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Germination of Turf-Type Tall Fescue in ISU Compost

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Introduction

This research project is to determine if there is an inhibitory effect on the germination of turf-type tall fescue in soils treated with the ISU compost. ISU compost is generated by the University Compost Facility. Inputs at the facility are approximately 80 percent from the ISU Dairy Farm.

Materials and Methods

The trial was conducted at the Iowa State University Horticulture Research Station, Ames, Iowa. Plots were arranged in a randomized complete block design with three replications. Soil pH was 6.65 with soil P and K contents of 9 and 98 ppm, respectively. Soil type was a Nicollet clay-loam (fine-loamy, mixed, mesic, Typic Hapluldoll).

Plots were tilled at a depth of 6 in. The soil was then excavated. Plots were backfilled using the same soil with different amounts of compost and soil blended together (Table 1). Turf-type tall fescue seed was applied at 7 lb/1,000 ft² on October 2, 2015. A monoammonium phosphate (11-25-0) was applied as a starter fertilizer at a rate of 1 lb actual phosphorus/1,000 ft². Plots were gently watered to promote germination and irrigation was turned off once turfgrass seedlings emerged.

Results and Discussion

There was a significant difference found among treatments (Figures 1 and 2). The added compost restricted the germination of turfgrass seedlings. This is primarily due to high amounts of sodium present in the compost. Additional irrigation is recommended to leach the sodium through the soil profile. At this time, it is our recommendation to use no more than 20 percent compost in the soil mix. We will continue to evaluate the establishment percentages during the 2016 season.

Table 1. Turf-type tall fescue percent cover.

Trt no.	% Compost (by volume)	% Soil (by volume)	% Turfgrass cover
1	0	100	31.7a
2	20	80	25.0a
3	40	60	14.7b
4	50	50	5.3c
5	60	40	6.0c
6	80	20	1.7c
7	100	0	0.0c
LSD 0.05			7.3

Figures 1 and 2 indicate differences among plots.