

SURVEY OF INSECT PESTS IN KENTUCKY BLUEGRASS SEED PRODUCTION IN CENTRAL OREGON, 2005

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Abstract

Pheromone traps that emit a scent to attract male sod webworm moths (*Chrysoteuchia topiaria*) were placed in 23 Kentucky bluegrass seed production fields the last week of June, 2005. Three pheromone traps were placed in each field and the number of moths collected was counted weekly. Numbers of moths collected in the pheromone traps were considered relatively low for all fields, with sod webworm moth numbers ranging from 77 to 610 between fields. The overall peak in population was from the last week of June through mid-July. Nine of the 23 fields were chosen for follow-up sod sampling. Fields were chosen based on the total number of moths collected through the summer, representing the high, medium, and low range of moth populations. Sod sampling occurred in mid-September, early October, and late October. There were no sod webworm larvae collected at any locations during any collection date. The reason for this lack of larvae is unclear.

Introduction

A 2-year survey of insect pests in Kentucky bluegrass (*Poa pratensis*) 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 non-burned and open field-burned plots. Sod webworms are an emerging pest that can have a financial impact on Kentucky bluegrass fields. As a result, this year's study focused on sod webworm populations and distribution. However, the presence of cutworms and billbugs was also noted. The strategy for 2005 was to use pheromone traps that emit a scent to attract males 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 23 commercial bluegrass seed production fields on June 28, 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 July 4 to August 21. The number of sod webworm moths and cutworm 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.

Nine fields were chosen for follow-up sod sampling, with three fields representing the highest total number of moths collected (287-610), the intermediate range (164-277), and lowest number of total moths (77-133). Twelve sod samples 1 ft in diameter by 2 inches deep were collected from each field during September 14-16, October 3-5, and October 26-28. Four sod samples were collected from the area where each of the three pheromone traps were located earlier in the season. This sampling procedure was used to minimize field variability in an effort to focus on the correlation between pheromone trapping of adults and larval numbers in sod samples. 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 fields compared to fine fescue seed fields in the Willamette Valley (Table 1). The overall peak in population was from the last week of June through mid-July. Sod webworm moths collected ranged from 77 to 610 between fields. The highest number of sod webworm moths collected in 1 week was 212 during July 11-17, while the lowest was 0 during August 15-21. The average number of sod webworm moths collected weekly per field ranged from 89 during July 4-10 down to 15 during August 15-21. Based on the average number of sod webworm moths collected per field it would appear that the peak flight begins during or before the first week of July, and declines steadily from that point.

A total of 1,641 cutworm moths were collected in the pheromone traps (Table 2). We assumed that cutworm moths were not specifically attracted to the pheromone traps, but were inadvertently caught. Eighty-two percent of the cutworm moths were collected from July 4 to 24. The average number of cutworm moths per field remained level (24, 25, 23) in weekly collections during July 4-24, then sharply declined (9, 5, 3, 1) through mid-August.

No sod webworm larvae were collected in sod samples at any location during any collection date (Table 3). Although six of the fields were treated with an insecticide, no larvae were found before the insecticide applications. The reason for this lack of larvae is unclear; however, the widespread nature of this phenomenon would seem to point to something other than specific grower management practices. Fine fescue fields in the Willamette Valley also experienced a remarkable lack of sod webworm larvae.

Cutworm larvae collected from sod samples varied from field to field. Field 1 and 7 had the highest number of larvae (108 and 119 respectively). The numbers were spread more or less evenly across sampling dates. A total of six billbugs were found in three fields.

Table 1. Sod webworm moths collected per field in Kentucky bluegrass seed during the summer of 2005 in central Oregon.

Field	Collection dates							Total
	July 4-10	July 11-17	July 18-24	July 25-31	Aug 1-7	Aug 8-14	Aug 15-21	
	-----Number of moths/field-----							
1	43	33	12	---	5	4	0	97
2	77	212	146	117	---	45	13	610
3	6	8	46	---	152	56	9	277
4	--- ^a	92	34	2	97	42	---	267
5	117	38	---	4	4	1	---	164
6	154	65	---	44	17	6	1	287
7	---	56	39	34	3	1	---	133
8	20	19	---	---	25	13	---	77
9	39	90	100	177	20	---	33	459
10	96	131	11	19	31	---	---	288
11	159	47	13	38	---	---	---	257
12	147	130	111	164	16	26	---	594
13	90	171	---	---	50	---	---	311
14	125	2	2	7	---	4	---	140
15	74	47	16	10	---	14	---	161
16	---	87	19	7	72	---	---	185
17	57	43	8	---	---	---	---	108
18	64	23	---	23	2	---	1	113
19	71	18	---	8	6	---	4	107
20	---	60	38	63	34	---	---	195
21	65	28	---	105	7	3	0	208
22	146	155	---	72	102	---	61	536
23	140	145	---	60	54	---	31	430
Total	1,690	1,700	595	954	697	215	153	6,004
Field average	89	74	43	50	39	18	15	---

^aTraps not collected.

Table 2. Cutworm moths collected per field in Kentucky bluegrass seed during the summer of 2005 in central Oregon.

Field	Collection dates							Total
	July 4-10	July 11-17	July 18-24	July 25-31	Aug 1-7	Aug 8-14	Aug 15-21	
	-----Number of moths/field-----							
1	19	36	35	----	0	2	1	93
2	40	30	5	2	----	2	0	79
3	47	65	40	----	3	2	1	158
4	---- ^a	10	32	0	5	4	----	51
5	10	29	----	4	0	0	----	43
6	8	18	----	8	0	5	0	39
7	----	17	21	3	0	0	----	41
8	60	61	----	----	7	0	----	128
9	39	34	37	27	7	----	0	144
10	21	11	20	1	2	----	----	55
11	24	30	23	4	----	----	----	81
12	10	17	25	9	5	9	----	75
13	14	6	----	----	13	----	----	33
14	28	27	4	5	----	4	----	68
15	24	15	29	4	----	1	----	73
16	----	6	24	6	5	----	----	41
17	23	16	2	----	----	----	----	41
18	22	13	----	4	3	----	0	42
19	14	22	----	12	5	----	4	57
20	----	31	28	13	3	----	----	75
21	22	44	----	12	12	1	2	93
22	16	10	----	23	4	----	6	59
23	13	19	----	32	8	----	0	72
Total	454	567	325	169	82	30	14	1,641
Field average	24	25	23	9	5	3	1	----

^aTraps not collected.

Table 3. Cutworm (CW) and billbugs (BB) found in sod samples in the fall of 2005 in central Oregon.

Field	Insecticide application	Sampling dates						Total	
		Sept 14-16		Oct 3-5		Oct 26-28		CW	BB
-----Number of insects/field-----									
		<u>CW</u>	<u>BB</u>	<u>CW</u>	<u>BB</u>	<u>CW</u>	<u>BB</u>	<u>CW</u>	<u>BB</u>
1	None	44	0	21	0	43	0	108	0
2	October 10	4	0	13	3	0	1	17	4
3	October 1	3	0	1	0	0	0	4	0
4	September 20	2	0	2	0	0	0	4	0
5	October 1	0	0	0	0	0	0	0	0
6	November 14	4	0	9	0	14	0	27	0
7	September 25	46	0	32	1	41	0	119	1
8	None	0	1	1	0	0	0	1	1
9	None	7	0	8	0	18	0	33	0