

Broadleaf Weed Control with Tank-Mixtures of Non-Selective and Preemergence Herbicides

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Introduction

This study was conducted on a mature stand of common bermudagrass (*Cynodon dactylon*) at the East Tennessee Research and Education Center (Knoxville, TN). The objective of the study was to evaluate the efficacy of tank-mixtures of non-selective and preemergence herbicides for control of various winter annual and perennial weeds in dormant bermudagrass turf in early spring.

Methods and Materials

The test site was maintained similar to that of a golf course fairway with respect to irrigation, fertilization and mowing.

Treatments were arranged in a randomized complete block design with four replications. Herbicide treatments were applied on 6 March to plots (5' x 5') using a CO₂ powered boom sprayer calibrated to deliver 30 gpa using four, flat-fan, 8002 nozzles at 18 psi, configured to provide a 5-ft spray swath.

Henbit (*Lamium amplexicaule*), purple deadnettle (*Lamium purpureum*), white clover (*Trifolium repens*), and mouse-ear chickweed (*Cerastium vulgatum*) control were rated visually utilizing a 0 (no turf injury or weed control) to 100 % (complete control of all weeds or turf) scale at 7, 12, 21, 28, and 42 days after initial treatment (DAIT). White clover control was rated at 56 and 87 DAIT as well.

Results and Discussion

All treatments provided greater than 95% control of henbit, purple deadnettle, and mouse-ear chickweed at 42 DAIT; however, treatments that included Finale provided a higher level of henbit and purple deadnettle control at 7- 28 DAIT than those that that included Roundup ProMax (Table 1). A similar response was observed in white clover control as well (Table 2). No Roundup ProMax treatment provided greater than 65% control of white clover in this study (Table 2).

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Table 1. Henbit and purple deadnettle control following applications of various non-selective and preemergence herbicides in 2009.

Treatment	Rate	Henbit Control					Purple Deadnettle Control				
		7 DAIT	12 DAIT	21 DAIT	28 DAIT	42 DAIT	7 DAIT	12 DAIT	21 DAIT	28 DAIT	42 DAIT
1. UNTREATEDCHECK	-per A-	0.0 b [†]	0.0 d	0.0 c	0.0 c	0.0 b	0.0 c	0.0 c	0.0 d	0.0 d	0.0 d
2. RONSTAR FLO	2 lb ai	26.7 a	95.0 a	99.7 a	99.3 a	98.3 a	31.7 a	95.0 a	99.0 a	98.3 a	96.3 ab
FINALE	1 lb ai										
3. RONSTAR FLO	2.5 lb ai	30.0 a	96.3 a	100.0 a	99.0 a	96.7 a	30.0 a	96.3 a	98.0 a	96.7 a	94.3 bc
FINALE	1 lb ai										
4. RONSTAR FLO	3 lb ai	28.3 a	96.3 a	100.0 a	100.0 a	98.0 a	28.3 a	96.3 a	99.3 a	99.3 a	96.7 ab
FINALE	1 lb ai										
5. EXP 9872416	2 lb ai	28.3 a	97.0 a	100.0 a	98.3 a	98.0 a	31.7 a	96.3 a	97.0 a	96.0 a	91.7 c
FINALE	1 lb ai										
6. RONSTAR FLO	2 lb ai	0.0 b	53.3 bc	71.7 b	88.3 b	98.3 a	10.0 b	53.3 b	70.0 c	73.3 c	96.3 ab
ROUNDUP PRO MAX	1 lb ai										
7. PENDULUM AQUACAP	3 lb ai	0.0 b	50.0 c	68.3 b	88.3 b	98.3 a	10.0 b	53.3 b	70.0 c	71.7 c	95.7 ab
ROUNDUP PRO MAX	1 lb ai										
8. DIMENSION	0.5 lb ai	0.0 b	56.7 b	73.3 b	91.7 b	97.3 a	10.0 b	53.3 b	70.0 c	80.0 b	96.7 ab
ROUNDUP PRO MAX	1 lb ai										
9. BARRICADE	0.5 lb ai	0.0 b	53.3 bc	73.3 b	90.0 b	98.0 a	10.0 b	53.3 b	73.3 b	75.0 bc	98.0 a
ROUNDUP PRO MAX	1 lb ai										

[†]Means followed by the same letter do not significantly differ (P = 0.05; Duncan's new MRT)

Table 2. Mouse-ear chickweed and white clover control following applications of various non-selective and preemergence herbicides in 2009.

Treatment	Rate -per A-	Mouse-ear Chickweed Control					White Clover Control						
		7 DAIT	12 DAIT	21 DAIT	28 DAIT	42 DAIT	7 DAIT	12 DAIT	21 DAIT	28 DAIT	42 DAIT	56DAIT	87 DAIT
		-----%											
1. UNTREATEDCHECK		0.0 b [†]	0.0 d	0.0 b	0.0 b	0.0 b	0.0 b	0.0 e	0.0 d	0.0 c	0.0 c	0.0 c	0.0 e
2. RONSTAR FLO	2 lb ai	66.7 a	93.3 a	100.0 a	100.0 a	100.0 a	48.3 a	85.0 ab	94.0 a	93.3 a	91.7 a	86.7 a	66.7 a
FINALE	1 lb ai												
3. RONSTAR FLO	2.5 lb ai	66.7 a	96.3 a	100.0 a	100.0 a	100.0 a	60.0 a	91.7 a	94.7 a	91.7 a	85.0 a	83.3 a	63.3 ab
FINALE	1 lb ai												
4. RONSTAR FLO	3 lb ai	66.7 a	96.3 a	100.0 a	100.0 a	100.0 a	58.3 a	88.3 ab	95.0 a	95.0 a	94.0 a	90.0 a	63.3 ab
FINALE	1 lb ai												
5. EXP 9872416	2 lb ai	66.7 a	97.0 a	100.0 a	100.0 a	100.0 a	55.0 a	81.7 b	93.3 a	93.3 a	86.7 a	85.0 a	56.7 abc
FINALE	1 lb ai												
6. RONSTAR FLO	2 lb ai	30.0 b	85.0 c	100.0 a	100.0 a	100.0 a	6.7 b	30.0 c	43.3 b	36.7 b	58.3 b	63.3 b	36.7 bcd
ROUNDUP PRO MAX	1 lb ai												
7. PENDULUM AQUACAP	3 lb ai	33.3 b	86.7 bc	100.0 a	100.0 a	100.0 a	3.3 b	23.3 cd	41.7 b	33.3 b	46.7 b	65.0 b	33.3 cd
ROUNDUP PRO MAX	1 lb ai												
8. DIMENSION	0.5 lb ai	30.0 b	91.7 ab	100.0 a	100.0 a	100.0 a	0.0 b	20.0 d	33.3 c	31.7 b	45.0 b	53.3 b	26.7 de
ROUNDUP PRO MAX	1 lb ai												
9. BARRICADE	0.5 lb ai	33.3 b	86.7 bc	100.0 a	100.0 a	100.0 a	6.7 b	20.0 d	38.3 bc	33.3 b	50.0 b	56.7 b	20.0 de
ROUNDUP PRO MAX	1 lb ai												

[†]Means followed by the same letter do not significantly differ (P = 0.05; Duncan's new MRT)