

Development of a Management System for Sod Webworm in Kentucky Bluegrass Seed Production in Central Oregon, 2006

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Abstract

Pheromone traps that emit a scent to attract male sod webworm moths (*Chrysoteuchia topiaria*) were placed in 20 Kentucky bluegrass seed production fields on May 22, 2006. Three pheromone traps were placed in each field and the numbers of moths collected were counted weekly. Numbers of moths collected in the pheromone traps were considered relatively low for all fields, with sod webworm moth numbers ranging from 99 to 4,512 across 20 fields. The overall peak flight was from June 18 to July 6, with populations dropping off sometime between July 10 and 24. During peak flight the total numbers of moths were near 1,700 per week. Six fields were chosen for follow-up sod sampling based on high numbers of moths collected and fields considered at risk by local fieldmen. Sod sampling was conducted in September, October, and November, with few sod webworm larvae collected at any of the locations.

Introduction

A 2-year survey of insect pests in Kentucky bluegrass fields was conducted in central Oregon and the Grande Ronde Valley during 2003-2005. Results indicated the presence of sod webworm (*Chrysoteuchia topiaria*) and cutworms (*Protagrotis obscura*) in central Oregon. No billbugs (*Sphenophorus venatus confluens*) were collected in 2003-2004, while 22 were collected during 2004-2005. No differences were observed in two fields with nonburned and open-field-burned plots. Sod webworms are considered an emerging pest that can have a financial impact on Kentucky bluegrass fields. As a result, this project has focused on sod webworm populations and distribution during the 2005 and 2006 seasons. The strategy has been to use pheromone traps that emit a scent to attract male moths in order to track the flights of the sod webworm moth. This was followed by sod sampling to determine the correlation between moth and larval populations. The objective of this research was to determine if pheromone traps can be used to indicate which fields will have high populations of larvae in the fall, when control measures are applicable.

Methods and Materials

Three pheromone traps were placed in each of 20 commercial bluegrass seed production fields on May 22, 2005. Fields with potential for insect problems in the Madras and Culver areas were chosen for the survey. The contents of each trap were collected weekly from May 31 to August 3. The number of sod webworm moths was noted for each trap. Traps were removed to the side of the field for swathing, threshing, and baling activities. After seed harvest, pheromone trapping continued until the field was ready to burn, at which time the traps were permanently removed from the field.

Six fields were chosen for follow-up sod sampling. Locations 1, 2, and 3 correspond with locations 1, 2, and 3 with the pheromone traps. Location 2 was disked prior to the October sampling date, at which time location 6 was included for sampling. Eight sod samples 1 ft in diameter by 2 inches deep were collected from each field during September 25-29, October 12-16 and November 10-12. Sod samples were processed for 24 hours using Berlese funnels. Insects were collected into jars and identified daily. Sod samples were kept refrigerated while waiting processing.

Results and Discussions

The number of sod webworm moths in the pheromone traps was considered low for all 20 fields when compared to fine fescue seed fields in the Willamette Valley (Table 1). The overall peak flight was from June 18 to July 6, with populations dropping off sometime between July 10 and 24. This compares to a peak flight from July 4 through July 17 in 2005. During peak flight the total numbers of moths across 20 fields were near 1,700 per week in 2006 and 1,500 per week across 23 fields in 2005. Sod webworm moths collected per field ranged from a total of 99 to 452 in 2006, compared to a range of 77 to 610 in 2005.

During 2005 no sod webworm larvae were collected in sod samples at any locations during any of the collection dates. Larval numbers were low again in 2006, with a maximum of four per field across three sampling dates (Table 2). Taking soil samples in October continues to provide greater larval numbers than either September or November. Based on these 2 years of data, we have been unable to document a correlation between the number of moths collected in pheromone traps and larvae collected in sod samples.

Following are a couple of observations. Fieldmen indicate that higher numbers of larvae are often found under windrows where there are greater protection and higher moisture levels. It is felt that field dry-down after harvest, followed by open field burning, makes an inhospitable environment where few emerging larvae are surviving. This may explain the presence of moths during the summer followed by few to no larvae in the fall.

Cutworms collected continue to be in relatively low numbers. Their lifecycle appears to be similar to that of the sod webworm. Billbug numbers remain low and they do not appear to be a serious threat to this area.

Table 1. Sod webworm moths collected per field in Kentucky bluegrass seed during the summer of 2006, Culver and Madras, Oregon.

Field	Collection dates							Total
	May 22-30	May 31- June 5	June 6-17	June 18-28	June 28- July 6	July 10-24	July 24- Aug 3	
	-----Number of moths/field-----							
1	-- ¹	10	14	18	109	132	56	339
2	6	0	18	132	102	132	3	393
3	6	--	3	196	103	132	12	452
4	1	5	4	72	145	40	1	268
5	0	0	10	10	45	102	56	223
6	11	3	--	32	90	16	7	159
7	0	1	0	6	111	59	24	201
8	1	0	3	89	111	15	1	220
9	5	3	21	80	85	15	4	213
10	3	10	9	80	62	74	55	293
11	--	1	0	3	78	22	0	104
12	--	1	7	14	67	10	0	99
13	0	0	4	118	100	94	6	329
14	1	0	0	69	38	3	2	113
15	0	2	0	42	63	56	2	208
16	1	7	13	125	99	12	6	278
17	1	4	29	27	2	18	0	162
18	0	3	0	82	14	--	7	106
19	--	10	14	148	106	24	15	317
20	20	44	21	158	--	46	17	306
Total	56	104	170	1501	1530	1002	274	4,783

¹Traps not collected.

Table 2. Insect pests found in Kentucky bluegrass sod samples in central Oregon, fall 2006.

Insect	Location	Sampling dates			Total	Moth Tot
		September 25 - 29	October 10 - 12	November 12 -16		
-----Number of insects/location-----						
Sod webworm	Loc 1	0	4	0	4	339
	Loc 2	2	2	0	4	318
	Loc 3	0	- ¹	-	0	434
	Loc 4	0	0	1	1	
	Loc 5	0	0	0	0	
	Loc 6	-	3	0	3	
Cutworm	Loc 1	2	6	7	15	
	Loc 2	22	21	25	68	
	Loc 3	0	-	-	0	
	Loc 4	3	12	10	25	
	Loc 5	0	1	8	1	
	Loc 6	-	5	11	16	
Billbug	Loc 1	1	5	2	8	
	Loc 2	0	2	0	2	
	Loc 3	2	-	-	2	
	Loc 4	0	0	0	0	
	Loc 5	0	0	0	0	
	Loc 6	-	0	0	0	

¹No collection