

**Incidence of mirid bug, *Creontiades biseratense* (Distant) on Bt cotton in Karnataka\***

The cotton mirid bug, *Creontiades biseratense* (Distant) is an emerging insect pest on Bt cotton in Karnataka, India causing heavy shedding of squares and bolls which lead to significant reduction in seed cotton yield (Patil *et al.*, 2006; Ravi, 2007 and Udikeri *et al.*, 2009). The pest has also been noticed in Tamil Nadu, Andhra Pradesh and Maharashtra (Surulivelu and Dhara jothi, 2007). In Karnataka Bt cotton is being grown in an area of 0.14 m ha in large area. The new insect pest cotton mirid bug (*C. biseratense*) said to be rampant through out Karnataka. Hence, it was necessary to study the status of this pest in the state. Results of a systemic study undertaken during 2008-09 on the population level of the bug covering 7 districts, 22 taluks and 88 villages, has been presented in this paper.

The roving survey was undertaken twice during cropping period in different Bt cotton growing districts viz., Dharwad, Belgaum, Haveri, Bijapur, Gulbarga, Davangere and Shimoga. In

each district the major cotton growing taluks were surveyed and in each village five fields were visited. The population fluctuation studies on mirid bug were made at two locations as fixed spot, by sowing RCH-2Bt during June at Dharwad and Devihosur (Haveri). The plot size was 15 x 15m. The observation on mirid bug population was made at fortnightly intervals from five squares selected randomly from top canopy of each plant on five randomly selected plants. Further, the square and boll damage due to mirid bug incidence was also recorded.

The incidence of mirid bug was high in Haveri district (upto 10.17 bugs/5squares) probably due to higher area under Bt cotton. In Haveri district, the highest bug population was recorded in Haveri taluk (13.09 bugs/5squares) followed by Hangal, Hirekerur, Byadagi, Ranebennur and Shiggaon taluks. In other districts, the mirid bug incidence was low to moderate i.e., Gulbarga (2.19 bugs/5squares), Davangere (2.90), Bijapur (3.03) and Belgaum (5.02). The least incidence of mirid bug was recorded in Shimoga district (2.17) (Table 1).

Table 1. Incidence of mirid bug, *Creontiades biseratense* on Bt cotton in different districts of Karnataka

District	Taluka	No. of Mirid bugs/5 squares	Square shedding/ plant	Boll shedding/ plant
Haveri	Byadagi	8.65	5.20	4.33
	Hirekerur	8.76	3.69	1.52
	Ranebennur	7.20	2.00	1.00
	Hangal	11.78	5.45	3.78
	Haveri	13.09	5.80	2.76
	Shiggaon	4.58	1.68	0.98
District mean		10.17	4.51	2.60
Dharwad	Dharwad	6.15	3.24	1.72
	Kalaghtagi	3.93	2.40	1.50
	Nanalgund	8.40	6.40	2.40
	Kundagol	5.68	3.53	2.19
	Hubli	6.92	4.32	3.02
District mean		6.03	3.28	1.63
Davanagere	Davanagere	2.90	1.94	1.32
Shimoga	Shimoga	2.17	1.40	0.87
Belgaum	Belgaum	4.70	1.40	0.70
	Bailhongal	5.12	2.07	0.93
	Gokak	5.20	2.00	0.50
	Saundatti	5.07	2.17	0.83
District mean		5.02	1.93	0.83
Bijapur	Indi	2.00	1.50	0.50
	Sindagi	4.05	1.75	0.85
District mean		3.03	1.43	0.68
Gulbarga	Gulbarga	2.20	1.00	0.00
	Jewargi	1.80	0.50	0.00
	Shahapur	2.29	0.93	0.35
District mean		2.19	0.87	0.35

During 2007 also Haveri district had severe incidence of mirid bugs (43.85 bugs/25 squares) followed by Belgaum (18.15 bugs) and Gulbarga (14.95 bugs) districts (Udikeri *et al.*, 2009). The peak incidence was observed during October and November months. The maximum incidence (65.60 bugs/25 squares) was noticed in Haveri during second fortnight of November.

The squares and tiny bolls tend to fall down when mirid bugs attack these parts. In Haveri (4.51 squares/plant) followed by Dharwad (3.28), Belgaum (1.93), Davangere (1.94), Bijapur (1.43) and Shimoga (1.40) the square shedding noticed was high. The least square shedding was observed in Gulbarga (0.87 squares/plant). Similarly, the highest boll shedding was noticed in Haveri (2.60 bolls/plant) followed by Dharwad (1.63) Davangere (1.32), Shimoga (0.87), Belgaum (0.83) and Bijapur (0.68) and the least in Gulbarga (0.35 bolls/plant).

Fixed spot observation made in the endemic areas of the pest i.e., Devihosur and Dharwad revealed that mirids reached to peak during November II fortnight (21.20 bugs/5 squares) at Devihosur. The peak incidence appeared on 80 days old crop and the mirid bug population gradually increased with the age of crop. However, in Dharwad the peak incidence (9.20 bugs/5 squares) was noticed during December I fortnight. Thereafter, the population declined gradually and reached as low as 5.20 and 1.00 bugs/5 squares in February I fortnight and February II fortnight in Devihosur and Dharwad, respectively (Table 2). The square and boll shedding followed similar trend as that of the pest population with their peaks (10.00 and 5.00 squares shedding/plant and 2.50 and 2.00 boll shedding/plant, respectively) recorded in November II fortnight to December I fortnight in Devihosur and Dharwad, respectively.

This variation could be due to area under cotton, initiation of pest activity and general sowing pattern for which Haveri has an edge

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Table 2. Incidence of mirid bug, *Creontiades biseratense* in different habitats in a fixed spot under unprotected condition

Months	ARS, Devihosur (Haveri)			MARS, Dharwad (Dharwad)		
	No. of Mirid bugs/5 squares	Square shedding/ plant	Boll shedding/ plant	No. of Mirid bugs/5 squares	Square shedding/ plant	Boll shedding/plant
Sept. I FN-2008	2.80	1.00	0.50	1.40	1.00	0.00
II FN-2008	4.70	2.50	0.80	2.30	1.70	0.50
Oct. I FN -2008	7.30	3.20	1.20	4.00	2.70	1.00
II FN -2008	9.40	5.00	1.50	5.20	3.50	1.50
Nov. I FN -2008	13.40	7.30	2.30	7.00	4.40	1.70
II FN -2008	21.20	10.00	2.50	8.40	4.80	1.80
Dec. I FN -2008	18.60	9.00	1.50	9.20	5.00	2.00
II FN -2008	16.50	8.10	1.00	8.20	3.00	1.50
Jan. I FN -2009	12.20	6.00	0.40	5.10	2.00	1.10
II FN -2009	8.80	4.00	0.20	4.20	1.70	0.80
Feb. I FN -2009	5.20	2.00	0.00	2.50	1.20	0.80
II FN -2009	—	—	—	1.00	0.20	0.10

FN: Fortnight

over Dharwad. Further, Surulivelu and Dhara Jothi (2007) also observed the mirid bug infestation in an epidemic form on Bt cotton hybrids in Coimbatore during December 2006 which supports the present findings of peak incidence noticed in Dharwad location.

Thus, from the present study as well as reports of Patil *et al.* (2006), Ravi (2007) and Udikeri *et al.* (2009), the mirid bug, *C. biseratense* could be considered as an emerging threat to cotton

cultivation in the state which is appearing regularly and damaging squares/bolls heavily. The management practices and bio-ecological issues need to be addressed immediately for management of this pest.

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