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COMPARISON BETWEEN LIGHT AND PHEROMONE TRAPS ON ATTRACTIVENESS OF SPODOPTERA LITTORALIS (BOISD.) MOTHS IN SHARKYIA GOVERNORATE

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Abstract

The present study was carried out in order to evaluate the efficiency of light and pheromone traps as a method for determining insect population or as a control measure for male moths. Results revealed that pheromone traps are more effective and / or attractive than light traps at a rate ranging from 1:2 to 1:19 times.

INTRODUCTION

Light trap is limited for use as an indicator of moth population (Cook, 1928) . Studies on light traps were reported by many authors; Williams (1924) , Frost (1952), Hosny (1958) and Campion (1972). They concluded that trapping *Spodoptera littoralis* moths by sex pheromone traps were useful in reducing their population . Nasr and Wissa (1974) suggested that pheromone traps could be considered as an early warning system to help predict levels of infestation. Campion *et al.* (1976), Nasr (1979) , Hosny *et al.* (1978), and Nasr *et al.* (1980) conducted several studies on pheromone traps effect.

The present study is conducted to evaluate the efficiency of light and pheromone traps throughout three successive years (1984 - 1986) at two localities in Sharkia Governorate .

MATERIALS AND METHODS

In order to study the population fluctuation of the cotton leafworm, a Robinson light trap and pheromone trap were used for capturing moths of *Spodoptera littoralis*. Traps were used at Diyarb-Negm and Faquos districts at Sharkia governorate. Experiments were carried out for the three successive years 1984, 1985 and 1986. Daily captured moths by light traps were transferred to the laboratory for separation, sexing and recording.

The U.V. light trap

The light trap used in the present work was a modified Robinson type fitted with a 250 watt mercury vapour lamp acting as a source of light . One trap was used in each of Diayrb-Negm and Faqous districts and was operated from sunset to sunrise daily. The traps were placed on a roof of a building 3 meters above the ground level.

Pheromone trap

Sex pheromone traps were distributed in Diarb-Negm (4traps) and Faqous (2traps). The distance between the light and pheromone traps was approximately 3 km.

The traps were hung on a metal pole 100 cm above the ground level . Each trap was provided with 1 mg vial of British formulation pheromone containing (cis - 9-trans-11- tetradecadien-1-Vl- acetate) produced by Tropical Product Institute, ODA London.

Traps were examined daily in the morning and numbers of captured males were counted and recorded.

As a frequent routine, soaped water which was used as a catching solution was renewed every three days and the pheromone vial was changed with a new one every month.

RESULTS AND DISCUSSION

Diyarb-Negm district

Data presented in Tabe 1 revealed that the average number of captured male moths during 1984 by light and pheromone traps was 47.9 and 244.7 males. respectively. In 1985, the average number of captured males was about 77 and 296.3 by light and pheromone traps, respectively. Throughout 1986, the number of males caught by light and pheromone traps was 135.4 and 908.1 , respectively.

From the forementioned findings it could be seen that the pheromone traps were four to seven times more efficient than light traps in capturing male moths of *S. littoralis.*

From table 1 it is clear that the highest number of male moths existed during the period from May to December, May to November, and June to November, in the successive years 1984, 1985 and 1986, respectively.

Accordingly , the increase in population density of *S. littoralis* moths during August to December might be related to the biotic potential of this pest to survive throughout this period.

Faqous district

As indicated in Table 2, the light trap caught 32.7 males , while the pheromone trap captured 334.1 males during 1984.

In 1985 , the number of males captured by the light trap was 40.2 males, while the pheromone trap attracted 600 males . The smae trend occurred during 1986, since the numbers of males caught by light and pheromone traps were 101.4 and 872 , respectively.

From the foregoing results it is clear that the pheromone traps are far more effective in trapping the males of *S. littoralis* 4-13 times than the light traps.

These results are similar to those obtained by Nasr *et al.* (1977) , and Radwan (1979 and 1985) who showed that pheromone traps are more effective in trapping males of *S. littoralis* than light traps.

Table 1. Average number of *S. littoralis* male moths captured by U.V light traps and sex pheromone traps during 1984, 1985 and 1986 at Diyarb-Nigm district.

Month	Average number of captured males								
	1984			1985			1986		
	Light Trap	Pheromone Trap	Ratio	Light Trap	Pheromone Trap	Ratio	Light Trap	Pheromone Trap	Ratio
Jan.	2.95	8.98	1:3	5.55	17.40	1:3	0.25	1.00	1:4
Feb.	1.30	9.35	1:7	4.23	115.35	1:4	0.23	1.13	1:5
Mar.	1.45	11.15	1:8	4.10	15.28	1:4	2.33	9.90	1:4
Apr.	3.95	11.98	1:3	5.03	15.35	1:3	3.60	15.98	1:6
May.	3.88	14.75	1:4	5.33	18.65	1:4	5.15	13.60	1:4
Jun.	6.50	28.28	1:5	6.90	24.15	1:4	10.53	42.28	1:4
Jul.	4.83	25.23	1:5	6.90	23.30	1:4	18.58	153.70	1:8
Aug.	5.53	29.70	1:5	6.88	29.05	1:4	25.45	224.20	1:9
Sept.	5.55	30.75	1:6	8.43	25.48	1:4	28.83	173.18	1:6
Oct.	4.65	31.23	1:7	8.38	17.88	1:2	22.08	145.00	1:7
Nov.	1.40	26.50	1:19	12.75	83.03	1:7	14.15	97.50	1:7
Dec.	5.95	16.78	1:3	2.78	10.83	1:4	4.20	21.28	1:5
Total	47.94	244.68	1:5	76.96	296.25	1:4	135.38	908.05	1:7

Table 2. Average number of *S. littoralis* male moths captured by U.V ligh traps and sex pheromone traps during 1984, 1985 and 1986 at Faquos district.

Month	Average number of captured males								
	1984			1985			1986		
	Light Trap	Pheromone Trap	Ratio	Light Trap	Pheromone Trap	Ratio	Light Trap	Pheromone Trap	Ratio
Jan.	1.08	2.78	1:3	0.80	3.70	1:5	0.45	5.33	1:12
Feb.	1.80	3.93	1:2	0.43	3.18	1:7	0.70	5.18	1:4
Mar.	1.98	12.85	1:7	0.55	10.08	1:18	1.68	11.30	1:7
Apr.	1.90	6.83	1:4	1.73	20.75	1:12	4.35	156.75	1:36
May.	2.23	53.58	1:24	2.75	33.53	1:12	3.80	210.75	1:55
Jun.	3.05	56.83	1:19	3.30	26.13	1:12	2.73	135.50	1:50
Jul.	2.78	14.93	1:5	2.43	55.00	1:23	5.65	56.65	1:10
Aug.	4.93	15.73	1:3	4.25	85.03	1:20	14.55	84.88	1:6
Sept.	4.95	23.10	1:5	4.93	53.90	1:11	29.55	38.78	1:1
Oct.	4.48	69.53	1:15	13.05	101.38	1:8	29.08	48.95	1:2
Nov.	2.43	116.48	1:48	9.65	156.18	1:16	7.58	65.23	1:9
Dec.	1.10	7.50	1:7	2.28	51.38	1:23	1.25	35.28	1:43
Total	32.71	387.07	1:12	46.15	600.24	1:13	101.37	872.03	1:9

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مقارنة المصائد الجاذبة الجنسية والضوئية في جذب دودة ورق القطن بمحافظة الشرقية

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أوضحت الدراسات التي أجريت لتقييم كفاءة المصائد الضوئية والجاذبة الجنسية كإحدي وسائل توضيح التذبذب في التعداد أن المصائد الجاذبة الجنسية أكثر كفاءة وتأثيرا وجذبا عن المصائد الضوئية وكان مدي الإنجذاب بينها يتراوح من ٢:١ مرة الي ١٩:١ مرة.