J. Agric. Sci. Mansoura Univ., 31 (8): 5465 - 5477, 2006

EFFECT OF CERTAIN INSECTS AND DISEASES INFECTION AND THEIR CONTROL ON THE YIELD, YIELD COMPONENTS AND FIBER QUALITY OF SOME EGYPTIAN COTTON VARITIES

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ABSTRACT

This investigation was carried out at Giza Experimental Station, Agricultural Research Center, during two successive growing seasons (2003-2004) to study the effect of pests and diseases infection on the yield, yield components and fiber quality of the Egyptian cotton varieties, Giza 80, Giza 83, Giza 90, Giza 85, Giza 68, Giza 89 and Giza 88 grown in pots having natural field soil. Data showed that there was no interaction between cultivar and treatment. The percentage of diseases infection was significantly affected by the treatment. Treatments (T3) 3 gm./Kg monoceren seed treatment and (T4) 3 gm./Kg gausho and monoceren seed treatment significantly reduced infection by 38.5% and 33.3%, respectively. Regarding to the cultivar, application of Gausho (T_2) had no effect on the percentage of infection. These results indicate that application of seed-dressing fungicides was indispensable to protect seedlings against fungi involved in damping-off.

Highly significant interactions were found between varieties and treatments for Aphids, while it was significant for whitefly. The Egyptian cotton varieties losses about 25.2 to 58.2% for the seed cotton yield due to pests. While it losses about 10.7% to 38.2% for seed cotton yield due to diseases. Giza 90 variety gave a highest tolerance than the other varieties against pests infection followed by Giza 83 and Giza 80, respectively. Diseases infection Giza 90 variety gave highest tolerance followed by Giza 89.

INTRODUCTION

Cotton is grown for its fiber, mainly to use in textile industry. Yield has the top priority in any cotton breeding program. The insects and diseases in cotton cause significant reduction in yield and quality of lint and seeds and increasing production costs. Therefore, the insects and diseases are one of the most costly and limiting factors to cotton productivity and profits.

The seedling diseases complex is composed of several fungi. The pathogens most commonly involved in diseases complex are *Rhizoctonia solani* (Rizk, 1980 and Mohamed, 1990) and *Fusarium* spp. (Aly *et al.*, 1996 and El-Samawaty, 1999). The widespread use of seed-dressing fungicides for controlling the disease has become indispensable due to the lack of consistent cultivars.

The most serious sucking insect pests attack cotton plants under the Egyptian conditions are the cotton aphid, *Aphis gossypii* Glover, the cotton whitefly, *Bemisia tabaci* Genn. and the cotton leafhopper, *Empoaca lybica* de

Berg (Moawad and Hussien, 1980; Taneja Dhindwal, 1983 and Simwat *et al.*, 1987) and caused reduction in yield about 10-30% (Sukhijia *et al.*, 1986; Rao *et al.*, 1989; Almeida *et al.*, 1998 and Speck *et al.*, 2000).

The aim of this investigation is to study the effect of pests and diseases on the yield and yield components and fiber quality.

MATERIALS AND METHODS

The experiment was conducted at Giza Agricultural Research Station in 2003 and 2004 growing seasons. Natural field soils were used in the experiment. Seven Egyptian cotton cultivars (Gossypium barbadense L.)were used (Giza 80, Giza 83, Giza 85, Giza 86, Giza 88, Giza 89 and Giza 90). Seeds of each cotton cultivars were treated as follows:

Untreated seeds (T_1), seeds were treated only with the insecticide Gausho at rate of 7gm/kg seed . (T_2), seeds were treated only with the fungicide Monceren at rate of 3gm/kg seed (T_3) and (T4) seeds were treated with Gausho and Monceren at the same rates. Gausho and Monceren were added to slightly moist seeds.

Seeds were shaken thoroughly in plastic bags for 5min. and allow to dry before being planted. Natural field soil was dispended in 50 cm. diameter clay pots and planted with 50 seeds/plot (5 hills, 10 seeds in each hill).

Field inspection:

Samples of 30 leaves were labeled randomly from 10 plant heights (i.e. upper, middle and lower after fourty days from sowing and continued at weekly intervals during the period of the experiment. Nymphs and adults of aphids, jassids and adults of whitefly found on both surfaces of each leaf was counted and recorded to express the population size to these insects.

Cultural practices were applied as usual field. The following plant characters were studied.

A. Yield and yield component: such as, seed cotton yield per plant in gms, lint yield per plant, lint percentage, seed index and lint index.
B. Fiber properties: such as Micronaire reading and Pressley index, fiber length (2.5% S.L.) and fiber strength (F. st.)

RESULTS AND DISCUSSION

Data in Table (1) showed that there was no interaction between cultivar and treatment. Cultivar had highly significant effect on the infection with seedling damping-off regardless the treatment. Cultivars Giza 90 and Giza 89 cultivars were the least susceptible (23.67% and 26.92%, respectively), while cultivars G. 80 and G. 83 cultivars were the most susceptible (42.25% and 38.58%, respectively) regardless the treatment.

Similarly, the percentage of infection was efectes significantly by the treatment. Treatment 3 (Monceren only) and treatment 4 (Monceren + Gausho) significantly reduced infection by 38.5% and 33.3%, respectively regardless of the cultivar, while treatment 2 (Gausho only) had no significant effect on percentage of infection. Application of Monceren (T_3) reduced

significantly the infection by 38.5%, while application of Gausho in addition to Monceren (T_4) did not improve the efficiency of the fungicide. This result are in agreement with those of other workers (Ebrahim & Ismail, 1998 and Ebrahim, 1999). Application of Gausho alone (T_2) had no effect on the infection, however, application of Monceren in addition to Gausho (T_4) reduced the infection. These results indicate that application of seed dressing fungicides is indispensable to protect seedlings against fungi involved in damping-off.

Table (1): Effect of cotton cultivar and pesticide treatments on incidence of cotton seedling damping-off under greenhouse conditions in 2003 and 2004 growing seasons.

Cultivar	Treatment				
	T_1	T_2	T_3	T_4	Mean
G. 80	53.08a (46.67)b	50.72 (42.67)	49.72 (41.0)	48.27 (38.67)	(42.25)
G. 83	49.71 (41.33)	59.20 (56.33)	38.96 (24.33)	44.39 (32.33)	(38.58)
G. 85	54.05 (46.33)	47.36 (37.0)	39.0 (23.67)	39.40 (24.33)	(32.83)
G. 86	45.85 (47.33)	48.95 (40.0)	33.57 (18.33)	39.16 (27.33)	(33.25)
G. 88	45.59 (38.67)	45.65 (34.33)	41.32 (27.67)	45.36 (34.0)	(33.67)
G. 89	40.47 (42.0)	40.59 (26.67)	25.66 (19.33)	35.89 (19.67)	(26.92)
G. 90	37.28 (27.67)	40.30 (26.0)	39.22 (24.0)	33.70 (17.0)	(23.67)
mean	(41.43)	(37.57)	(25.48)	(27.62)	

a = Percentage data (each value is the mean of two growing seasons)
b= Percentage data were transformed into arc sign angles before ANOVA to produce approximately constant variation
LSD for T = 5.08 ($P \leq 0.05$) or = 6.76 ($P \leq 0.01$)
LSD for C = 6.72 ($P \leq 0.05$) or = 8.94 ($P \leq 0.01$)
LSD for T x C non significant

Data in Table (2) showed that *Rhizoctonia solani* and *Fusarium* spp. were the most frequently isolated fungi at frequencies 24.58% and 14.72%, respectively over the two seasons. Other fungi (*Penicillium*, *Aspergillus*, *Alternaria*, *Stemphelium*, *Rhizobus*, *Chaelomium*, *Cladosporium*, *Trichoderma*, *Helminthosporium*, *Phoma* and *Nigrospora*) were also isolated from affected seedlings but their frequencies were low. *Rhizoctonia solani* and *Fusarium* play an important role in seedling disease complex (Mohamed, 1990; Aly *et al.*, 1996 and El-Samawaty, 1999). Table (2) showed that the treatment had highly significant effect on isolation frequency of *R. solani*. Monceren significantly reduced frequency of *R. solani*. Whether it was applied alone (T_3) or in combination with Gausho (T_4). Monceren alone (T_3) reduced the frequency of *R. solani* by 69.57% and the combination of Monceren and Gausho (T_4) reduced the frequency by 67.94%. Using of Gausho alone (T_2) had no effect on *R. solani* frequency. Data showed that Monceren alone or in combination with Gausho had no significant effect on isolation frequency of *Fusarium* spp.

These results could be attributed to the fact that *R. solani* is sensitive to Monceren while *Fusarium* is less sensitive (Ismail and Aly, 1996; Ebrahim and Ismail, 1998 and Ebrahim, 1999).

Table (2): Effect of seed treatment with pesticides on isolation frequency of fungi from cotton seedlings.

Treatment	Isolation frequency (%) of					
	Fusarium spp.			*Rhizoctonia solani*		
	1st season	2nd season	Mean	1st season	2nd season	Mean
T_1	20.2a	9.24	14.72	20.74	28.42	24.58
T_2	9.58	8.02	8.80	19.54	39.42	29.48
T_3	3.25	7.96	5.26	4.66	10.30	7.48
T_4	7.30	9.00	8.15	4.28	11.48	7.88
Mean of 5 replicates						
L.S.D. (0.05)			N.S.			9.60
L.S.D. (0.01)			N.S.			1.46

Cotton aphids, *Aphis gossypii* Glover:

Data in Table (3) showed that the two treatments (Monceren and Gausho) and Gausho alon recorded zero insect/plant during the two tested seasons followed by the diseases treatment which recorded light infestation 0.0 insect/plant for Giza 80, Giza 85 and Giza 89 and recorded 0.05, 0.1, 0.1 and 0.17 insect/plant for Giza 90, Giza 83, Giza 88 and Giza 86 in the first season and recorded 0.0 insect/plant for Giza 80, Giza83, Giza 85 and Giza 89 while it recorded 0.02, 0.08 and 0.08 insect/plant for Giza 86, Giza 88 and Giza 90 in the second season, respectively. On the other hand, untreated plants recorded highest numbers of 3.85, 3.77, 3.53, 3.12, 2.19, 1.67 and 1.26 insect/plant for Giza 85, Giza 83, Giza 80, Giza 86, Giza 88, Giza 89 and Giza 90 in the first season, respectively. While, it was recorded lowest infection in the second season, 1.85, 1.43, 1.35, 1.04, 0.87, 0.72 and 0.37 insect/plant for Giza 88, Giza 90, Giza 89, Giza 80, Giza 86, Giza 85 and Giza 83, respectively.

Table (3): The average number of Aphids on the different cotton varieties during the two successive seasons 2003 – 2004.

Treatment / Varieties	Average number of Aphid							
	Season 2003				Season 2004			
	T_1	T_2	T_3	T_4	T_1	T_2	T_3	T_4
Giza 80	3.53	0.0	0.0	0.0	1.04	0.0	0.0	0.0
Giza 83	3.77	0.0	0.1	0.0	0.37	0.0	0.0	0.0
Giza 85	3.85	0.0	0.0	0.0	0.72	0.0	0.0	0.0
Giza 86	3.12	0.0	0.17	0.0	0.87	0.0	0.02	0.0
Giza 88	2.19	0.0	0.1	0.0	1.85	0.0	0.08	0.0
Giza 89	1.67	0.0	0.0	0.0	1.35	0.0	0.0	0.0
Giza 90	1.26	0.0	0.05	0.0	1.43	0.0	0.08	0.0

T_1: untreated
T_2: against pests
T_3: against disease
T_4: against pests and diseases

Cotton leafhopper (jassid), *Empoasca lybica* De Berg:

Data presented in Table (4) cleared that treatment against insects and insects diseases recorded nil infection during the two tested seasons. The

third treatment against diseases recorded lowest infection during the two tested seasons, it was recorded 0.6, 0.48, 0.36, 0.28, 0.23, 0.1 and 0.1 insect/plant for Giza 80, Giza 85, Giza 88, Giza 83, Giza 89, Giza 86 and Giza 90, respectively in the first season. Whereas, in the second season it was recorded 0.45, 0.44, 0.39, 0.35, 0.27, 0.19 and 0.1 insect/plant for Giza 80, Giza 88, Giza 83, Giza 89, Giza 85, Giza 86 and Giza 90, respectively. Untreated treatments which recorded 0.71, 2.14, 2.11, 1.82, 1.33, 0.94 and 0.43 insect/plant for Giza 80, Giza 85, Giza 86, Giza 83, Giza 90, Giza 88 and Giza 89 in the first season, respectively, while, it was recorded the same trend in the second season, 2.42, 1.97, 1.77, 1.57, 1.39, 1.16 and 0.94 insect/plant for Giza 80, Giza 86, Giza 85, Giza 83, Giza 88, Giza 90 and Giza 89, respectively.

Table (4): The average number of Jasside on the different cotton varieties during the two successive seasons 2003 – 2004.

Treatment / Varieties	Average number of Aphid							
	Season 2003				Season 2004			
	T_1	T_2	T_3	T_4	T_1	T_2	T_3	T_4
Giza 80	2.71	0.0	0.6	0.0	2.24	0.0	0.45	0.0
Giza 83	1.82	0.0	0.28	0.0	1.57	0.0	0.39	0.0
Giza 85	2.14	0.0	0.48	0.0	1.77	0.0	0.27	0.0
Giza 86	2.11	0.0	0.10	0.0	1.97	0.0	0.19	0.0
Giza 88	0.94	0.0	0.36	0.0	1.39	0.0	0.44	0.0
Giza 89	0.43	0.0	0.23	0.0	0.94	0.0	0.35	0.0
Giza 90	1.33	0.0	0.1	0.0	1.16	0.0	0.1	0.0

T_1: untreated **T_3: against disease**
T_2: against pests **T_4: against pests and diseases**

Cotton whitefly, *Bemisia tabaci* Genn.:

Data in Table (5) showed the same results for the two treatments against insects (T_2) and insects & diseases (T_4) had nil infection during the two tested seasons. The third treatment against diseases recorded lowest infection of 0.2, 0.18, 0.15, 0.13, 0.07, 0.02 and 0.0 insect/plant for Giza 90, Giza 80, Giza 86, Giza 88, Giza 89, Giza 83 and Giza 85 in the first season, respectively. In the second season, it was recorded 0.57, 0.44, 0.35, 0.32, 0.23, 0.15 and 0.09 insect/plant for Giza 88, Giza 83, Giza 85, Giza 80, Giza 89, Giza 90 and Giza 86, respectively. on the other hand, untreated plants recorded too light infestation of 0.72, 0.65, 0.6, 0.56, 0.41, 0.33 and 0.25 for Giza 90, Giza 86, Giza 80, Giza 89, Giza 83, Giza 88 and Giza 85 in the first season, respectively. Whereas, in the second season, it was recorded 1.41, 1.22, 1.14, 1.04, 0.97, 0.69 and 0.67 insect/plant for Giza 83, Giza 89, Giza 90, Giza 80, Giza 86, Giza 88 and Giza 85, respectively.

Statistical analysis of the data revealed highly significant infection between varieties and treatments for Aphids, Jassids and significant infection for Whitefly in the first season, while it was highly significant infection for whitefly and nonsignificant for Aphid and Jasside in the second season.

Table (5): The average number of Whitefly on the different cotton varieties during the two successive seasons 2003 – 2004.

Treatment / Varieties	Average number of Aphid							
	Season 2003				Season 2004			
	T_1	T_2	T_3	T_4	T_1	T_2	T_3	T_4
Giza 80	0.6	0.0	0.18	0.0	1.04	0.0	0.32	0.0
Giza 83	0.41	0.0	0.02	0.0	1.41	0.0	0.44	0.0
Giza 85	0.25	0.0	0.0	0.0	0.67	0.0	0.35	0.0
Giza 86	0.65	0.0	0.15	0.0	0.97	0.0	0.09	0.0
Giza 88	0.33	0.0	0.13	0.0	0.69	0.0	0.57	0.0
Giza 89	0.56	0.0	0.07	0.0	1.22	0.0	0.23	0.0
Giza 90	0.72	0.0	0.2	0.0	1.14	0.0	0.15	0.0

T_1: untreated **T_3: against disease**
T_2: against pests **T_4: against pests and diseases**

Yield and yield components:

Boll weight (B.W.):

Table (6) showed the boll weight in 2003, 2004 seasons and its means. The means of B.W. ranged from 2.7 (gms) for Giza 85 to 2.8 for Giza 80. Highly significant differences between the varieties were showed for this trait. Giza 90 variety gave highest boll weight followed by Giza 80 and Giza 83. On the other hand, insignificant different were found for treatment and Tx Variety. This indicated that the boll weight had not affected with neither infected pests nor infected diseases in this study.

Number of bolls per plant (N.B/P):

Highly significant differences for N.B/P between all varieties were showed in Table (6). The means of N.B/P were ranged from 12.9 bolls for Giza 86 to 17.9 bolls for Giza 83 which gave highest N.B/P than the all varieties followed by Giza 90 and Giza 88. On the same time, T and TxV gave highly significant effect on N.B/P. Table (8) showed the percentage decrease for (N.B/P) of T_1, T_2 and T_3 than the healthy plants in T_4. This decrease ranged from 35.6% for Giza 90 to 58.3% for Giza 88 in T_1, while it ranged from 26% for Giza 90 to 56.4% for Giza 88 also. In T_2 whereas the N.B/P in T_3 were ranged from 0.0% for Giza 90 to 31.8 for Giza 86. From above mentioned results we can concluded that Giza 90 variety gave good results for N.B/P than the other varieties followed by Giza 85, Giza 83 and Giza 80.

Seed cotton yield per plant (S.C.Y/P):

Results in Table (6) showed seed cotton yield/plant (S.C.Y/P) in 2003 and 2004 seasons. The means of (S.C.Y/P) ranged from 30.6 gms for Giza 86 to 49.5 gm for Giza 83. Giza 83 gave the highest S.C.Y/P values than the other varieties followed by Giza 90 and Giza 88.

T and TxV gave highly significant effect in this trait. The decrease percentage of S.C.Y/P ranged from 30.7% for Giza 86 to 59.2% for Giza 89 in T_1 whereas, it ranged from 25.2% to 58.2% for Giza 86 and Giza 89 also. While the S.C.Y/P in T_3 were ranged from 10.7% for Giza 90 to 38.2% for Giza 85 Table (8). This indicated that Giza 86 variety had loss for S.C.Y/P in the case of untreated plants (T_1)and plants treated with insecticide only (T_2)

followed by Giza 80, Giza 90 and Giza 83 while Giza 90 variety gave the best results for infected diseases (T_3) followed by Giza 80 and Giza 83. These results are in harmony with those recorded by Senapati and Behera (1989) and Abd-El-wahab (1998) who stated that the controlling of sucking insect pests caused rate of increasing in seed cotton yield by 41.6 to more than 100%.

Regarding to this results, it is clear that Giza 89 cotton variety revealed more susceptibility which gave the highly rate of decrease for seed cotton yield (59.2%) in the first season and (58.2%) in the second season for the three treatments against pests. While, Giza 80, Giza 85 and Giza 86 cotton varieties were more tolerant for sucking pests which gave less seed cotton yield.

Lint yield per plant (L.Y/P):

Highly significant differentes in (L.Y./P) were showed between the varieties (Table 6). Giza 83 gave the highest L.Y./P (19.9 gm) followed by Giza 90 and Giza 80 (16.8 gm), respectively. The results gave highly significant T and TxV on this trait. From table (8) it could be seen that percentage decrease of L.Y./P ranged from 38.7% for Giza 90 to 61.4% for Giza 88. In T_1, in the same time it were ranged from 27.6% for Giza 90 to 37.3% for Giza 88 in T_3. This indicated that Giza 90 variety gave a good result for L.Y./P under T_1, T_2 and T_3 followed by Giza 80, Giza 86 and Giza 89.

Lint percentage (L%):

Results in Table (6) cleared that the means of lint percentage ranged from 36.3% for Giza 89 to 40.5% for Giza 80. Giza 80 variety gave highest significant L% than all varieties followed by Giza 83 and Giza 86. TxV gave highly significant effect on the L%. Table (8) revealed that the decrease percentage of L% ranged from 06% for Giza 89 to 5.1% and 4.7% for Giza 88 in both T_1 and T_2 while the L% ranged from 0% for Giza 90 and Giza 89 to 10% for Giza 83.

This indicated that Giza 90 variety gave a good results for this trait in T_1, T_2 and T_3 followed by Giza 89, Giza 80 and Giza 85.

Seed index (S.I):

Data in Table (7) showed the seed index in the two seasons, 2003 and 2004. Means of (S.I) ranged from 9.1 gms for Giza 83 to 9.9 for Giza 88 and Giza 89 gave a highly significant seed index than the other varieties followed by Giza 90 and Giza 80. Highly significant TxV were showed for seed index. Table (8) showed percentage decrease for this trait which ranged from 4.7% for Giza 80 and Giza 85 to 11.1% for Giza 83 and Giza 86. From these results we can concluded that Giza 85 and Giza 80 varieties gave less lose than the other varieties followed by Giza 90 and Giza 88 in T_1, in T_2 Giza 83 gave good results followed by Giza 80 and Giza 85. While Giza 80 gave a less percentage of decrease for S.I than all varieties followed by Giza 88 and Giza 90.

Lint index:

Insignificant different between varieties for lint index was showed in Table (7). The means of this trait ranged from 5.8 gm for Giza 85 to 6.0 gm for Giza 90.

Table (6): Yield and yield components in seasons 2003 and 2004 and its means for eight varieties.

Varieties		S.C.Y gms				L.Y gms				B.W gms				N.B				L%			
		T_1	T_2	T_3	T_4	T_1	T_2	T_3	T_4	T_1	T_2	T_3	T_4	T_1	T_2	T_3	T_4	T_1	T_2	T_3	T_4
G. 80	03	24.8	26.1	34.0	39.7	9.6	10.3	13.2	15.7	2.7	2.7	2.8	2.8	9.0	9.6	12.7	14.4	39.5	38.9	38.8	39.4
	04	26.6	27.6	35.6	41.5	11.0	11.1	15.3	17.8	2.7	2.8	2.7	2.7	9.7	10.0	13.5	15.3	40.5	41.3	41.1	41.6
	M	25.7	26.9	34.9	40.6	10.3	10.7	14.3	16.8	2.7	2.8	2.8	2.8	9.4	9.8	13.1	14.9	40.0	40.0	40.0	40.5
G. 83	03	26.1	35.5	37.9	48.7	10.5	14.0	14.6	19.2	2.7	2.8	2.8	2.8	9.8	12.8	13.4	17.2	39.3	38.4	39.4	39.4
	04	28.3	37.1	38.2	50.2	11.4	14.9	15.7	20.5	2.7	2.7	2.7	2.7	10.4	13.6	14.0	16.6	40.6	41.0	39.9	40.8
	M	27.6	36.3	38.1	49.5	11.0	14.5	15.2	19.9	2.7	2.8	2.8	2.8	10.1	13.2	13.7	17.9	39.3	39.7	39.7	40.1
G. 85	03	23.9	24.6	25.2	41.0	9.1	9.4	9.1	15.5	2.6	2.7	2.7	2.6	9.1	9.3	9.9	15.1	37.4	36.8	37.7	38.6
	04	25.3	26.0	27.0	43.4	9.8	10.1	12.7	16.7	2.6	2.5	2.6	2.7	9.3	10.1	10.4	14.7	37.4	38.1	38.4	38.7
	M	24.6	25.3	26.1	42.2	9.5	10.3	10.9	16.1	2.6	2.6	2.7	2.7	9.2	9.7	10.2	14.9	37.4	37.5	38.4	38.4
G. 86	03	20.2	22.1	22.2	33.5	7.8	8.4	8.2	12.5	2.6	2.6	2.6	2.7	8.2	8.4	8.6	12.3	37.1	38.1	38.1	37.7
	04	21.9	23.7	24.0	27.7	8.6	9.0	9.4	14.2	2.6	2.5	2.7	2.7	8.0	8.8	9.0	13.5	37.8	38.2	39.4	40.0
	M	21.2	22.9	23.1	30.6	8.2	8.7	8.8	13.4	2.6	2.6	2.7	2.7	8.1	8.6	8.8	12.5	37.5	38.2	38.8	38.9
G. 88	03	16.9	18.2	27.6	41.8	6.4	6.8	10.3	15.9	2.5	2.6	2.6	2.7	6.5	7.0	11.2	15.7	37.9	37.3	37.3	38.2
	04	18.2	27.7	29.3	44.4	6.4	6.8	10.5	17.2	2.5	2.7	2.7	2.6	6.5	6.6	11.9	15.6	35.7	36.0	38.2	38.7
	M	17.6	18.0	28.5	43.1	6.4	6.8	10.4	16.6	2.5	2.7	2.7	2.7	6.5	6.8	11.5	15.6	36.5	36.7	37.8	38.5
G. 89	03	13.6	21.5	30.3	34.7	5.0	7.7	10.9	12.6	2.5	2.6	2.6	2.7	5.5	8.2	11.4	13.6	36.3	36.1	36.3	37.3
	04	14.3	23.2	24.8	36.4	5.1	6.9	10.3	13.0	2.6	2.6	2.7	2.7	5.1	8.5	12.9	13.9	35.8	36.0	36.3	35.3
	M	14.0	22.4	27.6	35.6	5.1	7.3	10.6	12.8	2.6	2.6	2.7	2.7	5.3	8.4	12.2	13.8	36.1	36.1	36.3	36.3
G. 90	03	25.2	30.1	41.0	43.0	9.6	11.5	15.8	16.3	2.8	2.8	2.7	2.8	9.0	10.9	15.4	15.4	38.5	38.4	37.8	38.2
	04	27.1	30.3	37.4	44.7	10.9	11.9	16.7	17.3	2.7	2.7	2.8	2.8	9.8	10.6	13.8	16.5	38.5	38.8	39.8	39.4
	M	26.2	30.2	39.2	43.9	10.3	10.7	16.1	16.8	2.8	2.8	2.8	2.8	9.4	10.8	14.6	14.6	38.5	38.6	38.8	38.8
L.S.D		V= 3.54 – 2.66				1.37 – 1.03								V= 1.4 – 1.06				0.61 – 0.45			
		T= 1.87 – 1.41				1.81 – 1.36								T= 1.87 – 1.41				0.80 – 0.61			
		V x T = 3.75 – 2.82				3.62 – 2.72								V x T = 3.75 – 2.82							

Table (7): Lint index, seed index and fiber quality in seasons 2003, 2004 and its means.

Varieties		L.I				S.I				Mic				P.I			
		T_1	T_2	T_3	T_4	T_1	T_2	T_3	T_4	T_1	T_2	T_3	T_4	T_1	T_2	T_3	T_4
G. 80	03	5.6	5.9	6.2	6.1	8.8	8.5	9.3	9.4	3.9	4.1	4.1	4.1	9.1	9.2	9.8	9.8
	04	6.9	6.8	6.7	7.0	9.1	8.8	9.1	9.2	4.3	4.1	4.5	4.5	9.1	9.2	10.6	11.2
	M	6.3	6.4	6.5	6.6	9.1	9.2	9.2	9.3	4.1	4.1	4.3	4.3	9.1	9.2	10.2	10.5
G. 83	03	6.1	5.4	5.8	6.0	9.4	8.7	8.9	9.2	4.0	4.0	4.1	3.8	9.3	9.3	9.5	9.6
	04	5.0	5.9	5.7	6.1	7.3	8.4	8.5	8.9	4.0	4.6	4.6	4.1	9.0	9.0	9.8	10.3
	M	5.6	5.7	5.8	6.0	8.4	8.6	8.7	9.1	4.0	4.3	4.3	4.5	9.2	9.2	9.7	10.0
G. 85	03	5.8	5.4	5.7	6.0	9.5	9.3	9.7	9.8	4.0	3.9	4.0	4.0	9.7	9.6	9.9	10.2
	04	5.6	5.9	5.8	5.6	8.8	9.6	9.7	9.9	4.2	4.2	4.4	4.6	9.2	9.6	10.9	10.6
	M	5.7	5.7	5.8	5.8	9.2	9.4	9.7	9.9	4.1	4.1	4.2	4.3	9.5	9.6	10.4	10.4
G. 86	03	5.3	5.7	5.9	6.0	9.6	9.1	9.4	9.9	3.9	3.9	3.9	4.1	10.0	9.8	10.8	10.6
	04	5.6	5.5	5.5	5.7	8.5	8.9	8.8	8.5	4.1	4.5	4.5	4.8	9.1	9.5	10.4	11.0
	M	5.5	5.6	5.7	5.9	9.1	9.0	9.1	9.2	4.0	4.2	4.2	4.5	9.6	9.7	10.1	10.8
G. 88	03	5.6	5.7	5.4	6.0	9.1	9.1	9.6	9.8	4.0	4.0	4.1	3.9	9.8	10.0	10.8	10.9
	04	5.1	5.2	6.1	6.2	9.1	9.1	9.3	9.9	3.9	4.1	4.4	4.6	9.4	9.8	10.2	10.5
	M	5.4	5.5	5.8	6.1	9.1	9.1	9.5	9.9	4.0	4.1	4.3	4.3	9.8	9.9	10.5	10.7
G. 89	03	5.6	6.1	5.7	5.6	9.8	10.2	9.9	10.0	4.1	3.9	3.8	3.8	9.7	9.6	10.2	10.1
	04	5.2	4.9	5.4	6.1	9.1	8.9	9.2	9.7	3.8	4.0	4.3	4.7	9.3	9.9	9.8	9.9
	M	5.4	5.5	5.7	5.9	9.5	9.6	9.6	9.9	4.0	4.0	4.1	4.3	9.5	9.8	10.0	10.0
G. 90	03	5.8	5.5	5.8	6.0	9.4	9.0	9.3	9.6	3.8	3.8	3.9	3.9	9.2	9.1	9.4	9.5
	04	5.8	6.1	5.8	6.0	8.4	9.3	9.3	9.5	4.1	4.1	4.5	4.0	9.0	9.1	9.3	10.1
	M	5.8	5.8	5.8	6.0	8.9	9.2	9.3	9.6	4.0	4.0	4.3	4.3	9.1	9.1	9.4	9.8
L.S.D		V= n.s.				0.30 – 0.23				0.10 – 0.07				0.25 – 0.19			
		T= 1.1.39 – 1.5.24				0.40 – 0.30				0.14 – 0.10				0.33 – 0.25			

Table (8): Means of rate decreasing percentage (%) for yield, yield components and fiber quality during two successive seasons 2003 and 2004.

Varieties	S.C.Y			L.Y			L%			L.I			S.I			Mic			P.I		
	T_1	T_2	T_3	T_1	T_2	T_3	T_1	T_2	T_3	T_1	T_2	T_3	T_1	T_2	T_3	T_1	T_2	T_3	T_1	T_2	T_3
G. 80	36.7	33.7	14.0	38.7	36.3	14.9	1.2	1.2	1.2	4.5	3.0	1.5	4.7	4.7	-	4.7	4.7	-	13.3	12.4	2.9
G. 83	44.2	26.7	23.0	44.7	27.6	23.6	2.0	10.0	10.0	6.7	5.0	3.3	11.1	4.4	4.4	11.1	4.4	4.4	8.0	8.0	3.0
G. 85	41.7	40.0	38.2	41.0	36.0	32.3	2.6	2.3	-	1.7	1.7	-	4.7	4.7	2.3	4.7	4.7	2.3	8.7	7.7	-
G. 86	30.7	25.2	24.5	38.8	35.1	34.3	3.5	1.7	0.02	6.7	5.1	3.4	11.1	6.7	6.7	11.1	6.7	6.7	11.1	10.2	7.4
G. 88	59.2	58.2	33.9	61.4	59.0	37.3	5.1	4.7	1.8	11.5	9.8	4.9	7.0	4.7	-	7.0	4.7	-	8.4	7.5	1.9
G. 89	60.6	37.1	22.5	60.2	43.0	17.2	0.06	0.06	-	8.5	6.8	3.4	7.0	7.0	4.7	7.0	7.0	4.7	5.0	2.0	-
G. 90	40.3	31.2	10.7	38.7	30.4	4.2	0.08	0.06	-	3.3	3.3	3.3	7.0	7.0	2.3	7.0	7.0	-	7.1	7.1	4.1

Insignificant V and TxV were showed for lint index. On the other hand, the treatments gave highly significant effect for this trait. This indicated that Giza 80 lost about 4.5% in T_1, while Giza 86 lost 6.7%, 5.1% in T_1 and T_2 whereas Giza 88 lost 11.5, 9.8, 4.9% in T_1, T_2 and T_3 (Table 8).

Fiber quality:

Micronaire:

Table (7) showed highly significant effect for TxV. The percentage decrease of Micronaire reading showed in Table (8) this decrease ranged from 4.7% for Giza 80 to 7% for Giza 89 and Giza 90 in T_2. While, it was for .09% for Giza 80, Giza 88 and Giza 80 to 6.7% for Giza 86 in T_3. Giza 80 gave less decrease for (Mic) in T_1, T_2, T_3 followed by Giza 83, Giza 85 and Giza 90 but we can conclude that the Micronaire reading are in the category of the Egyptian cotton varieties. Ally *et al.*, (2000) found that the Micronaire reading was significantly affected by diseases incidence.

Pressley Index (P.I):

Data in table (7) showed the Pressley Index in the two seasons 2003, 2004 and it's means. The means of (P.I) ranged from 9.8 for Giza 90 to 10.8 for Giza 86 which gave the highest significant (P.I) than the all varieties followed by Giza 88 and Giza 80. This results gave highly significant different TxV for Pressley trait.

Table (8) showed that the percentage decrease were ranged from 5% for Giza 85 to 11.1% for Giza 88 in T_1 and it ranged from 2% for Giza 89 to 12.4% for Giza 80 while it ranged in T_3 from 0.0% for Giza 89 and Giza 85 to 7.4% for Giza 86. It was concluded that Giza 89 variety gave the least decrease in T_1, T_2 and T_3 for Pressley index followed by Giza 90, Giza 83 and Giza 85. Rao *et al.* (1989) reported that properties of cotton fiber such as strength and fitness were adversely affected by infestations of whitefly and sooty mold.

Generally:

From the above results we can concluded that the Egyptian cotton varieties losses ranged from 25.2 to 58.2% for seed cotton yield due to pests while its losses ranged from 10.7% to 38.2% for the seed cotton yield due to diseases. In the same time we can concluded that Giza 90 variety gave a highest tolerance than the other varieties for infected pests followed by Giza 83 and Giza 80 varieties, respectively. For the infected disease we can conclude that Giza 90 variety gave a highest tolerance than the other varieties followed by Giza 89.

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تأثير الإصابة بالأمراض والحشرات و مكافحتها على محصـــول بعـــض أصـــناف القطن المصري ومكوناته وبعض صفاته التكنولوجية

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أجريت هذه الدراسة فى مزرعة مركز البحوث الزراعية بالجيزة موسم ٢٠٠٣ و ٢٠٠٤ وذلك لدراسة تأثير الإصابة بالأمراض والحشرات على محصول القطن ومكوناته والصفات التكنولوجية فى أصناف القطن جيزة ٨٠، ٨٣، ٨٥، ٨٦، ٨٨، ٨٩، ٩٠ ثم زراعة هذه الأصناف فى قطاعات عشوائية فى صوبة الأمراض وكانت المعاملة الأولى بذرة غير معاملة والمعاملة الثانية بذرة معاملة بالمبيد الحشرى جاوشو والمعاملة الثالثة بذرة معاملة بالمبيد الفطرى مونسرين والمعاملة الرابعة بذرة معاملة بالمبيدين الجاوشو والمونسرين وكانت أهم النتائج المتحصل عليها مايلى:

- تم تسجيل النسبة المئوية للبادرات المصابة بأمراض البادرات وأضهرت النتائج عدم وجود تفاعل بين المعاملة والصنف وأن النسبة المئوية للإصابة تأثرت بصورة عالية المعنوية بالمعاملة.
- المعاملة الثالثة والرابعة خفضت نسبة الإصابة بمرض موت البادرات بنسبة ٣٨,٥% و ٣٣,٣% على التوالى بغض النظر عن الصنف. إضافة الجاوشو فى المعاملة الثانية لم يكن له تأثير معنوى على النسبة المئوية للإصابة بأمراض البادرات. تدل هذه النتائج على أن معاملة البذرة بالمبيدات الفطرية لاغنى عنها لحماية البادرات من الفطريات المسببة لمرض موت البادرات.
- اظهرت النتائج أن هناك تفاعل عالى المعنوية بين الأصناف المعاملة بالنسبة للإصابة بالمن.
- أظهرت النتائج أن هناك تفاعل معنوى بين الإصابة بالذبابة البيضاء والمعاملات.
- أظهرت النتائج حدوث انخفاض ف محصول القطن الزهر بالنسبة للأصناف المصرية نتيجة الإصابة بالحشرات يقدر بحوالى ٢٥,٢ – ٥٨,٢%.
- أظهرت النتائج أن هناك إنخفاض فى محصول القطن الزهر لهذه الأصناف نتيجة الإصابة بالأمراض يقدر بنسبة ١٠,٧ – ٣٨,٢%.
- أظهرت النتائج أن أكثر الأصناف تحملا للإصابة بالحشرات هو الصنف جيزة ٩٠ يليه الصنف جيزة ٨٣ ثم جيزة ٨٠.
- أظهرت النتائج أن أكثر الأصناف تحملا للإصابة بالأمراض هو الصنف جيزة ٨٠ يليه الصنف جيزة ٨٩.