

Annals Of Agric. Sc., Moshtohor,
Vol 42 (1): 335-343, (2004).

**EVALUATION OF CERTAIN STRAWBERRY VARIETIES TO PEST
INFESTATION
BY**

Hassan, S. M.

Plant Protection Research Institute Agriculture Research Center, Dokki, Giza

ABSTRACT

Fifteen excellent strawberry varieties were selected and tested for their evaluation to pest infestation.

The obtained results showed that all these varieties were infested with white fly, two spotted spider mite, aphids and thrips. The variety Rosalinda was the most infested one for pests infestation. Recording population density 5.26 pest/inch². The lowest population was found on the variety Diamount (1.73 pests/inch²). Where the infestation of the Egyptian variety Montakhab Tahrir was mild (2.63 pests /inch²).

The two spotted spider mite was the most common pest where thrips was the lowest. The population of the four pest, spider mite, whitefly, aphids, and thrips were 5.96, 3.79, 2.05 and 1.22 individuals /inch².

INTRODUCTION

Farmers in Ismailia Governorate prefer cultivating crops that characterized with high outcome. Strawberry *Fragaria xananassa* (Duch) is the preferable new crop in this area.

This crop grown not only for local consumption but also for exportation. The total area cultivated with strawberry in Egypt lasted to 6466 feddans produce with an average 18 tons/feddan of fruit. About 6000 tons are exported to Arab & European countries per year. Also there are 3 thousand feddans produced more than 38 million fresh and frigo seedlings in 2002 season. breeders and researchers are keen to conserve of horticultural generic resources as mother plants. There are many factors recommended the choice of these mother plants, one of them the pest infestation. There are numerous insects infesting strawberry (Higley *et al* 1993, Funderburk and Higley 1994, Rodriguez *et al* 1970, Sances *et al* 1981, and Sharks and Doss 1989). The objective of this work is to estimate the infestation with pests on certain strawberry varieties .

* Horticulture Central Administrative, Ministry of Agriculture.

MATERIALS AND METHODS

Experiments was carried out in Quantra Shark district, Ismailia Governorate throughout 2001 and 2002 growing seasons at the Improved

Farming Systems Project Nursery, in Quantra Shark district in Ismailia Governorate. The experimental field was about two feddans, divided into 45 plots (10 x 18^{m2}). Ten thousand strawberry seedlings were planted on the 15th May 2001 and on the 20th May 2002 (200 seedlings/plot). Three replicates for each variety. Fifteen varieties Montakhab Tahrir (The new Egyptian variety), Rosalinda, Chandler, Skip, Kamaroza, Gawa, Selva, Osogrande, Lagond, Capitola, Caprilla, Carlessia, Veginiana, Cheliuniansis and Diamount were tested. All the agricultural practices were followed. Weekly inspection was started on the 21st of August 2001,2002 for 12 weeks. Twenty leaves from each replicate were randomly picked up. The samples were property packed and transported to the laboratory project of plant protection. Each package was provided with a piece of cotton saturated with ether as anesthetic. Samples were checked well on a white plastic sheet and all fallen insects were carefully collected and counted. The same samples were inspected again by the aid of stereomicroscope. The tiny insect and mites were mounted on glass slides. The collected pests (insects + mites) were killed. Stored and identified at Plant Protection Institute, Giza. All the obtained data were computed and analyzed using complete block design to determined the significance of the differences between infestation of varieties.

RESULTS AND DISCUSSION

Data in tables (1) & (2) showed that strawberry plants infested by three insects, white fly *Bemisia tabaci* (Genn.), aphids *Aphis gossypii* (Glover) and thrips *Thrips tabaci* Lind beside the two spotted spider mite *Tetranychus urticae* Koch

Stefania and Iggiani (1999) reviewed that the western flower thrips, *Frankliniella occidentalis* (Pergande) is considered a major pest in tunnel - grown strawberries.

Jogal *et al.*, (2001) showed that the dominant group of arthropods were carabides *Cptarostichus* spp. and *Harparus* spp which were followed by spiders.

The general mean of population density pests was 3.04 pest/inch² in 2001, whereas it was 3.48 pest/inch² in 2002. The highest numbers in 2001 was recorded on 25th October and 1st of Nov. It were 5.89 and 6.11 pests/inch², respectively. Whereas in 2002 it recorded 6.53 pests/inch² on the 1st of Nov. The lowest number (1.39 and 1.52 pest/inch²) was found on 19th September in 2001 and 2002, respectively.

Data in table (3) showed that the variety Rosalinda harbored the infested variety by pests. As the population density was 5.26 pest/inch², whereas the lowest population was found on the variety Diamount, it was 1.73 pests /inch² throughout the two growing seasons 2001 and 2002, the new Egyptian variety Montakhab Tahrir was mild infestation (2.63 pests/inch²).

Evaluation Of Certain Strawberry Varieties To Pest.....337

Table (1). Mean numbers of pest/inch² occurred on 15 fifteen varieties of strawberry throughout the growing season 2001 in Qantra district, Ismailia Governorate.

Date of sampling		23/8	30/8	6/9	13/9	19/9	26/9	4/10	11/10	18/10	25/10	1/11	8/11
variety		No. of pest/inch ²											
Montakhab Tahrir 1	White Fly	0	1.3	1.3	2	1.3	0.7	2	0	0	12.66	13.33	16
	Mite	0	2	2.7	2.7	0	1.3	1.3	24	0	4	4	2.7
	Aphid	2	0	0	0	0.7	0	0	0	0	3.3	3.3	2.7
	Thrips	0	0	2.7	2	0.7	0	0.7	1.3	0	2.7	2.7	2
Rosulinda 2	White Fly	0	2.7	2	0	1.3	0.7	2	0.7	2	4.7	5.3	8
	Mite	0	0	1.3	0	0	17.33	0	15.33	55.33	10	13.33	6.6
	Aphid	0	1.3	0.7	0.7	1.3	1.3	0.7	0	0	2.7	2.7	2
	Thrips	0	0	2	0	0	0	2	0	0.7	6	3.3	5.3
Chandler 3	White Fly	0	2	0.7	2	1.3	2	2.7	0.7	0	6.6	7.3	10
	Mite	0	0	3.3	0	0	1.3	0	18	43.33	16	19.33	10.7
	Aphid	4.7	0	0	0	2.7	0.7	1.3	1.3	0.7	2.7	2.7	2
	Thrips	0	0.7	2.7	1.3	0	3.3	0.7	1.3	0	2.7	2.7	2
Skip 4	White Fly	1.3	6	2	5.3	0.7	1.3	2	0	0	10	10.7	13.33
	Mite	0	0	0.7	3.3	1.3	3.3	1.3	12.66	14	18.66	22	14
	Aphid	0	8.7	1.3	0	2.7	0	2	11.33	0	2	2	1.3
	Thrips	0	0	2	2.7	0	1.3	3.3	0	0	6.6	5.3	6
Kamroza 5	White Fly	4	4.7	2	2.7	2.7	2.7	4	0	0	6	6.6	9.33
	Mite	4.7	0	1.3	2	0	4.7	2	14.66	0	16	16	10.7
	Aphid	0	2	0.7	1.3	1.3	1.3	0.7	2.7	0	2.7	2.7	2
	Thrips	1.3	0	1.3	2.7	0	1.3	3.3	0	0	4	4	3.3
Gawa 6	White Fly	0	1.3	2	6.6	2	1.3	2.7	0	0	10.7	11.33	14
	Mite	0.7	0	0.7	1.3	0	0	4.7	6	0	57.33	57.33	40
	Aphid	0	2	0.7	0.7	2	0	3.3	0	0	4.7	3.3	3.3
	Thrips	0	0.7	2	2.7	0	3.3	1.3	0	0	0	0	0.7
Selv 7	White Fly	2	2	2	3.3	2	2	4	0	0	4	4.7	7.3
	Mite	4	1.3	0.7	3.3	0	2.7	1.3	24	0	7.3	7.3	4.7
	Aphid	0	2.7	0	2	2.7	0	0.7	0	0.7	0.7	1.3	0.7
	Thrips	0	0	2	2.7	0.7	1.3	0	1.3	0	2.7	2.7	2.7
Osograndee 8	White Fly	2	4	2	4.7	3.3	2.7	4.7	0	0.7	4	4.7	7.3
	Mite	7.3	0	1.3	2.7	0	0	10	0	0	10.7	10.7	7.3
	Aphid	0	2	0	0.7	1.3	0.7	1.3	0	0	2	2	2
	Thrips	0.7	0	0.7	0.7	0.7	0.7	2.7	0	0	0.7	0.7	0.7

Table (1): Continue:

Date of sampling variety		23/8	30/8	6/9	13/9	19/9	26/9	4/10	11/10	18/10	25/10	1/11	8/11
		No. of pest/inch ²											
Lagons 9	White Fly	2.7	2	4	8	2.7	2.7	4.7	0	0	2	2.7	5.3
	Mite	3.3	8	1.3	2.7	0.7	1.3	2	49.33	0	2.7	3.3	2
	Aphid	4	0.7	0	0	2.7	0.7	2	3.3	0.7	2.7	2.7	2
	Thrips	0	0	4	0.7	0	1.3	2.7	0	0	1.3	1.3	1.3
Caprilla 10	White Fly	6.7	2.7	3.3	6	4	1.3	2	0	0.7	7.3	8	10.7
	Mite	2	0	0	2	0	0	0.7	0	0	4.7	4.7	3.3
	Aphid	1.3	0	0.7	0.7	2	0.7	2	52	3.3	5.3	5.3	4.7
	Thrips	0	0	2	2	0	2	2	0	0	0	0	0.7
Caprilla 11	White Fly	5.3	5.3	2.7	4	5.3	2	1.3	3.3	0.7	5.3	6	8.7
	Mite	2.7	0	2	1.3	0	1.3	2.7	0	0	7.3	7.3	4.7
	Aphid	1.3	0	0.7	0.7	3.3	0.7	0.7	14	4.7	4	4	3.3
	Thrips	0	0	2	0	0	0	2	0	0	1.3	1.3	1.3
Carionide 12	White Fly	5.3	0.7	2	0	4	2.7	0.7	0	2.7	7.3	8	10.7
	Mite	2	0	0	0	0	1.3	1.3	0	2.7	10.7	10.7	6.6
	Aphid	0.7	2.7	0	0.7	4.7	0.7	4	2	6.6	4	4	3.3
	Thrips	0.7	0	1.3	0	0	2.7	0.7	0	0	0.7	0.7	0.7
Vegiana 13	White Fly	4.7	0	6	5.3	4	1.3	2	0	1.3	6.6	7.3	10
	Mite	0.7	0	2	0.7	2	2.7	0.7	0	6	0.7	0.7	0.7
	Aphid	0.7	0	0.7	0	3.3	0.7	3.3	3.3	0	1.3	1.3	1.3
	Thrips	0	0	0	2.7	0	1.3	2	0	0.7	3.3	3.3	2.7
Chelionals 14	White Fly	2	1.3	2	1.3	4	2	3.3	0	1.3	6	6	9.33
	Mite	0	12	0.7	0	0	0	12.7	4.7	5.3	6.6	6.6	4.7
	Aphid	2.7	0	0	1.3	2.7	1.3	2	2.7	11.33	1.3	1.3	1.3
	Thrips	0	0	1.3	0.7	0.7	0.7	2.7	0	0	3.3	3.3	2.7
Diamond 15	White Fly	4	6.7	2.7	2.7	4	3.3	5.3	0	0	5.3	5.3	8.66
	Mite	0	0	2.7	0	0	1.3	3.3	0	0	3.3	3.3	2.7
	Aphid	0	0.7	0	0	0.7	1.3	0.7	0	0	2	2	1.3
	Thrips	0	0	0.7	1.3	0	2	0.7	0	0	2.7	1.3	2.7
Total		87.5	90.2	89.6	106.9	83.5	98.53	138.9	269.91	165	353.9	367.05	338.05
Mean		1.45	1.5	1.49	1.78	1.39	1.64	2.31	4.49	2.76	5.89	6.11	5.63

- Calculated L.S.D 0.5:3.84 , Sd:1.90 Tabulated F 05: 2.021
- Non Significant difference were found between the strawberry varieties to pest infestation.
- Overall mean : 3.04

Evaluation Of Certain Strawberry Varieties To Pest. . . 339

Table (2). Mean numbers of pest/ inch² occurred on 15 fifteen varieties of strawberry throughout the growing season 2002 in Quantra district, Ismatia Governorate.

Date of sampling		23/8	30/8	6/9	13/9	19/9	26/9	4/10	11/10	18/10	25/10	1/11	8/11
variety		No. of pest/inch ²											
Montakhab Tahrir 1	White Fly	0	1.33	1.33	2.66	2	1.33	2.66	0	0	13.33	14	15.33
	Mite	0	2	2	2.66	0	2	2	26.66	0	5.33	4	2
	Aphid	2	0	0	0	1.33	0	0	0	0	4	4	2.66
	Thrips	0	0	3.33	2	0.66	0	0.66	1.33	0	3.33	2	1.33
Rosalinda 2	White Fly	0	3.33	2.66	0.6	2	1.33	2.66	0.66	2	5.33	6	9.33
	Mite	0.66	0	2	0.66	0	16	0	18	183.33	10.66	14	8
	Aphid	0.66	1.33	0.66	1.33	2	1.33	0.66	0	0	3.33	3.33	0
	Thrips	0	0	2.66	0.66	0	0.66	2	0.66	0.66	6	3.33	4
Chandler 3	White Fly	0	2	1.33	2.66	2	2	3.33	0.66	0	7.33	8	10.66
	Mite	0.66	0	3.33	0.66	0	2	0	20.6	53.33	16.66	21.33	10.66
	Aphid	4	0.66	0.66	0	3.33	0.66	2	2.66	2	3.33	3.33	0
	Thrips	0.66	0.66	3.33	1.33	0	3.33	1.33	1.33	0	3.33	2	0
Skip 4	White Fly	2	6.66	2.66	5.33	1.33	1.33	2.66	0	0	10.66	11.33	14
	Mite	0	0	1.33	3.33	0.66	4	2	15.33	30	20	23.33	15.33
	Aphid	0.66	6.66	0.66	0	3.33	0	2.66	12.66	0	2.66	2.66	2
	Thrips	0	0.66	2.66	2.66	0	2	3.33	0	0	6.66	4.66	4.66
Kamarnza 5	White Fly	4	4.66	2.66	3.33	3.33	3.33	4.66	0	0	6.66	7.33	10
	Mite	4	0.66	1.33	2	0	5.33	2.66	16.66	0	16.66	17.33	11.33
	Aphid	0.66	2.66	0.66	1.33	2	1.33	1.33	4	0	3.33	3.33	1.33
	Thrips	0.66	0	1.33	2.66	0	2	3.33	0	0	4.66	3.33	2.66
Gawn 6	White Fly	0.66	1.33	2.66	6.66	2.66	1.33	3.33	0	0	11.33	12	14.66
	Mite	1.33	0.66	1.33	1.33	0	0	5.33	6.66	0	58.66	45.33	32
	Aphid	0	2.66	0.66	0.66	2	0	3.33	0	0	4.66	4	0.66
	Thrips	0.66	0.66	2	2.66	0.66	3.33	2	0	0	0	0.66	1.33
Selva 7	White Fly	2.66	2	2.66	4	2	2	4.66	0	0	4.66	5.33	8
	Mite	4.66	2	1.33	3.33	0.66	3.33	2	25.33	0	8.66	8.66	8
	Aphid	0	3.33	0	1.33	2.66	0	1.33	0	2	1.33	1.33	0
	Thrips	0	0	2	2.66	0.66	2	0	0	0	3.33	4	1.33
Osograncc 8	White Fly	2.66	4	2	5.33	3.33	2.66	4.66	0	1.33	4.66	5.33	8
	Mite	6.66	0	1.33	2.66	0	0	8	0	0	12	12	2
	Aphid	0	2.66	0	1.33	1.33	0.66	2	0	0	2.66	2	0
	Thrips	0.66	0	0.66	0.66	0.66	0.66	2.66	1.33	0	0.66	1.33	1.33

Table (2): Continue:

Date of sampling		23/8	30/8	6/9	13/9	19/9	26/9	4/10	11/10	18/10	25/10	1/11	8/11
variety		No. of pest/inch ²											
Lagona 9	White Fly	3.33	2	4	7.33	2.66	2.66	4.66	0	0	2.66	3.33	6
	Mite	3.33	8	0	2.66	1.33	2	2	50.6	0	4	4.66	10
	Aphid	4	1.33	0	0	2.66	0.66	2	4.66	2	3.33	2.66	4
	Thrips	0.66	0	4	0.66	0	1.33	2.66	0	0	1.33	1.33	0
Capitiola 10	White Fly	6.66	2.66	3.33	6.66	4	2	2	0.66	1.33	8	8	10
	Mite	2	0.66	1.33	2	0	0	1.33	0	0	6	6	6
	Aphid	1.33	0	0.66	0.66	2	0.66	2.66	50	4	4.66	5.33	1.33
	Thrips	0	0	2	2	0	2	2	0	0	0	1.3	2
Caprilla 11	White Fly	5.33	6	2.66	4.66	5.33	2	1.33	2	3.33	6	6.66	9.33
	Mite	2	1.33	0.66	1.33	0	2	3.33	0	0	8.66	8.66	8
	Aphid	1.33	0	0.66	0.66	3.33	0.66	0.66	16.66	5.33	4	4.66	3.33
	Thrips	0	0	2	0.66	0	0	2	0	0	2	1.33	0.66
Carleside 12	White Fly	5.33	1.33	2	0.66	4	2.66	0.66	0.66	2	8	8	11.33
	Mite	2.66	0.66	2	0	0	2	2	0	5.33	12	12	10.66
	Aphid	0.66	2.66	0	0.66	4.66	1.33	4	3.33	8	4	4	2
	Thrips	0	0	1.33	0.66	0	2.66	1.33	0	0.66	1.33	2	0
Veginnia 13	White Fly	4.66	0.66	6	4.66	4	1.33	2	0	2	7.33	8	8.66
	Mite	0.66	0	1.33	0.66	2	2.66	3.33	0	8	2	2	4.66
	Aphid	0.66	0	0.66	0	3.33	1.33	3.33	4.66	0	1.33	1.33	2.66
	Thrips	0	0	0.66	2.66	0	1.33	2	0	0.66	3.33	4.66	0
Chelioniansis 14	White Fly	2.66	2	2	2	4	2	3.33	0	0.66	6.66	6.66	9.33
	Mite	0.66	10	0.66	0.66	0	0	11.33	5.33	6.66	8	8	2.66
	Aphid	2	0	0	1.33	2.66	1.33	2	3.33	10	1.33	1.33	1.33
	Thrips	0	0	1.33	1.33	0	0.66	3.33	0	0	3.33	4.66	1.33
Diamount 15	White Fly	4	6.66	2.66	2.66	4	3.33	5.33	0	0	4.66	6.66	8
	Mite	0.66	0	2.66	0	0	1.33	3.33	0	0	4	2	2
	Aphid	0.66	1.33	0.66	0	0.66	1.33	0.66	0	0	2	2	1.33
	Thrips	0	0	0.66	1.33	0	2	0.66	0	0	2.66	4	0.66
Total		95.81	99.85	99.12	117.02	91.21	109.18	154.48	296.42	334.61	188.46	391.81	329.85
Mean		1.59	1.66	1.65	1.95	1.52	1.82	2.57	4.94	5.57	6.47	6.53	5.49

- Calculated L.S.D 0.5:5.068 , Sd:2.51 Tabulated F 05: 2.021
- Non Significant difference were found between the strawberry varieties to pest infestation.
- Overall mean : 3.48

Table (3): Mean number of pest/ inch² occurred on fifteen varieties of strawberry throughout the growing seasons 2001 and 2002, Quantara distrect, Ismailia Governorate.

Insect	White fly			Mite			Aphid			Thrips			Mean
	Year / Variety	2001	2002	Mean	2001	2002	Mean	2001	2002	Mean	2001	2002	
Montakhab Tahrir	4.21	4.5	4.36	3.72	4.05	3.89	1	1.16	1.08	1.23	1.22	1.22	2.63
Rosalinda	2.45	2.99	2.72	9.94	21.1	15.52	1.11	1.21	1.16	1.6	1.71	1.65	5.26
Chandler	2.94	3.33	3.14	9.33	10.8	10	1.56	1.88	1.72	1.45	1.44	1.44	4.07
Skip	4.4	4.83	4.62	7.6	9.6	8.6	2.6	2.82	2.71	2.26	2.27	2.27	4.55
Kamaroza	3.72	4.16	3.94	6	6.5	6.25	1.45	1.83	1.64	1.76	1.71	1.73	3.39
Gawa	4.32	4.71	4.52	14	12.7	13.4	1.67	1.55	1.61	0.89	1.16	1.02	5.13
Selva	2.78	3.16	2.97	4.71	5.66	5.19	0.95	0.83	0.89	1.34	1.33	1.33	2.59
Osograndee	3.34	3.66	3.5	4.16	3.72	3.94	1	1.05	1.03	0.69	0.88	0.79	2.31
Lagona	3.06	3.21	3.13	6.38	7.4	6.89	1.79	2.28	2.04	1.05	0.99	1.02	3.27
Capitiola	4.4	4.6	4.5	1.45	2.11	1.78	6.5	6.1	6.3	0.72	0.94	0.83	3.35
Caprilla	4.15	4.55	4.35	2.44	2.99	2.71	3.11	3.44	3.28	0.65	0.72	0.69	2.75
Carlessia	3.67	3.88	3.78	2.94	4.1	3.52	2.78	2.94	2.86	0.62	0.83	0.72	2.72
Veginiana	4.04	4.1	4.07	1.4	2.27	1.84	1.32	1.6	1.46	1.33	1.27	1.3	2.17
Chelfuniansis	3.2	3.44	3.32	4.44	4.49	4.47	2.32	2.22	2.27	1.28	1.33	1.31	2.84
Diamount	4	3.99	4	1.4	1.33	1.36	0.72	0.88	0.8	0.95	0.99	0.97	1.78
Means	3.79			5.96			2.06			1.22			

Data in the same table showed that the two spotted spider mite was the most common pest that attack the strawberry plants. Its population was 5.96 individual/inch², whereas thrips was the lowest one. Recording population 1.22 individual/inch². The two other insects white fly and aphids came in between the above mentioned means of population lasting to 3.79 and 2.05 individual/inch², respectively.

Sharks and Chamerlain (1992) didn't find any significant difference between planting with or without crops in the number of two spotted spider mite and aphids on strawberry plants.

Results of the two studied seasons indicated that the highest number of whitefly population lasted to 4.62 individual/inch² on the plants of Skep variety. Whereas the lowest number was 2.72 on Rosalinda. The highest number of mites found on the variety Rosalinda was 15.52 individual/inch² whereas the lowest mites population number found on the variety Diamount was 1.36 individual/inch². For aphid, the highest population number was recorded on the variety Capitola (6.3 individual/inch²) whereas the lowest population (0.8 individual/inch²) was found on the Diamount variety. Concerning thrips, the highest population 2.27 individual/inch² was found on the variety Skip whereas the lowest population 0.69 individual/inch² was found on the variety Caprilla.

Discussion for the forgoing results, as above mentioned indicated that strawberry transplants infested by white fly, two spotted spider mite, aphids and thrips. The infestation with former insects fluctuated from insect to another, spider mite recorded the highest occurrence, whereas the thrips recorded the lowest. Whitefly and aphids came between in descendingly order respectively. The infestation also fluctuated from variety to another.

The overall mean numbers of pests was recorded on Rosalinda (5026 individuals / inch²) while the lowest population was found on Diamount (1.78 individuals / inch²) and mild infestation on the new Egyptian variety Monakhab Tahrir.

The obtained results provides us with an important factor. Set side by side the crop yield. This factor is the ability of the variety for infestation with insect. So, it is better to put these factors in our consideration when using this varieties as a source of transplantation. Petrova *et al.* 2000 recorded 83 species of invertebrates on strawberry.

REFERENCES

- Funderburk, J.F. and Higley, L.G. (1994): Management of arthropods pests. p.199-228. In J.L. Hatfeid and DL. Karlen (ed) sustainable agriculture systems. Lewis publ. Boca Raton, FL.
- Higley, L.G.; Bronde, S.A. and Higley, P.M. (1993): Moving towards new understanding of biotic stress and stress interactions. p.749-754. In D.R. Burton *et al* (ed) International Crop Science.1. (ssa) Madison, WI.

- Jogar, K.; Metspalu, L. and Hiiesaar, K. (2001): The occurrence of arthropods in strawberry plantation depending on the distance from field margins. Transaction of the Estonia Agricultural University. 213: 54 -59.
- Petrova, V.; Cudarez, and Steinite, I. (2000): Invertebrate Funa on strawberry in Latvia. Proceeding of the Latvian Academy of Sciences 54(3)-79-84.
- Rodriguez, S.G.; Chaplin, E.; Stoltz, L.P. and Lasheen, A.M. (1970): Studies on resistance of strawberries to mites. Effects of plant nitrogen. J. Econ. Entomol 63:1955-1958
- Sances, F.V.; Wayman, S.A.; Ting, I. P.; Van. Steenwyk, R.A. and Oatman, E.R. (1981): Spider mite interactions with photosynthesis, Transpiration, and productivity of strawberry, Environ. Entomol. 10:442-448
- Sharks, C.H. and Doss, R.P. (1989): Population Fluctuations of two spotted spider mite. Environ. Entomol. 18:641-645.
- Sharks, C.H. and Chamberlain, J.D. (1993): Strawberry Fruits yield and vegetative growth and pest population in planting with and without cover crops. Hort. Science. 28 (12) 1172-1173.
- Stefania, L. and Iggiani, G. (1999): Damage assessment caused by *Frankliniella occidentalis* (Perganda) (Thysanoptra) on strawberry in plastic tunnels in Southern Italy. Dijon (France). OILB. SROP. P. 294.

تقييم بعض أصناف من الفراولة للإصابة بالآفات

صلاح الدين محمد حسن

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

أجريت هذه التجربة في مركز القنطرة شرق - محافظة الإسماعيلية - خلال موسمي النمو ٢٠٠١، ٢٠٠٢ أختير ١٥ صنفاً من أصناف الفراولة ذات الصفات المميزة والتي تستخدم لإنتاج شتلات لقياس معدلات إصابتها بالآفات الحشرية. أوضحت النتائج المتحصل عليها أن جميع الأصناف المختبرة أصيبت بالنجاسة البيضاء، العنكبوت الأحمر، المن والتربس وجد أن أكثر الأصناف إصابة بالآفات الصنف روزلاند حيث أصيب بمعدل ٥,٢٦ آفة / بوصة مربعة في حين كان الصنف دياموند هو أقل الأصناف عرضة للإصابات ، حيث بلغ معدل الإصابة به ١,٧٨ آفة/بوصة مربعة. بالنسبة للصنف المصرى الجديد منتخب تحرير تعرض لإصابات خفيفة حيث بلغت ٢,٦٣ آفة/بوصة مربعة.

كان العنكبوت الأحمر ذو البقعتين أكثر الآفات التي تصيب الفراولة في حين كان التربس أقلها. كانت متوسطات الإصابة للأصناف المختبرة بالآفات الأربعة العنكبوت الأحمر، النجاسة البيضاء، المن والتربس هي ٥,٩٦، ٣,٣٩، ٢,٠٦، ١,٢٢ فرد/بوصة مربعة على الترتيب.