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Impact of Insect Predators in the Control of *Aphis gossypii* Glov. on Guava

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The plant lice, *Aphis gossypii* Glov., is a polyphagous species widely distributed on a large number of crops in India (Ullah, 1940). On guava, colonies of nymphs and adults infest tender shoots and leaves, and suck the cell sap. They secrete honeydew resulting in development of sooty mould on leaves and shoots (Butani, 1974). On several occasions, insecticidal applications have increased the aphid population, and some times resulted in outbreaks (Hambleton, 1939; Orlandao *et al.*, 1970). On the other hand, natural enemies themselves if uninterrupted by insecticides help to check the aphid populations. As many as 20 natural enemies were reported on *A. gossypii* in India. The present investigation was undertaken to determine the effectiveness of natural enemies in the suppression of *A. gossypii* in guava orchards.

The study was conducted in 1987 at the I.I.H.R. Farm on 3 year old guava plants. Appearance of aphids was observed on the plants by the end of March and such infested plants were tagged. Weekly observations were intitiated from 14th April onwards. The population of aphids and its natural enemies were counted 'in situ' on 10 randomly selected aphid infested plants. First three leaves of three randomly chosen terminal shoots per plant were used for observations.

In the present study, five coccinellid predators *viz.*, *Menochilus sexmaculata* F., *Scymnus* sp., *Pseudospidimerus circumflexa* (Mots.), *Chilocorus nigritus* (F.) and *Cryptolaemus montrouzieri* Muls. and two syrphids namely *Ischiodon scutallaris* (F.) and *Paragus serratus* F. were observed feeding on *A. gossypii*. Of these predators, *C. nigritus* and *C. montrouzieri* were of minor importance. Activity of parasitoids of *A. gossypii* was not observed during the entire study period.

There was a mean of 308.4 aphids per plant when first observed on 14th April. The activity of predators was also observed then but their total numbers were neligible (Table 1). But in subsequent counts, there was an increase in predator population which caused a reduction in aphid population. The aphid population was completely wiped out in about 50 days.

Table 1. Population of *A. gossypii* and its predators and weather data

Date of Observation	Population per plant (mean± S.D.)					Weather data			
	Aphids	Coccinellids			Syrphids (*Ichiodon* + *Paragus*)	Temperature (Mean)	Relative humidity (Mean)		Rainfall (mm)
		Menochilus	*Scymnus*	*Pseudospidimerus*		Max. Min.	Morning Evening		
14.4.87	308.4+38.95	0.9±1.1	0.4±0.7	0.2±0.5	0.0±0.0	34.3	26 79	27.6	0
21.4.87	238.0±26.87	2.6±1.1	3.0±0.9	0.7±1.1	1.2±0.4	34.2	15 86	21.4	0
28.4.87	176.1±32.16	2.9±0.6	4.3±1.8	1.3±1.2	1.8±0.9	34.6	18 52	26.7	4.9
4.5.87	133.0±14.94	6.5±2.1	7.6±1.7	2.1±0.7	2.1±0.7	32.5	18 02	37.4	0.5

The coccinellid *M. sexmaculata* increased from 0.9 to 14.4 per plant, reaching the peak by middle of May. It was the most common coccinellid predator encountered which played an important role in bringing down the aphid population. According to Venugopal *et al.* (1975), *M. sexmaculata* was the dominant coccinellied predator of *A. gossypii* on okra. The population of *Scymnus* sp. (the second common coccinellid) was found ranging from 0.4 to 13.7 per plant. Knight (1944) and Garcia (1974) have reported *Scymnus* spp. as efficien predators of *A. gossypii*. Larvae of *P. circumflex*

were also observed to be potential predators of *A. gossypii* throughout the study.

Syrphids, though ranged from 0.3 to 2.1 only per plant, were voracious feeders. Karlin (1980) reported that the effectiveness of syriphids had been attributed to the high rate of feeding on aphids. Thus, it is concluded that the coccinellid and syrphid predators were quite effective in controlling *A. gossypii* in guava orchards. The combined effect of coccinellid and syrphids in checking *A. gossypii* has been previously well documented by Wille (1936) and Lever (1940).

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Key words: *Aphis gossypii*, predators, guava

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