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Phoenix dactylifera L.

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	%95			%90-%40	Greater date moth	<i>Arenipses sebella</i> (Hamps.) Lepidoptera : Pyralidae*	1
	%2				Red palm weevil	<i>Rhynchophorus ferrugineus</i> (Ol.) Coleoptera:Curculionidae *	2
	%78				Date bunch borer	<i>Oryctes elegans</i> (Prell.) Coleoptera:Dynastidae*	3
	%41			%60	Lesser date moth	<i>Batrachedra amydraula</i> (Meyr) *Lepidoptera:Mumphida	4
	%22			% 70	Dust mite	<i>Oligonychus afrasiaticus</i> (Mcg) * Acarina :Tetranychidae	5
	%66				Olive scale	<i>Parlatoria oleae</i> (Colvee) Homoptera : Diaspididae **	6
	%98				Gray scale	<i>Parlatoria blanchardii</i> (Targ. -Tozz) Homoptera : Diaspididae*	7
	%18				Spherical mealy bug	<i>Nipacoccus vastator</i> (Mask.) Homoptera :Pseudococcidae **	8
	%14				Red scale	<i>Aonidiella aurantii</i> (Mask. Homoptera :Diaspididae**)	9
	%10				the Dubas bug	<i>Ommatissus binotatus</i> (Lybicus Berg.)Homoptera :Tropiduchidae*	10
	%97			%30	Oriental wasp	<i>Vespa orientalis</i> (L.) Hymenoptera Vespidae. * *	11
	%27				Spotted yellow wasp	<i>Polistes gallicus</i> (L.)Hymenoptera :Vespidae**	12
	%5				Yellow wasp	<i>Polistes herbroeus</i> (F.) Hymenoptera : Vespidae**	13

	%10				Termites	<i>Microrcerotermes diversus</i> (Silv). Isoptera : Termitidae**	14
	%20				Date stem borer	<i>Pseudophilus testaceus</i> (Gahan) Coleoptera : Cerambycidae *	15
	%4				frond wood borer	<i>Phonapate frontalis</i> (Fahs.) Coleoptera : Bostrythidae*	16
	%13				False red mite	<i>Brevipalpus** californicus</i> (Banks) Acarina : Tenupalpidae	17
	%6				One horned beetle	<i>Oryctes minoceros</i> (L.) Coleoptera : Dynastidae. *	18
	%11				Oriental red mite	<i>Eutetranychus orientalis</i> (Klein) ** Acarina: Tetranychidae	19
	%14				Dried frond borer	<i>Enneadesmus trispimosus</i> (Ol.) Coleoptera : Bostrichidae*	20
	%30				Pineapple beetle	<i>Carpophilus humeralis</i> (F.) Coleoptera : Nitidulidae**	21
	%80				Corn sap beetle	<i>Carpophilus ** dimidiatus</i> (F.) Coleoptera: Nitidulidas	22
	%75				Dried fruits beetle	<i>Carpophilus hemipterus</i> (L.) Coleoptera : Nitidulidae**	23
	%40				Date pit beetle	<i>Coccotrypes *dactyliperda</i> (F.) Coleoptera : Scolytidae	24
	%13				Almond moth	<i>Ephestia(Carda)tigulilla</i> (Greg.) ** Lepidoptera : Phycitidae	25
	%5				Fig beetle	<i>Cotinis mutabilis</i> (Gray&Perch) **Coleoptera : Scarabidae	26
	%12				Pomegranate fruit Butterfly	<i>Virachola Livia</i> (klug) Lepidoptera: Lycaenidea**	27

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	%28				Mediterranean fruit fly	<i>Ceratitis Capitata</i> (Wied) Diptera :Tryotidae**	28
	%33				Grape thrips	<i>Retithrips syriacus</i> (Mayet.) Thysanoptera: Thripidae**	29
	%25				Flower chafers	<i>Epicometis hirta</i> (Poda) Coleoptera: Scarabidae**	30
	%25				Raisin moth	<i>Cadra figulilella</i> (L.) Lepidoptera Pyralidae**	31
	%19				Black scale	<i>Chysomophalus aonidum</i> (L.) ** Homoptera iaspidae	32
	%45				Date palm bostrychid	<i>Apate monachus</i> (F.) ** Cleoptera: Bostrychidae	33
	%15				Indian meal moth	<i>Plodia interpunctella</i> **Lepidoptera: Pyralidae	34
	%40				The inflorescence weevil	<i>Daralomus sp*</i> Curculionidae Coleoptera	35
	%5				Desert locust	<i>Schistocerca** gregaria</i> (Forsk) Orthoptera: Acrididae	36

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Oryctes elegans

(Prell.)

(5)

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% 70 -60

Arenipses sebeall (Hamps)

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(1999

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Rhynchophorus

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ferrugineus(Ol.)

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Ommatissus binotatus (Lybicus Berg.)

1990

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(El -Ezaby, 1997

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(1985) %90

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Batrachedra ()

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amydraula (Meyr)

(1991

Pseudophilus testaceus (Gahan)

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Oligonychus afrasiaticu (Mcg)*Parlatoria blanchardii* (Targ. –*Daralomus sp*

Tozz)

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Polistes herbroeus (F.)

Polistes gallicus(L.)

Carpophilus humeralis(F.)

Carpophilus dimidiatus(F.)

Cadra figulilella (L.)

Carpophilus hemipterus (L.)

Coccotrypes dactyliperda (F.)

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Data base of Canada library

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2001 – 1999

%80

(Elmer, 1966)

2001-1999

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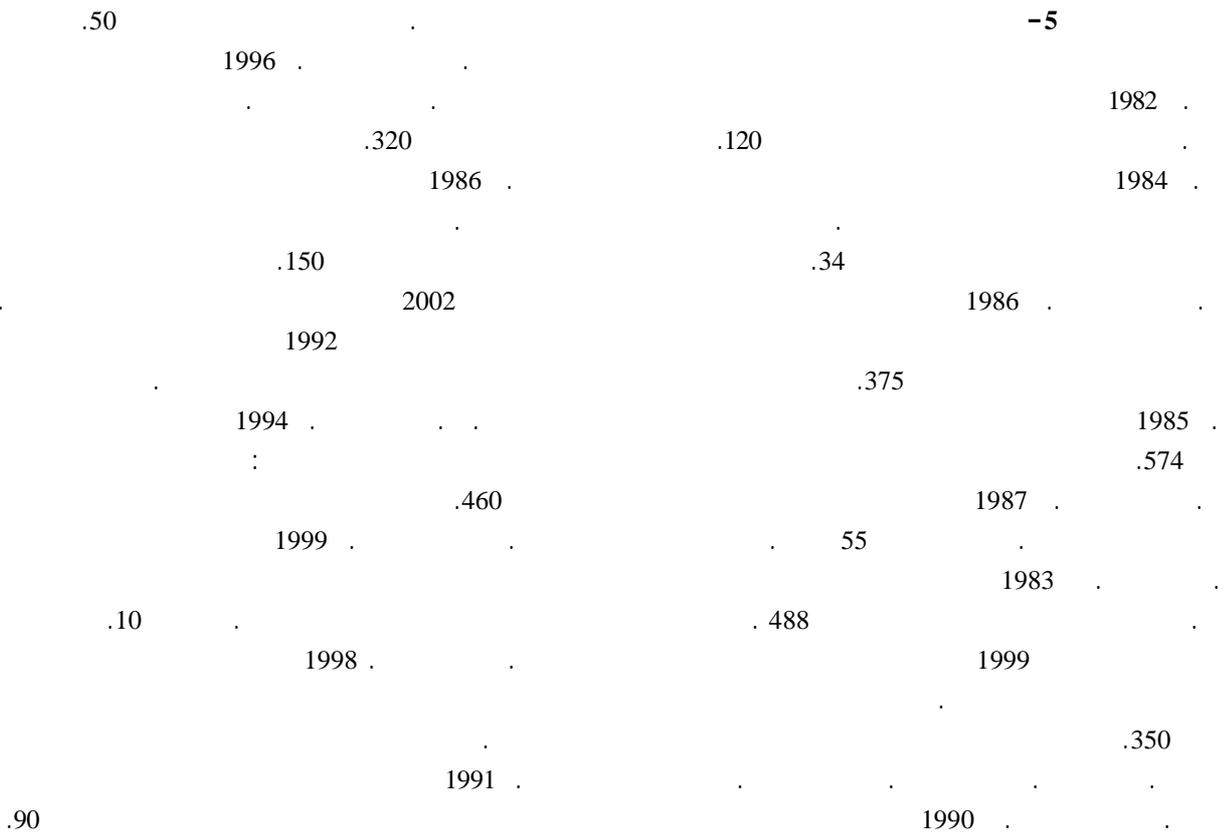
(Hallett et al., 1998)

(El-Ezaby, 1997)

(Moarc et al., 1998)

.(1983)

(Abraham and Kuria,1975)



- Weevil *Indian- Ceconus*, . 2(12):23– 27.
- Rajamanickam, K., Kenredy, J., Christopher, A. 1995. Certain Components of Integrated Management for Red Palm Weevil *Rhynchophorus ferrugineus* f.(Curulionidae: Coleoptera) on Coconut *Mededelingen faculteit, Land Bouwkundiger, Noegepaste, Biologische, Weten Schappen Universiteit –Gent, 60 (3): 803- 805.*
- Southwood, I. 1975. *Ecological Methods with Particular Reference to the Study of Insect Populations*. 4th Edn., Chapman and Hall Ltd., London, 391.
- Tiglia, A., Vilela E. and Moara. J. 1996. Efficacy of Traps with Aggregation Pheromones and Sugar Come to Capture *Chyincophours plamarum, An as da. Sociodada Entonological do, 27 (2) :177-183.*
- Weissling T., Giblin, R., Ceter, B. and Hiyakaua, T. 1994. Flight Behavior and Seasonal Trapping of *Rhynchophorus crenatas* (Coleoptera: Curculionidae). *Ann –Ent. -Soc- Am., 87(5) :641-647.*
- Film-Animals, Weeds, Pathogens photos, url
-http-www. res. org. uk-images-defaulttop-r1-cl, gif. url
-Palmworld by Betrock Information Systems. url
- Pest Identification and Diagnosis. url
-Search for NCR-Wheelless'Textbook of Orthopaedics. url
-UC IPM Online. url
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URL: http://www. calacademy. org
- Abdul Haq, K. and Akmal, M. 1972. Insect Pest of Date Palm and their Control. *The Punjab Fruit Journal*, 33:208-212.
- Abraham, V. and Kurian, C. 1975. An Integrated Approach to the Control of *Rhynchophorus ferrugineus*, the Red Weevil of Coconut Palm. 4th Session of the FAO Technical Working Party on Coconut Production and Protection , 35.
- Avidov, Z. and Harpaz, I. 1969. *Plant Pests of Israel*. Israel University Press, Jerusalem, Palestine, 549.
- El-Ezaby, F. 1997. Injection as a Method to Control the Red Indian Date Palm Weevil *Rhynchoprurus ferruginous*. *Arab Jo. of Plant Protection*, (1) :31-38.
- EL-Garhy, M. E. 1994. Field Evaluation of the Aggregation Pheromone of the Red Palm Weevil, *Rhynchophorus ferruginous* in Egypt. *Brighton Crop Protection Conference : Pests and Diseases*, 3 (1) : 8-21.
- Elmer, H. 1966. Date Palm Insects and Mites in the United States. *Date Growers Inst. Resm*, 43:9-14.
- Hallett, R., Orhlschlaer, A. and Borden, J. 1998. Pheromone Trapping Protocols for the Asian Palm Weevil *Rhynchophorus ferruginous* (Coleoptera : curulionidae), *International Journal of Pest Management*, 45 (3) : 231 – 237.
- Kranz, J., schutterer, H. and Koch, M. 1978. *Diseases, Pests and Weeds in Tropical Crops*, John Wiley and Sons, New York, 666.
- Moarc, J., Vilela, E. and Fereira, J. 1998. Pheromone Trap for the Control of *Rhyrchophorus palmaram* in Palm Oil Plantations. *Man-Jo. Integrado-de-plagas*, 50:, 55-59.
- Oehlschlager, A, ., Mc Donald, R., Chinchilla, C. and Pastscuke. S. 1995. Influence of a Pheromone Based Mass-trapping System on the Distribution of *Rhynchophorus palmaram* (Coleoptera : Curcalinoidae in Oil Palm, Environ. – Entomol. Lauham M. D. *Entomological Society of America*, 24 (5) :100 – 112.
- Rajan, P. 1997. Integrated Pest Management of Palm

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Agriculture Canada, Neatby Bldg., Ottawa, Ontario K1A
0C6, Canada
Tel: (613) 996-1665 / FAX: (613) 995-1823
Lyman Entomological Museum (LEMQ)
McDonald College, McGill Univ., St. Anne de Bellevue,

A Survey on Insect Pests of Date Palm Trees in Jordan *(Research Note)*

*Muna Mashal and Basil Abeidat**

ABSTRACT

A survey has been conducted in northern, mid and eastern of the Jordan Valley as well as Aqaba region. The survey was made from June 1999 to July 2001, in order to identify insect pests species, damaging stages of each pest, the economic importance, injured plant parts, sensitivity of different date palm cultivars to each pest and percent of occurrence of each pest on date palm. Thirty six insect pests have been found on date palm trees in Jordan; Red Palm Weevil (RPW), Greater Date Palm Moths (GDM), Lesser Date Palm Moths (LDM) and Frond Palm Borer (FPB) were found to be the most destructive pests to date palm trees in Jordan. These pests caused an important loss in the fields. Dust mite, also detected as an economic pest, caused high loss, especially in dusty places. Other recorded moths, weevils, mites and flies were found in the fields under various intensities and different economic importances.

However, some of these insects are monophagous primary pests which feed only on the palms like RPW, GDM, LDM and FPB. These insects are imported with transplants from the neighboring countries to Jordan, while other pests are polyphagous secondary pests which feed on many hosts as on palms such as: med fly, pomegranate butterfly and fig beetle. Any of these secondary pests could be of economic importance under suitable environmental conditions

KEYWORDS: Survey, Date palm, Red palm weevil, Greater and lesser date moths, Frond palm borer, Dust mite, Weevils.

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