

Systems approach to *Poa annua* control on putting greens

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Objectives:

Evaluate a systems approach to annual bluegrass control on putting greens.

Annual bluegrass (*Poa annua*) is the most troublesome and probably the most studied weed on golf courses throughout the United States. Though many labeled active ingredients exist for fairway height turf, few labeled options exist for greens height turf. Our most recent study over three states and four years indicated the efficacy of season-long treatments varied between locations and years. Paclobutrazol (Trimmit 2SC™), flurprimidol (Cutless), or bispyribac sodium (Velocity 7.16SP™) were the most effective reducing *Poa annua* depending on location, and control decreased at each location in later years. We cannot rely on a single herbicide or growth regulator for long-term control of *Poa annua*, and thus this study evaluates management systems of multiple active ingredients, iron sulfate, and summer vs traditional fall hollow tine aerification. We also included the latest potential *Poa annua* herbicide, methiozolin (PoaCure™).



Figure 1. Yellowing from Bensusmec when applied after season-long Velocity or Trimmit in NE. Picture taken 3 September.

Methods:

All studies are situated on practice greens on golf courses in Illinois, Indiana, and Nebraska and are maintained by professional superintendents under typical maintenance regimes including mowing daily at < 0.125" and regular sand topdressing. The areas receive 2.5 to 3.0 lbs N/1000 sq ft/yr per the superintendent's practices.

Treatments are arranged in a strip plot with three replications. Main plots are summer hollow tine aerification vs traditional fall hollow tine aerification and subplots are herbicide/growth regulator/iron sulfate treatments as listed in Table 1.

Table 1: Poa annua cover from season long herbicide/growth regulator/FeSO₄ applications. Means are averaged over three replications and two aerification treatments at each location.

	Treatment	Rate	Apps/yr	Timing	Illinois		Indiana		Nebraska	
					6-May 14	8-Oct 14	6-May 14	14-Aug 14	8-May 14	20-Aug 14
1	Untreated check	-	-	-	21	23	64	31	17	10
2	FeSO ₄	44 lb/A	6	Monthly Apr-Sep	21	22	74	29	18	6
3	Velocity	2 oz/A	4	Weekly mid-Aug thru mid-Sep	25	20	70	31	18	6
4	FeSO ₄	44 lb/A	6	Monthly Apr-Sep	27	18	69	27	15	5
	Velocity	2 oz/A	4	Weekly mid-Aug thru mid-Sep						
5	Trimmit 2SC	16 fl oz/A	6	Monthly Apr-Sep	24	9	63	11	17	1
6	PoaCure	25.6 fl oz/A	4	Two weeks apart in April and Sep	19	11	66	27	17	0
7	Velocity	2 oz/A	4	Weekly mid-Aug thru mid-Sep	23	10	67	29	17	10
	Bensumec 4LF	15 pt/A	2	August + April						
8	Trimmit 2SC	16 fl oz/A	6	Monthly Apr-Sep	26	12	73	17	18	4
	Bensumec 4LF	15 pt/A	2	August + April						
				LSD	4.3	5.7	6.6	10.6	NS	4.7

Progress / Results to Date

- All studies and locations were established in April treatments were applied throughout 2014 growing season. Locations included Fremont Golf Club, Fremont, NE; Ackerman Golf Course, West Lafayette, IN; and Olympia Fields Country Club, Olympia Fields, IL.
- Initial Poa annua populations were 23% in IL, 68% in IN, and 17% in NE.
- There was no main or interaction effect of summer vs fall aerification on Poa annua populations measured near the end of the growing season. This is not surprising with only one year of treatments.
- Minor differences were noted in Poa annua cover rated in May at one month after applications started (Table 1).
- Trimmit, PoaCure, Velocity+Bensumec, or Trimmit+Bensumec reduced Poa annua cover compared to the untreated check by October in Illinois (Table 1).
- Only Trimmit or Trimmit+Bensumec reduced Poa annua cover compared to the untreated check by mid-August in Indiana (Table 1).
- Trimmit, FeSO₄ + Velocity, PoaCure, Trimmit+Bensumec reduced Poa annua cover compared to the untreated check by August in Nebraska (Table 1).
- Velocity caused minor phytotoxicity to creeping bentgrass as expected (data not shown).
- Bensumec applied in September after season-long Velocity (and to a lesser extent, Trimmit) caused unexpectedly significant phytotoxicity on creeping bentgrass in all three locations (Figures 1 and 2) and then eventual thinning of creeping bentgrass in Illinois (Figure 3). We may be forced to omit this treatment in the future.



Figure 2. Yellowing from late-August- applied Bensumec after season-long Velocity in IN. Picture taken 15 Sept.

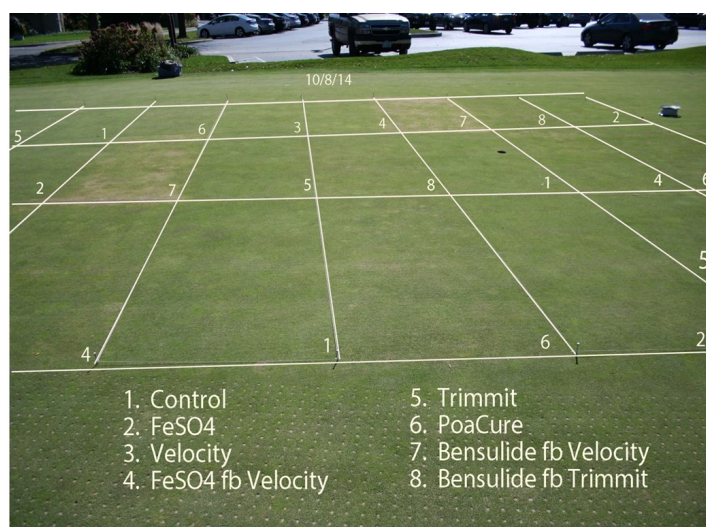


Figure 5. Photo showing four plots following application of 50 lbs of NaCl.