

CONTROL OF LYGUS BUGS AFFECTING COTTON IN ARIZONA

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Objectives

1. To determine the level of lygus bug injury necessary to cause economic yield losses.
2. To correlate lygus numbers with square damage.
3. To evaluate insecticides for lygus bug control in cotton.

1 & 2. A randomized complete block with four replications was designed in a field of short staple cotton near La Palma to determine economic levels of lygus bugs. Three economic levels were used based on the percent of square damage and were compared with an untreated check. The three levels used were 5, 15 and 25 percent square damage. Bidrin at three tenths pounds per acre was applied when square damage reached these levels. Applications were applied to the 5 percent level 4 times, the 15 percent level 3 times and to the 25 percent level 1 time.

Adult and nymphal populations were assessed by using a standard sweep net based on 200 sweeps at each end of the treatment. Square damage estimates were obtained by examining 100 half-grown squares at each end of the treatment for lygus punctures. Population and damage estimates were made bi-weekly.

Yields were taken by machine picking of the center 8 rows of the 16-row plots. No significant difference occurred between the three levels of economic injury, or between the injury level plots and the untreated check.

No definite correlation was established as to the relationship of lygus bug numbers to square damage counts. However, the square damage peak closely corresponded to the population peaks of adults and nymphs. Future work is necessary to definitely establish if a correlation does exist. These data are presented in Tables 1 and 2.

3. An experiment was conducted near La Palma in short staple cotton to evaluate the effectiveness of three insecticides in the control of lygus bugs. The experimental design was a randomized complete block with each treatment replicated 4 times. The treated plots were 45 rows wide and the untreated check was 15 rows wide.

Infestation levels were obtained by counting the number of adult and nymphs in 200 net sweeps at each end of each treatment. Lygus bug induced square damage was determined by examining 100 half-grown squares from each end of each treatment. Counts were taken bi-weekly.

Insecticide applications were applied by airplane using a total mix of 3 gallons per acre. Two applications were required based on lygus bug infestation levels.

Yields were obtained by machine picking the center 8 rows of the treated plots and the center 4 rows of the untreated plots. Yield data indicate a significant yield difference occurred between the untreated check and Azodrin but no difference occurred between Bidrin or Dylox. These data are presented in Table 3.

Table 1. Comparison of Lygus bug numbers to damaged square counts

Sampling Date	Check		Dam. Square	5% Level ^{1/}		Dam. Square	15% Level ^{2/}		Dam. Square	25% Level ^{3/}		Dam. Square
	Adult	Nymph		Adult	Nymph		Adult	Nymph		Adult	Nymph	
6/20 Pre-treat.	16.3	1.0	12.0	13.5	1.0	11.5	20.0	1.3	10.5	17.3	1.8	11.5
6/23	14.8	1.0	9.5	6.0	.0	7.5	13.3	1.8	9.0	9.5	.5	8.5
6/26	12.3	1.0	15.5	14.0	.5	15.5	9.3	2.0	16.0	7.0	1.0	15.5
7/1	11.3	.8	11.5	7.8	.3	5.5	7.0	1.8	10.5	6.5	1.3	13.5
7/7	12.0	.5	9.5	6.0	.0	6.5	10.0	.0	7.5	14.3	.3	11.5
7/14	15.8	.3	7.5	14.0	.5	6.5	13.0	1.8	7.0	13.5	.0	10.5
7/17	16.3	.3	7.0	10.5	.3	3.0	12.8	.5	4.5	14.5	.8	5.5
7/22	23.0	17.3	13.0	19.0	13.5	7.0	20.3	13.3	13.0	30.3	13.5	14.0
7/25	4.3	10.0	23.0	4.3	1.0	16.5	3.0	1.5	17.5	3.0	7.5	24.0
7/28	19.5	1.0	9.0	12.0	0	11.0	12.0	.0	10.0	26.5	1.0	10.0

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1. Applications applied on 6/20, 6/27, 7/22, and 7/30
2. " " " 6/27, 7/22 and 7/30
3. " " " 7/30

Table 2. Seed cotton yields of lygus bug injury levels.

Treatment ^{1/}	Lbs. of Seed Cotton/A ^{2/}
Check	3651
5% level	3736
15% level	3657
25% level	3643

1. Bidrin used in all applications at .3 lb per acre
2. No significant difference

Table 3. Insecticide evaluation for lygus bug control.

Number of lygus bug based on 100 net sweeps																	
Treatment*	Rate lb/A	Pre-treat.		Sampling date												Yield lbs seed cotton/A	Stat. Sig.
		7-11 Adult	7-11 Nymph	7-14		7-17		7-22		7-25		7-28		7-30			
heck		39.3	.7	3.3	.0	6.5	.0	10.5	8.5	.8	.3	1.5	.5	3.5	0	2877	a
zodrin	.5	48.5	.5	2.3	.0	4.8	.0	16.3	4.8	.5	.0	2.3	1.0	5.0	0	3549	b
idrin	.5	68.3	5.5	5.0	.5	6.3	0	17.8	3.3	1.0	0	3.5	1.8	3.0	.3	3373	a b
yllox	1.5	42.0	2.2	4.5	.3	4.3	0	11.5	6.3	.8	0	3.5	1.8	2.0	.3	3044	a b

Applications applied on 7-12 and 7-24