

## Evaluation of MON 44951 75WDG and Other Herbicides Applied Spring to Summer for *Poa trivialis* Control

Zac Reicher and Dan Weisenberger

### Background/Objective

Determine the rate and number of applications of MON 44951 75WDG and other herbicides for control of *Poa trivialis*.

### Site Information

<b>Location:</b>	William H. Daniel Research and Diagnostic Center, W. Lafayette, IN.
<b>Soil Type:</b>	Starks-Fincastle silt loam
<b>Soil pH:</b>	7.0
<b>Soil Organic Matter (%):</b>	6.8
<b>Turfgrass Species:</b>	Sabre <i>Poa trivialis</i>
<b>Turf Condition:</b>	Fair
<b>Turf Management: Mowing Height cm (in):</b>	1.88 (0.75)
<b>Fertilization:</b>	4 lbs N/M/YR
<b>Irrigation:</b>	To prevent moisture stress
<b>Testing on Site Previous Year:</b>	None
<b>Target Pest:</b>	Control
<b>Growth Stage:</b>	Mature

### Application Information

<b>Application Date:</b>	22 Apr 10 May 15 May 23 May 6 June 28 June
<b>Spray Volume L ha<sup>-1</sup> (gal 1000 ft<sup>-2</sup>):</b>	407 (1.0)
<b>Spray Pressure:</b>	35psi
<b>Spray Nozzle:</b>	8001
<b>Spray Equipment:</b>	CO <sub>2</sub> backpack
<b>Irrigation After Application:</b>	None
<b>Experimental Design:</b>	Randomized complete block
<b>Replications:</b>	3
<b>Plot Size m (ft):</b>	1.5 X 1.5 (5 X 5)

### Result

Within two weeks of initial application, all treatments cause noticeable phytotoxicity to *Poa trivialis* (Table 1). Though all treatments caused some short-term reduction in cover of *Poa trivialis*, it recovered during the study and only seven of the treatments consistently reduced *Poa trivialis* cover. These treatments included Roundup Pro and MON44951 at 0.01 lbs ai/A applied 0+2+4+6 weeks, 0+3+6 weeks, and 0+3+6+9 weeks: and the three TranXit treatments. The effects of all seven of these treatments were statistically identical through 23 Aug. By 18 Sep, *Poa trivialis* recovered slightly in the plots treated with TranXit at ¼ oz/A applied 0+6 weeks and at 1/16 oz/A applied 0+3+6 weeks. For best control of *Poa trivialis* with MON 44951, it should be at least 3 times at 3 week intervals or possibly 4 times at 2 week intervals. For best control with TranXit, it should be applied at 1/8 oz/A applied three times at three week intervals. Both MON 44951 and

TranXit have potential for selective *Poa trivialis* control, but our adjacent bentgrass study showed that MON 44951 may be slightly safer on creeping bentgrass at these rates and timings.

**Table 1.** Phytotoxicity<sup>f</sup> on *Poa trivialis* caused by MON 44951 and other herbicides targeted as potential *Poa trivialis* controls.

Treatment	Rate of application	Application <sup>e</sup> timing	Apr 26	May 3
	lbs ai/A			
Check			8.7	9.0
MON 44951 75WDG + MON 0818	0.01 0.5 <sup>a</sup>	0	9.0	7.7
MON 44951 75WDG + MON 0818	0.02	0.02	0	9.0 6.7
MON 44951 75WDG + MON 0818	0.03 0.5 <sup>a</sup>	0	9.0	7.0
MON 44951 75WDG + MON 0818	0.01 0.5 <sup>a</sup>	0, 2	8.3	6.7
MON 44951 75WDG + MON 0818	0.01 0.5 <sup>a</sup>	0, 2, 4	9.0	7.7
MON 44951 75WDG + MON 0818	0.01 0.5 <sup>a</sup>	0, 2, 4, 6	9.0	6.0
MON 44951 75WDG + MON 0818	0.01 0.5 <sup>a</sup>	0, 3	9.0	7.7
MON 44951 75WDG + MON 0818	0.01 0.5 <sup>a</sup>	0, 3, 6	9.0	7.7
MON 44951 75WDG + MON 0818	0.01 0.5 <sup>a</sup>	0, 3, 6, 9	9.0	6.3
TranXit 25DF + NIS	1/4 <sup>b</sup> 0.25 <sup>a</sup>	0, 6	9.0	5.7
TranXit 25DF + NIS	1/8 <sup>b</sup> 0.25 <sup>a</sup>	0, 3, 6	9.0	5.7
TranXit 25DF + NIS	1/16 <sup>b</sup> 0.25 <sup>a</sup>	0, 3, 6	9.0	7.3
Prograss	0.75	0	9.0	9.0
Roundup Pro	2.0 <sup>a</sup>	0	8.3	2.0
Finale	4 <sup>c</sup>	0	4.7	3.3
Finale	4 <sup>c</sup>	0	5.3	4.3
Finale + ammonium sulfate	4 <sup>d</sup>			
Finale	6 <sup>c</sup>	0	4.3	3.7
LSD (0.05)			0.9	1.2

<sup>a</sup> Rate of application equals % volume per volume.

<sup>b</sup> Application rate is ounces of product per acre.

<sup>c</sup> Application rate is quarts of product per acre.

<sup>d</sup> Application rate is pounds of product per acre.

<sup>e</sup> Application timing is weeks after initial application.

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

**Table 2.** Percent cover of *Poa trivialis* caused by MON 44591 and other herbicides targeted as potential *Poa trivialis* controls.

Treatment	Rate of application	Application <sup>e</sup> timing	May 13	May 20	May 23	June 1	June 6	June 14	June 29
	lbs ai/A								
Check			93.3	90.0	83.3	83.3	83.3	94.7	95.3
MON 44951 75WDG + MON 0818	0.01 0.5 <sup>a</sup>	0	86.7	91.7	86.7	94.3	91.7	97.7	97.0
MON 44951 75WDG + MON 0818	0.02 0.5 <sup>a</sup>	0	85.0	88.3	88.3	93.3	91.7	95.7	92.0
MON 44951 75WDG + MON 0818	0.03 0.5 <sup>a</sup>	0	81.7	91.7	90.0	88.3	90.0	96.0	94.3
MON 44951 75WDG + MON 0818	0.01 0.5 <sup>a</sup>	0, 2	83.3	66.7	41.7	81.7	85.0	95.0	97.0
MON 44951 75WDG + MON 0818	0.01 0.5 <sup>a</sup>	0, 2, 4	80.0	75.0	61.7	50.0	48.3	75.0	88.3
MON 44951 75WDG + MON 0818	0.01 0.5 <sup>a</sup>	0, 2, 4, 6	65.0	70.0	51.7	38.3	43.3	31.7	25.0
MON 44951 75WDG + MON 0818	0.01 0.5 <sup>a</sup>	0, 3	86.7	83.3	66.7	75.0	71.7	85.0	92.3
MON 44951 75WDG + MON 0818	0.01 0.5 <sup>a</sup>	0, 3, 6	86.7	86.7	80.0	66.7	71.7	66.7	50.0
MON 44951 75WDG + MON 0818	0.01 0.5 <sup>a</sup>	0, 3, 6, 9	80.0	83.3	55.0	73.3	80.0	75.0	80.0
TranXit 25DF + NIS	1/4 <sup>b</sup> 0.25 <sup>a</sup>	0, 6	30.0	63.3	71.7	94.0	93.3	88.3	68.3
TranXit 25DF + NIS	1/8 <sup>b</sup> 0.25 <sup>a</sup>	0, 3, 6	60.0	60.0	50.0	45.0	61.7	56.7	35.0
TranXit 25DF + NIS	1/16 <sup>b</sup> 0.25 <sup>a</sup>	0, 3, 6	60.0	78.3	56.7	65.0	80.0	83.3	76.7
Prograss	0.75	0	97.0	88.3	85.0	85.0	85.0	96.7	96.7
Roundup Pro	2.0 <sup>a</sup>	0	3.7	0.7	1.3	3.7	3.7	12.7	28.3
Finale	4 <sup>c</sup>	0	20.0	33.3	36.7	68.3	80.0	86.7	92.0
Finale	4 <sup>c</sup>	0	26.7	43.3	41.7	78.3	78.3	88.3	94.0
Finale + ammonium sulfate	4 <sup>d</sup>								
Finale	6 <sup>c</sup>	0	11.7	25.0	28.3	51.7	68.3	80.0	73.3
LSD (0.05)			15.5	10.9	16.8	10.4	11.3	13.4	19.0

<sup>a</sup> Rate of application equals percent volume per volume.

<sup>b</sup> Application rate is ounces of product per acre.

<sup>c</sup> Application rate is quarts of product per acre.

<sup>d</sup> Application rate is pounds of product per acre.

<sup>e</sup> Application timing is weeks after initial application.

**Table 2.** Continued.

Treatment	Rate of application	Application <sup>c</sup> timing	July 13	July 20	July 23	Aug 1	Aug 6	Aug 14	Sep 29
	lbs ai/A								
Check			95.3	86.7	81.7	71.7	48.3	66.7	90.0
MON 44951 75WDG + MON 0818	0.01 0.5 <sup>a</sup>	0	96.7	85.0	76.7	68.3	43.3	66.7	85.0
MON 44951 75WDG + MON 0818	0.02 0.5 <sup>a</sup>	0	95.7	80.0	66.7	51.7	20.0	53.3	85.0
MON 44951 75WDG + MON 0818	0.03 0.5 <sup>a</sup>	0	94.0	90.0	76.7	66.7	46.7	61.7	81.7
MON 44951 75WDG + MON 0818	0.01 0.5 <sup>a</sup>	0, 2	96.0	88.3	81.7	70.0	43.3	63.3	86.7
MON 44951 75WDG + MON 0818	0.01 0.5 <sup>a</sup>	0, 2, 4	83.3	75.0	61.7	53.3	31.7	45.0	75.0
MON 44951 75WDG + MON 0818	0.01 0.5 <sup>a</sup>	0, 2, 4, 6	28.3	13.3	9.3	8.7	5.0	11.7	33.3
MON 44951 75WDG + MON 0818	0.01 0.5 <sup>a</sup>	0, 3	93.0	78.3	73.3	56.7	26.7	31.7	85.0
MON 44951 75WDG + MON 0818	0.01 0.5 <sup>a</sup>	0, 3, 6	33.3	13.3	12.0	9.0	4.7	6.7	16.7
MON 44951 75WDG + MON 0818	0.01 0.5 <sup>a</sup>	0, 3, 6, 9	73.3	21.7	16.7	10.0	3.0	6.7	23.3
TranXit 25DF + NIS	1/4 <sup>b</sup> 0.25 <sup>a</sup>	0, 6	61.7	26.7	11.7	15.0	6.3	15.0	58.3
TranXit 25DF + NIS	1/8 <sup>b</sup> 0.25 <sup>a</sup>	0, 3, 6	35.0	4.0	5.3	3.0	2.0	3.3	18.3
TranXit 25DF + NIS	1/16 <sup>b</sup> 0.25 <sup>a</sup>	0, 3, 6	76.7	23.3	16.7	11.0	5.7	9.3	46.7
Prograss	0.75	0	96.0	86.7	85.0	58.3	41.7	61.7	88.3
Roundup Pro	2.0 <sup>a</sup>	0	31.7	15.0	9.3	13.3	8.7	13.0	28.3
Finale	4 <sup>c</sup>	0	91.7	81.7	73.3	63.3	38.3	56.7	81.7
Finale + ammonium sulfate	4 <sup>c</sup> 4 <sup>d</sup>	0	94.0	75.0	73.3	65.0	40.0	51.7	83.3
Finale	6 <sup>c</sup>	0	80.0	66.7	61.7	60.0	25.0	40.0	80.0
LSD (0.05)			17.2	18.1	17.8	27.1	27.9	30.6	19.0

<sup>a</sup> Rate of application equals percent volume per volume.

<sup>b</sup> Application rate is ounces of product per acre.

<sup>c</sup> Application rate is quarts of product per acre.

<sup>d</sup> Application rate is pounds of product per acre.

<sup>e</sup> Application timing is weeks after initial application.