8.1 a	11.4 a	2.990 a
AjiGrow	8.0 a	11.3 a	2.966 a
Dry experimental A	7.5 b	9.00 b	2.759 b
Dry experimental B	7.5 b	9.60 b	2.809 ab
Corn gluten meal	7.5 b	8.50 bc	2.849 ab

^zMeans within columns followed by the same letter are not different according to Fisher's Protected LSD_{0.05}.