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Sunnhemp - *Crotalaria juncea* Linn. A Reservoir for Entomophages at Anand (India)

Urmila Sharma and D. N. Yadav

All India Coordinated Research Project on Biological Control, Gujarat Agricultural University, Anand Campus, Anand-388 110

ABSTRACT

As many as 18 species of entomophages belonging to six orders and 14 families occurred on the *Crotalaria juncea* Linn. during 1994 and 1995 seasons. Out of these *Geocoris ochropterus* Fieber was the most abundant species.

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INTRODUCTION

Geocoris ochropterus Fieber is one of the important predators associated with different insect pests in several ecosystems. (Subha Rao *et al.*, 1965, Kumar and Ananthakrishnan, 1986, Sannigrahi and Mukhopadhyay, 1992, Kapadia and Puri, 1991, Kingeren *et al.*, 1968). During 1994 season it's appearance in large number on green manuring crop *Crotalaria juncea* Linn. just before the start of cotton crop, where the predator played an important role in suppression of pests, tempted us to recorded the observation on its population dynamics. The observations on its population alongwith other entomophages encountered were recorded during 1994 and 1995 seasons. The results are presented in the paper.

MATERIALS AND METHODS

A 0.2 ha field of *C. juncea* was selected at university farm and observations on number of *G. ochropterus* and other entomophages were recorded on 25 randomly selected plants at weekly intervals starting from the 12th July to 28th August in 1994 and from 21st June to 21st August in 1995. The results are presented in Table 1.

RESULTS AND DISCUSSION

The observations indicated that as many as 18 species of entomophages belonging to six orders and 14 families occurred during the season. Of these *Geocoris ochropterus* (Fieber) was the most abundant (34.28 and 38.1 per 25 plants during 1994 and 1995 respectively and occurred throughout the course of study. All the stages of the predator i.e. egg, nymph and adults were observed. This suggested that the predator had been reproducing. While predation by *G. ochropterus* was observed in the field, the other natural enemies were found hunting for

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TABLE 1

Entomophages found on sunnhemp during July, August, 1994 and 1995.

Predator/Parasites Taxa	*No./ 25 plants*	*Remarks*	*Reference*
1.	*2.*	*3.*	*4.*
Hemiptera			
Lygaeidae		Associated with cotton ecosystem	Schuster *et al.*, 1976 Yadav, 1994
Geocoris ochropterus (Fieber)	34.28 (38.1)	Potential predator of *Heliothis zea* boddie	Lingeren *et al.*, 1968.
		Reported as nymphal and pupal predator of *Bemisia tabasci* (Gemmadois)	Kapadia and Puri, 1991
Nabidae			
*NAbis*sp.	1.00 (0.2)		
Unidentified species	0.71 (0.00)		
Anthocoridae *Orius* Sp.	0.57	Feeds on thrips, nites, aphids and Lepidopteran eggs	Kiman and Yeargan, 1985
Reduviidae	1.71	Feeds on larvae of *Helicoverpa*	Patel, 1985
Coranus spiniscutis Reutr.	(0.2)	Hubner	
Rhinocoris fuscipes Fa.	1.14 (0.1)	Feeds on larvae of *H. armigera* Hubner and *Spodoptera litura* Fab. green stink bug, *Nezara viridula* Linn. (in soybean)	Anon., 1993 Singh and Singh,1987
Pentatomidae			
Andrallus spinidens Fb.	0.42 (0.2)	Feeds on larvae of *H. armigera* Hubner	Rajendra and Patel, 1971
Coleoptera			
Coccinellidae			
Coccinella septumpuntata Linn.	0.85 (0.30)	Potential predator of *Aphis craccivora* Kocha	Patel *et al.*, 1976
Menochilus sexmaculatus Fa.	2.72 (3.1)	Potential predator of *Craccivora* Kocha	Patel *et al.*, 1976
Carabidae			
Unidentified species	2.14 (0.2)		
Staphylinidae			
Paederus sp.	1.57 (3.1)	Abundant in groundnut and Cotton-Feeds on just hatched larvae of *Spodoptera litura* Fab. and Jassids on cotton	Anon., 1971

1.	2.	3.	4.
Diptera			
Tachinidae			
Drino imberbis wied	1.14 (0.50)	Parasitises late instar larva of *H. armigera*	Yadav, 1980
Peribaea orbata	0.57 (0.2)	Parasitises young larvae of *Earias vittella*	Bandhania, 1982
Asilidae			
Unidentified species	1.57 (0.4)	Feeds on cotton jassids, *Enpoasca bigutulla bigutulla bigutulla*	Yadav, 1994
Hymenoptera			
Formicidae			
Componotus (F.)	7.21 (4.60)	Associated with cotton crop, Feeds on Young *H. armigera* larva	Manjunath, 1974
Dictyoptera			
Mantidae			
Mantis sp.	0.42 (0.57)		
Arachnida clubionidae	0.57	Feeds on larva of *H. armigera*	Dhulia and Yadav, 1991
Clubiona sp.	(3.3)	Hubn. and *S. litura* Fa.	
Oxyopidae			
Oxyopes ratnae Tikadar	1.28 (1.50)	Feeds on soft bodied insects, larvae of *H. armigera* Hubn. and Anomis flava P.	Dhulia and Yadav, 1991

* Mean of 8(10) observations.

** Figures in paranthesis are of the year 1995.

their host/prey. These however, are known to parasitise/predate on several other insect pests on some other economical crops (Table 1). The nymphs and adults of *G. ochropterus* were often found preying upon young larvae of *Argina cribraria* Clerk, (Lepidoptera : Hypsidae), unidentified aphids, coleopterans, ants etc. The predator bugs seems to be quite sturdy as it was always observed in greater number despite continuous heavy rains (787.6 mm with 59 rainy days) during 1994. The population of *A. cribraria* remained low during both the years (1.57 larvae and 0.70 larvae per 25 plants during 1994 and 1995 respectively), probably due to the abundance of *G. ochropterus*. It appeared that a large number of *G. ochropterus* and other natural enemies were either perished or dispersed in search of new niches, when the crop was ploughed on 31st August in 1994 and on 21st August during 1995 for green manuring. The population of *G. ochropterus* at this time during both the years was quite high (34.28/25 plants in 1994 and 38.1/25 plants during 1995 whereas, other natural enemies viz. *Menochilus sexmaculatus* Fb., *Coccinella septumpuctata* Linn., *Nabis* sp., *Coranus*

spiniscutis Reutr, *Orius* sp., *Andrallus spinidens* Fb., *Camponotus* sp., *Paederus fuscipes* Fa., *Rhinocoris fuscipes* Fa. were found in small number (less than 7/25 plants). There are several reports where corn, *maize mays* and sorghum have been found to harbour a large number of entomophages (Fye,1972: Javier and Altieri, 1990, Singh and Singh, 1987). Similarly, weeds such as wild parship, *Pastinaca sativa* L. (Wolcott, 1942), Starburr, *Acanthospermum hispidum* (Manjunath *et al.,* 1976) and Sena, *Cassia occidentalis* Vahl. (Patel and Yadav, 1990) have been reported as reservoir for entomophages. In the present study the sunnhamp plants were found to harbour a large number of natural enemies perhaps due to insecticide free dense crop planting. *G. ochropterus* in particular was observed in great number and its high population just before the ploughing of the crop for green manuring is of great interest. It however, remains to be seen whether a huge number of *G. ochropterus* and other natural enemies perish or disperse in serch of new niches; Neverthless, information generated may help in designing the experiments on conservation utilization of enemies *G. ochropterus.*

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