

# Forage Research in Texas

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Department of Soil and Crop Sciences

Project: H-6370

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Location: Angleton

#### TOLERANCE OF SUBTERRANEAN CLOVER TO HERBICIDES

##### OBJECTIVE:

To determine the effect of preemergent herbicides on subterranean clover seedling weight, nodulation, and dry matter production.

##### PROCEDURE:

Herbicides were applied preemergence in 16.5 gal. water per acre. Eptam and Treflan were applied before planting and incorporated with a tiller. Mt. Barker subterranean clover was planted in 10 in. rows at 20 lb/ac on October 4. Plot size was 5' x 15' and the experimental design was a complete randomized block with four replications. Significant rainfall did not occur until 4 weeks after planting. Thirty seedlings were removed at random from each plot to determine seedling weight and nodulation. Plots were harvested on Feb. 21, Apr. 8, and May 23. Predominant weeds were henbit (Lamium amplexicaule L.) and chickweed (Stellaria media (L.) Cyrill). Percent clover and weeds was visually estimated at the first harvest.

##### RESULTS AND DISCUSSION:

None of the herbicides were significantly different from the control for seedling weight and nodulation on November 27 (Table 1). However there were differences in seedling weight between herbicides. Clover seedlings from the Asulox plots were significantly heavier than those in the Furloe, Eptam, and Princep plots. Lightest seedlings were from the Princep plots. None of the clover seedlings survived the Sencor and Sinbar treatments and only a few seedlings survived in the Graslan plots.

Kerb, Chem Hoe, and control treatments produced the most clover at the first harvest. However Kerb and Chem Hoe did not provide any weed control because rainfall or irrigation is required to move the herbicides into the soil for activity. Rainfall did not occur until 4 weeks after herbicide application. Therefore the effect of Kerb and Chem Hoe on subterranean clover growth was not truly evaluated.

Furloe and Asulox did not provide henbit and chickweed control but they did significantly reduce clover production at the first harvest. Eptam, Treflan, and Graslan provided excellent weed control but also reduced the initial clover stand. Clover production at the first harvest was reduced most by Princep and Graslan. Differences between herbicides decreased with time so that only Princep and Graslan treatments had significantly less

clover production for the season than the control and other herbicide treatments.

None of the herbicide treatments resulted in significantly higher clover production than the control. Herbicides which did control the weeds also retarded clover growth. However Eptam and Treflan clover production was only significantly lower at the first harvest. Although Kerb and Chem Hoe are cleared for use on clovers, the lack of moisture until 4 weeks after planting prevented proper evaluation. Graslan, Sencor, and Sinbar should not be used on cool season annual clovers.

Table 1. Effect of herbicides on seedling weight and nodulation and dry matter production of Mt. Barker subterranean clover.

Herbicide	Rate	Nov. 27		Feb. 21		Apr. 8	May 23	Total	
		Seedling weight	Nodules Seedling	Clover	Weeds				
		1b A.I./ac	mg	----- 1b/ac -----					
Control			31.5 a-d*	5.7 a	1500 a	240	1880 ab	2000 ab	5380 a
Chem Hoe	4		35.5 a-c	5.5 a	1300 a-c	430	2100 a	1240 c	4630 a
Furloe	4		30.5 b-d	5.0 a	740 de	320	1780 b	2290 a	4810 a
Asulox	1		39.8 a	6.2 a	1050 b-d	330	1887 ab	1640 a-c	4560 a
Eptam 7E	3		27.3 cd	4.8 a	970 cd	0	1950 ab	1710 a-c	4640 a
Kerb 50WP	1		39.3 ab	6.1 a	1440 ab	250	2100 a	1850 a-c	5390 a
Princep 80WP	1		25.0 d	4.7 a	350 ef	110	1190 c	1980 ab	3530 b
Treflan 4EC	3/4		37.0 ab	5.1 a	1030 b-d	0	2130 a	1690 a-c	4840 a
Graslan 80WP	1		---	---	200 f	0	132 d	1510 bc	1860 c
Sencor 50WP	3/4		---	---	0	0	0	0	0
Sinbar 80WP	3/4		---	---	0	0	0	0	0

\*Values followed by the same letter within a column are not significantly different at the .05 level using Duncan's Multiple Range Test.