1988 Turf Weed Control, PGR, and Management Studies

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The drought of 1988 offered some unique opportunities to study grasses under these conditions. One ongoing study which yielded some valuable information was an evaluation of various cool-season turfgrass species and cultivars for their performance under low maintenance conditions. This trial consisted of 48 cultivars of Kentucky bluegrass (Poa pratensis), tall fescue (Festuca Arundinacea), fine fescues (Festuca rubra), and perennial ryegrass (Lolium perenne) evaluated under conditions of no irrigation and low nitrogen fertility (1 lb N/M/YR). Data in table 1 show the percent survival of each species. The two species which fared the best were tall fescue and perennial ryegrass. Surprisingly, the fine fescues did not survive the drought very well which was unexpected because the fine fescues have always been touted as low maintenance, drought hardy grasses. The Kentucky bluegrasses also did not do very well but some of their lack of survival can be attributed to the difficulty in establishing bluegrasses and the gradual deterioration seen with the improved, sod-quality bluegrass varieties under low maintenance. The two species that fared well in this test were tall fescue and perennial ryegrass. Tall fescue has long been noted for its ability to withstand droughts and has done so by being very deep rooted compared to other cool season turfgrasses. This trial has demonstrated that for medium to low maintenance turfs, tall fescue should be strongly considered for use in Michigan. Our trials have never shown any problems with winterkill of tall fescue in Michigan, however, this has long been a concern. Until we get more data, we still caution against the use of tall fescues on wet or poorly drained soils.

Data in tables 2-5 show the 1988 quality ratings for variety trials of Kentucky bluegrass, tall fescue, fine fescues, and perennial ryegrass. The tall fescue variety trial was established in May of 1988 so data was only available from August, September and October of 1988. Because of the number of varieties now available in all species, a good rule of thumb for selecting varieties is to select those varieties that are in the top 25% of the trial. This will assure you of selecting high quality varieties.

A study was conducted in 1988 to examine the ability of various iron sources to mask the injury seen from spring applications of Embark to control annual bluegrass seedheads. Embark was applied at 1/8 lb AI/A (8 oz/A) alone and in combination with various commercially available iron sources and the treatments were evaluated for percent seedhead control and turf quality. Data in table six describes the rate and sources of iron used in the study and shows the results in terms of turf quality and seedhead density and control. Most of the iron sources tested did provide some masking of Embark injury with Scott's Iron S granular source providing the best turf quality. Also providing good masking of Embark injury was Ferromec at 2 and 4 oz/M. The most interesting observation of the study was that many of the iron sources antagonized the efficacy of Embark. This was clearly shown in the percent seedhead control data. Only Scott's Iron-S and Agriplex provided the same level of control as Embark alone. Ferromec AC at 2 oz/M showed slight antagonism but was still effective. The Lesco Iron plus N and Ferromec AC at 6 oz/M caused a noticeable loss of seedhead control but they were not statistically different from the Embark alone treatment. All other rates and sources of iron caused a significant loss of seedhead control.

TABLE 6. Embark plus Iron sources. Effects on turf quality and seedhead control.

Embark @ 1/8 lb/A plus	Rate of Iron Carrier	% Fe	Quality Ratings 5/12	5/17	5/20	5/24	5/27	5/31	6/3	% Seedhead Density	% Seedhead Control
Scott's Iron S	1.5 lbs/M	5	9.0	8.5	9.0	9.0	9.0	9.0	9.0	8.3	90.6
Chipco Microgreen	2 oz/M	4	8.3	8.3	8.3	8.5	8.7	8.5	8.7	41.6	52.9
Ferromec	2 oz/M	6	8.8	8.5	8.5	8.7	8.7	8.5	8.3	40.0	54.7
	4 oz/M	6	8.8	8.5	8.5	8.7	9.0	8.2	7.8	66.7	24.5
	6 oz/M	6	8.8	8.3	8.5	8.5	8.7	8.3	9.0	60.0	32.0
Ferromec AC	2 oz/M	6	8.3	8.2	8.0	8.8	8.3	8.5	9.0	13.7	84.6
	4 oz/M	6	8.5	8.3	8.5	8.7	8.7	8.8	8.6	36.7	58.6
	6 oz/M	6	8.5	8.3	8.2	8.7	8.7	8.8	8.5	25.0	71.7
Lesco + Iron	3 oz/M	5	8.5	8.0	8.5	8.5	8.5	8.7	8.8	26.7	70.0
Agriplex	0.5 oz/M	5	8.7	8.0	7.8	8.7	8.3	8.8	9.0	8.3	90.6
	1.5 oz/M	5	8.5	8.2	7.6	8.5	8.5	9	8.8	3.7	96.0
$FeSO_4$	3.6 oz/M	20	8.5	8.3	8.2	8.5	8.3	8.3	8.5	41.7	52.9
Embark alone		-	8.0	7.8	7.5	8.0	7.8	8.2	8.3	5.3	94.0
Control		-	8.5	8.3	8.2	8.7	8.2	7.7	7.0	88.3	0
LSD (P=0.05)			0.8	0.6	0.6	0.6	0.6	0.7	1.2	30.9	

For highest quality turf with effective seedhead control, we currently recommend Scott's Iron S plus Embark. Agriplex does not antagonize the seedhead control from Embark but does not give as good of a masking effect as does the Scott's product.

Data in table 7 shows the results of a study of Prograss and plant growth regulators to control annual bluegrass in fairway turf. This study is being conducted at six golf courses in Michigan: Blythefield Country Club and Kent Country Club, both in Grand Rapids; Walnut Hills Country Club in East Lansing; Orchard Lake Country Club in Orchard Lake; Bloomfield Hills Country Club in Bloomfield Hills; and Barton Hills Country Club in Ann Arbor. The study was initiated in August of 1987 and will be conducted for at least one more year. The PGR treatments (Cutless and Scott's TGR) are applied twice a year (April and August) while Prograss is applied twice in the fall (September and October). Examining the data shows that none of the treatments have caused much change in the amount of annual bluegrass when compared to the control. However, differences between golf courses is significant implying that management factors may be more important than the currently available chemicals. It will be very interesting to follow this study over the next year.

Many superintendents are trying to convert their fairways from annual bluegrass to creeping bentgrass. The quickest and most popular method to convert fairways is use Roundup and then reseed with creeping bentgrass. However, significant amounts of annual bluegrass germinate along with the bentgrass with the resulting fairways containing only 40 to 80 percent bentgrass. Prograss, a selective annual bluegrass herbicide, has been used after seeding the bentgrass to control the germinating annual bluegrass. Rates and timing of the Prograss application are extremely important because the seedling bentgrass can be severely injured by Prograss. We investigated three Prograss rates applied at either 4 + 8 weeks after bentgrass germination (WAG) or at 6 + 10 WAG. The Prograss was applied to plots that were seeded with either 'Penncross' creeping bentgrass or annual bluegrass. Data in table 8 shows the result for creeping bentgrass and annual bluegrass, respectively. If Prograss applications are delayed to 6 + 10 WAG then the bentgrass is less injured and establishes a little more quickly. However, the annual bluegrass is also less affected with the net result being more annual bluegrass. Also, the 3/8 plus 3/4 lb AI/A rate seems to be the best since it does not injure the bentgrass as severely as the other rates tested. The 4 + 8 WAG applications are more effective for controlling annual bluegrass and should be used in situations where less than ideal playing conditions can be tolerated the following spring. Where maximum grass cover is desired the 6 + 10 WAG treatment schedule will give the best results although more annual bluegrass will be present. Thus, a trade off between turf quality and annual bluegrass quantity must be decided. The least annual bluegrass will be found where early (4 + 8 WAG) applications are made but the turf will be more injured and it will take a longer period of time for the bentgrass to establish and give uniform cover. Faster establishment will occur by waiting longer after germination to apply the Prograss (6 + 10 WAG) but more annual bluegrass will remain in the turf.