
POPULATION FLUCTUATION OF RED COTTON BUG (*D. koenigii*)

VARMA, H.S. AND PATEL, R. K.*

Department of Entomology, Chimanbhai Patel College of Agriculture,
Sardarkrushinagar Dantiwada Agricultural University,
Sardarkrushinagar-385 506, Dist. Banaskantha, Gujarat, India

***E.mail: patelravindrak@yahoo.com**

ABSTRACT

The study on population fluctuation showed that the population of red cotton bug was found higher (42.52 ± 38.03 red cotton bug/plant) in Bt. Cotton variety (Rashi-2) followed by Hybrid variety (G.Cot. hybrid-10) showing 34.28 red cotton bug per plant and Deshi variety (G.Cot.-23) having 30.86 red cotton bug/plant. The Bt. cotton variety is more preferred by red cotton bug than Hybrid and Deshi varieties.

KEY WORDS

Population fluctuation, Red cotton bug, variety, *Dysdercus koenigii*

INTRODUCTION

The red cotton bug, *Dysdercus koenigii* (Fabricius) belonging to the family Pyrrhocoridae of the order Hemiptera is an important pest of cotton. This insect has been reported to thrive well on other malvaceous plants like holly-hock, okra (*Abelmoschus esculentus*) or other non malvaceous plants like sweet potato (*Ipomea batata*), tobacco (*Nicotiana tabacum*) etc. Red cotton bug is one of the important insects found damaging cotton crop in various states viz., Gujarat, Uttar Pradesh, Bihar, Madhya Pradesh and Tamil Nadu. Pruthi (1924) observed that population of red cotton bug was found throughout the year where winter was not severe. Saxena (1948) reported that the red cotton bug remained more active during the month of August to November and took shelter under the debris from December to the middle of March and feed on *bhindi* during April to July. Sidhu and Dhavan (1980) reported that the population of red cotton bug was very low on *Deshi* cotton. The population of red cotton bug was positively correlated with humidity and migrated in cool places such as

dried leaves on the ground and crevices in the soil during the hot period of the day (Peter *et al.*, 1985).

MATERIALS AND METHODS

An experiment was carried out during October, 2007 to February, 2008 to study the population fluctuation of red cotton bug on different cotton varieties at Agronomy Instructional Farm, C. P. College of Agriculture, S. D. Agricultural University, Sardarkrushinagar. Ten plants of each cultivar from net plot were selected randomly and tagged. The selected plants were examined thoroughly for recording the red cotton bug population (nymphs and adults) at weekly interval. The observations were recorded 45 day after sowing till harvest.

RESULTS AND DISCUSSION

A study was carried out at Agronomy Instructional Farm, C. P. College of Agriculture, S. D. Agricultural University, Sardarkrushinagar during the month of October, 2007 to February, 2008.

The observation on population fluctuation of *D. koenigii* on three varieties of cotton viz., Bt. cotton (Rashi 2), Hybrid cotton (G. Cot. hybrid-10) and Deshi cotton (G. Cot.-23) were recorded during the month of October, 2007 to February, 2008. Ten plants of each cultivar from net plot were selected randomly and tagged. The selected plants were examined thoroughly for recording the red cotton bug population (nymph and adults) at week interval. The observations were recorded 45 days after sowing till harvesting of the crop. It can be seen from the Table 8 that all the three cultivars of cotton were attacked by red cotton bug through out the survey period.

[A] Bt. variety (Rashi-2)

The data presented in Table 8 showed that the population of red cotton bug (*D. koenigii*) commenced from second week of November (46th standard week) with 4.5 red cotton bugs per plant. Then, the red cotton bug population was gradually increased and reached to peak level (103.40 red cotton bugs/plant) during fourth week of December (52nd standard week) and thereafter, the population of red cotton bugs slowly decreased and reached to a level of 10.0 red cotton bug per plant during fifth week of January (5th standard week) and population disappeared during the month

of February (6th standard week). Further, data indicated that the population of red cotton bug ranged from 0.00 to 103.4 red cotton bugs per plant (Av. 42.52 red cotton bugs/plant).

[B] Hybrid variety (G.Cot. hybrid-10)

The data presented in Table 8 showed that the population of red cotton bug (*D. koenigii*) commenced from second week of November (46th standard week) with 4.0 red cotton bugs per plant. Then, the population was gradually increased and reached to a peak level of 90.50 red cotton bugs per plant during fourth week of December (52th standard week) and thereafter, the population was slowly decreased and reduced to a level of 5.8 red cotton bug per plant during fifth week of January (5th standard week) and population disappeared during the month of February (6th standard week). Further, data indicated that the population of red cotton bug ranged from 0.00 to 90.50 red cotton bugs per plant (Av. 34.28 red cotton bug/plant).

[C] Deshi variety (G. Cot.-23)

The data presented in Table 8 showed that the population of red cotton bug (*D. koenigii*) commenced from second week of November (46th standard week) with 2.5 red cotton bugs per plant. Then, the population was gradually increased and reached to a peak level of 80.40 red cotton bugs per plant during fourth week of December (52th standard week) and thereafter, the population was slowly decreased and reduced to a level of 4.5 red cotton bug per plant during fifth week of January (5th standard week) and population disappeared during the month of February (6th standard week). Further, data indicated that the population of red cotton bug ranged from 0.00 to 80.40 red cotton bugs per plant (Av. 30.86 red cotton bug/plant).

The overall results showed that the population of red cotton bug was found higher (42.52 ± 35.03 red cotton bug/plant) in Bt. cotton variety (Rashi-2) followed by Hybrid variety (G.Cot. hybrid-10) showing 34.28 ± 30.73 red cotton bug/plant and Deshi variety (G.Cot.23) having 30.86 ± 28.82 red cotton bug/plant. Further, from the Fig. 1, it is clearly indicated that the Bt. cotton variety is more preferred by red cotton bug than Hybrid and Deshi varieties.

Earlier, Saxena (1948), Patel and Talgeri (1956) and Awasthi (2002) reported that population of red cotton bug was found during the month of August to January. While, it was reported that low population of red cotton bug was found on Deshi cotton (Sidhu and Dhavan, 1980), which is in accordance with the present findings.

SUMMARY AND CONCLUSIONS

The study on population fluctuation of red cotton bug on cotton revealed that the population of red cotton bug was found during October, 2007 to February, 2008. The population of red cotton bug was found high (42.52 ± 35.03) in Bt.cotton cultivar (Rashi-2) followed by Hybrid cotton (G.Cot. hybrid-10) showing 34.08 ± 30.73 red cotton bug population and Deshi cotton (G.Cot.-23) having 30.86 ± 28.82 red cotton bug population.

REFERENCES

- Patel, G.A. and Telgeri, G.M. (1956). Pests of fibre crops. pp. 109-122. In : Crop Pest and how to fight them. Directorate and Publicity, Government of Bombay, Bombay.
- Peter, C.; Suman, C.L. and Balasubramanian, R. (1985). Effect of abiotic factor on population density and distribution pattern of red cotton bug. *Curr. Res.*, **14** (7) : 51-52.
- Sidhu, A.S. and Dhavan, A.K. (1980). Seasonal abundance of different insect pest on *Deshi* cotton. *J. Res. Punjab. Agric. Univ.*, **17** (3) : 275-281.
- Singh, A.K.; Kumar, S. and Pandey, V. (2002). Effect of meteorological parameter build-up of sap feeders on cowpea. *Shashpa*. **9** (2) : 149-152.
- Singh, H.; Ram, B. and Singh, H. (1989). Effect of different host plants on the development of red cotton bug. *Indian J. Ent.*, **49** (3) : 345-350.
- Singh, Zile and Purohit, M.P. (1972). New alternate host of red cotton bug *Dysdercus koenigii* (Fabr.). *Indian J. Ent.*, **20** (3) : 256-257.
- Sohi, G.S. (1964). Pests of cotton. In : N.C. Pant (Ed.) "Entomology in India," Entomological Society of India, New Delhi. pp. 111-118.

Table 1 : Population of red cotton bug, *D. koenigii*

Month	Standard week	Mean* population/plant		
		Bt. variety (Rashi-2)	Hybrid variety (G.Cot. hybrid-10)	Deshi variety (G.Cot-23)
Nov.,2007	45	0.0	0.0	0.0
	46	4.5	4.0	2.5
	47	8.7	7.5	5.6
	48	27.5	24.0	20.0
Dec.,2007	49	45.40	42.0	38.5
	50	66.25	55.35	50.25
	51	91.53	80.25	75.35
	52	103.40	90.50	80.40
Jan.,2008	1	87.50	75.80	72.80
	2	68.35	54.00	49.35
	3	55.25	25.35	22.45
	4	28.00	15.45	10.35
	5	10.00	5.8	4.5
Feb.,2008	6	0.0	0.0	0.0
Mean		42.52 ± 35.03	34.28 ± 30.73	30.83 ± 28.82

* Mean observations of 10 plants