

Williamson County Result Demonstration Report



COMPARING DENSITIES OF BOLL WEEVIL AROUND FIELD MARGINS TO THE INTERIOR OF COTTON FIELDS UNDER BOLL WEEVIL ERADICATION IN THE SOUTHERN BLACKLANDS OF TEXAS

Cooperators: Emzy and Troy Boehme
Jay Jaecks
Arnie and Larry Safarik
Doug Schernik
Lloyd Stabeno

Dale A. Mott
Extension Agent - IPM

Allen Knutson
Extension Entomologist - TCE

Ron Leps/David Groschke
Extension Agent-Agriculture/Natural Resource

Taylor, Williamson County, Precinct #4

SUMMARY:

Ten fields were systematically inspected on a weekly basis throughout the cotton fruiting period for boll weevil feeding and/or egg laying punctures near Taylor in the Texas Boll Weevil Eradication Zone, Southern Blacklands of Texas in 2005. Squares and bolls were inspected for weevil damage from two treatments, the field margin (outer 12 rows) and the interior of the field. Three punctured squares were found throughout the season. Two of the punctures were found around the field margin (0.000125 mean weevil damaged squares per monitoring period) and one was found in the interior of the field (0.0000625 mean weevil damage square per monitoring period). As a result of such low levels of weevil damaged found, there was no difference in level of weevil damage between the two treatments.

This is good news to the Southern Blacklands area, because it demonstrates that the Texas Boll Weevil Eradication Program is doing an effective job at reducing weevil populations both in the interior of the field and around the field margins.

OBJECTIVE:

Many producers across the Southern Blacklands have speculated that the Texas Boll Weevil Eradication Foundation was not doing an efficient job of spraying field margins and thus some weevil reproduction may be occurring around edge the of fields, thus limiting the efficiency of the eradication program.

Therefore, the objective of this project was to determine if boll weevil damaged squares were in greater levels along field margins than in field interiors in fields sprayed for boll weevil eradication. If results demonstrate that weevil damage is greater along field margins than in the interior of treated fields, then one could conclude that weevil reproduction was occurring around field margins. As a result, application protocols/tactics could be modified to improve insecticide coverage along field margins. The bottom line is that reducing boll weevil reproduction along field margins, if taking place, will speed eradication of the boll weevil and thus reduce program expenses.

MATERIALS AND METHODS:

Ten cotton fields were identified in Williamson County. Fields of cotton in 2005 in close proximity to fields which boll weevils trap catches were high during 2004 were selected for this study. Also, fields surrounded by trees, power lines and other obstacles to aerial spraying were giving preference to in this study. One-third grown squares and/or small green bolls were sampled weekly from four plots located along the field margin and four in the field interior. Plots were 4 rows wide by 100 feet long and spaced 50 feet apart. Within each plot, 50 squares/bolls were collected weekly. The squares/bolls were placed in a brown paper bag and processed in the lab later in the day. This sampling took place from 1/3 grown square through mature bolls, which was from June 2 to July 21 (8 weeks of sampling). Data on mean number of boll weevil punctured were analyzed by using paired T-comparisons.

RESULTS AND DISCUSSION:

No differences were observed in punctured squares/bolls between the field margin plots and the interior field plots (Table 1). A total of 3 punctures were found during the entire data monitoring program which began on June 2 and continued on a weekly basis through July 21 (Table 2). Two of the punctured squares were found in the field margin treatment where as one punctured square was found in the field interior treatment.

Table1. Mean Boll Weevil Egg Laying Punctured Squares per treatment per week.
Williamson County, 2005

Treatment	Mean Punctured Squares per Weekly Inspection								Season Mean
	6/2/05	6/9/05	6/16/05	6/23/05	6/30/05	7/7/05	7/14/05	7/21/05	
Field Margin	0.00a	0.005a	0.005a	0.00a	0.00a	0.00a	0.00a	0.00a	0.0001 a
Field Interior	0.00a	0.00a	0.00a	0.005a	0.00a	0.00a	0.00a	0.00a	0.00006 a

Table 2. Total Boll Weevil Punctured Squares per plot throughout season, June 1 - July, 21 2005, Taylor, Williamson County, Texas.

Field	Plot	# of Punctured Squares/plot		Total
		Field Margin	Field Interior	Punctures/ Field
Boehm-1	1	0	0	0
Boehm-1	2	0	0	0
Boehm-1	3	0	0	0
Boehm-1	4	0	0	0
Boehm-2	1	0	0	0
Boehm-2	2	0	0	0
Boehm-2	3	0	0	0
Boehm-2	4	0	0	0
Jaecks-1	1	1	1	2
Jaecks-1	2	0	0	0
Jaecks-1	3	0	0	0
Jaecks-1	4	0	0	0
Jaecks-2	1	0	0	0
Jaecks-2	2	0	0	0
Jaecks-2	3	0	0	0
Jaecks-2	4	0	0	0
Safarik-1	1	0	0	0
Safarik-1	2	0	0	0
Safarik-1	3	0	0	0
Safarik-1	4	0	0	0
Safarik-2	1	0	0	0
Safarik-2	2	0	0	0
Safarik-2	3	0	0	0
Safarik-2	4	0	0	0
Safarik-3	1	0	0	0
Safarik-3	2	0	0	0
Safarik-3	3	0	0	0
Safarik-3	4	0	0	0
Schernik-1	1	0	0	0
Schernik-1	2	0	0	0
Schernik-1	3	0	0	0
Schernik-1	4	0	0	0
Schernik-2	1	0	0	0
Schernik-2	2	0	0	0
Schernik-2	3	0	0	0
Schernik-2	4	0	0	0
Stabeno-1	1	1	0	1
Stabeno-1	2	0	0	0
Stabeno-1	3	0	0	0
Stabeno-1	4	0	0	0
Total Punctures/treatment		2	1	3

CONCLUSION:

The results from this study indicate that there were no differences in damaged squares caused by boll weevils in known weevil “hot spot” areas in the near Taylor in the Southern Blacklands Boll Weevil Eradication Zone of Texas in 2005 between the field margin and the interior of the field. Even though the field margins are often surrounded by obstacles, including trees, buildings and other structures, over-head utility lines, and other obstacles along with prevailing winds that may inhibit uniform insecticide treatment, there was no measurably higher weevil damage signs around the edge of the field compared to the interior where uniform insecticide applications are easier to achieve.

As a result, it appears that the Southern Blacklands Boll Weevil Eradication Program is doing a good job at eliminating damage caused by boll weevils, thus limiting reproduction and ultimately reducing the boll weevil population, at least during the 2005 season. The 2005 crop season was characterized by a relatively dry spring and summer which benefitted the boll weevil eradication foundation because it allowed for uninterrupted boll weevil trap monitoring and uninterrupted mist blower (ground rig) application access to fields as opposed to an unseasonably we spring, summer and fall that occurred in 2004..

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