

## Post-emergent Control of Broadleaf Weeds with Mesotrione in the Spring

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**Background/Objective:** In previous studies, mesotrione has demonstrated potential selectivity to remove broadleaf weeds from Kentucky bluegrass. Our objectives were to determine the best rate of application and if repeat applications are needed for broadleaf weed control.

### Site Information

<b>Location:</b>	William H. Daniel Research and Diagnostic Center	
<b>Turfgrass Species:</b>	Kentucky bluegrass blend	
<b>Turf Condition:</b>	fair	
<b>Turf Management:</b>	<b>Mowing Height in:</b>	2.5
	<b>Fertilization:</b>	1 lb N/M/YR
	<b>Irrigation:</b>	To prevent moisture stress
<b>Target Pest:</b>	Dandelion ( <i>Taraxacum officinale</i> ) White clover ( <i>Trifolium repens</i> ) Ground ivy ( <i>Glechoma hederacea</i> )	
<b>Growth Stage:</b>	mature	

### Application Information

<b>Application Dates:</b> in 2005	24 May	23 June
<b>Spray Volume gal 1000 ft<sup>-2</sup>:</b>	2	
<b>Spray Equipment:</b>	CO <sub>2</sub> backpack	
<b>Experimental Design:</b>	Randomized complete block	
<b>Replications:</b>	3	
<b>Plot Size ft:</b>	5 X 5	

### Report:

- As expected, any mesotrione application made in mid-June provided excellent crabgrass control (Table 1). Single applications of mesotrione made in mid-May did not effectively control crabgrass by Sept because of crabgrass that germinated after the application.
- Though almost all experimental applications caused some phytotoxicity to the bluegrass on 10 June, damage was minor and probably due to environmental conditions at the time of rating (Table 1).
- Mesotrione reduced dandelion cover until 22 July and many mesotrione treatments reduced dandelion cover similarly to Trimec Classic (Table 2). No mesotrione treatments reduced dandelion cover by 18 Sep.
- Mesotrione reduced clover cover until 23 June and many mesotrione treatments reduced clover similarly to Trimec Classic (Table 3). However, all treatments with Trimec Classic provided much better clover reduction than mesotrione on 22 July and 18 Sep.
- Mesotrione had no effect on ground ivy until 8 and 22 July when the June applications reduced ground ivy cover (Table 4)
- Though mesotrione did not perform quite as well as Trimec Classic on broadleaves in this study, it does have interesting broadleaf control abilities. Tank-mixing mesotrione with reduced rates of a broadleaf herbicide might improve broadleaf control while still realizing the full benefit of postemergence crabgrass control.

**Table 1.** Phytotoxicity to Kentucky bluegrass and percent cover of crabgrass after applications of mesotrione or Trimec Classic.

Treatment <sup>c</sup>	Rate of application	Application timing	Phytotoxicity <sup>a</sup>			Crabgrass <sup>b</sup>
			1 June	10 June	15 June	18 Sept
	lb ai/A					-- % --
Mesotrione	0.187	mid May	9.0	8.3	9.0	31.7
Mesotrione	0.25	mid May	9.0	8.7	9.0	41.7
Trimec Classic	4 <sup>d</sup>	mid May	9.0	7.0	9.0	73.3
Mesotrione	0.25	mid June	9.0	8.0	9.0	8.3
Trimec Classic	4 <sup>d</sup>	mid June	9.0	9.0	9.0	45.0
Mesotrione	0.125	mid May	9.0	7.3	9.0	10.0
Mesotrione	0.125	mid June				
Mesotrione	0.125	mid May	9.0	7.7	9.0	5.0
Mesotrione	0.187	mid June				
Mesotrione	0.187	mid May	9.0	8.3	9.0	4.3
Mesotrione	0.187	mid June				
Trimec Classic	4 <sup>d</sup>	mid May	9.0	7.7	9.0	70.0
Trimec Classic	4 <sup>d</sup>	mid June				
Check			9.0	8.7	9.0	23.3
LSD (0.05)			NS	1.0	NS	43.5

<sup>a</sup> Phytotoxicity was rated on a scale of 1 to 9, where 1 = completely brown turf, 7 = acceptable damage, and 9 = no phytotoxicity.

<sup>b</sup> Rating was percent of the plot area covered by crabgrass.

<sup>c</sup> All mesotrione applications included a non ionic surfactant at 0.25% v/v.

<sup>d</sup> Rate of application was pints per acre.

**Table 2.** Percent cover of dandelion after applications of mesotrione or Trimec Classic.

Treatment <sup>b</sup>	Rate of application	Application timing	10 June	23 June	8 July	22 July	18 Sept
	lb ai/A		----- % -----				
Mesotrione	0.187	mid May	0.3	6.0	4.0	28.3	25.0
Mesotrione	0.25	mid May	0.3	6.0	12.0	33.3	16.7
Trimec Classic	4 <sup>c</sup>	mid May	11.7	3.0	2.7	9.0	13.3
Mesotrione	0.25	mid June	26.7	43.3	3.7	40.0	48.3
Trimec Classic	4 <sup>c</sup>	mid June	26.7	31.7	1.7	15.0	20.0
Mesotrione	0.125	mid May	1.7	21.7	5.3	31.7	30.0
Mesotrione	0.125	mid June					
Mesotrione	0.125	mid May	1.7	15.0	2.3	20.0	21.7
Mesotrione	0.187	mid June					
Mesotrione	0.187	mid May	1.0	18.3	15.7	15.0	25.0
Mesotrione	0.187	mid June					
Trimec Classic	4 <sup>c</sup>	mid May	6.7	4.0	4.0	1.3	6.0
Trimec Classic	4 <sup>c</sup>	mid June					
Check			26.7	40.0	15.3	41.7	25.0
LSD (0.05)			6.2	11.9	NS	11.1	13.7

<sup>a</sup> Rating was percent of the plot area covered by dandelion.

<sup>b</sup> All mesotrione applications included a non ionic surfactant at 0.25% v/v.

<sup>c</sup> Rate of application was pints per acre.

**Table 3.** Percent cover<sup>a</sup> of clover after applications of mesotrione or Trimec Classic.

Treatment <sup>b</sup>	Rate of application	Application timing	10 June	23 June	8 July	22 July	18 Sept
	lb ai/A		----- % -----				
Mesotrione	0.187	mid May	6.7	4.0	6.7	25.0	14.3
Mesotrione	0.25	mid May	11.7	6.0	16.7	21.7	8.3
Trimec Classic	4 <sup>c</sup>	mid May	1.3	0.3	2.3	0.3	0.7
Mesotrione	0.25	mid June	11.7	11.7	16.7	25.0	16.7
Trimec Classic	4 <sup>c</sup>	mid June	28.3	30.0	1.0	3.3	2.0
Mesotrione	0.125	mid May	16.7	10.0	21.7	28.3	13.3
Mesotrione	0.125	mid June					
Mesotrione	0.125	mid May	11.7	11.7	14.3	20.0	6.0
Mesotrione	0.187	mid June					
Mesotrione	0.187	mid May	20.0	20.0	13.3	30.0	14.3
Mesotrione	0.187	mid June					
Trimec Classic	4 <sup>c</sup>	mid May	1.0	0.3	4.7	0.0	0.0
Trimec Classic	4 <sup>c</sup>	mid June					
Check			33.3	26.7	17.3	40.0	8.3
LSD (0.05)			8.9	7.8	NS	9.6	NS

<sup>a</sup> Rating was percent of the plot area covered by clover.

<sup>b</sup> All mesotrione applications included a non ionic surfactant at 0.25% v/v.

<sup>c</sup> Rate of application was pints per acre.

**Table 4.** Percent cover<sup>a</sup> of ground ivy after applications of mesotrione or Trimec Classic.

Treatment <sup>b</sup>	Rate of application	Application timing	10 June	23 June	8 July	22 July	18 Sept
	lb ai/A		----- % -----				
Mesotrione	0.187	mid May	30.0	41.7	41.7	61.7	87.0
Mesotrione	0.25	mid May	23.3	28.3	23.3	40.0	88.3
Trimec Classic	4 <sup>c</sup>	mid May	25.0	13.3	7.3	11.0	45.0
Mesotrione	0.25	mid June	40.0	48.3	23.3	33.3	83.3
Trimec Classic	4 <sup>c</sup>	mid June	38.3	51.7	30.0	25.0	85.0
Mesotrione	0.125	mid May	33.3	31.7	10.0	22.7	60.0
Mesotrione	0.125	mid June					
Mesotrione	0.125	mid May	35.0	43.3	11.7	20.0	83.3
Mesotrione	0.187	mid June					
Mesotrione	0.187	mid May	38.3	40.0	7.7	15.0	55.0
Mesotrione	0.187	mid June					
Trimec Classic	4 <sup>c</sup>	mid May	28.3	13.3	2.7	4.7	43.3
Trimec Classic	4 <sup>c</sup>	mid June					
Check			50.0	55.0	53.3	73.3	94.0
LSD (0.05)			NS	13.0	11.5	15.0	30.4

<sup>a</sup> Rating was percent of the plot area covered by ground ivy.

<sup>b</sup> All mesotrione applications included a non ionic surfactant at 0.25% v/v.

<sup>c</sup> Rate of application was pints per acre.