

**TESTING DIFFERENT METHODS OF CONTROL AGAINST
LESSER DATE MOTH (*Batrachedra amydracula* Merck)
ATTACKING HAJRI VARIETY AND THEIR EFFECT ON YIELD
AND FRUIT QUALITY OF DATES**

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ABSTRACT

The trails were carried out during the seasons 1993 and 1994 in Hadhramout Wadi to test different methods of control against lesser date moth (*Batrachedra amydracula* Merck) attacking the fruits of Hajri variety and the effect of these methods of the control on the yield and quality of fruits. The treatment as following: 1. Control (with out treatment), 2. Bagging aspadices with pored paper sacks, immediatly after pollination and left them up to the bending, 6 week after fruit set, 3. Bagging the 30% thinned aspadices with pored paper sacks immediatly after pollination and left them up to the bunch bending, 6 weeks after fruit set, 4. Spraying the bunches with malathion 50% at the rest of 2,5 ml of malathion per liter of water, Application of thin layer of sesame oil on the bunches at the time of bunches bending, 6 weeks after fruit set. The results indicated that different methods of control gave reasonable protection of fruits and minimize the attack of lesser date moth as compared with control treatment. Bagging the bunches with pored paper sacks after pollination and left up to the bunches bending gave higher yield and lower mean damage by the moth , but gave lower fruits quality while the other bagging treatment gave the lower mean damage and best fruit quality, but gave lower yield. The chemical treatment, malathion, came second in yield and almost the same as the fruits quality of the sesame oil treatment and the control.

INTRODUCTION

Date palm (*Phoenix dactylifera* L.) is regarded to be the most important fruit crop in Hadhramout Wadi; (HW). The number of trees in H. W is more than 1797300 (Abed El Hussein, 1977). There are 45 varieties in H W of which Mejvaf, Gizaz, Madeni, Hajri, Hamra, Seraie. The fruits of these varieties are usually attacked by several pests and mites. Of these pests, lesser date moth is considered to be the most important fruit pest in H W. Considerable damage was found in HW and

other parts of the world (Blumber, D., 1975; Blumber, D., et al., 1977; Khalid, S.A. et al., 1993). The damage by this pest is differ from one variety to another (Haidari, 1980; Haidari et al., 1975; Haidari, 1986). Angood (1975) stated that the damage might reach 80 % while we estimated the damage in Hajri variety by 100%.The Hadhrami farmers usually apply sesame oil to the fruits in the strands just two weeks after pollination as well as using insecticides to control lesser date moth. These insecticides are effective in reducing the population of lesser date moth (Ba Angood 1978, Abdul Jabbar et al., 1982; Blumberg et al., 1997). The continuous use of these insecticides against the lesser date moth may lead to the development of resistance, Because of resistant, the risks of the insecticides to farmers, natural enemies (*Chrysopa sp.*) and environment we look for ward to introduce safer and cheaper methods that can minimize the damage as well as improve the fruits quality of the dates.

MATERIALS AND METHODS

The trails were conducted in AlGhurfer in HW- Sixteen in the first year and 20 in the second year of Hajri variety in the same age (25 years) were selected for the trails. The trees were planted on a main canal, irrigated almost every day. The trees were pollinated in January and February with vital pollen grains taken from one male tree. Each tree has only eight bunches. Treatments are as fallow: Bagging (45 x 90 cm) aspadices with pored (25 mm) sakes immediately after pollination and left them up to the bunch bending, 6. weeks after fruit set. Bagging the 30 % thinned aspadices with pored paper sacks immediately after pollination and left them up to the bunch bending, 6. weeks after fruit set. Spraying the bunches with malathion 50 % at the, rate of 2.5 ml of malathion per liter of water. Application of thin layer of sesame oil on the bunch, at the rate of 10 ml per bunch, at the time of bunch bending, 6 weeks after fruit set. Control (without treatment).

The treatments were replicated four times. Randomize complete block design was used. The data was analyzed by Duncan. Insects inspection: One strand from each bunch was introduced in a poly ethylene bag and cut with a scissors. The bags were taken to the laboratory. These samples were taken just before spraying and 3 days, 10 days later. The number of healthy and damaged fruits were counted. The fruits on the trees were ripen in September and harvested. The weight of yield from each tree was recorded. 25 fruits were taken to measure the length, diameter and weight.

RESULTS AND DISCUSSIONS

The results of the trails indicated that different treatments of control gave reasonable protection against lesser date moth as compared with control treatment after ten days of application significant differences (5%) in the infestation was found between treatments and the control. However there was no significant differences among these treatments. Bagging the bunches just after pollination minimized the damage of the fruits and reduce the infestation of lesser date moth, and increase the size of the fruits at the early stage of the fruits growth, but not at later stages of the fruits growth, the increase in size of the fruits buy the enlargement of the cells of fruits when they are covered with paper sacks. After the removal of the sacks, the cells did not enlarge that much in the un thinned bunches because of the high number of the fruits in the strands and the bunch. The lower infestation by lesser date moth in the bagging and un thinned treatment lead to increase the number of the fruits in the strands and therefore increase the yield of the trees- Further more the lower infestation by lesser date moth in the thinned treatment lead to increase the size, diameter and length of the fruits, because of accumulation of the food in a limited number of fruits in the strands and bunches, but it reduce the total yield of the tree. This agreed with the results obtained by Abbas (1990). Among the bagging treatments there is a significant difference (50 %) in the yield. The higher yield was obtained by the un thinned treatment. But there is no significant difference (5%) in the infestation. The application of malathion insecticide to the bunches, protected the fruits from the increase infestation of lesser date moth. After ten days of application the infestation decrease than before the application. The yield obtained from this treatment is coming next after bagging and thinned treatment and there is no significant difference in the yield and infestation between them.

The application of sesame oil to the fruits protect these fruits from further infestation. The infestation did not increase after the application of sesame oil and it remain as before the application. The yield obtained from this treatment is lower than the above treatments. The high number of the fruits in the strands and the bunch affect the diameter, length and weight of the fruits. Therefore the bagging and un thinned treatment gave the lowest quality of fruits as compared with other treatments. In the other hand, the bagging and thinned treatment gave the best length and weight of the fruits. This agreed with the findings of Abass et al., 1980; Khairi et al., 1983, Hussein 1970, Hassam et al., 1988. The control and oil application treatments almost have the same fruit quality and came next of bagging thinned treatment.

Mean number of damaged fruits by lesser date moth

Treatments	Rate	Mean No . of damaged fruits		
		before spraying	3 days after spraying	10 days after spraying
Bagging aspadius		1.91	2.6 B	1.8 B
Bagging the 30 % thinned aspadices		1.5	3.8 B	2.5 B
Malathion 50%	2.5 ml per liter of water	3.6	3.0 B	2.6 B
Sesame oil	10 ml	3.5	3.2 B	3.6 B
Control		3.2	7.2 A	7.1 A
S . E .		0.95	0.78	0.95

Mean yield (kg) per tree and mean diameter (mm), length (mm) and weight (g) of fruit

Treatment	Yield(kg)/tree	Diameter (mm)/ tree	Length mm/ fruit	Weight(g)/fruit
Bagging aspadices	50.560 A	19.5 B	35.0 C	5.9 C
Bagging 30% thinned aspadices	27.100 B	22.5 A	42.0 A	8.6 A
Malathion 50%	40.010 AB	21.8 A	37.0 BC	7.1 B
Sesame oil	28.050 B	21.7 A	38.5 ABC	7.8 AB
Control	22.380 B	22.5 A	38.8 AB	8.0 AB
S . E .	7.81	0.66	1.10	0.34

No significant difference in the fingers fallowed by the same litters .

المراجع

		1982		+	
- 34	2	1			
					. 36
				1986	
				1980	
. 16 - 14					
		1988			
			. 246 - 238	1	6
		1993		-	
				1976	

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