

## Occurrence of Some Predatory Spiders on Hybrid Cotton in Anand (Gujarat)

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While investigating the natural enemies of cotton pests, the authors recorded thirteen species of predatory spiders (Table 1) for hybrid cotton at Agronomy Farm of Anand Campus of Gujarat Agricultural University. During 1986-87, the data on seasonal abundance of the different species of spiders were recorded at fortnightly interval by examining 25 plants selected at random from 0.2 ha field.

The observations showed that hunting species contributed a major proportion of 63.15%. *Oxyopes ratnae*, *Clubiona* sp., *Argiope pulchella*, *Castianeira* sp., *Olios* sp., *Neoscona theisi*, *Thomisus* sp., *Uloborus khasiensis* were the important ones. The observations made on the seasonal abundance of 8 important species are as follows.

### 1. *Oxyopes ratnae* (Oxyopidae)

It was found most abundant and had longer period of activity. It appeared in the first week of September and remained active until February. Its numbers varied from 0.12 to 7.28 spiders / plant. The maximum activity was recorded in the second week of October to the first week of November during which its number varied from 6.32 to 7.28 spiders/plant. The spiderlings were found to feed on soft bodied insects such as aphids and jassids. Their adults fed on larvae of *Heliothis armigera* Hb. and *Anomis flava* P. in the field. Patel (1987) reported the occurrence of five species of oxyopidae in cotton fields of Saurashtra region, of which *O. chittrae* and *O. shweta* were found more frequently in the field.

### 2. *Clubiona* sp. (Clubionidae)

It was found active in the field from third week of September to second week of Decem-

ber during which its numbers varied from 0.04 to 1.20 spiders/plant. Its peak activity was recorded in the fourth week of October when 1.20 spiders/plant were encountered. Though the predation by this spider was not observed in the field, it was found feeding on the larvae of *H. armigera* Hbn. and *Spodoptera litura* Fab. in the laboratory. Baldev Parshad *et al.* (1981) reported *Clubiona* sp. as a common spider on cotton around Delhi and also reported the predation on the larvae of *Sylepta derogata* Fab.

### 3. *Argiope pulchella* (Argiopidae)

This species was found active from fourth week of September to the third week of December. The maximum activity was recorded in the second week of October when the population was 1 spider/plant. The adults of *Earias vittella* F., *A. flava* F. and *Bemisia tabaci* Gennadius were often found entrapped in the webs.

### 4. *Castianeira* sp. (Clubionidae)

The activity of this species was first noticed in the fourth week of September when the population count was 0.24 spider/plant. They were abundant in the second week of October when 1.92 spiders/plant were encountered. They fed on aphids, jassids and white flies. *Castianeira* sp. was also recorded from the cotton fields of Saurashtra and North Gujarat (Patel, 1987). Its population was however found to be low (0.03% of the total collection).

### 5. *Olios* sp. (Heteropodidae)

This species was found active from the fourth week of September to the third week of December. Maximum activity was observed during the first week of October and third week of November when 0.16 spider/plant was

**Table 1. Different species of spiders recorded on hybrid-6 cotton during 1986-87**

Group/Family	Species	Average population/plant
<b>Hunting spiders</b>		
Oxyopidae	<i>Oxyopes ratnae</i>	2.14
Clubionidae	<i>Clubiona</i> sp.	0.55
	<i>Castianeira</i> sp.	0.54
Salticidae	<i>Plexippus</i> sp.	0.18
Lycosidae	<i>Hippasa</i> sp.	0.12
<b>Web building spiders</b>		
Araneidae	<i>Neoscona theisi</i>	0.68
	<i>Neoscona</i> sp.	0.11
Uloboridae	<i>Uloborus khasiensis</i>	0.46
Argiopidae	<i>Argiope pulchella</i>	0.37
<b>Ambushing spiders</b>		
Thomisidae	<i>Thomisus</i> sp.	0.21
	<i>T. cherapunjeus</i>	0.08
	<i>T. projectus</i>	0.07
<b>Miscellaneous spiders</b>		
Heteropodidae	<i>Olios</i> sp.	0.09

recorded. Its prey range could not be observed in the field.

#### 6. *Neoscona theisi* (Araneidae)

This species was found active in the field from the first week of September to the first week of November. The spider was abundant during September when the population varied from 0.68 to 2.0 spiders/plant. The adults of *E. vittella* and *A. flava* were found entrapped in the web. *N. theisi* was also recorded from Saurashtra (Patel, 1987). It was reported to be very common accounting for 1.47 per cent of total collection.

#### 7. *Thomisus* sp. (Thomisidae)

Its activity was first noticed in the third week of September and continued until the second week of December. Maximum activity was recorded during second and third week of

October when, 0.32 spider/plant was recorded. This spider was found preying on larvae of *A. flava* and *H. armigera*. Patel (1987) recorded as many as 22 species of spiders from Thomisidae. Thomisidae in cotton crop accounted for 7.21 per cent of the total spider population.

#### 8. *Uloborus khasiensis* (Uloboridae)

Its activity was recorded from the third week of September to second week of December with maximum activity during the first week of November. Aphids, jassids and white flies were found trapped in the web. Patel (1987) also reported the occurrence of *U. khasiensis* in cotton from Saurashtra region. The population was however low (0.25% of the total spider population).

The present study has revealed the potential of predatory spiders in the suppression of some pests of cotton. However, it is necessary to assess their role in the control of the cotton pests either alone or in combination with other arthropod natural enemies. It is important that chemical insecticides less toxic to these spiders should be preferred for pest control in cotton.

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#### REFERENCES

- BALDEV PRASAD, M.G., MENON, R. and ALAM, S.M. 1981. Observation on predatory spiders II on cotton and citrus. *Bull Ent.*, 22, 82-96.  
 PATEL, B.H. 1987. Final Report of ICAR Research Scheme on taxonomy, biology, ecology of spiders of Saurashtra and North Gujarat regions, Department of Zoology, Sir P.P. Institute of Science, Bhavnagar University, Bhavnagar 364 002.