TESTING THE EFFICIENCY OF TWO TYPES OF MASS TRAPPING FOR THE ROSE'S WOOLLY SCARABAEID ADULTS, *TROPINOTA SQUALIDA* SCOP. (SCARABAEIDAE: COLEOPTERA)

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(Manuscript received 17 November 1990)

Abstract

In Egypt and during the last ten years, the trend in the population density of the rosy wooly scarabeid *Tropinota squalida* Scop. (Family Scarabaeidae, Order Coleoptera) was multiplied and increased considerably to build up a serious and damaging level, causing reliable losses to apple trees.

Several control methods were adopted for its control . This work was undertaken to evaluate mass trapping of adults depending on th results obtained from new watery traps compared with the comonly used blue baisn trap. Field trials by both traps demonstrated the high efficiency of the watery trap which captured adults more than twice of the total number of insects caputred by the blue one. The direct control of *T. Squalida* by mass trapping of adults, using proper numbers of water traps could reduce the population level of this insect below the econom-

INTRODUCTION

Pesticides had been considered for a long time to be the sole agent for the control of insect pests. However , the development of resistance , pesticide residues and resurgence of pest population had led to integrate other safer control techniques. Emphasis should therefore be given to natural and non- chemical control whenever possible. Monitoring and mass trapping of insect populations by traps could have a key role in integrated pest management (Abverson *et al.,* 1977; Campion 1976).

The aim of the present work is to evaluate the effectiveness of different coloured traps for mass trapping of *Tropinota squalida* adults.

MATERIALS AND METHODS

The field trials of the present study were carried out in Belbeis , Sharkia governorate. An area of 30 feddans cultivated with apple trees (6 year - old) was chosen

Types of traps tested

1- Watery coloured trap

Each trap consisted of an enameled metal basin (30x40 cm) with clined edges by 45 ^{o}, fixed on a wooden barrier by which its height was easily varied.

A white plastic pyramid with a face of 25 x 25 x 20 cm and highly acuted on the top, was put inside the basin which was filled with water and soap.

2. Blue basin trap

The trap consisted of a blue plastic basin with a diagonal of 40 cm filled with water.

Treatments

1st treatment

Ten watery coloured traps were distributed among the apple orchard, every 6 trees received one trap situated on a height of 70 cm above the soil. The changes in the population size of the adults captured in the traps or occurred on the apple trees were daily counted and the efficiency of the trap was carefully estimated by using the following formula:

$$\% \text{ efficiency of the trap} = \frac{\text{Number of insects inside the trap}}{\text{No. of insects on 6 trees + No. of insects inside the trap}} \times 100$$

2nd treatment

Ten blue basin traps were uniformly distributed among apple trees, every six

trees received one trap. The efficiency of the trap was calculated by adopting the same previous method.

3rd treatment

Ten pairs of the two types of traps were used. The two traps were distributed between six apple trees with a distance of one meter apart. Numbers of adults found on the trees (C) and numbers of adults captured inside colored trap (A) or blue trap(B) were counted daily. Efficiency of each trap was estimated through the following equation

$$\% \text{ Efficiency of the watery coloured trap (A)} = \frac{\text{Total number of adults captured in A}}{\text{Total no. of insects captured in A} + \text{Total no. of insects captured in B} + \text{Total insects found in C}} \times 100$$

$$\% \text{ Efficiency of the blue coloured trap (B)} = \frac{\text{Total number of adults captured in B}}{\text{Total no. of insects captured in A} + \text{Total no. of insects captured in B} + \text{Total insects found in C}} \times 100$$

The trials were conducted twice for two weeks, the first on February 15 th , 1989 and the second on February 20 th , 1990.

RESULTS AND DISCUSSION

Data obtained during the 1st season (1989) are shown in table 1. The data are expressed as percentages of insects collected by each trap versus the total number of insects captured in the traps and on trees . The analysis of variance showed significant differences between means of the four treatments. The watery trap appeared to be the most efficient as it trapped more adults . The blue basin traps came next in this respect since they captured half the number captured by watery ones. When the two types of traps were put close together in one area, the watery trap

Table 1. Fluctuation in percentages of *Tropinota squalida* Scop. adults as indicated by two traps used singly or together during 1989 in Belbeis, Sharkia governorate.

Reps	% of insects trapped by			
	Water trap	Blue basin trap	Water + blue trap	
	(10 traps)	(10 traps)	Water trap	Blue trap
1	28.3	18.2	23.6	10.15
2	26.6	23.2	20.5	12.0
3	30.8	19.1	29.9	9.4
4	29.2	17.2	36.6	12.1
5	39.1	14.9	31.9	12.3
6	52.4	16.7	33.7	12.0
7	36.0	19.7	37.0	10.5
8	31.2	13.9	30.5	9.8
9	26.1	16.6	30.7	8.3
10	33.9	21.2	30.0	13.7
11	29.2	18.3	27.6	15.9
12	37.9	14.2	29.6	7.5
13	28.2	19.4	27.4	9.2
14	25.8	12.0	30.1	9.5
Total	454.7	244.6	419.1	156.35
mean	32.5	17.5	29.9	11.17

L.S.D (0.05)

still showed better results possessing a mean number of 29.9 compared with 11.17 for the blue trap . No significant difference was shown between the number of adults captured in the watery trap when it was used singly and the number of adults captured in the presence of the blue trap.

The watery trap was also more efficient than the blue trap when it was used singly or together with the watery trap .

Table 2. Fluctuation in the number of *Tropinota squalida* Scop. adults as indicated by two traps used singly or together during 1990 in Belbeis Sharkia governorate.

Reps	% of insects trapped by			
	Water trap	Blue basin trap Tratment	Water + blue trap	
			Water trap	Blue trap
1	32.7	11.4	25.9	13.8
2	35.3	13.7	24.2	10.4
3	36.9	13.8	30.1	8.9
4	31.6	12.8	22.8	9.0
5	32.7	17.3	22.8	10.3
6	30.9	15.0	25.6	9.8
7	24.2	17.4	24.6	10.3
8	23.9	16.9	30.1	11.6
9	30.0	15.9	29.4	10.2
10	26.7	14.8	40.1	10.0
11	27.4	16.0	24.0	10.7
12	27.6	18.3	27.9	10.2
13	32.3	16.6	28.5	11.2
14	27.7	16.2	26.8	11.0
Total mean	419.9 29.99	216.1 15.4	382.6 27.3	147.4 10.5

Data obtained during the second season of February 1990 are shown in table 2. Results obtained were similar to those of the 1989 season. Efficiency of the watery trap did not differ significantly when it was used with the other trap. However , the efficiency of the blue trap significantly differed when it was used with the watery trap.

It is clear then that the watery trap harbourded more numbers of adults when compared with the blue trap. The efficiency of the watery trap was not affected by situating it close to the blue trap. The blue trap however couldn't stand the competition with the watery trap.

In sumary , using a blue basin filled with water as an insect trap, depends on the glimmering whitish colour caused by the refraction of the sun rays on the water surface, thus attracting adults inside it. For the watery trap, the presence of a white plastic pyramid in addition to water inside, produce a high light intensity and the clearance of the white colour attract a large number of rosy wooly scarabaeid *T. Squalida* adults.

REFERENCES

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محاولات لمكافحة جعل الورد الزغبي *T. squalida* . باستخدام نوعين من المصائد

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معهد بحوث وقاية النباتات – مركز البحوث الزراعية – الدقي

أصبح جعل الورد الزغبي *Tropinota squalida* Scop. (عائلة Scarabaeidae ، رتبة Coleoptera) في مصر آفة خطيرة لمعظم النباتات. أوضحت النتائج المتحصل عليها أن المصيدة المائية أكثر كفاءة من المصيدة ذات الحوض الأزرق ، ولقد كانت الأعداد التي أجتذبتها المصيدة المائية ضعف تلك التي انجذبت للمصيدة ذات الحوض الأزرق.