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Impact of neighboring on some arthropods associated with castor bean, *Recinus communis L.* in Assiut area

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ABSTRACT

To study the effect of different neighbors to castor bean, *Ricinus communis* L., on some arthropods inhabiting castor bean trees. Two locations in Assiut Governorate involved two sites (agronomy farm and animal production farm) for each location was chosen during the whole year of 2012. The pests [i.e. whitefly, *Bemisia tabaci* (Gennadius) (Homoptera); jassid, *Empoasca* spp. (Homoptera) and the two-spotted spider mite, *Tetranychus urticae* Koch (Prostigmata)] as well as the predators [i.e. *Scolothrips longicornis* Priesner (Thysanoptera); *Orius* spp. (Heteroptera) and *Amblysieus* spp. (Mesostgmata)] were surveyed on castor bean trees at two locations. The population density, at animal production farm, was more abundant than that of agronomy farm for all species at both of cultivated land and newly reclaimed area except at agronomy farm in the newly reclaimed area *B. tabaci* and *Orius* spp. recorded higher abundant than that of animal production farm. The difference of neighboring and location affects the fluctuation and peak of the studied species. The results showed that *B. tabaci* represented key pest at agronomy farm and animal production farm at both cultivated land and newly reclaimed area. Whereas, *T. urticae* and *Empoasca* spp. showed as potential pest at both agronomy farm and animal production farm in both of locations. Regarding the predators, *S. longicornis* in the cultivated land and *Amblysieus* spp. in the newly reclaimed showed higher dominant and abundant at both agronomy farm and animal production farm.

Key words: Castor bean, Tetranychus urticae, Bemisia tabaci, Empoasca spp., Amblysieus spp., Scolothrips longicornis, Orius spp., predators, populations.

INTRODUCTION

Castor bean, *Ricinus communis* L. is known as a year-round plant. It is one of the industrially important oilseed crops cultivated in various parts of the world (**Dhawan *et al.*, 2008**). In Egypt, the castor plants are occurred on the banks of the water streams and as hedge or border around the farms and buildings (**El-Garhy, 1974**).

Castor bean has been recognized as a source of several arthropods. Many investigators surveyed several species of insects and mites inhabiting castor bean (**Moreas *et al*, 1986; Lamp *et al*, 1994; El-Adawy *et al*, 2001a; Gnanvossou *et al*, 2005; Ismail *et al*, 2007; Dhawan *et al*, 2008 and Rodriguez-Cruz *et al*, 2013**).

The objective of the present investigation was to identify arthropod species on castor bean hedges margins adjacent to farms, that can provide ecological refuges and sources of these arthropods and to study the effect of different neighbors on the considered species. Also, to indicate the population fluctuation all over the year, as well as studying the dominance and abundance of these species.

MATERIALS AND METHODS

The present investigation was conducted at two locations in Assiut Governorate during the whole year of 2012. The first one represented a traditional cultivated land (Fac. Agric. Exptl. Farm, Assiut Univ.) and the second one represented a newly reclaimed area (Arab-Alawamer Agric. Res. Station). In each location, two sites (agronomy farm and animal production farm) were chosen to study the seasonal population activity of some insects and mites occurred on castor bean. At cultivated land, in the agronomy farm, castor bean hedges margin to different species of vegetables (i.e. cabbage,

cauliflower, aubergine, squash, cucumber and tomato). While, in the animal production farm, castor bean plants were neighboring to the animal sheds and the store of forage. At newly reclaimed area, in the agronomy farm, castor bean hedges margin to different species of some winter and summer crops (i.e. wheat, alfalfa, peanut, sorghum, sesame and safflower). Whereas, in the animal production farm, castor bean hedges was neighboring to the animal sheds and the management buildings during the whole year of 2012.

Fortnightly samples of four leaves per plant, with three replicates, were randomly collected from each site in both of two locations. Samples were separately kept in polyethylene bags and transferred to the laboratory. Both leaf surfaces were examined under a stereoscopic microscope (Zies, Germany) to count the individuals of certain insect and mite species.

Dominance degrees (D) for the insect and mite species were calculated using the formula of Facylate (1971):

$$D = \frac{t}{T} \times 100$$ where:

t = total number of each species during the collecting period.

T = total number of all species collected during the collecting period.

The abundance degrees or percentage of abundance (A) of the insect and mite species collected during the whole sampling period was calculated using the formula of Facylate (1971):

$$A = \frac{n}{N} \times 100$$ where:

n = total number of samples in which each species appeared.

N = total number of samples taken all over the season.

Statistical analysis adopted for this study was the analysis of variance (ANOVA) procedure. The software used was SAS package and StateView SE±graphic software package (Abacus Comcept, Inc. Calabasas, CA).

RESULTS AND DESCSSION

Impact of locations on the population density of certain arthropods inhabiting castor bean

The considered arthropods in this study were: the pests, *B. tabaci*, *Empoasca* spp. and *T. urticae* as well as the predators, *Amblysieus* spp., *S. logicornis* and *Orius* spp. (Table 1). Regardless of location, the highest population density (940.6 individuals / 4 leaves) was accomplished to *B. tabaci* followed by significant difference for *Amblysieus* spp., *T. urticae*, *Empoasca* spp., *S. logicornis* with grand mean of (6.72, 5.52, 5.03 and 4.35 individuals / 4 leaves, respectively). While, the lowest population density (1.78 individuals / 4 leaves) was obtained with *Orius* spp.

Concerning of locations regardless of arthropod species, the highest population density (576.7 individuals / 4 leaves) was achieved at cultivated land in the animal production farm followed by the agronomy farm (55.21 individuals / 4 leaves) in the newly reclaimed area. While, the lowest population density (3.96 individuals / 4 leaves) was recorded at cultivated land in the agronomy farm.

Population fluctuations of insects and mites inhabiting leave of castor bean

Traditional cultivated land

Data in Table (2) show the differential response of castor bean plant to the incidence of some insects and mites at two sites in the cultivated land throughout the course of study. The results clearly revealed that the population density, at animal production farm, was more abundant with grand means of (1.41±0.52, 8.62±2.44, 3422.48±592.19, 8.36±1.2, 14.04±6.08 and 5.07±1.36 individuals / 4 leaves) than that of agronomy farm (0.49±0.16, 1.64±0.26, 14.3±4.88, 2.73±0.38, 4.02±1.64 and 0.60±0.14 individuals / 4 leaves) for *Amblysieus* spp., *Empoasca* spp., *B. tabaci*, *S. logicornis*, *T. urticae* and *Orius* spp., respectively.

At animal production farm, *T. urticae*, *Orius* spp. and *S. longicornis* started with low levels of abundance (3.67±1.69, 1.17±1.17 and 0.17±0.17 individuals / 4 leaves,

respectively) during February, March and January, then gradually increased to reach the maximum number (128.11±17.91, 22.67±3.09 and 20.55±3.26 individuals / 4 leaves, respectively) during April, May and September, respectively. The population declined during the two next successive months, and completely disappeared from July to December for *T. urticae*. While, in the agronomy farm, *T. urticae*, *Orius* spp. and *S. longicornis* began with low numbers (1.0±0.29, 0.67±0.19 and 0.5±0.0 individuals / 4 leaves, respectively) during March, April and January, respectively. Then, the population directed to record the peak (29.5±9.31, 2.0±0.87 and 6.5±0.76 individuals / 4 leaves, respectively) during May, June and October later by one month than the population in the animal production farm.

Also, the number of *B. tabaci* at animal production farm was fluctuated throughout the year to record the highest number in November with monthly average of (9459.17±159.94 individuals / 4 leaves), while the lowest number (0.78±0.22 individuals / 4 leaves) was recorded in April. At agronomy farm, *B. tabaci* reached the highest monthly average (96.67±15.59 individuals / 4 leaves) in October early by one month than at animal production farm, and recorded the lowest one in April (0.67±0.51 individuals / 4 leaves).

The incidence of *Empoasca* spp. showed the maximum monthly average of (51.33±4.18 individuals / 4 leaves) in May and fluctuated through the next months to record the minimum monthly average (0.33±0.33 individuals / 4 leaves) in August at animal production farm. The minimum and maximum monthly average (0.67±0.17 and 4.67±0.17 individuals / 4 leaves) were recorded at agronomy farm in January and December.

The predacious mite, *Amblysieus* spp. observed in relatively low numbers at the two sites. The lowest monthly average (0.11±0.11 and 0.44±0.11 individuals / 4 leaves) showed in April at animal production farm and agronomy farm, while the highest monthly average (10.67±1.2 and 2.5±0.58 individuals / 4 leaves) was obtained in September at animal production farm as well as in November and December at agronomy farm.

Newly reclaimed area

The results in Table (3) indicated that the population density, at animal production farm, was more abundant with grand means of (19.14±3.01, 6.89±1.07, 4.89±0.69 and 2.39±0.37 individuals / 4 leaves) than that of agronomy farm (5.82±0.66, 2.98±0.3, 1.43±0.24 and 1.63±0.62) for *Amblysieus* spp., *Empoasca* spp., *S. longicornis* and *T. urticae*, respectively. Whereas, the contrary occurred for *B. tabaci* and *Orius* spp. which showed at agronomy farm higher grand means of (318.49±103.97 and 0.92±0.18 individuals / 4 leaves) than that of animal production farm (7.18±1.19 and 0.54±0.13 individuals / 4 leaves).

At animal production farm, *Amblysieus* spp. and *Empoasca* spp. were recorded a moderate monthly average during January (16.78±0.62 and 4.67±0.38 individuals / 4 leaves). Then the population increased gradually to reach the highest monthly average (66.67±8.35 and 16.0±6.54 individuals / 4 leaves) during April. However, the population gradually decreased to record the lowest monthly average (1.22±0.22 and 2.17±0.73 individuals / 4 leaves) in July and September. While at agronomy farm, *Amblysieus* spp. and *Empoasca* spp. indicated the minimum monthly average (1.0±0.29 and 1.33±0.44 individuals / 4 leaves) in February and the maximum one (9.89±0.4 and 7.5±1.26 individuals / 4 leaves) in December and October.

Concerning *B. tabaci*, at animal production farm, the lowest and highest monthly average (0.17±0.17 and 17.33±1.09 individuals / 4 leaves) occurred earlier in March and October than at agronomy farm in April and November (0.5±0.5 and 1900.5±365.76 individuals / 4 leaves).

Regarding *S. longicornis* the population started in low numbers (4.0±107 and 0.33±0.0 individuals / leaves) during January and fluctuated to attain the maximum monthly average (12.83±4.89 and 3.33±2.03 individuals / leaves) during March and May, then the population gradually declined during the next successive months at both animal production farm and agronomy farm.

The number of *T. urticae* at animal production farm was fluctuated throughout the

year to record the highest number in December with monthly average of 7.22±0.78 individuals / 4 leaves while the lowest number (0.33±0.33 individuals / leaves) was recoded in January and February. At agronomy farm, *T. urticae* completely disappeared from January o April as well as November and December. However, *T. urticae* started in May with the lowest monthly average (0.5±0.29 individuals / leaves), and showed the highest monthly average (13.33±1.07 individuals / leaves) in July.

Also, *Orius* spp. was observed in relatively low numbers at two sites and completely disappeared from January to July at animal production farm and from January to April at agronomy farm. Whereas, *Orius* spp. showed the lowest number (1.0±0.5 and 0.67±0.44 individuals / leaves) in November, and the highest number (1.67±0.44 and 2.78±0.99 individuals / leaves) in September and July at animal production farm and agronomy farm.

Dominance and abundance degrees of certain insect and mite species

Dominance and abundance degrees of some insect and mite species inhabiting castor bean at two locations (cultivated land and newly reclaimed area) are summarized in Tables (4 and 5). The dominance degree of each species compared with the total catch of all species at cultivated land in both of agronomy farm and animal production farm were counted. The highest dominant pest species were *B. tabaci* followed by *T. urticae*, then *Empoasca* spp. As for the predators, *S. longicornis* was the highest dominant followed by *Orius* spp. and *Amblysieus* spp. in agronomy farm and animal production farm. Regarding the abundant degrees, data showed that the most abundant pest species were *B. tabaci* followed by *Empoasca* spp. and lastly *T. urticae*. While, the most abundant predator species were *S. longicornis* and *Orius* spp. then *Amblysieus* spp. for both of agronomy farm and animal production farm (Table 4).

Respecting to the newly reclaimed area, the highest dominant pest species were *B. tabaci* followed by *Empoasca* spp., then *T. urticae*. Also the predator, *Amblysieus* spp. was the highest dominant followed by *S. longicornis* and lastly *Orius* spp. in agronomy farm and animal production farm. Data of abundance degrees were obvious that the most abundant pest species was *Empoasca* spp. in both sites followed by *B. tabaci* then *T. urticae* in agronmy farm and followed by *T. urticae* then *B. tabaci* in animal production farm. On the other hand, the most abundant predator was *Amblysieus* spp. followed by *S. longicornis* and the lowest abundant predator was *Orius* spp. in both sites at newly reclaimed area (Table 5).

It can be concluded that the difference of neighboring and location affects some arthropods associated with castor bean, *R. recinus* in some features as follows:

1- As for locations regardless the arthropod species, the highest population density at the animal production farm in the cultivated land and at agronomy farm in newly reclaimed area may be due to no or little application of pesticides in these sites. Whereas, the lowest population density at agronomy farm in the cultivated land may be resulted from the plenty of usage of pesticides. In context, there is a natural balance between predators and prey; however, such a balance can be disturbed on economic crops as a result of circumstances usually created by the use of pesticides (**El-Adawy *et al.*, 2001b**)

2- Regarding the population activity, *B. tabaci* reached the peak in October at agronomy farm in cultivated land and animal production farm in newly reclaimed earlier than in November at agronomy farm in newly reclaimed and animal production farm in cultivated land. Whereas, *T. urticae* recorded the peak in March and April in cultivated land earlier than in July and December in newly reclaimed area at both agronomy farm and animal production farm. These findings are in agreement with results of **Ismail *et al.*, (2007)**, who studied the abundance of *T. urticae* infesting castor bean and stated its peak in spring. Also, **Gotoh (1997)** found the peaks of *T. urticae* in July and/or from September to early October. Generally, seasonal population trends of spider mites are influenced by various factors such as climate, predation by natural enemies and host plants (**Kitashima and Gotoh, 2003 and Gotoh *et al.*, 2004**). In contrast, *Empoasca* spp. showed the peak in October and April in newly reclaimed earlier than in December and May in cultivated land at

both agronomy farm and animal production farm. As for the predators, *Amblysieus* spp. achieved the peak in April and September at animal production farm earlier than in December at agronomy farm in both newly reclaimed area and cultivated land. *Amblysieus* spp. showed positive and negative correlation with temperature and relative humidity (**El-Adawy *et al.*, 2001a**). While, *S. longicornis* attained the peak in May and March in newly reclaimed area earlier than in October and September in cultivated land at both agronomy farm and animal production farm. In Ismailia governorate, *S. longicornis* showed the peak in spring (**Ismail *et al.*, 2007**). The opposite of *S. longicornis* was incidence for *Orius* spp., the peak occurred in June and May in cultivated land earlier than in July and September in newly reclaimed area at both agronomy farm and animal production farm, in corresponding with (**El-Adawy *et al.*, 2001a**) who indicated positive correlation of *Orius* spp. with the temperature.

3- Respecting of dominance and abundance, it is obvious that *B. tabaci* represented key pest recorded high dominant and abundant at agronomy farm and animal production farm at both cultivated land and newly reclaimed area except at animal production farm in newly reclaimed area which showed as potential pest recorded low dominant and high abundant. Whereas, *T. urticae* and *Empoasca* spp. showed as potential pest at both agronomy farm and animal production farm in the cultivated land and newly reclaimed area. Regarding the predators, *S. longicornis* showed higher dominant and abundant than *Orius* spp. and *Amblysieus* spp. at both agronomy farm and animal production farm in the cultivated land. This result is in harmony with that of (**El-Adawy *et al.*, 2001a**) who indicated that *S. longicornis* was more abundant than *Orius* spp. and *Amblysieus* spp. in Ismailia governorate. Whereas, *Amblysieus* spp. in the newly reclaimed area recorded higher dominant and abundant than *S. longicornis* and *Orius* spp. at both agronomy farm and animal production farm.

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Table (1): Monthly mean numbers of some arthropods / 4 leaves recorded on *R. communis*, at cultivated land and newly reclaimed area in Assiut Governorate throughout the whole 2012's year.

Species	Location				Mean of species
	cultivated land		newly reclaimed area		
	Agronomy farm	Animal Production farm	Agronomy farm	Animal production farm	
B. tabaci	14.30	3422.48	318.49	7.18	940.6 a
Empoasca spp.	1.64	8.62	2.98	6.89	5.03 b
T. urticae	4.02	14.04	1.63	2.39	5.52 b
Amblysieus spp.	0.49	1.41	5.82	19.14	6.72 b
S. longicornis	2.73	8.36	1.43	4.89	4.35 b
Orius spp.	0.60	5.07	0.92	0.54	1.78 b
Mean of location	3.96 c	576.7 a	55.21 b	6.84 c	160.67

Table (2): Monthly fluctuation of some arthropods / 4 leaves recorded on *R. communis*, at cultivated land in Assiut Governorate throughout the whole 2012's year.

Month	Monthly mean ± SE											
	Agronomy farm						Animal production farm					
	Amblysieus spp.	*Empoasca* spp.	*B. tabaci*	*S. longicornis*	*T. urticae*	*Orius spp.*	*Amblysieus* spp.	*Empoasca* spp.	*B. tabaci*	*S. longicornis*	*T. urticae*	*Orius spp.*
Jan.	0.0 ± 0.0	0.67 ± 0.17	8.33 ± 0.44	0.5 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	2.0 ± 0.29	23.5 ± 2.36	0.17 ± 0.17	0.0 ± 0.0	0.0 ± 0.0
Feb.	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	0.17 ± 0.17	1.0 ± 0.29	4.67 ± 1.48	9.0 ± 3.28	3.67 ± 1.69	0.0 ± 0.0
Mar.	0.0 ± 0.0	1.67 ± 0.17	8.33 ± 0.17	1.33 ± 0.17	1.0 ± 0.29	0.0 ± 0.0	0.0 ± 0.0	0.83 ± 0.44	1.83 ± 0.44	10.5 ± 2.84	10.17 ± 2.42	1.17 ± 1.17
Apr.	0.44 ± 0.11	2.11 ± 0.29	0.67 ± 0.51	1.22 ± 0.4	1.44 ± 0.11	0.67 ± 0.19	0.11 ± 0.11	14.56 ± 0.68	0.78 ± 0.22	5.89 ± 1.06	128.11 ± 17.91	2.0 ± 0.0
May	0.0 ± 0.0	3.0 ± 0.76	2.67 ± 0.17	1.0 ± 0.29	29.5 ± 9.31	1.17 ± 0.33	0.0 ± 0.0	51.33 ± 4.18	210.17 ± 85.12	14.83 ± 2.19	23.67 ± 7.89	22.67 ± 3.09
Jun.	0.0 ± 0.0	3.0 ± 0.87	10.83 ± 1.92	6.0 ± 0.76	16.33 ± 2.33	2.0 ± 0.87	0.0 ± 0.0	21.17 ± 0.73	1779.83 ± 224.68	16.0 ± 3.33	2.83 ± 0.83	21.83 ± 4.05
Jul.	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	2.5 ± 0.5	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	1.5 ± 0.58	3445.0 ± 202.0	1.17 ± 0.6	0.0 ± 0.0	2.33 ± 0.17
Aug.	0.0 ± 0.0	0.0 ± 0.0	3.83 ± 0.67	2.67 ± 0.17	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	0.33 ± 0.33	5487.5 ± 476.74	0.5 ± 0.29	0.0 ± 0.0	3.83 ± 0.17
Sept.	0.0 ± 0.0	0.78 ± 0.29	48.78 ± 5.34	5.67 ± 1.26	0.0 ± 0.0	0.0 ± 0.0	10.67 ± 1.2	0.0 ± 0.0	8066.11 ± 345.48	20.55 ± 3.26	0.0 ± 0.0	2.11 ± 0.29
Oct.	0.5 ± 0.29	1.83 ± 0.88	96.67 ± 15.59	6.5 ± 0.76	0.0 ± 0.0	1.17 ± 0.17	3.83 ± 1.3	2.83 ± 0.88	8190.83 ± 564.97	13.17 ± 1.86	0.0 ± 0.0	1.17 ± 0.17
Nov.	2.5 ± 0.58	2.0 ± 0.29	5.0 ± 1.80	2.67 ± 0.6	0.0 ± 0.0	1.0 ± 0.5	1.17 ± 0.44	6.0 ± 0.58	9459.17 ± 159.94	5.17 ± 0.73	0.0 ± 0.0	2.33 ± 0.6
Dec.	2.5 ± 0.5	4.67 ± 0.17	1.5 ± 0.58	2.67 ± 0.17	0.0 ± 0.0	1.17 ± 0.6	1.0 ± 0.76	1.83 ± 1.17	4400.33 ± 204.68	3.33 ± 1.17	0.0 ± 0.0	1.33 ± 0.44
G. MEAN± SE	0.49 ± 0.16	1.64 ± 0.26	14.3 ± 4.88	2.73 ± 0.38	4.02 ± 1.64	0.60 ± 0.14	1.41 ± 0.52	8.62 ± 2.44	3422.48 ± 592.19	8.36 ± 1.2	14.04 ± 6.08	5.07 ± 1.36

-each tabulated value is a mean of weekly samples / month ± standard error (SE).

Table (3): Monthly fluctuation of some arthropods / 4 leaves recorded on R. communis, at newly reclaimed area in Assiut Governorate throughout the whole 2012's year.

Month	Monthly mean ± SE											
	Agronomy farm						Animal production farm					
	Amblysieus spp.	*Empoasca* spp.	*B. tabaci*	*S. longicornis*	*T. urticae*	*Orius spp.*	*Amblysieus* spp.	*Empoasca* spp.	*B. tabaci*	*S. longicornis*	*T. urticae*	*Orius spp.*
Jan.	8.0 ± 1.68	2.22 ± 0.55	1.44 ± 0.48	0.33 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	16.78 ± 0.62	4.67 ± 0.38	1.67 ± 0.38	4.0 ± 1.07	0.33 ± 0.33	0.0 ± 0.0
Feb.	1.0 ± 0.29	1.33 ± 0.44	1.0 ± 0.5	0.67 ± 0.17	0.0 ± 0.0	0.0 ± 0.0	10.67 ± 1.42	3.17 ± 1.17	0.5 ± 0.5	5.67 ± 1.42	0.33 ± 0.33	0.0 ± 0.0
Mar.	5.17 ± 0.67	3.0 ± 0.5	0.0 ± 0.0	0.5 ± 0.5	0.0 ± 0.0	0.0 ± 0.0	27.17 ± 3.11	5.0 ± 0.29	0.17 ± 0.17	12.83 ± 4.89	1.67 ± 0.6	0.0 ± 0.0
Apr.	5.33 ± 0.73	2.67 ± 0.44	0.5 ± 0.5	0.83 ± 0.83	0.0 ± 0.0	0.0 ± 0.0	66.67 ± 8.35	16.0 ± 6.54	0.0 ± 0.0	8.0 ± 4.16	5.5 ± 1.53	0.0 ± 0.0
May	3.67 ± 0.83	2.33 ± 0.88	3.5 ± 1.26	3.33 ± 2.03	0.5 ± 0.29	0.17 ± 0.17	26.33 ± 1.64	14.83 ± 7.21	0.67 ± 0.33	3.17 ± 0.88	2.67 ± 0.44	0.0 ± 0.0
Jun.	1.17 ± 0.17	3.33 ± 0.17	1.17 ± 0.6	1.17 ± 0.33	1.83 ± 0.73	1.33 ± 0.17	7.5 ± 1.16	6.17 ± 1.3	1.83 ± 0.17	4.0 ± 1.32	1.83 ± 0.44	0.0 ± 0.0
Jul.	3.22 ± 0.73	2.66 ± 0.67	8.11 ± 1.61	0.55 ± 0.4	13.33 ± 1.07	2.78 ± 0.99	1.22 ± 0.22	4.67 ± 0.7	6.78 ± 1.42	1.45 ± 0.22	2.0 ± 0.58	0.0 ± 0.0
Aug.	5.83 ± 1.17	2.17 ± 0.44	38.0 ± 6.56	1.67 ± 0.44	1.17 ± 0.33	1.67 ± 0.44	13.17 ± 1.36	2.83 ± 0.88	12.83 ± 0.93	2.33 ± 0.6	3.0 ± 0.58	1.33 ± 0.44
Sept.	15.0 ± 1.04	4.17 ± 0.73	1228.5 ± 178.83	2.5 ± 0.76	1.5 ± 0.76	1.83 ± 0.33	5.67 ± 0.67	2.17 ± 0.73	11.67 ± 0.17	3.0 ± 0.29	1.17 ± 0.44	1.67 ± 0.44
Oct.	4.17 ± 0.33	7.5 ± 1.26	129.83 ± 18.55	2.67 ± 0.44	1.17 ± 0.17	1.83 ± 0.17	9.17 ± 0.93	7.17 ± 0.6	17.33 ± 1.09	4.67 ± 0.33	1.83 ± 0.33	1.5 ± 0.5
Nov.	7.33 ± 0.44	1.5 ± 0.58	1900.5 ± 365.76	1.0 ± 0.29	0.0 ± 0.0	0.67 ± 0.44	9.17 ± 0.33	2.67 ± 0.44	14.5 v 1.04	3.33 ± 1.01	1.17 ± 0.17	1.0 ± 0.5
Dec.	9.89 ± 0.4	2.89 ± 0.49	509.33 ± 114.74	1.89 ± 0.29	0.0 ± 0.0	0.78 ± 0.22	36.22 ± 0.68	13.33 ± 1.5	17.22 ± 2.07	6.22 ± 0.73	7.22 ± 0.78	1.0 ± 0.39
G. MEAN±SE	5.82 ± 0.66	2.98 ± 0.3	318.491 ± 103.97	1.43 ± 0.24	1.63 ± 0.62	0.92 ± 0.18	19.14 ± 3.01	6.89 ± 1.07	7.18 ± 1.19	4.89 ± 0.69	2.39 ± 0.37	0.54 ± 0.13

-each tabulated value is a mean of weekly samples / month ± standard error (SE).

Table (4): Dominance and abundance degrees of certain insect and mite species on R. communis, at cultivated land in Assiut Governorate throughout the whole 2012's year.

Month	Total numbers of samples	No. Samples in which the species appeared												
		Agronomy farm							Animal production farm						
		Mean of catching	*Amblysieus* spp.	*Empoasca* spp.	*B. tabaci*	*S. longicornis*	*T. urticae*	*Orius spp.*	Mean of catching	*Amblysieus* spp.	*Empoasca* spp.	*B. tabaci*	*S. longicornis*	*T. urticae*	*Orius spp.*
Jan.	2	2.0	0	1	1	1	0	0	25.7	0	2	2	1	0	0
Feb.	2	0.0	0	0	0	0	0	0	18.5	1	2	2	2	2	0
Mar.	2	4.7	0	2	1	1	1	0	24.8	0	2	2	2	2	1
Apr.	3	6.6	1	3	1	3	3	3	155.4	1	3	1	3	3	3
May	2	37.3	0	2	2	2	2	1	324.2	0	2	2	2	2	2
Jun.	2	38.7	0	2	2	2	2	2	1842.2	0	2	2	2	2	2
Jul.	2	2.5	0	0	0	2	0	0	3450.7	0	2	2	2	0	2
Aug.	2	6.5	0	0	2	2	0	0	5492.5	0	1	2	1	0	2
Sep.	3	55.2	0	2	3	3	0	0	8099.4	3	0	3	3	0	3
Oct.	2	106.2	1	2	2	2	0	2	8211.8	1	1	2	1	0	1
Nov.	2	13.2	2	1	2	2	0	2	9474.8	2	2	2	2	0	2
Dec.	2	12.5	2	2	2	2	0	2	4407.8	2	2	2	2	0	2
Total	26	285.4	6	17	18	22	8	12	41527.8	10	21	24	23	11	20
Dominance %			1.95	6.69	62.05	11.44	15.50	2.37		0.05	0.24	98.79	0.25	0.51	0.14
Abundance %			23.08	65.38	69.23	84.62	30.77	46.15		38.46	80.77	92.31	88.46	42.31	76.92

Table (5): Dominance and abundance degrees of certain insect and mite species on R. communis, at newly reclaimed area in Assiut Governorate throughout the whole 2012's year.

Month	Total numbers of samples	No. Samples in which the species appeared												
		Agronomy farm							Animal production farm					
		Mean of catching	*Amblysieus* spp.	*Empoasca* spp.	*B. tabaci*	*S. longicornis*	*T. urticae*	*Orius spp.*	Mean of catching	*Amblysieus* spp.	*Empoasca* spp.	*B. tabaci*	*S. longicornis*	*T. urticae*	*Orius spp.*
Jan.	3	13.9	3	3	3	3	0	0	27.4	3	3	3	3	3	0
Feb.	2	4.0	1	2	2	1	0	0	20.3	2	2	2	2	1	0
Mar.	2	8.7	2	2	0	1	0	0	46.8	2	2	1	2	2	0
Apr.	2	9.3	2	2	2	2	0	0	96.2	2	2	0	2	2	0
May	2	13.5	2	2	2	2	1	1	47.7	2	2	2	2	2	0
Jun.	2	10.0	2	2	2	2	2	2	21.3	2	2	2	2	2	0
Jul.	3	30.7	3	3	3	2	3	3	16.1	3	3	3	3	3	0
Aug.	2	50.5	2	2	2	1	2	2	35.5	2	2	2	2	2	2
Sep.	2	1253.5	2	2	2	2	2	2	25.3	2	2	2	2	2	2
Oct.	2	147.2	2	2	2	2	1	2	41.7	2	2	2	2	2	2
Nov.	2	1911.0	2	2	2	2	0	2	31.8	2	2	2	2	1	2
Dec.	3	522.9	3	3	3	3	0	3	82.2	3	3	3	3	3	2
Total	27	3975.2	26	27	25	23	11	17	492.3	27	27	24	27	25	10
Dominance %			1.89	0.93	95.83	0.43	0.62	0.30		46.25	16.93	17.92	11.61	6.03	1.26
Abundance %			92.59	100	88.89	81.48	40.74	62.96		100	100	88.89	100	92.59	37.04

الملخص العربي

تأثير المجاورات على بعض مفصليات الأرجل المصاحبة لأشجار الخروع بمنطقة أسيوط

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في دراسة لتأثير اختلاف المحاصيل المجاورة لأشجار الخروع على بعض مفصليات الأرجل التي تتواجد على أشجار الخروع. تم اختيار منطقتين في محافظة أسيوط هما: الأولى (مزرعة كلية الزراعة – جامعة أسيوط ، وتمثل الأراضي الزراعية القديمة) والثانية (مزرعة بحثية لمحطة البحوث الزراعية – عرب العوامر، وتمثل الأراضي المستصلحة حديثا) تشتمل كل منطقة على (مزرعة إنتاج محاصيل والأخرى مزرعة للإنتاج الحيواني) وذلك على مدار عام ٢٠١٢ بالكامل. تم حصر (الذبابة البيضاء ، الجاسيد ، آكاروس العنكبوت ذو البقعتين) كآفات ، وكذلك (حشرة التربس المفترس ، حشرة الأوريس ، الآكاروس المفترس من جنس Amblysieus) كمفترسات وذلك في كلا المنطقتين.

لوحظ أن كثافة التعداد للأنواع التي تحت الدراسة كانت أعلى في مزرعة الإنتاج الحيواني عن مزرعة إنتاج المحاصيل وذلك في كلا المنطقتين (الأراضي الزراعية القديمة ومنطقة مستصلحة حديثا) باستثناء مزرعة إنتاج المحاصيل في المنطقة المستصلحة حديثا حيث كانت الذبابة البيضاء والأوريس أعلى تعدادا مقارنة بمزرعة الإنتاج الحيواني.

أوضحت النتائج أن الذبابة البيضاء تمثل آفة رئيسية ، بينما آكاروس العنكبوت ذو البقعتين والجاسيد يمثلا آفتين كامنتين في كل من مزرعة إنتاج المحاصيل ومزرعة الإنتاج الحيواني بكلا المنطقتين.

بالنظر إلى المفترسات فقد سجل كل من التربس المفترس في الأراضي الزراعية القديمة والآكاروس المفترس من جنس Amblysieus في الأراضي الحديثة الاستصلاح أعلى سيادة ووفرة في كل من مزرعة إنتاج المحاصيل ومزرعة الإنتاج الحيواني.