Field Research Results to Support Successful
***Poa annua* Control Strategies in Cool Season Grasses**

Prepared for the 2012 CWSS Conference
Santa Barbara, CA

Prepared By

Mark Mahady, President
Mark M. Mahady & Associates, Inc.
P. O. Box 1290
Carmel Valley, CA 93924
(831) 236-2929
markmahady@aol.com

January 24, 2012

Introduction

Annual bluegrass *(Poa annua or Poa)* is a cool season grass native to Europe. This highly invasive species continues to be the number one grassy weed problem in cool season turfgrasses.

Annual bluegrass falls within two broad taxonomic classifications. Annual biotypes of *Poa annua* referred to as *Poa annua var annua* exhibit true annual seasonal growth response, light green color, broad leaf texture, shallow rooting and prolific seed production. Perennial biotypes of *Poa annua* referred to as *Poa annua var reptans* exhibit a perennial growth response, darker green color, limited seed head production, finer texture and a more stoloniferous growth habit.

The objectives of this presentation are to present the answers to the following three key questions:

1. When does annual bluegrass germinate in California?
2. Which preemergent herbicides exhibit the most effective *Poa annua* control?
3. Which postemergent herbicides exhibit the most effective *Poa annua* control?

The *Poa annua* control information presented is based on the results of 12 replicated field trials conducted from 1997 to 2010 throughout California by Mark M. Mahady & Associates, Inc.

Question #1: When does annual bluegrass germinate in California?

The following replicated preemergent field research trials conducted in Southern and Northern California described the interaction between application timing and preemergent performance for *Poa annua* control.

Southern California

Location #1: Desert Dunes Golf Club, Desert Hot Springs, CA, 1997: OVS Bermuda

	3/30/98 % Poa Control
Barricade 0.75 lb ai/A applied 6WBOVS on 8/20/97	86.8%
Barricade 0.75 lb ai/A applied 6WAOVS on 11/12/97	19.6%

- Take Home Message: 80% Poa germination by 11/12/97
- High level of control with August application
- Very poor and unacceptable control with the November application
- November is too late to apply a preemergent for acceptable Poa control

Location #2: Springs Golf Club, Desert Hot Springs, CA, 1997: OVS Bermuda

	3/30/98 % Poa Control
Barricade 0.75 lb ai/A applied 6WBOVS on 8/20/97	86.9%
Barricade 0.75 lb ai/A applied 4WAOVS on 11/13/97	40.7%

- Take Home Message: 60% Poa germination by 11/13/97
- High level of control with August application
- Very poor and unacceptable control with the November application
- November is too late to apply a preemergent for acceptable Poa control

Northern California

Location #3: Carmel Valley, CA, 2002: Non-OVS Bermuda

	5/17/03 % Poa Control
Barricade 0.75 lb + 0.38 lb ai/A applied on 8/27 & 11/14/02	93.0%
Dimension 0.5 lb + 0.25 lb ai/A applied on 8/27 & 11/14/02	94.0%

- Take Home Message: 7.0% Poa germination by 8/27/02
- High level of control with August application

Location #4: Ruby Hill Golf Club, Pleasanton, CA, 2004: Non-OVS Bermuda

	5/17/05 % Poa Control
Barricade 1.0 lb ai/A applied on 9/17/04	43.2%
Barricade 1.0 lb ai/A applied on 10/15/04	22.2%

- Take Home Message: both mid-September and mid-October Barricade applications are too late for effective preemergent control of Poa in Northern California.

- Mid-August application timing is most effective for preemergent control of Poa in both Northern California and the low desert region of Palm Springs.

Question #2: Which preemergent herbicides exhibit the most effective *Poa annua* control?

Barricade (prodiamine: Syngenta) and Dimension (dithiopyr: Dow AgroSciences) are highly effective preemergent herbicides for control of *Poa annua* in cool season grasses when deployed in a timely manner (August 15 to August 20).

Sequential applications of Barricade 0.75 lb + 0.38 lb ai/A applied on 8/27 and 11/14/02 resulted in 93.0% *Poa annua* control in Northern California. Sequential applications of Dimension 0.5 lb + 0.25 lb ai/A applied on 8/27 and 11/14/02 resulted in 94.0% *Poa annua* control in Northern California.

When comparing properly timed single versus sequential treatment programs, results from replicated field trials in the Palm Springs golf market indicate that the first application is the most critical for highly effective *Poa annua* control. Based on field data there is not a dynamic or statistically significant increase in percent *Poa annua* control when a sequential treatment is deployed. The key factor is a properly timed initial application.

Question #3: Which postemergent herbicides exhibit the most effective *Poa annua* control?

Ethofumesate (Prograss 1.5 EC and PoaConstrictor 4SC) is an active ingredient that has been used successfully for postemergent control of *Poa annua* in solid stand perennial ryegrass fairways and perennial ryegrass overseeded bermudagrass fairways for many years. Perennial ryegrass is very tolerant to ethofumesate applications.

Previous field research conducted by Mark M. Mahady & Associates, Inc. in Northern California showed that three sequential treatments of Prograss 1.5 EC applied at a rate of 1.95 pounds active ingredient per acre (lb ai/A) at 21-day intervals beginning approximately October 1, resulted in very high control levels (90%-94%) of perennial biotypes of *Poa annua* in solid stand perennial ryegrass fairways.

Previous field research conducted by Mark M. Mahady & Associates, Inc. in the Palm Springs, California perennial ryegrass overseeding market, showed that two sequential treatments of Prograss 1.5 EC applied at a rate of 1.125 lb ai/A at 21-day intervals beginning approximately December 7, resulted in very high control levels (90%-95%) of annual biotypes of *Poa annua* control in perennial ryegrass overseeded bermudagrass fairways.

Presently, Trimmit 2SC (paclobutrazol: Syngenta) is the industry standard for suppression of *Poa annua* in creeping bentgrass fairways. With multiple applications, Trimmit 2SC (10-14 oz/A), a plant growth regulator, selectively suppresses the growth of *Poa annua*. *Poa annua* plants treated with paclobutrazol are more diminutive and less competitive. This plant growth regulation effect changes the competitive balance between *Poa annua* and creeping bentgrass allowing the more vigorously growing creeping bentgrass to grow over and into the highly regulated *Poa annua.*

Velocity (bispyribac-sodium: Valent) inhibits ALS enzyme development, provides foliar activity and no soil activity. Velocity is rain fast in 6 hours, exhibits yellowing on *Poa annua* in 3-7 days with maximum effect 21-28 days after treatment. Apply Velocity during spring/summer with air temperatures between 65 and 80° F. Velocity is not registered for use on greens. Field research conducted by Mark M. Mahady & Associates, Inc. on creeping bentgrass fairways in Northern California showed the following:

- Velocity: 20 g ai/A (2x): a 60.4% reduction in percent Poa cover 112 DAA2.

- Velocity 10 g ai/A + Trimmit 10 oz/A (2x): a 66.7% reduction in percent Poa cover 112 DAA2.

- Velocity 15 g ai/A + Trimmit 10 oz/A (5x): a 77.0% reduction in percent Poa cover 21 DAA5.

Summary and Practical Perspectives

For the best *Poa annua* management program results in cool season grasses utilize a two-prong preemergent and postemergent control program. For control of *Poa annua* in solid stand perennial ryegrass:

- Preemergent: apply Barricade 4F 0.6 lb ai/A on 8/15-8/20 followed by a sequential Barricade treatment at 0.3 lb ai/A 8 weeks later.
- Postemergent (late summer): apply three sequential treatments of Prograss 1.5 EC at 1.3 gal/A at 21-day intervals beginning approximately 10/1.
- If overseeding in late summer, it is important to know that Prograss does not affect perennial ryegrass germination or percent cover.
- Do not hollow-tine or open up the canopy after 8/15. Solid tining is acceptable.
- Consider two spring applications Prograss (March) or 2-3 applications of Trimmit 2SC (8-10 oz/A) at monthly intervals.

For control of *Poa annua* in creeping bentgrass fairways:

- Preemergent: apply Barricade 4F 0.5 lb ai/A on 8/15-8/20. Do not make a sequential treatment in the fall or spring.
- Postemergent: during spring/summer (air temperatures between 65 and 80 degrees F) apply 3-5 sequential applications of Velocity 10 g ai/A + Trimmit 10 oz/A at 21-day intervals. During the late summer/fall season apply monthly treatments of Trimmit 12-14 oz/A at 21-day intervals.
- Do not hollow-tine or open up the canopy after 8/15. Solid tining is acceptable.

Be open minded, but always question performance claims when considering the use of new products and/or new agronomic strategies. Always test new products and programs on a small scale before moving to larger acreage.

* * *