ERADICATION OF THE BOLL WEEVIL IN MISSOURI

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Abstract

The boll weevil, *Anthonomus grandis grandis* Boheman, has been the number one cotton pest six of the last ten years for Missouri cotton producers. Pheromone trap counts, crop losses, and insecticide control costs all have increased since 1988. Since 1993 ≈$6 million in annual crop losses and insecticide control costs can be attributed to the boll weevil in Missouri. A proposed expansion of the boll weevil eradication program into Missouri will be initially voted on by Missouri cotton growers in March of 2000.

Introduction

After its initial detection around 1913, the boll weevil, *Anthonomus grandis grandis* Boheman, has been a periodical but severe cotton pest in Missouri (Sorenson 1995). During the 1970's and early-1980's, several consecutive cold winters had virtually eliminated this cotton pest from the state. Previous studies have documented that cold weather-induced mortality regulates this pest at the northern limits of its range (Gaines 1943: Pfrimmer and Merkl 1981). Since the mid-1980's severe winter weather has occurred less frequently in Missouri; therefore, boll weevil populations have increased and Missouri cotton growers are reporting greater crop losses and insect control costs.

Discussion

Since 1987, boll weevil infestations have steadily increased in Missouri primarily because of milder winter weather. In 1998 and 1999, Missouri had some of its highest weevil trap counts on record in the University of Missouri Outreach and Extension Service's trapping grid (Table 1). The decline in trap counts from 1998 to 1999 was a result of wetter, cooler conditions present in January of 1999 versus the same month in 1998. Missouri cotton growers also have experienced greater crop losses and insecticide control costs associated with boll weevil infestations (King et. al., 1988; Head 1989-1993; Williams 1994-2000). For example, since 1993 Missouri growers have annually lost ≈12,200 bales to boll weevil infestations despite spending $3.84 million to combat these infestations (Table 2).

In 1996, the Missouri Cotton Growers Board of Directors initiated a plan to eventually eradicate the boll weevil from the state. This was in response to concerns over increased production costs and yield losses associated boll weevil outbreaks and maintaining their competitiveness with cotton growers in other states. The Missouri board decided in 1997 that the Southeast Boll Weevil Eradication Foundation of Montgomery, Alabama would run the state's eradication program. The initial Missouri boll weevil eradication referendum will be held in March of 2000.

Summary

Greater boll weevil infestations have increased crop losses and production costs for Missouri cotton growers in the 1990's. Missouri growers had annual crop losses of ≈$3.16 million and insecticide costs of ≈$2.78 million over the last decade. Missouri growers will vote on an eradication program in 2000. This program will help alleviate grower concerns over increased production costs and crop losses associated with boll weevil and other pest outbreaks.

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Table 1. Boll weevil pheromone trap counts in southeast Missouri.

	# boll weevils / trap		
County	**Sept. 1998**	**Sept. 1999**	**Percent Change**
Dunklin	607.3	311.8	-48.7
Pemiscot	616.4	148.1	-76.0
New Madrid	131.5	63.5	-51.7
Stoddard	47.6	27.7	-41.8
Scott	24.6	17.1	-30.5

Cumulative monthly trap counts derived from the University of Missouri's 63-site, 189-trap grid.

Table 2. Missouri boll weevil crop losses and control costs – 1987 to 1999.

Year	Bales Lost	Insecticide Costs ($Millions)
1987	1245	0.02
1988	76	0
1989	13021	1.89
1990	0	0
1991	0	0
1992	22656	0.90
1993	12644	4.68
1994	10549	5.50
1995	15000	7.20
1996	833	0.03
1997	24812	3.10
1998	10344	2.98
1999	11140	3.37

King et al., 1988; Head 1989-1993; Williams 1994-2000