

Yellow Nutsedge Trial

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Introduction

The objective of this study was to observe the effectiveness of several yellow nutsedge (*Cyperus esculentus L.*) controls.

Materials and Methods

The trial was conducted at the Iowa State University Horticulture Research Station, Ames, IA, in a non-irrigated turf with a high population of yellow nutsedge plants. The treatments are listed in Table 1. Plots measured 5 ft × 5 ft for a total of 25 ft², and the study was replicated three times. The SH listed in Table 1 stands for SedgeHammer (halosulfuron-methyl), a commercially-available sulfonyl urea product from the Gowan Co. The GWN materials are experimentals that are being compared with SedgeHammer. Treatments were applied in the equivalent of 3 gallons water/1,000 ft² on June 11 when the sedge plants were well developed and actively growing. The second application at the same rates was made on July 12. The soil on the site is a disturbed Nicollet clay loam with a pH of 8.05, 3 ppm P, 85 ppm K, and 4.3 percent organic matter. The summer of 2010 was extremely wet, with nearly double the normal precipitation during the study period.

Results and Discussion

No phytotoxicity was observed on the grass on the site on June 25 or on July 1 following the first application on June 11 (Table 1). Likewise, no phytotoxicity was observed on the grass 48 hours after the second application on July 13 (Table 1). The study area was adjacent to the turf research building and it

was observed several times per week during the study period. No damage was observed on the grass at any time during the study. Phytotoxicity readings were also made on weed damage. These were based on a scale of 100 percent = dead sedge plants and 0 percent = no damage. Only GWN-9843 at 9.92 oz/acre showed damage to weeds on June 25 as compared with the control. All treatments produced significant damage to the weeds as compared with the control on July 1, with the exception of treatment 5, GWN-9861 at 9.92 oz/acre. This material showed damage to the weeds at the 19.84 oz/acre rate on July 1. By July 8, all treated plots showed weed damage compared with the untreated control (Table 1).

Weed counts were somewhat ambiguous, likely due to the extremely wet conditions. Precounts of sedge were quite high in each plot prior to the application of treatments (Table 2). The numbers observed in the control were lower on each counting date during the study, however. This may be due to the fact that sedge plants were small on the initial observation date of June 11. As plants matured, they may have grown together in clumps that were subsequently counted as single observations, even though they were composed of more than one plant. The first count following the initial application was made on July 8, 27 days after treatment. All treatments showed a significant reduction in sedge plants when compared with the control on that date (Table 2), but none of them controlled sedge completely. The plots treated with GWN-9843 at 9.92 oz/acre showed the greatest reduction in sedge numbers on July 8. The next rating date was July 28, 16 days after the second application. On July 28, only SedgeHammer at the higher level and GWN-9843 at both rates provided significant reductions in weed numbers. The final

counting date was August 10, following several weeks of extremely wet conditions. There may have been new plants establishing by this date that were not affected by the second application on July 12. On August 10,

all treatments reduced weed numbers compared with the control (0.09 level of significance), with the two SedgHammer treatments and the GWN-9861 at 9.92 oz/acre being the most effective treatments.

Table 1. Phytotoxicity ratings on the grass in the plots and on the weed (sedge) plants.

Treatments	PhytoGrass 6/25	PhytoGrass 7/1	PhytoGrass 7/13	PhytoWeed 6/25	PhytoWeed 7/1	PhytoWeed 7/8	PhytoWeed 7/13
1. SH 0.66 oz/acre	0	0	0	3	21	23	0
2. SH 1.33 oz/acre	0	0	0	3	13	20	0
3. GWN-9843 4.96 oz/acre	0	0	0	0	20	13	0
4. GWN-9843 9.92 oz/acre	0	0	0	7	23	27	0
5. GWN-9861 9.92 oz/acre	0	0	0	2	7	22	0
6. GWN-9861 19.84 oz/acre	0	0	0	0	13	12	0
7. Control	0	0	0	0	0	0	0
LSD _{0.05}	NS	NS	NS	4	9	9	NS

Table 2. Sedge precount and sedge numbers during the trial.

Treatments	Sedge precount	Sedge ct. 7/8	Sedge ct. 7/28	Sedge ct. 8/10
1. SH 0.66 oz/acre	66	12	15	9
2. SH 1.33 oz/acre	78	12	10	9
3. GWN-9843 4.96 oz/acre	96	18	11	13
4. GWN-9843 9.92 oz/acre	91	20	12	9
5. GWN-9861 9.92 oz/acre	72	16	17	15
6. GWN-9861 19.84 oz/acre	87	21	19	15
7. Control	101	33	32	30
LDS _{0.05}	NS	11	13	15 (0.09)