

# Comparison of Efficacy of Ethofumesate Products for *Poa annua* Control in Turf

Kai Umeda

## Abstract

*Ethofumesate as an emulsifiable concentrate (EC) formulation (Prograss\*) demonstrated slightly more activity against Poa annua, though not statistically significant, than the suspension concentrate (SC) herbicide (PoaConstrictor\*). Following two applications, P. annua control was equivalent for Prograss at 0.75 lb a.i./A and PoaConstrictor at 1.0 lb a.i./A at approximately one month later. Late season evaluations showed that Prograss at one-half the rate of PoaConstrictor gave acceptable P. annua control. Both products needed to be applied two times at 2.0 lb a.i./A to achieve better than acceptable *P. annua* control as spring transition occurred.*

## Introduction

Ethofumesate as the herbicide, Prograss\* or PoaConstrictor\*, controls *Poa annua* when applied preemergence or early postemergence targeting 2-leaf stage weeds. The typical timing of applications is recommended during November to December followed by a second treatment prior to February 1. Application of ethofumesate on bermudagrass is safe when the turf is completely dormant in the winter. Otherwise, spring greenup is delayed and phytotoxicity occurs on bermudagrass during transition into the summer. The bermudagrass injury and inconsistent *Poa annua* control contribute to the lack of confidence in the performance of the herbicide. Prograss is currently formulated as an emulsifiable concentrate (EC) herbicide with a “Danger” classification and PoaConstrictor as a suspension concentrate (SC) formulation is classified as safer with a “Caution” classification. Inherently, an EC formulation of an herbicide may enhance its ability to penetrate the treated plant thus increasing phytotoxicity. An SC formulation generally improves the safety on desirable species while a degree of weed control efficacy may decrease. This experiment was conducted to evaluate and compare the efficacy and safety of ethofumesate products, Prograss EC and PoaConstrictor SC.

## Materials and Methods

A small plot experiment was conducted on the surrounding area of a tee box at the Paradise Valley Country Club in Phoenix, AZ. A bermudagrass turf was winter overseeded with perennial ryegrass. Individual plot size was 5 ft by 8 ft and each treatment was replicated three times in a randomized complete block design. Postemergence herbicides were applied using a backpack CO<sub>2</sub> sprayer equipped with a hand-held boom with three 8003LP flat-fan nozzles spaced 20 inches apart. The treatments were applied in 47 gpa water and pressurized to 30 psi. At the time of the first application on 16 January 2008, the sky was overcast with high clouds, no wind, and approximately 60°F. The *P. annua* was just initiating flowering and had four tillers. The second timing of application was 29 January when it was clear and not windy. *P. annua* control was rated at intervals following the second application.

## Results and Discussion

On 12 February, at 14 days after treatment of the second application (DAT-2), all Prograss and PoaConstrictor rates provided acceptable levels of *P. annua* control at better than 85% (Table). *P. annua* was initiating flowering. On 06 Mar at 37 DAT-2 and through 51 DAT-2, Prograss at 0.75 lb a.i./A was similar to PoaConstrictor at 1.0 lb a.i./A. Prograss at 1.0 lb a.i./A was comparable to PoaConstrictor at 2.0 lb a.i./A by controlling *P. annua* better than 90%. At 51 DAT-2, the trend continued where Prograss at 1.0 lb a.i./A and PoaConstrictor at 2.0 lb a.i./A were comparable with *P. annua* control at 88%. In June, at 139 DAT-2, Prograss at 2.0 lb a.i./A controlled *P. annua* better than 95% and PoaConstrictor gave acceptable control at 87%.

During the spring, no phytotoxicity for any treatment of ethofumesate product was observed on the overseeded perennial ryegrass. In June, transition was progressing but visible differences among treatments could not be observed for bermudagrass. Further evaluations to determine bermudagrass phytotoxicity were not possible due to a golf course renovation project.

Prograss demonstrated slightly better *P. annua* control at less than 0.75 lb a.i./A compared to PoaConstrictor, though not acceptable nor statistically different. At 37 DAT-2, *P. annua* control was equivalent for Prograss at 0.75 lb a.i./A and PoaConstrictor at 1.0 lb a.i./A. At 51 DAT-2, Prograss at one-half the rate of PoaConstrictor gave acceptable *P. annua* control. These results indicated that ethofumesate as an EC demonstrated slightly more activity than the SC. Both products needed to be applied two times at 2.0 lb a.i./A to achieve better than acceptable *P. annua* control as spring transition occurred.

## Acknowledgements

We thank Rob Collins, golf course superintendent, at Paradise Valley Country Club for providing and maintaining the site to conduct the experiment.

\*Product names mentioned are registered trademarks. Any products, services, or organizations that are mentioned, shown, or indirectly implied in this publication do not imply endorsement by The University of Arizona.

Table. Comparison of Prograss\* and PoaConstrictor\* for *P. annua* control, Phoenix, 2008

Treatment	Rate (lb a.i./A)	<i>Poa annua</i> control (%)			
		12 Feb	06 Mar	20 Mar	16 Jun
Untreated check		0	0	0	0
Prograss	0.5	85	70	47	57
Prograss	0.75	90	88	80	78
Prograss	1.0	88	98	88	77
Prograss	2.0	92	99	92	95
PoaConstrictor	0.5	90	75	57	68
PoaConstrictor	0.75	87	73	65	57
PoaConstrictor	1.0	90	88	75	53
PoaConstrictor	2.0	85	96	88	87
LSD ( $p=0.05$ )		8.7	18.0	27.7	39.0

Treatments applied on 16 and 29 January 2008

12 Feb – 14 DAT-2, 06 Mar – 37 DAT-2, 20 Mar – 51 DAT-2, 16 Jun – 139