

SEASONAL FLUCTUATION IN THE POPULATION OF *CRYPTOBLABES GNIDIELLA* MILLAR IN MANGO, GRAPEVINE AND CITRUS ORCHARDS

KORASHY, M.A.

Plant Protection Research Institute, Agricultural Research Centre, Dokki, Giza.

(Manuscript received October 2000)

Abstract

In Egypt, the honeydew moth, *Cryptoblabes gnidiella* Miller (Lepidoptera: Pyralidae) is a polyphagous serious pest in fruit orchards as well as in vegetable and field crops. The seasonal abundance of moths population was studied in mango, grapevine and citrus orchards at Shebin El-Kanater, Kalubia Governorate using sex pheromone traps during two successive years, 1997 and 1998. Moths started activity from the 2nd half of April, 2nd half of May and 1st or 2nd half of October in mango, grapevine and citrus orchards, respectively. Two to four, three and three peaks of moths activity were recorded in the respective orchards, but the latest peaks were the largest owing to the fruit maturity and ripening.

INTRODUCTION

The honeydew moth, *Cryptoblabes gnidiella* Miller (Lepidoptera: Pyralidae) is a serious pest in fruit orchards as well as vegetable and field crops. Citrus, mango, grapevine, apricot, peach, plum, quince, guava and papaya were recorded as hosts to the pest (El-Sayed, 1946; Abdel-Kader & Zaklama, 1967; Talhouk, 1969; Hashem *et al.*, 1997). Moreover, wheat, corn, cotton, great millet, garlic and eggplant were also recorded by Willcocks (1925), Bodenheimer (1951) and Swailem and Ismail (1972).

Rashed (1989) reared two generations of *C. gnidiella* on grapevine during May/June (28-43 days) and July/August (27-45 days).

Swailem and Ismail (1972), Tawfik and El-Husseini (1971) and Tawfik *et al.* (1974) found that *Orius* spp., *Scolothrips sexmaculatus*, *Blaplostethus piceus*, *Labidura riparia*, two braconids and a phytoseiid mite are predators and parasites of *C. gnidiella* in Egypt.

The aim of the present study is to follow up the seasonal fluctuation of *C. gnidiella* population in mango, grapevine and citrus orchards by sex pheromone trapping technique during two successive years (1997 and 1998).

MATERIALS AND METHODS

The seasonal fluctuation of *C. gnidiella* Miller (Lepidoptera:pyralidae) moth population was monitored in mango, grapevine and citrus orchards at Shebin El-Kanater, Kalubia Governorate during two successive seasons from January, 1997 to December, 1998 by pheromone trapping technique.

The study was conducted in: Mango, grapevine and citrus orchards, about five feddans each. In each orchard, five Jackson traps, each baited with the sex pheromone dispenser (Zeneca Agrochemicals- England), were suspended at a height of about 2.5, 1.5 and 2 meters in semi-shaded area on the tree branches of the three fruit species, respectively. Male catches were counted at half monthly intervals and the sticky inserts were renewed. The sex pheromone dispensers were replaced at 1.5 month intervals. The simple correlation "r" between the daily-mean temperature and relative humidity and the mean number of male catches was calculated (Duncan, 1955). The effect of three weather factors daily-mean max. min. temperature and relative humidity on the population fluctuation of moths were conducted in both 1997 and 1998.

RESULTS AND DISCUSSIONS

Figure 1 and Table 1 showed the population fluctuation of *C. gnidiella* in mango, grapevine and citrus orchards at Shebin El-Kanater, Kalubia Governorate during 1997 and 1998.

A. In mango orchards: *C. gnidiella* moths started to appear in mango orchards from the second half of April in both years of study (1997 and 1998) with relatively low population (3 and 2 moths/trap/2 weeks, respectively). Moths continued in the orchards until harvesting (during the second half of October, 1997 and the first half of November, 1998) giving 6 and 3 moths/trap/2 weeks during the first and second half of October, 1997 and 1998, respectively.

In 1997, two peaks of moths activity were recorded during the second half of June and first half of September (68, and 182 moths/trap/2 weeks, respectively), where max temp. 35.2 °C, min. temp. 19.7 °C and RH 67% at 1997, The total population was 739 moth in 1997, Similarly two distinct peaks of moth activity were noticed in the consecutive season at the first half of July and the first half of September 1998,(max temp. 33.6 °C, min. temp. 22.5 °C and RH 67%) the total population was 511 moth during the year 1998.

Table 1. Mean number of *C. grideilla* moth in mango, grapevine and citrus orchards from Jan. 1997 to Dec. 1998 at Shebin El-Kanater, Kalubia Governorate.

Date of inspection		Mean no. of moths/trap					
		1997			1998		
		Mango	Grape	Citrus	Mango	Grape	Citrus
Jan.	1-15	0	0	1	0	0	2
	16-31	0	0	2	0	0	3
Feb.	1-15	0	0	1	0	0	1
	16-28	0	0	Harvest	0	0	Harvest
Mar.	1-15	0	0	0	0	0	0
	16-31	0	0	0	0	0	0
April	1-15	0	0	0	0	0	0
	16-30	3	0	0	2	0	0
May	1-15	24	33	0	10	0	0
	16-31	19	180	0	11	23	0
June	1-15	40	94	0	25	12	0
	16-30	68	130	0	30	25	0
July	1-15	23	92	0	70	29	0
	16-31	62	97	0	14	110	0
Aug.	1-15	59	4	0	30	107	0
	16-31	130	0	0	116	15	0
Sept.	1-15	182	Harvest	0	123	2	0
	16-30	123	0	0	76	Harvest	0
Oct.	1-15	6	0	0	1	0	0
	16-31	Harvest	0	0	3	0	0
Nov.	1-15	0	0	0	Harvest	0	0
	16-30	0	0	0	0	0	0
Dec.	1-15	0	0	0	0	0	0
	16-31	0	0	0	0	0	0
Total population		739	636	25	511	323	31

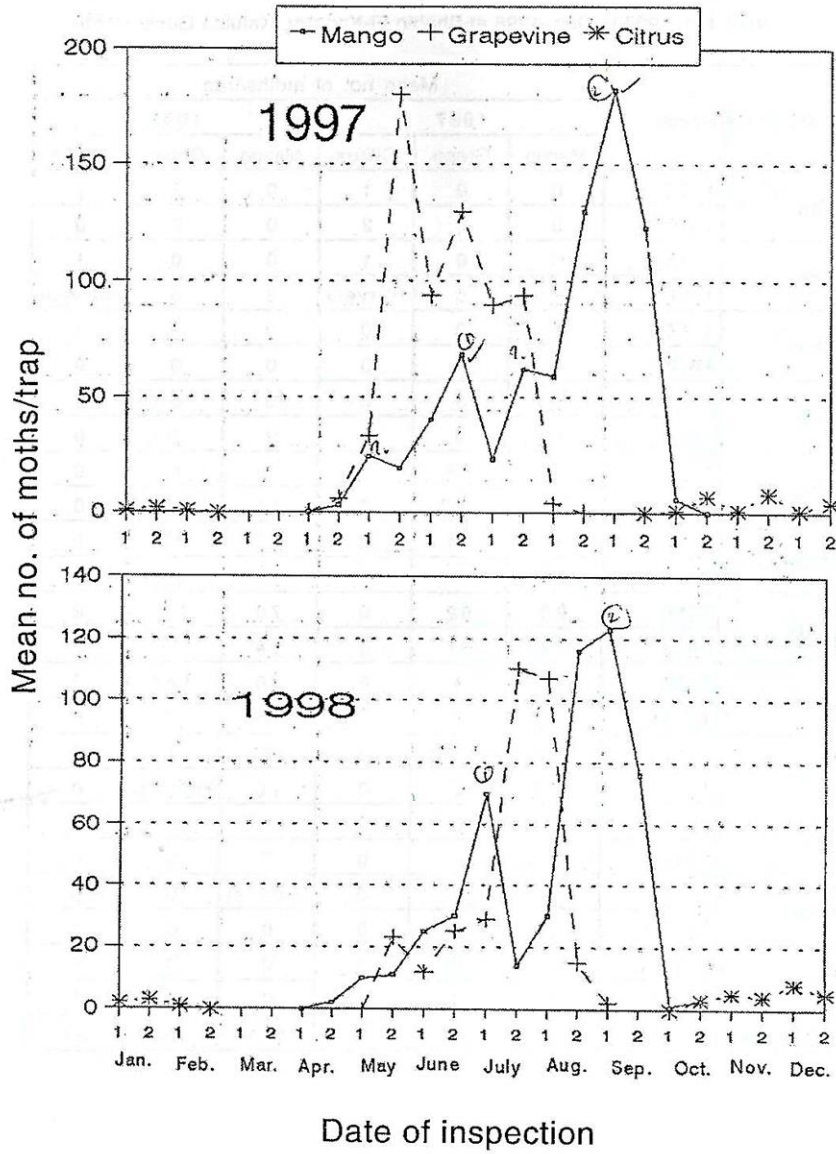


Fig. 1. Mean number of *C. gnidiella* moths in mango grapevine and citrus orchards from Jan. 1997 to Dec. 1998 at Shebin El-Kanater, Kalubia Governorate.

In both years of study, the last peak and brood was the largest. This may be due to the ripening of fruits which is the favourite host for the pest.

B. In Grapevine yards: Moths of *C. gnidiella* started to exist in grapevine yards from the second half of April, 1997 and the second half of May, 1998 (6 and 23 moths/trap/2 weeks, respectively). Moths activity continued until harvesting during the first half of August 1997 and the first half of September, 1998 (4 and 2 moths/trap/2 weeks, respectively).

Three peaks of moths appearance in grapevine yards were during the second half of May, second half of June and second half of July, 1997 (180, 130 and 94 moths/trap/2 weeks, respectively). In 1998, only two peaks were recorded during the second half of May and second half of July (23 and 110 moths/trap/2 weeks, respectively).

Statistical analysis shows that a positive correlation was noticed and the direct effect of the daily mean temp. on the mean num. of the male catches was positively and significant during the two seasons of study 1997 and 1998 ($r=+0.549$ and 0.16), respectively.

C. In citrus orchards: The population density of *C. gnidiella* in citrus orchards was much low showing few numbers of the pest all over the season of moth activity. This may be due to the cold weather which affected the population density.

The first catch of *C. gnidiella* moths in citrus orchards was during the first half of October, 1997 and the second half of October, 1998 (1 and 3 moths/trap/2 weeks, respectively). Catches continued until the first half of February of the next year (1 moth/trap/2 weeks).

Peaks of moths activity were three during the second half of October, second half of November and second half of December, 1997 (7, 8 and 4 moths/trap/2 weeks, respectively). In 1998, two peaks were during the first half of November and first half of December (5 and 8 moths/trap/2 weeks, respectively).

The statistical analysis should know significant differences were found between the mean number of male catches in both 97, 98 (the total population was 25 and 31, respectively) the effect of both min. temp. and RH give insignificant effect on the insect activity in both 1997 and 1998.

Broods of moths activity were not obvious enough. However, in 1997, three broods were noticed from early October to early November, from early November to

early December and from early December to early February of the next year. In 1998, two broods were from late October to late November and from late November to early February of the next year.

REFERENCES

1. Abdel-Kader, S. and S.F. Zaklama. 1967. New records on the citrus flower moth, *Prays citri* Mill. (Lep.: Hyponomeutidae) on lemon trees in Egypt. The 2nd Arabic Horticultural Conf. Res. Rev., 12 pp.
2. Bodenheimer, F.S. 1951. Citrus entomo. in the Middle East with special reference to Egypt, Iran, Palestine, Syria and Turkey. Hoitsema Brothers Groningen, Netherlands, pp. 55-58.
3. Duncan, D.B. 1955. Multiple range and multiple F test. *Biometrics*, 11:1-42.
4. El-Sayed, M.T. 1946. *Aceria mangifera* nov. spec., *Eriophyes mangiferae* Hassan (Acarina: Eriophyidae). *Bull. Ent. Soc. Egypté*, 30: 7-10.
5. Hashem, A.G., A.W. Tadros and M.A. Abou-Seashaa. 1997. Monitoring the honeydew moth, *Cryptoblabes gnidiella* Mill. in citrus, mango and grapevine orchards (Lep.: Pyralidae). *Annals Agric. Sci., Ain Shams Univ., Cairo*, 42 (1): 335-343.
6. Rashed, F.F.M. 1989. Studies on the biology of *Lobesia botrana* and *Cryptoblabes gnidiella* reared on synthetic and natural media. *Proc. 1st Int. Conf. Economic Ent.*, 1: 105-113.
7. Swailem, S.M. and I.I. Ismail. 1972. On the biology of the honey dew moth, *Cryptoblabes gnidiella* Mill. (Lep.: Pyralidae). *Bull. Soc. Ent. Egypté*, 54: 127-134.
8. Talhouk, A.M. 1969. Insects and Mites injurious to crops in Middle Eastern countries. Verlag Paul Parey, Hamburg and Berlin,; 23-29.
9. Tawfik, M.F.S. and M.M. El-Husseini. 1971. The life history of anthocorid predator, *Blaptostethus piceus* Fieber ver. *Pallescens poppius* (Hemiptera: Anthocoridae). *Bull. Soc. Ent. Egypté*, 55: 239-252.
10. Tawfik, M.F.S., M.T. Kira and S.M.I. Metwaly. 1974. On the abundance of major pests and their associated predators in corn plantation. *Bull. Soc. Ent. Egypté*, 58: 167-177.
11. Willcocks, F.C. 1925. The insect and related pests of Egypt: Insects and mites feeding on gramineous crops and products in the field, granary and mill. *Sult. Agric. Soc.*,; 41-47.

النشاط الموسمي لفراشة الندوة العسلية
CRYPTOBLABES GNIDIELLA
فى حدائق المانجو والموالح والعنب

محمد علاء الدين قرشى

معهد بحوث وقاية النباتات - مركز البحوث الزراعية - الدقى - الجيزة - مصر.

تعتبر فراشة الندوة العسلية *CRYPTOBLABES GNIDIELLA* (رتبة : حرشفية الأجنحة، عائلة : بيراليدى) من الآفات متعددة العوائل حيث أنها آفة خطيرة فى حدائق الفاكهة بالإضافة إلى محاصيل الخضر والمحاصيل الحقلية. تمت دراسة النشاط الموسمي لتعداد الفراشات فى حدائق المانجو والعنب والموالح فى منطقة شبين القناطر، محافظة القليوبية باستخدام المصائد الفرمونية خلال عامين متتاليين (١٩٩٧، ١٩٩٨). بدأ نشاط الفراشات من النصف الثانى من شهر أبريل، والنصف الثانى من شهر مايو، والنصف الأول/أو النصف الثانى من أكتوبر فى حدائق المانجو والعنب والموالح، على التوالي، واستمر النشاط حتى جمع المحصول. تم تسجيل ٢-٤، و ٣ و ٣ قمم لنشاط الفراشات فى الثلاث حدائق، على الترتيب، ولكن قمة النشاط الأخيرة كانت هى الأكبر بسبب اكتمال نمو ونضج الثمار خلال هذه الفترة.