

## INCIDENCE OF INSECTS ATTACKING OKRA AND THE AVOIDABLE LOSSES CAUSED BY THEM

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### ABSTRACT

At Udaipur, the summer crop of okra was attacked by *Aphis gossypii* Glov. (2.89/leaf), *Amrasca biguttula biguttula* Ish. (4.78/leaf), *Bemisia tabaci* Guen. (0.78/leaf) and *Earias fabia* St. (57.14% infested fruits). If the crop was not grown under insecticidal protection, the net available loss worked out to be 54.04%.

### INTRODUCTION

Okra [*Abelmoschus esculentus* (L.) Moench], an important vegetable crop, is damaged by a number of insect pests (Butani and Verma, 1976; Mote, 1977 and Saroda and Lal, 1981). Occurrence of various insect pests under the subhumid agro-climatic zone of Udaipur (Rajasthan) was studied during summer and avoidable losses, particularly by surface feeders, were worked out.

### MATERIAL AND METHODS

A field experiment, in paired plot design with three replications, was laid out in plots 4 m x 3 m, representing two treatments i.e., protected and unprotected as suggested by Leclerg (1971). BHC 5% dust @ 25 kg/ha was applied in the soil prior to sowing of cv 'Pusa Sawni' with 40 cm row to row and 20 cm plant to plant distance. Cultural practices were made as and when needed. Protected plots were regularly sprayed 15 d.a.s., alternatively with 0.03 per cent phosphamidon and 0.05 per cent endosulfan @ 833 l/ha at weekly intervals. Unprotected plots were subject to natural infestation and kept free from any insecticidal spray.

The sampling unit comprised three leaves per plant and five such plants tagged per plot. The aphid population was estimated on visual basis (Nielson, 1957). Jassids and whiteflies were sampled with sudden trapping on marked leaves by gently holding the leaf in between a pair of culture petriplates (10 cm dia). Percentage infestation of fruit borer was estimated after carefully screening of the fruits. Regular record of the pests observed was maintained.

To assess the losses, various plant characters such as total fruits, weight of total fruits, number and weight of healthy fruits, height and number of leaves per plant (on 10 plants per plot) were considered. The data in both the plots were analysed after Leclerg (1971). Finally per cent loss was calculated from difference in yield of protected and unprotected plots.

## RESULTS AND DISCUSSION

### Seasonal incidence

The sap sucking insect pests, aphids and jassids, made their appearance on the summer crop of okra 21 d.a.s. (Table 1). The incidence of whiteflies occurred on about one month old crop. Gradually, all the pests reached their peak on 43-day old crop with an average population of 2.89, 4.78 and 0.78 per leaf, respectively. Thereafter, pest populations started declining. The incidence of fruit borer started at first picking and touched its peak on about 10-week old crop. This is in agreement with Mote (1977).

Table 1. Incidence of insect pests on okra

Age of the crop in days	Sap suckers			Fruit borer	
	Mean population*			Age of the crop in days	Per cent infestation**
	Aphid	Jassid	Whitefly		
22	0.45	1.12	—	54	28.57
29	1.23	2.78	0.20	57	25.00
36	1.78	3.34	0.45	60	30.00
43	2.89	4.78	0.78	63	44.44
50	2.34	3.56	0.33	66	55.55
57	2.23	3.12	0.56	69	50.00
64	1.78	1.78	0.45	72	57.14
71	0.67	1.12	0.15	—	—

\* Based on 45 leaves

\*\*Based on 15 plants

### Avoidable loss

Average plant height in unprotected plots was reduced by 5.31 per cent as a result of insect infestation (Table 2). Rawat and Sahu (1973) reported 49.8 and 45 per cent reduction in plant height and number of leaves. Under present investigation, no significant difference was observed in the number of leaves per plant in protected and unprotected plots. In case of fruits, 54.69 and 54.89 per cent reduction in number and total weight was recorded. Total number of healthy fruits and weight of healthy fruits were reduced by 63.53 and 61.84 per cent, respectively in unprotected plots over the protected plots. These findings corroborate those of Rawat and Sahu (1973). Evidently, if the crop is not grown under insecticidal umbrella, there would be heavy

Table 2. Estimation of crop losses by pest complex on okra crop

Plant character	Protected	Un-protected	Percentage reduction
Plant height (cm)	68.36	64.73	5.31
Number of leaves	20.12	19.89	1.14
Number of total fruits	7.99	3.62	54.59
Weight of total fruits (g)	107.16	48.33	54.89
Total healthy fruits	7.02	2.56	63.53
Weight of total healthy fruits (g)	96.49	36.82	61.84
Yield (kg/plot)	15.65	7.18	54.05

attack of sucking pests as well as fruit borer which might cause as high as 54.04 per cent avoidable loss in the final yield of green fruits.

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