

INTERACTION OF CULTIVATION WITH PREEMERGENT HERBICIDES AND
1985 PREEMERGENT HERBICIDE TRIALS

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This stop covers two studies, one study examines the effects of various cultivation operations on preemergent herbicide efficacy. The study consists of four herbicide treatments (benefin, bensulide, DCPA, and a check) which are treated with four types of cultivation operations (coring 1X, coring 3X, vertical mowing, and a check) performed at treatment and four weeks after treatment. Table 3 shows the analysis of variance for each factor for 1984 and 1985 August ratings of percent crabgrass per plot. The only factor which is significant is the herbicide treatment. This means that the check had more crabgrass than the herbicides, which is as expected. However, since the cultivation treatment was not significant, none of the three cultivation treatments caused an increase in crabgrass compared to the no cultivation treatment (check). Also time of cultivation, at treatment or four weeks after treatment did not cause any increase in crabgrass plants in the plots. Table 4 shows the 1985 data as the mean for each of the 32 treatment combinations. Examination of the means confirms the lack of any pattern in percent crabgrass due to time or type of cultivation.

Based on two years of data I believe that cultivation treatments don't significantly affect the activity of preemergent herbicides.

Data for the 1985 preemergent trial, which was established on April 17, are presented in Table 5. Contrary to expectations, crabgrass germination was unusually late this year and because of the cool weather in July and August, crabgrass growth was slowed so that the infestations were not as large as usual. This can be seen when examining the plots. In some plots a large number of germinates can be seen, however most have not developed past the two tiller stage and therefore the percentage in the plot is still small. Because of the relatively small amount of crabgrass in the plots the results are somewhat difficult to interpret.

As has been the case for the past two years, Dacthal has given the best results of the materials tested. Both the 7.5 and 10.5 lbAI/A rates of Dacthal gave 100% crabgrass control. This year we tested two new formulations of Betasan in the trials, a suspension formulated at 2.2 lbs AI/gallon and an EC formulation with liquid fertilizer. The 2.2 S formulation showed some problems with caking in the spray tank. When using freshly prepared solutions the 2.2 S gave good control that was superior to standard EC formulation. As shown last year, the 7.5 lbAI/A rate of Betasan does not provide acceptable control. Rates of 10.5-12.5 lbsAI/A are needed to give good, consistent crabgrass control. A new material that has received considerable attention is pendimethalin and both O.M. Scotts and Lesco have formulated the herbicide as a 60% water dispersible granule (60 WDG). Crabgrass control with pendimethalin has not been as good as reported by other researchers. Best results were seen with two-one pound applications 60 days apart or a three pound application initially.

Another new material which performed well is called Team. Team is a mixture of Treflan and Balan and provided good control with two-two pound applications spaced 45 days apart.

An experimental material from Nor AM called SN594 did not provide crabgrass control.

TABLE 3. Analysis of Variance for August Ratings of Percent Crabgrass.

1984				
<u>Source</u>	<u>df</u>	<u>MS</u>	<u>F</u>	<u>P%</u>
Reps (R)	2	673.2	3.39	3.89*
Herbicide (H)	3	6159.2	31.03	0
Cultivation (C)	3	238.5	1.2	31.63
H x C	9	82.7	0.42	-
Time of Cultivation (TC)	1	37.5	0.19	-
H x TC	3	164.6	0.8	-
C x TC	3	144.5	0.7	-
H x C x TC	9	358.8	1.8	8.4
Error	62	198.5		

1985				
<u>Source</u>	<u>df</u>	<u>MS</u>	<u>F</u>	<u>P%</u>
R	2	60.7	1.4	24.85
H	3	2343.1	54.8	0
C	3	105.5	2.5	6.94
H x C	9	64.0	1.5	16.91
TC	1	1.5	0.04	
H x TC	3	87.5	2.05	11.54
C x TC	3	8.7	0.2	
H x C x TC	9	12.8	0.3	
Error	62	42.8		

*Values less than 5 are significant at the 5% level.

TABLE 4. Individual Means for all Treatment Combinations Rated 8-20-85.

Cultivation at Treatment

Cultivation Treatment	<u>Herbicide treatment</u>			
	Benefin	Bensulide	DCPA	Check
CC 1X	0.7	2.0	0.0	23.3
CC 3X	1.0	0.0	0.0	18.7
Vert. Mow	1.7	3.7	1.7	28.3
Check	2.3	2.7	0.0	28.3

Cultivation 4 Weeks After Treatment

Cultivation Treatment	<u>Herbicide treatment</u>			
	Benefin	Bensulide	DCPA	Check
CC 1X	3.7	2.3	0.0	18.3
CC 3X	6.0	1.0	1.7	7.0
Vert. Mow	1.7	6.0	0.0	23.3
Check	2.7	8.3	1.7	26.7

TABLE 5. 1985 Preemergent Trial Results.

<u>Treatment</u>	<u>Rate</u>	<u>Injury*</u> <u>% Crabgrass</u>		
		<u>5/30</u>	<u>7/18</u>	<u>8/20</u>
Dacthal 75WP	7.5 lbs AI/A	9.0	0	0
Dacthal 75WP	10.5 lbs AI/A	9.0	0	0
Dacthal 75WP	10.5 lbs AI/A	9.0	0	0
EH 850	12 lbs AI/A	9.0	0	0.3
Team 2G	2 + 2 lbs AI/A	8.3	0	0.7
Betasan 4E	10.5 lbs AI/A	9.0	0	0.7
Balan 2G	2 + 2 lbs AI/A	9.0	0	1.0
Pendimethalin 60WDG-L	1 + 1 lbs AI/A	8.0	0	1.0
Betasan 4E	10.5 + 7.5 lbs AI/A	9.0	0	1.7
Betasan 2.2 S	7.5 lbs AI/A	9.0	0	2.7
EH 850	8 lbs AI/A	9.0	0.3	2.7
Balan 2G	2 lbs AI/A	8.7	0	3.3
EH 850	4 lbs AI/A	9.0	0.3	3.3
Pendimethalin 60 WDG-L	3 lbs AI/A	6.0	0	3.3
Betasan 4E-LF	12.5 lbs AI/A	9.0	0	3.7
SN594 7EC	2 lbs AI/A	6.3	0	4.3
Pendimethalin 60WDG-S	1.5 lbs AI/A	6.7	0	5.0
Check		9.0	0.3	5.0
Pendimethalin 60 WDG-S	2 lbs AI/A	6.0	0.3	6.0
Ronstar 2G	4 lbs AI/A	9.0	0.3	7.0
Pendimethalin 60 WDG-L	1 lb AI/A	8.0	0.0	7.7
Betasan 4E	7.5 + 3.8 lbs AI/A	9.0	0.3	8.3
Ronstar 2G	2.0 lbs AI/A	9.0	2.3	10.0
Betasan-Devrinol 7.5-1.5 G	65 lbs/A	9.0	3.7	10.0
Betasan 4E-LF	7.5 lbs AI/A	9.0	2.0	10.0
Betasan-Devrinol 7.5-1.5 G	100 lbs/A	9.0	5.3	11
Betasan 2.2 S	7.5 lbs AI/A	9.0	0.7	11
Betasan 2.2 S	12.5 lbs AI/A	9.0	2.0	11.7
Pendimethalin 60 WDG-L	1.5 lbs AI/A	8.0	0	11.7
Check		9.0	3.3	15
SN594 7EC	1 lb AI/A	8.7	5.0	23.3
SN594 7EC	4 lbs AI/A	5.7	6.7	25.0
SN594 7EC	6 lbs AI/A	4.0	6.7	25.0
	LSD	1.0	3.8	10.2

*Injury ratings on a scale of 1-9 with 9 = no damage and 1 = complete kill.