

***Poa annua* Control in Overseeded Turf in the Coachella Valley
2014-15 Final Report**



Herbicides and PGRs were tested for *Poa* control in overseeded turf on No. 18 North fairway at Toscana Country Club, Indian Wells, CA. Photo taken on 17 March 2015.

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***Poa annua* Control in Overseeded Turf in the Coachella Valley 2014-15 Progress Report**

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The Bottom Line: Formulations, rates, combinations, and timings of ethofumesate, PGRs, and methiozolin (PoaCure) were tested for *Poa annua* control in overseeded turf at Toscana CC, Indian Wells, CA. The fairway was overseeded with perennial ryegrass on 20 October 2014 and chemicals were applied between 7 and 19 weeks after overseeding (WAOS). Treatments containing Trimmit (paclobutrazol) and Primo Maxx (trinexapac-ethyl) caused the greatest growth regulation (i.e., reduction in turf quality) during colder weather, but also the darkest green turf (greater turf quality) as warmer temperatures ensued. Treatments containing Muskateer (flurprimidol, paclobutrazol, trinexapac-ethyl); Legacy (flurprimidol, trinexapac-ethyl); and Cutless (flurprimidol) did not cause the severity of growth regulation or the degree of dark green turf color compared to Trimmit and Primo Maxx. Historically, desired *Poa* control at Toscana CC has been achieved with ethofumesate alone and both formulations (Prograss and Poa Constrictor) were equally effective in this experiment. Trimmit + Primo Maxx alone or any of the PGRs in combination with Prograss provided equally effective *Poa* control compared to either Prograss or Poa Constrictor alone. PoaCure caused significant thinning of ryegrass turf, but also provided *Poa* control equivalent to ethofumesate and the PGRs near the end of the study. These results suggest that use of this herbicide for *Poa* control in overseeded turf should be delayed until at least 12 WAOS to minimize ryegrass thinning.

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Introduction:

Poa annua is a common weed of turf, especially when overseeded with cool-season grasses for winter color and playability. In the Coachella Valley, ethofumesate (Prograss, Poa Constrictor) has long been the herbicide of choice for *Poa* control in bermudagrass turf overseeded with perennial ryegrass. However, *Poa* tolerance or resistance to this herbicide appears to be increasing and thus other herbicides and plant growth regulators (PGRs) are being explored in combination with or as a replacement for ethofumesate to improve weed control efficacy. The objectives of this study were to evaluate formulations, rates, combinations, and timings of ethofumesate, PGRs, and methiozolin (PoaCure) for *Poa* control in overseeded turf at Toscana Country Club in Indian Wells, CA.

Methods:

The 18th North fairway ('Tifway II' bermudagrass) at Toscana CC was overseeded with perennial ryegrass on 20 October 2014. Initial chemical treatments were applied on 5 December 2014 (7 weeks after overseeding) and final treatments were applied on 3 March 2015 (19 weeks after overseeding). Treatments were applied using a CO₂-powered backpack sprayer that was calibrated to deliver 2 gal/M. The experimental design was a randomized complete block with 4 replications. Plot size was 4 ft x 6 ft. Plots were evaluated for turf quality (1-9 scale, 9 = best) and *Poa* cover (0-100%).

Results:

Poa invasion was slower and overall sparser (<20% cover in untreated plots) compared to previous research conducted on this fairway. As a result, treatment differences with respect to *Poa* control were not observed until February (Table 1). Treatments containing Trimmit and Primo Maxx caused the greatest reduction in turf quality during colder temperatures in December and January, but also the darkest green turf when warmer temperatures followed. The other PGR formulations neither reduced quality nor promoted as dark green turf color compared to Trimmit and Primo Maxx. Historically, ethofumesate has provided exceptional *Poa* control at Toscana CC and results of this study were no different. No differences were found between Prograss and Poa Constrictor, both formulations of ethofumesate. Although not statistically significant, it appeared that tank-mixing PGRs with Prograss resulted in slightly better control overall compared to Prograss first followed by PGRs. Repeat applications of PGRs alone, in this case Primo Maxx and Trimmit, provide similar *Poa* control or suppression compared to the other treatments containing ethofumesate. However, *Poa* growth appeared to resume after application was discontinued. *Poa* control from methiozolin (PoaCure) was equal to that of ethofumesate and the PGRs; however, herbicide activity is typically slower and significant thinning of the overseeded grass can occur if applied too soon after overseeding. Based on these results and previous research conducted in Riverside and the Coachella Valley, PoaCure should be applied no earlier than 12 weeks after overseeding to ensure safety to seedling ryegrass.

Table 1. Turf quality and *Poa annua* cover in response to herbicides and plant growth regulators applied on a bermudagrass fairway overseeded with perennial ryegrass. 2014-15. Toscana Country Club, Indian Wells, CA.

No.	Treatment	Rate	Timing	Turf Quality (1-9, 9 = best)					Poa Cover (0-100%)			
				1/19	2/08	3/03	3/10	4/30	2/08	3/03	3/10	4/30
1	Control	--	--	8.0 A	5.5 F	5.2 E	5.0 F	5.0 E	21 A	21 A	22 A	17 A
2	Prograss 1.5 EC	64 oz/A	AB	7.5 AB	7.0 D	7.0 CD	7.0 D	7.2 CD	0.2 C	1.5 B	1.7 B	1.2 C
3	Poa Constrictor 4 SC	32 oz/A	AB	7.2 ABC	7.0 D	7.2 C	7.0 D	7.2 CD	1.7 BC	1.2 B	2.0 B	1.5 C
4	Prograss 1.5 EC	64 oz/A	AB	5.0 F	8.7 A	8.7 A	8.0 A	7.0 D	0.5 C	0.5 B	1.5 B	0.8 C
4	Trimmit 2 SC	6 oz/A	AB									
4	Primo 1 MEC	6 oz/A	AB									
5	Prograss 1.5 EC	64 oz/A	AB	7.7 AB	7.7 BC	8.0 B	7.7 AB	7.8 AB	0.5 C	1.0 B	1.7 B	2.0 C
5	Trimmit 2 SC	6 oz/A	CDE	5.7 EF	9.0 A	8.7 A	8.0 A	6.8 D	0.5 C	1.5 B	1.2 B	4.8 B
5	Primo 1 MEC	6 oz/A	CDE									
6	Trimmit 2 SC	6 oz/A	ABCD	7.2 ABC	7.7 BC	8.0 B	7.7 AB	7.0 D	1.2 BC	0.7 B	0.5 B	1.8 C
6	Primo 1 MEC	6 oz/A	ABCD									
7	Prograss 1.5 EC	64 oz/A	AB	7.0 BCD	7.2 CD	7.2 C	7.2 CD	7.0 D	0.2 C	0.7 B	1.2 B	2.0 BC
7	Muskateer	20 oz/A	CDE									
8	Prograss 1.5 EC	64 oz/A	AB	7.7 AB	7.7 BC	8.2 AB	8.0 A	8.0 A	0.2 C	0.2 B	1.5 B	0.5 C
8	Cutless MEC	25 oz/A	CDE	6.5 CDE	8.0 B	8.0 B	7.2 CD	8.0 A	0.5 C	0.5 B	1.7 B	0.8 C
9	Prograss 1.5 EC	64 oz/A	AB									
9	Legacy	20 oz/A	CDE	6.5 CDE	7.7 BC	8.2 AB	7.5 BC	7.8 AB	0.5 C	0.5 B	1.2 B	0 C
10	Prograss 1.5 EC	64 oz/A	AB									
10	Muskateer	20 oz/A	AB	6.5 CDE	8.0 B	8.2 AB	7.5 BC	7.8 AB	0.5 C	0.5 B	0.7 B	0.2 C
11	Prograss 1.5 EC	64 oz/A	AB									
11	Cutless MEC	25 oz/A	AB	6.2 DE	6.2 E	6.5 D	6.0 E	7.5 BC	3.7 B	3.0 B	1.7 B	2.5 BC
12	Prograss 1.5 EC	64 oz/A	AB									
12	Legacy	20 oz/A	AB									
13	PoaCure	1.2 oz/M	BCDE									

Means followed by the same letter in a column are not significantly different ($\alpha = 0.05$).

Application Timing:

A = 5 December 2014 (7 WAOS = weeks after overseeding)

B = 29 December 2014 (10 WAOS)

C = 19 January 2015 (13 WAOS)

D = 8 February 2015 (16 WAOS)

E = 3 March 2015 (19 WAOS)