STONE FRUIT TREE PESTS
(4) SURVEY OF INSECT PESTS IN ALMOND ORCHARDS IN EGYPT

TADROS, A. W.[1], AMINA M. ABDEL-RAHMAN[2] AND IMAN A. M. ABDEL-HAMID[1]

1- Plant Protection Research Institute, A R C, Egypt
2- Faculty of Science, Cairo University, Giza, Egypt

(Manuscript received 19 February 2006)

Abstract

Survey of the insects associated with almond trees was conducted during four seasons of the three successive years (2000, 2001 and 2002). Studies were carried out in five ecologically different growing areas of Egypt in comparison with insects surveyed in the different parts of the world. The existing insects, their status (major / minor), and the attacked part(s) were inspected and recorded. More than 23 dominating species belonging to 12 families and five orders were surveyed in almond orchards, out of them 14 species were first recorded on almond trees in Egypt. Treeborers were the most abundant and serious pests to the root (*Capnodis carbonaria*), the stem and branches (*Chlorophorus varius* and *Ptosima undecimmaculata*), the stem, branches and twigs (*Scolytus amygdali*), and the twigs (*Anarisa lineatella*) of almond trees. The other treeborers (*Sphenoptera trispinosa, Chrysobothris dorsata, Macrotoma palmata,* and *Xyleborinus saxeseni*) were of less importance and abundance. The fruit flies (*Ceratitis capitata* and *Bactrocera zonata*) and the fruit worm (*A. lineatella*) were also major and abundant pests. They were severely attacked fruits and caused economic damage to fruit production. Adults of the scarabaeid *Tropinota sqalida* sometimes attacked the flowers and caused considerable damage. *Carpophilus hemipterus* and *Drosophila melanogaster* infested over ripening and fallen fruits. Different parts of almond trees were affected with *Thrips major, Empoasca decedens, Bemisia tabaci, Aphis gossypii, Aphis punicae, Hyalopterus amygdali* and *Myzus persicae, Parlatoria oleae* and *Aonidiella orientalis.*

INTRODUCTION

Almond (*Prunus dulcis*) is an important stone-fruit species all over the world. In Egypt, the total area approximated 17500 feddans producing almost 27900 tons yearly.

Literature refers that, in the different parts of the world including Egypt, more than 38 insects could be syrveyed in almond orchards (numerous authors such as Mendel and Gurevitz, 1985, Wool *et al.*, 1992, Tadros *et al.*, 1993, Sharma and Gautam, 1994, Zalom and Barbera, 1994, Tadros, 1994 a, Tadros, 1994 b, Russo *et al.*, 1994, Liotta *et al.*, 1994, Saafan and Tadros 1995, Torres *et al.*, 1998, Krokos *et al.*, 2001, Canovas *et al.*, 2002, Hendricks, 2002, and Saljoqi *et al.*, 2002). However,

informations on the relative importance of these insects are scant.

In an attempt to contribute to such a gap in the knowledge, the present comparative ecological survey studies are aimed. The broad objective of investigation is to add new information that may help in planning of rather effective "Integrated Control Programs" for the management of tree borers in almond orchards.

MATERIALS AND METHODS

Survey of the insects associated with almond trees was carried out during three successive years from early January 2000 until late December 2002. Five orchards scattered all over the country and representing ecologically different growing areas at either old valley lands (Nile Delta and Valley) or the newly reclaimed desert lands were selected. The first district was at Behera governorate, representing the west Delta while the second was at Dakahlia, Sharkia, Ismailia and / or Suez governorates representing east Delta. The third was at Menoufia and / or Qalubia governorates representing middle Delta. In the north valley, the fourth district was represented at Giza and / or Fayoum governorates whereas in the south valley, the fifth district was represented at Minia, Asuit, and / or Sohag governorates.

Any selected orchard was at least three feddans in area, with trees more than five years old. Every selected orchard was visited four times each year, i.e., in winter (January to March), spring (April to June), summer (July to September) and autumn (October to December) seasons.

During every visit, about 50 trees, randomly distributed in every selected orchard were examined for insect infestation. Samples of all parts of the tree (e.g., roots, stem, branches, leaves, flowers, and fruits) were carefully inspected. The existing season of each insect, status (major / minor), and the attacked part(s) were recorded.

Surveyed insect species were identified in the orchard as far as possible. However, in case of uncertainty, samples of the plant part(s) and / or existing insects were transferred to the laboratory for further examination. Whenever, taxonomic assistance was required, specimens were referred to the appropriate specialist(s) at "Insects Identification Research Division", Plant Protection Research Institute, ARC, MOA, Dokki, Giza governorate.

On the other hand, the scientific name, order and family of insects attacking almond trees together with the status of infestation (major and minor), affected plant part(s) (roots, stem, branches, twigs, buds, leaves, flowers and / or fruits), activity period and number of annual generations.

RESULTS AND DISCUSSION

1. Literature survey of insects attacking almond trees allover the world:

Data in Table (1-appendex) reviewed the literature of insects attacking almond trees allover the world including Egypt. The list was classified according to the number of insects, scientific name, order, and family together with the status of infestation (major and minor), affected plant part(s), activity period, and number of annual generations.

The available and most recent literature concluded that almond orchards could be subjected to 38 insect species belonging to 14 families and 6 orders in the countries of the world, including Egypt (examples of the numerous authors are Mendel and Gurevitz, 1985, Wool *et al.*, 1992, Tadros *et al.*, 1993, Sharma and Gautam, 1994, Zalom and Barbera, 1994, Tadros, 1994 a, Tadros, 1994 b, Russo *et al.*, 1994, Liotta *et al.*, 1994, Saafan and Tadros 1995, Torres *et al.*, 1998, Krokos *et al.*, 2001, Canovas *et al.*, 2002, Hendricks, 2002, and Saljoqi *et al.*, 2002)

Among these species, the following 27 species were major pests:

Empoasca decipiens (Cicadellidae), *Pterochloroides persicae* and *Brachycaudus helichrysi* (Aphididae) of Order Hemiptera: Homoptera.

Sphaerolecanium prunastri and *Didesmococcus unifasciatus* (Coccidae), *Didesmococcus unifasciatus*, *Diaspidiotus prunorum* and *Quadraspidiotus [Diaspidiotus] perniciosus* (Diaspididae) of Order Hemiptera: Homoptera.

Anarsia lineatella (Gelechiidae) *Ephestia* [*Cadra*] *cautella* (Phyticidae), *Ephestia kuehniella*, *Plodia interpunctella*, *Corcyra cephalonica* and *Amyelois transitella* (Pyralidae) and *Grapholitha* [*Cydia*] *molesta* (Torticidae) of Order Lepidoptera.

Amblycerus schwarzi (Bruchidae), *Monosteira unicostata*, *Hyalopterus amygdali*, *Brachycaudus amygdalinus*, *Capnodis tenebrionis* and *Sphenoptera lafertei* (Buprestidae), *Nathrius brevipennis* (Cerambycidae), *Scolytus amygdali*, *Scolytus mediterraneus* [*S. rugulosus*] and *Scolytus* [*Eccoptogaster*] *mali* (Scolytidae), and *Conotrachelus nenuphar* (Curculionidae) of Order Coleoptera.

Eurytoma amygdali (Eurytomidae) of Order Hymenoptera.

Putonella pruni (Typetidae) of Order Diptera.

Moreover, insects' species of minor importance (10 species) were:

Mytilaspis rubric, *Suturaspis archangelskyae* [*Salicicola arch*], *Parlatoria oleae* and *Parlatoria crypta* (Diaspididae) of order Hemiptera: Homoptera.

Smaragdina jordanica (Chrysomelidae), *Carpophilus hemipterus*, *Carpophilus mutilatus*, and *Carpophilus davidsoni* (Nitidulidae) of Order Coleoptera.

Ceratitis capitata (Tephritidae) of Order Diptera.

In Egypt, more than four species belonging to three families and two orders were surveyed in almond orchards (Table, 1).

In fact, in Egypt, treeborers were the most abundant and seriously damaging the stem, branches, and twigs of almond trees allover the year round. These recorded treeborers were *Anarsia lineatella*, (Lepidoptera: Gelechiidae), *Macrotoma palmata*, and *Chlorophorus various* (Coleoptera: Cerambycidae), *Scolytus amygdali* (Coleoptera: Scolytidae).

1. Survey of insects attacking almond trees in Egypt.

Table (2) presented the results of survey studies of insects attacking almond trees in the different localities of Egypt at both old Delta and new reclaimed lands during three successive years (from January 2000 to December 2002). Data clarified the scientific name, order, and family of insect species, status of infestation (major or minor), the attacked and affected part of the tree and the activity season(s).

During the present field investigation, more than 23 species belonging to 12 families and five orders were surveyed in almond orchards in Egypt (Table, 2). Fourteen species were first recorded in Egypt. The dominating pests were the treeborers, the leaf and flower eaters, the fruit worms and flies and the sucking and scale insects.

Actually, treeborers were the most abundant and damaging insect pests in almond orchards. They caused economic damage to the root (*Capnodis carbonaria*), the astem and branches (*C. varius* and *Ptosima undecimmaculata*) the stem, branches and twigs (*S. amygdali*), and the twigs (*A. lineatella*) of almond trees. Larvae of treeborers harbor the wood of trees all the year round, whereas, adults were active during spring, summer and / or autumn according to the insect species and the weather

Table 1. List of major (M) and minor (m) insects attacking almond trees together with status (S), activity period (A. P.), damage plant parts (P. P.) and number of annual generations (G) as revealed in different countries (C) from literature in Egypt (E) and other countries (O). (R: root, St: stem, Br: branches, Sh: shoot, Tw: twig, Bu: bud, L: leaf, Fl: flower, Fr: fruit)

No.	Scientific name	C	S	A. P.	P. P.	G
	I. Order: Hemiptera: Heteroptera i. Family: Cicadellidae					
1	*Empoasca decedens* (Paoli)	O	M	May-Jul.	L, Sh	
	ii. Family: Aphididae					
2	*Pterochloroides persicae* (Cholod.)	O	M	May-Oct.	Tw, Bu, L, Fl, Fr	many
3	*Brachycaudus helichrysi* (Kalt.)	O	M	May-Oct.	Tw, Bu, L, Fl, Fr	many
	iii. Family: Coccidae					
4	*Sphaerolecanium prunastri* (Boyer)	O	M	Apr.–Dec.	St, Br, Tw	1
5	*Didesmococcus unifasciatus* Arkhang.	O	M	Apr. -Dec.	St, Br, Tw	
	iv. Family: Diaspididae					
6	*Diaspidiotus prunorum* (Laing)	O	m	Jun.-Dec.	Br, Tw	
7	*Quadraspidiotus* [*Diaspidiotus*] *perniciosus* (Comstock)	O	m	Jun.-Dec.	Br, Tw	
8	*Mytilaspis rubric* (Gmelin)	O	m	Jun.-Dec.	Br, Tw	2
9	*Suturaspis archangelskyae* [*Salicicola arch*]	O	m	Jun.-Dec.	Br, Tw	2
10	*Parlatoria oleae* (Colvee)	O	m	Jun.-Dec.	Br, Tw	2
11	*Parlatoria crypta* McKenzie	O	m	Jun.-Dec.	Br, Tw	2
	II. Order: Lepidoptera i. Family: Gelechiidae					
12	*Anarsia lineatella* Zeller	O	M	Jun.-Sep.	Sh, Fr	2
		E	M	Mar.-Oct.	Tw, Fr	3
	ii. Family: Phyticidae					
13	*Ephestia* [*Cadra*] *cautella* (Walker)	O	M	All year	Fr	4
14	*Amyelois transitella* (Walker)	O	M	All year	Fr	4
	iii. Family: Pyralidae					
15	*Ephestia kuehniella* Zeller	O	M	All year	Fr	4
16	*Plodia interpunctella* (Hubner)	O	M	All year	Fr	4
17	*Corcyra cephalonica* (Stainton)	O	M	All year	Fr	4
	iv. Family: Tortricidae					
18	*Grapholitha* [*Cydia*] *molesta* (Busck)	O	M	Jun.-Aug.	Fr	2

Table 1. Cont.

No	Scientific name	C	S	A. P.	P. P.	G
	III. Order: Coleoptera i. Family: Bruchidae					
19	*Amblycerus schwarzi* F.	O	M	Jun.-Aug.	Fr	2
	ii. Family: Buprestidae					
20	*Monosteira unicostata* (Mul. & Rey)	O	M	Summer	St, Br	1
21	*Hyalopterus amygdale* Blanch.	O	M	Summer	St, Br	1
22	*Brachycaudus amygdalinus* (Kalt.)	O	M	Summer	St, Br	1
23	*Capnodis tenebrionis* Klug.	O	M	Summer	R	1
24	*Sphenoptera lafertei* Thompson	O	M	Summer	St, Br	1
	iii. Family: Chrysomelidae					
25	*Smaragdina jordanica* Chev.	O	m	Summer	St, Br	1
	iv. Family: Cerambycidae					
26	*Nathrius brevipennis* Mulsant	O	M	Summer	St, Br	1
27	*Macrotoma palmate* F.	E	M	Jun.-Sep.	St, Br	1 per 3 yrs
28	*Chlorophorus various* Mull.	E	M	May-Oct	St, Br	1
	v. Family: Scolytidae					
29	*Scolytus amygdali* Guer.	E	M	Feb.-Dec.	St, Br, Tw	5
		O	M	Apr.–Oct.	Bu, Br	4
30	*Scolytus mediterraneus* [*S. rugulosus*] Eggers	O	M	Apr.–Oct.	St, Br, Tw	4
31	*Scolytus* [*Eccoptogaster*] *mali* Berlest	O	M	Apr.–Oct.	St, Br, Tw	4
	vi. Family: Nitidulidae					
32	*Carpophilus hemipterus* (L.)	O	m	Jun.-Sep.	Fr	1
33	*Carpophilus mutilatus* Erichson	O	m	Jun.-Sep.	Fr	1
34	*Carpophilus davidsoni*	O	m	Jun.-Sep.	Fr	1
	vii. Family: Curculionidae					
35	*Conotrachelus nenuphar* (Herbst)	O	M	Jun.-Sep.	Fr	1
	V. Order: Hymenoptera i. Family: Eurytomidae					
36	*Eurytoma amygdale* Enderl.	O	M	Jun.-Sep.	Fr	1
	VI. Order: Diptera i. Family: Tephritidae					
37	*Putoniella pruni*	O	M	Jun.-Sep.	Fr	1
38	*Ceratitis capitata* Wied.	O	m	Jul.-Sep.	Fr	3

Table 2. Major (M) and minor (m) insect pests status (S) attacking almond trees in Egypt with the damage plant parts and activity periods (winter: W, spring: Sp, summer: Su, autumn: A). (R: root, St: stem, Br: branches, Sh: shoot, T: twig, Bu: bud, L: leaf, Fl: flower, Fr: fruit).

No	Scientific name	Order	Family	S	Damaged plant parts	Activity period			
						W	Sp	Su	A
1	*Thrips major* Uzel.**	Thysanoptera	Thripidae	M	Bu, L, Fl, Fr		*	*	
2	*Empoasca decedens* (Paoli)**	Hemiptera: Homoptera	Cicadellidae	m	L		*	*	
3	*Bemisia tabaci* (Genn.)**	Hemiptera: Homoptera	Aleyrodidae	m	L		*	*	
4	*Aphis gossypii* Glover**	Hemiptera: Homoptera	Aphididae	M	Tw, L, Fl, Fr		*		
5	*Aphis punicae* Passerini**	Hemiptera: Homoptera	Aphididae	M	Tw, L, Fl, Fr		*		
6	*Hyalopterus amygdali* (Bla.)**	Hemiptera: Homoptera	Aphididae	M	Tw, L, Fl, Fr		*		
7	*Myzus persicae* (Sulzer)**	Hemiptera: Homoptera	Aphididae	M	Tw, L, Fl, Fr		*		
8	*Parlatoria oleae* (Colvee)**	Hemiptera: Homoptera	Diaspididae	M	Br, Tw, L, Fr		*	*	*
9	*Aonidiella orientalis* (Mask.)**	Hemiptera: Homoptera	Diaspididae	M	Br, Tw, L, Fr		*	*	*
10	*Anarisa lineatella* Zeller	Lepidoptera	Gelechiidae	M	Tw, Fr	*	*	*	*
11	*Tropinota sqalida* (Scopoli)**	Coleoptera	Scarabaeidae	M	Fl	*	*		
12	*Ptosima undecimmaculata* Her.	Coleoptera	Buprestidae	M	St, Br	*	*	*	*
13	*Capnodis carbonaria* Klug.	Coleoptera	Buprestidae	M	R	*	*	*	*
14	*Sphenoptera trispinosa* Klug.	Coleoptera	Buprestidae	M	St, Br	*	*	*	*
15	*Chrysobothris dorsata* Fab.	Coleoptera	Buprestidae	m	St, Br	*	*	*	*
16	*Macrotoma palmate* F.	Coleoptera	Cerambycidae	m	St, Br	*	*	*	*
17	*Chlorophorus varius* Mull.	Coleoptera	Cerambycidae	M	St, Br	*	*	*	*
18	*Scolytus amygdale* Guer.	Coleoptera	Scolytidae	M	St, Br, Tw, Bu	*	*	*	*
19	*Xyleborinus saxeseni* Ratz.	Coleoptera	Scalytidae	m	R	*	*	*	*
20	*Carpophilus hemipterus* (L.)**	Coleoptera	Nitidulidae	m	Fr		*	*	
21	*Ceratitis capitata* Wied.**	Diptera	Tephritidae	M	Fr		*	*	
22	*Bactrocera zonata* (Saund.)**	Diptera	Tephritidae	M	Fr		*	*	
23	*Drosophila melanogaste* Me.**	Diptera	Tephritidae	M	Fr			*	

** First record on almond trees.

factors affecting the adult activity (see other parts in this research series). The other treeborers (*Sphenoptera trispinosa, Chrysobothris dorsata, Macrotoma palmata,* and *Xyleborinus saxeseni*) were of less importance and abundance.

These results agree with Tadros *et al.* (1993), Tadros (1994 a), Tadros (1994 b), and Saafan and Tadros (1995) who recorded the respective treeborers *C. varius*, *Macrotoma palmata* and *S. amygdali* infesting the stem and branches of almond trees in Egypt.

The fruit flies (*C. capitata* and *Bactrocera zonata*) and the fruit worm (*Anarisa lineatella*) were also major insect pests and were much abundant in almond orchards. They were severely attacked fruits and caused economic damage to fruit production. Adults of the scarabaeid *Tropinota sqalida* attacked the flowers of almond trees but scarcely and in some years caused considerable damage. *Carpophilus hemipterus* and *Drosophila melanogaster* infested over ripening and fallen fruits.

According to these results, the fruit and flower insects (*C. capitata*, *B. zonata*, *C. hemipterus*, *D. melanogaster*, and *Tropinota sqalida*) were recorded for the first time on almond trees.

Different parts of almond trees were affected with the Thripid *T. major*, the Cicadellid *E. decedens*, the Aleyrodid *B. tabaci*, aphids *A. gossypii, A. punicae*, *Hyalopterus amygdali* and *M. persicae*, the scales *Parlatoria oleae* and *Aonidiella orientalis*.

Review concerning *T. major, E. decedens, B. tabaci, A. gossypii, A. punicae*, *Hyalopterus amygdali*, *M. persicae, P. oleae,* and *A. orientalis* was not available and first recorded on almond trees in Egypt.

REFERENCES

1. Canovas, J. A., F. Dicenta, A. Soler, N. Grane, I. Batlle, I. Hormaza and M. T. Espiau. 2002. Susceptibility of almond seedling rootstocks to capnode. Proceedings of the 3rd International Symposium on Pistachios and Almonds, 12th Colloquium of GREMPA, Zaragoza, Spain, 20-24 May, 2001. Acta Horticulturae, No. (591): 57-61.
2. Hendricks, L. C., W. Bentley, I. Batlle, I. Hormaza and M. T. Espiau. 2002. The responses of Peach Twig Borer (*Anarsia lineatella*), San Jose Scale (*Quadraspidiotus perniciosus*) and the scale parasitoid *Encarsia perniciosi* to dormant sprays in almond. Proceedings of the 3rd International Symposium on Pistachios and Almonds, 12th Colloquium of GREMPA, Zaragoza, Spain, 20-24 May, 2001. Acta Horticulturae, No. (591): 565-568.
3. Krokos, F. D., M. A. Konstantopoulou and B. E. Mazomenos. 2001. Alkadienes and alkenes, sex pheromone components of the almond seed wasp *Eurytoma amygdali*. Journal of Chemical Ecology, 27 (11) : 2169-2181.
4. Liotta, G., G. Maniglia and G. Barbera. 1994. Variations in infestations of the almond tree in Sicily in the last fifty years. First international congress on almond, May 17-19, 1993, Agrigento, Italy. Acta Horticulturae, No. (373) : 277-285.
5. Mendel, Z. and E. Gurevitz. 1985. Hymenopterous parasitoids of the almond bark beetles in Israel. Alon Hanotea, 39 (12) : 1057-1060.
6. Russo, A., G. Siscaro, R. G. Spampinato and G. Barbera. 1994. Almond pests in Sicily. First international congress on almond, Agrigento, Italy, May 17-19, 1993. Acta-Horticulturae, No. (373) : 309-315.
7. Saafan, M. H. and A. W. Tadros. 1995. On the ecology of the peach twig borer, *Anarsia lineatella* (Zeller) on apricot trees at Qalubia Governorate, Egypt (Lepidoptera: Gelechiidae). Egypt. J. Agric. Res., Cairo, Egypt, 73 (4) : 1009-1018.
8. Saljoqi, A. U. R., F. Ullah and M. Asghar. 2002. Infestation of aphid, *Brachycaudus helichrysi* (Kalt) on peach, plum, and almond plants in Northern Areas of Pakistan. Sarhad Journal of Agriculture, 18 (1) : 63-67.
9. Sharma H. K. and D. R. Gautam. 1994. Evaluation of some almond rootstocks for tolerance to the flat-headed peach tree borer, *Sphenoptera lafertei* Thompson (Coleoptera: Buprestidae). Pest-Management-and-Economic-Zoology, 2 (2) : 153-155.

10. Tadros, A. W. 1994 a. Monitoring the population of the shot-hole bark beetle, *Scolytus amygdali* Guer. (Coleoptera: Scolytidae) on peach and its hosts in Egypt. Egypt. J. Agric. Res., 72 (1) : 91-102. [5th Professional Fruit Workers Conf., Ashville, North Carolina, USA, Oct. 17-18, 1990, 5 (15)].
11. Tadros, A. W. 1994 b. Monitoring the population of the wasp beetle, *Chlorophorus varius* Mull. (Coleoptera: Cerambycidae) on peach and its hosts in Egypt. Egypt. J. Agric. Res., 72 (1) : 103-115. [5th Professional Fruit Workers Conf., Ashville, North Carolina, USA, Oct. 17-18, 1990, 5 (16)].
12. Tadros, A. W., M. M. Kinawy and F. F. Abd-Allah. 1993. Population dynamics and host range of *Macrotoma palmata* F. (Col.: Cerambycidae). Insect Sci. and its Appl., 14 (5): 713-718.
13. Torres, J., A. H. Mendoza, A. Garrido and J. Jacas. 1998. Population dynamics of cicadellid population (Homoptera: Cicadellidae) in almond orchards in Alto Palancia (Prov. Castellon). Boletin de Sanidad Vegatal, Plgas, 24 (2) : 279-292.
14. Wool, D., J. H. Brower and B. N. Kamin. 1992. Reduction of malathion resistance in caged almond moth, *Cadra cautella* (Walker) (Lepidoptera: Pyralidae), populations by the introduction of susceptible moths. Journal of Stored Products Research, 28 (1) : 59-75.
15. Zalom, F. G. and G. Barbera. 1994. Traps and lures for monitoring *Anarsia lineatella* and *Grapholitha molesta* in almond and stone fruits. First international congress on almond, May 17-19, 1993, Agrigento, Italy. Acta Horticulturae, No. (373) : 269-276.

آفات أشجار الفاكهة ذات النواة الحجرية: (٤) حصر الآفات الحشرية في حدائق اللوز في مصر

انطون ولسن تادرس[١] ، أمينة محمد عبد الرحمن[٢] ، إيمان أحمد محمد عبد الحميد[١]

١- *معهد بحوث وقاية النباتات- مركز البحوث الزراعية- الجيزة - مصر.*

٢- *كلية العلوم- جامعة القاهرة- الجيزة- مصر.*

تم أجراء حصر للآفات الحشرية التي تصيب أشجار اللوز في مصر خلال ثلاث سنوات متعاقبة (٢٠٠٠ - ٢٠٠٢). أجريت الدراسة في مناطق بيئية مختلفة في غرب وشرق ووسط الدلتا وشمال وجنوب الوادي. وقد تم فحص وتسجيل الآفات المتواجدة خلال فصول السنة الأربعة، ومدى أهميتها الاقتصادية (آفة أو حشرة)، والأجزاء النباتية المصابة. تم تسجيل أكثر من ٢٣ نوعا حشريا، تتبع ١٤ عائلة، تنتمي إلي خمسة رتب في حدائق اللوز، منها أربع عشر نوعا سجلت للمرة الأولي علي هذا العائل. وكانت الآفات السائدة هي حفارات الأشجار، حيث تسبب أضرارا للجذور (حفار جذور الخوخ *Capnodis carbonaria*) والسوق والأفرع (حفار ساق الخوخ ذو القرون الطويلة *Chlorophorus varius*، وحفار ساق البرقوق *Ptosima undecimmaculata*)، والسوق والأفرع واللباليب (خنافس قلف الحلويات *Scolytus amygdali*)، واللباليب (الأنارسيا *Anarsia lineatella*) لأشجار اللوز. أيضا تسبب الحفارات ذات القرون القصيرة (*Sphenoptera trispinosa,* *Chrysobothris dorsata*) وحفار ساق السنط (*Macrotoma palmata*) وخنافس القلف (*Xyleborinus saxeseni*) أضرارا ولكن بدرجة أقل. تسبب ذبابة الفاكهة *Ceratitis capitata* وذبابة ثمار الخوخ *Bactrocera zonata* والأنارسيا *A. lineatella* أضرارا شديدة للثمار. أحيانا تهاجم حشرات جعل الورد الزغبى (*Tropinota sqalida*) الأزهار وتسبب تلفا شديدا لها. أما خنافس الثمار (*Carpophilus hemipterus*) وذبابة الدروسوفيلا (*Drosophila melanogaste*) فتهاجم الثمار في مرحلة ما بعد النضج والثمار المتساقطة على الأرض. تتأثر أجزاء مختلفة من الأشجار بالإصابة بالتربس (*Thrips major*)، والجاسيد (*Empoasca* (*decedens*، والذبابة البيضاء (*Bemisia tabaci*)، والمن (*Hyalopterus amygdali* و *Myzus persicae* و *Aphis punica* و *Aphis gossypii*) والحشرات القشرية (*Parlatoria oleae* و *Aonidiella orientali*).