

Yellow Nutsedge Control with MON44951 in Cool-Season Turf With Two Spray Volumes

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Background/Objective: Manage has been the standard postemergence herbicide for yellow nutsedge control. This study is to determine the technical fit of MON 44951 as a possible replacement for Manage for yellow nutsedge control. The objectives are to determine the efficacy of MON 44951 on yellow nutsedge using single and sequential applications, including spray volume effects and safety on perennial ryegrass.

Site Information

Location:	William H. Daniel Research and Diagnostic Center
Turfgrass Species:	Perennial ryegrass blend
Turf Condition:	fair
Turf Management:	Mowing Height in: 2.5
	Fertilization: 3.5 lbs N/1000/yr
	Irrigation: To prevent moisture stress
Target Pest:	<i>Cyperus esculentus</i> (Yellow nutsedge)
Growth Stage:	3 to 8 leaf

Application Information

Application Dates: in 2005	2 July	11 Aug
Spray Volume gal 1000 ft²):	1 or 2	
Spray Equipment:	CO ₂ backpack	
Experimental Design:	Randomized complete block	
Replications:	3	
Plot Size ft:	5 X 5	

Results:

- Single applications of MON 44591 were ineffective at controlling yellow nutsedge regardless of rate (Table 1).
- Multiple applications of MON 44951 were extremely effective in controlling yellow nutsedge, equivalent to the control from Manage.
- However, multiple applications of MON 44951 did cause some turf injury, especially at the higher rates.
- Spray volume had little effect on yellow nutsedge control.
- Two applications of MON 44951 at 0.25 oz/ provided equivalent nutsedge control and turf injury to a single application of Manage.

Table 1. Effect of MON 44951 and Manage, on yellow nutsedge control and turf safety to perennial ryegrass.

Treatment ^c	Rate of application	Spray volume	Nutsedge plants ^a			Turf injury ^b	
			12 July	28 July	30 Aug	28 July	30 Aug
	oz product/A	gals/M	#			%	
MON 44951 75WG	0.25	1	0.3	2.3	18.3	1.7	0.7
MON 44951 75WG	0.50	1	0.0	0.0	24.0	4.0	0.0
MON 44951 75WG	0.75	1	0.0	2.0	10.3	5.0	0.0
MON 44951 75WG	1.00	1	0.0	0.3	15.7	13.3	0.7
MON 44951 75WG	1.25	1	0.0	0.0	13.0	19.0	4.0
MON 44951 75WG	1.50	1	0.0	0.0	27.3	38.3	5.0
MON 44951 75WG	0.25	1	0.0	2.3	0.0	1.0	6.7
MON 44951 75WG ^d	0.25						
MON 44951 75WG	0.50	1	0.0	3.0	0.3	5.7	6.7
MON 44951 75WG ^d	0.50						
MON 44951 75WG	0.75	1	0.0	0.7	0.3	7.3	25.0
MON 44951 75WG ^d	0.75						
MON 44951 75WG	1.00	1	0.0	1.3	0.0	4.3	23.3
MON 44951 75WG ^d	1.00						
Manage 75WG	1.33	1	0.3	1.3	4.3	0.3	0.0
MON 44951 75WG	0.25	2	0.0	1.0	13.0	1.0	0.0
MON 44951 75WG	0.50	2	0.0	0.7	31.7	15.0	0.0
MON 44951 75WG	1.00	2	0.0	0.3	25.3	13.3	0.0
MON 44951 75WG	1.25	2	0.0	0.0	36.3	26.7	1.7
MON 44951 75WG	0.25	2	0.0	1.0	0.0	2.0	10.0
MON 44951 75WG ^d	0.25						
MON 44951 75WG	0.50	2	0.0	1.0	0.0	7.7	11.7
MON 44951 75WG ^d	0.50						
MON 44951 75WG	1.00	2	0.0	0.0	0.0	11.7	25.0
MON 44951 75WG ^d	1.00						
Manage 75WG	1.33	2	0.0	0.7	1.7	0.7	0.0
Check			13.7	51.3	74.3	0.7	0.0
LSD (0.05)			3.3	10.0	29.6	13.6	8.3

^a Number of yellow nutsedge plants above the turf canopy.

^b Percent of the plot area that was brown.

^c All treatments applications contained a nonionic surfactant at the rate of 0.25 percent volume per volume.

^d Indicates a six week split application on 11 Aug.