

SEASONAL INCIDENCE OF MAJOR INSECT-PESTS OF OKRA IN SEMI-ARID REGION OF RAJASTHAN

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Okra, *Abelmoschus esculentus* Moench an important vegetable crop, is attacked by the leafhoppers, *Amrasca biguttula biguttula* Ishida, aphids *Aphis gossypii* Glover, and the shoot and fruit borers, *Earias* spp. The incidence of aphids (Rana, 1983) and the shoot and fruit borer (Mote, 1977; Radke and Undirwade, 1981 and Rana 1983) have been studied under irrigated conditions. We report here the seasonal incidence of these pests on okra in the semi-arid region of Rajasthan, under rainfed condition.

An experiment was conducted at the Horticulture farm, College of Agriculture, Jobner during kharif (July-October), 1984. The seeds of okra cv Pusa sawani were dibbled on July 23 in plots (2x2 m) at 0.6 m row to row and 0.3 m plant to plant spacing. The recommended cultural practices of the area were followed from time to time. The weekly pest population counts, starting a week after sowing, were made in morning hours (before 08.00). The counts of leafhoppers and aphids (nymphs as well as adults) were made on whole plant upto 22nd August, 1984 but thereafter only on three leaves (top, middle and bottom) of ten tagged plants per plot. Shoot and fruit borer infestation was recorded by visual counts of damaged plant parts and percentage of infested fruits worked out at each picking.

The leafhoppers, *Amrasca biguttula biguttula* Ishida appeared in the first week of August i.e. 2 weeks after sowing and prevailed throughout the crop period (Table 1). The population increased gradually and reached to the maximum (28.25/plant) during September when the relative humidity was more than 70 per cent; and declined thereafter. The present observations conform to those of Butani (1970), and Rana (1983).

Aphids, *Aphis gossypii* Glover. which appeared in the third week of August, increased with the increasing relative humidity. The aphid population reached maximum (40.2/plant) in the fourth week of September and declined thereafter (Table 1) at relative humidity falling below 70%.

Earias insulana Boisd. was observed to attack the crop 3 weeks after sowing (Table 1). The shoot infestation (min. 3.33% in the second week of August) increased upto 24.16% by the second week of October (11 weeks after sowing). Shoot damage occurred even after fruit setting. The infestation of fruits started with the

Table 1. Incidence of the major insects on okra at Jobner in 1984 (means of 10 plants)

Date of observation	Weather conditions				Population/plant			<i>Earias insulana</i>	
	Max.	Temp (°C)	Relative Humidity (%)	Rain fall (mm)	<i>Amrasca biguttula biguttula</i>	<i>Aphis gossypii</i>	Per cent infestation		
							Plants	fruits	
August 1	39.50	21.00	86.50	1.00	0.00*	0.00*	0.00		
" 8	40.00	20.00	77.50	0.00	0.25*	0.00*	3.33		
" 15	40.00	21.00	86.00	3.60	5.92*	7.25*	3.33		
" 22	35.55	18.00	91.75	30.40	9.85*	14.72*	5.83		
" 29	38.75	20.00	84.50	0.00	16.85	24.23	7.49		
September 5	33.50	20.00	88.50	1.00	23.70	35.67	9.99		
" 12	37.75	17.00	87.00	0	20.55	37.42	11.66		
" 19	35.50	15.00	81.50	0	28.25	39.30	18.33		
" 26	—	—	69.75	0	22.15	40.20	20.82		
October 3	—	—	63.00	0	21.77	30.12	22.49		
" 10	—	—	61.00	0	6.27	9.87	24.16		
" 17	—	—	57.60	0	0.17	0.75	24.16	28.50	
" 24	—	—	53.30	0	0.00	0.00	24.16	24.16	

* population on whole plants, rest population on three leaves per plant

Table 2. Fruit borer, *E. insulana* infestation on okra under semi-arid conditions of Jobner

Date of observation	Per cent fruits infested
17.9.84	3.25
20.9.84	7.00
23.9.84	7.50
26.9.84	7.75
29.9.84	10.55
2.10.84	11.75
5.10.84	15.25
8.10.84	15.75
11.10.84	16.75
14.10.84	22.00
17.10.84	28.50
20.10.84	29.25
23.10.84	45.50
25.10.84	47.25

initiation of fruiting (I observation on Sept. 17, 8 weeks after sowing) and continued till harvesting of the crop. The infestation of fruits ranged from 3.25 to 47.25 per cent. The infestation (number of fruits infested) was less than 10% upto Sept. 26; between 10 to 20% upto October 11 and then shot up to 29.25% by Oct. 20, 45.5% by October 23 and to a maximum of 47.25 % fruits were borer infested on October 25.

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