Long-term *Poa annua* Control Strategies with Mesotrione and Dimension

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Background/Objective: Mesotrione applied in the fall will controlled Poa annua in our previous studies. This work was conducted to investigate possible postemergent control of *Poa annua* using annual fall applications of mesotrione with and without Dimension applications for preemergent control.

Site Information

Location:		William H. Daniel Research and Diagnostic Center
Soil Type:		Starks-Fincastle silt loam
Soil pH:		7.2
Turfgrass Species:		Kentucky bluegrass and poa annua
Turf Condition:		good
Turf Management:	**Mowing Height cm (in):**	2.5 (1)
	Fertilization:	3.0 lbs N/1000 ft^2/yr
	Irrigation:	To prevent moisture stress
Testing on Site Previous Year:		none
Target Pest:		*Poa annua* (annual bluegrass)
Growth Stage:		various

Application Information

Application Dates:	10/28/04 11/5/04 11/12/04 4/14/05 8/17/05 10/27/05 11/11/05 11/18/05
Spray Volume L ha^{-1} (gal 1000 ft^{-2}):	814 (2)
Spray Pressure:	30psi
Spray Nozzle:	8001.5
Spray Equipment:	CO_2 backpack
Irrigation After Application:	None
Experimental Design:	Randomized complete block
Replications:	3
Plot Size m (ft):	1.5 X 1.5 (5 X 5)

Results to Date:

Fall 2004 applications of mesotrione provided excellent control of *Poa annua* throughout 2005 regardless if Dimension was included. The limited Poa annua seed bank on this area may be limiting the amount of *Poa annua* reinfesting these plots. This study will continue until spring of 2007.

Table 1. Application timing of mesotrione 4SC[a] and Dimension 1EC.

Treatment[a]	Rate of application	Application timing	Fall 04	Spring 05	Fall 05	Spring 06	Fall 06
	lb ai/A						
Mesotrione 4SC	0.5	fall 04 only	X				
Mesotrione 4SC	0.5	fall 04 only	X				
Dimension 1EC	0.5	every spring		X		X	
Mesotrione 4SC	0.5	fall 04 only	X				
Dimension 1EC	0.5	every fall	X		X		X
Mesotrione 4SC	0.5	fall 04 only	X				
Dimension 1EC	0.5	every spring and fall		X	X	X	X
Mesotrione 4SC	0.5	every fall	X		X		X
Check							

[a] Mesotrione was applied three times at the 0.166 rate on a one week interval and applications included a non-ionic surfactant at 0.25 percent volume per volume and .

Table 2 Percent cover[a] of *Poa annua* following applications of mesotrione 4SC and/or Dimension 1EC.

Treatment[b]	Rate of application	Application timing	26 Mar 05	20 Apr 05	14 Oct 05
	lb ai/A				
Mesotrione 4SC	0.5	fall 04 only	0.7	0.7	2.0
Mesotrione 4SC	0.5	fall 04 only	1.0	1.0	1.0
Dimension 1EC	0.5	every spring			
Mesotrione 4SC	0.5	fall 04 only	1.7	0.7	3.0
Dimension 1EC	0.5	every fall			
Mesotrione 4SC	0.5	fall 04 only	1.0	1.0	2.3
Dimension 1EC	0.5	every spring and fall			
Mesotrione 4SC	0.5	every fall	0.7	1.3	3.3
Check			51.7	65.0	40.0
LSD (0.05)			5.7	9.9	4.1

[a] Percent of the plot area covered by Poa annua.
[b] Mesotrione was applied three times at the 0.166 rate on a one week interval and applications included a non-ionic surfactant at 0.25 percent volume per volume and .

Table 3. Phytotoxicity[a] to *Poa annua* following applications of mesotrione in the fall of 2004.

Treatment[b]	Rate of application	Application timing	5 Nov 04	12 Nov 04	21 Nov 04	3 Dec 04	16 Dec 04
	lb ai/A						
Mesotrione 4SC	0.5	fall 04 only	9.0	5.7	2.7	2.7	1.3
Mesotrione 4SC	0.5	fall 04 only	9.0	5.3	3.0	2.0	1.7
Dimension 1EC	0.5	every spring					
Mesotrione 4SC	0.5	fall 04 only	9.0	5.0	2.7	2.7	1.7
Dimension 1EC	0.5	every fall					
Mesotrione 4SC	0.5	fall 04 only	9.0	5.7	3.7	2.3	2.0
Dimension 1EC	0.5	every spring and fall					
Mesotrione 4SC	0.5	every fall	9.0	5.3	3.0	2.0	1.7
Check			9.0	9.0	9.0	9.0	9.0
LSD (0.05)			NS	1.1	0.9	0.7	0.8

[a] Phytotoxicity was rated on a scale of 1 to 9 with 1 = completely brown turf, 7 = acceptable damage, and 9 = no phytotoxicity.

[b] Mesotrione was applied three times at the 0.166 rate on a one week interval and applications included a non-ionic surfactant at 0.25 percent volume per volume and .