

## Field Observation on Pest Status of Some Crickets (*Grylloidea*) in Arid Zone of India

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Little is known about the pest status and distribution of field crickets in Indian desert. However, these have been described taxonomically and geographically by Chopard (1969), Shishodia and Tandon (1987), from different parts of the globe. None of them have dealt with pest status and extent of damage done by them. Incidence of *Gryllus sp.* have been reported first time in the forest nursery (Beeson 1941) and also on some crops in the northern hill region (Sachan *et al.* 1980). Nair (1986) listed some crickets attacking crops from southern region of India. Thus, to fill up the gap, data on the pest status, extent of damage and their distribution in parts of the Rajasthan desert have been collected.

Eight species of cricket (*Gryllus*) have been identified from the different localities of western Rajasthan namely, *Gryllotalpa fossor* scudder, *Gryllus bimaculatus* De Geer, *Gymnogryllus kashmirensis* Bhowmik, *Gymnogryllus sp.*, *Trigonidium humbertianum* Sauss *Acheta domesticus* Linn., *Brachytrypus orientalis* Burm; *Teleogryllus testaceus* Walker. Biological characters, host plants and extent of damage of some of the identified *Gryllus* species are as follows.

*Gryllotalpa fossor* Scudder—Very large (40-50 mm), darker red, pronotum well rounded with wings usually very long. It digs galleries rapidly in moist sandy soil and leads a subterranean life in the monsoon season. The species damages one to two year old seedlings in the nurseries as well as in the field. In the field, it remove roots of crops and carries them into their galleries. It is collected from Jodhpur and vicinity, Bikaner, Shambhar, Nawa (Nagaur) area.

*Gryllus bimaculatus* De Geer— It is almost completely glabrous, black coloured with two yellow spots at the base of the elytra. This lives in the moist soil in the tunnels formed by themselves. They are generally herbivorous and damage the young crop plants of both *rabi* as well as *khariif* specially to

wheat and guar crops. Rarely they dislodge the roots in the nursery plantations. These were collected from Jodhpur (Bilara, Jetaran), Bikaner (Kolayat), Jaisalmer (Chandan, Mohangarh), Barmer (Balotra) districts of Rajasthan.

*Acheta domesticus* Linn.— Brown head with two large brown spots on pronotum, long and acute ovipositor. A common house cricket, polyphagus in nature and breeds mostly after rainy season. It has been seen in the gardens and in nurseries, damaging tender shoots and leaves of young plants and occasionally to the seedlings of *khariif* crops. Recorded in Mathania, Bilara, Nawa (Nagaur) and Pali area.

*Brachytrypus orientalis* Burm.— This species is much smaller (about 23 mm) than other species. The ovipositor in the female is shorter and thicker. Insect feeds on young seedlings and tender shoots of bajra, jowar, and wheat generally at night. After cutting seedlings, it carries away the pieces of crops in the tunnels for feeding. These were observed in Jodhpur, Bikaner, Shergarh and Chandan (Jaisalmer) area.

*Teleogryllus testaceus* Walker — Head with lighter band along the eyes and elytra extending to the apex of abdomen. Ovipositor is long is the body with apical valve small and acute. *Khariif* as well as *rabi* crops were attacked by this pest. Damage was restricted to 4 to 15 days old crops. Seedlings of wheat crop were attacked severely by this pest in the Balotra area in the poorly irrigated fields. It is distributed in Jodhpur, Bikaner (Beechwal), Barmer (Balotra), Jaisalmer (Chandan) and Nagaur (Nawa) districts.

*Trigonidium humbertianum* Sauss — Small (4.5-5.5 mm), with black body, and round protruding eyes. The genitalia of the male and the ovipositor of the female are also quite similar. Crop seedlings are damaged by this, soon after their emergence. They cut seedlings at the ground level generally in the morning hours. The pest is found in Jodhpur

**Table 1** Effect of nitrogen and phosphorus application on dry matter yield, sulphur concentration and uptake by Indian mustard

Nutrient element ( $\mu\text{g g}^{-1}$ soil)	Doses of S ( $\mu\text{g g}^{-1}$ soil)				Mean
	0	30	60	90	
<b>Dry matter yield (g pot<sup>-1</sup>)</b>					
Nitrogen					
30	5.0	7.3	8.0	8.2	7.1
60	4.5	11.2	11.2	10.9	9.4
90	4.7	12.1	12.1	11.8	10.4
Mean	4.7	10.2	10.4	10.3	
CD 5% N = 0.6		S = 0.7		PxS = NS	
Phosphorus					
20	3.9	10.4	11.0	11.1	9.1
40	3.7	10.8	10.1	10.1	8.7
60	3.7	10.0	10.1	9.7	8.4
Mean	3.8	10.4	10.4	10.3	
CD 5% N = 0.6		S = 0.7		PxS = 0.18	
<b>Sulphur concentration (%)</b>					
Nitrogen					
30	0.03	0.34	0.47	0.42	0.31
60	0.02	0.35	0.38	0.34	0.27
90	0.03	0.42	0.48	0.41	0.33
Mean	0.03	0.37	0.44	0.39	
CD 5% N = NS		S = 0.11		NxS = 0.18	
Phosphorus					
20	0.03	0.38	0.40	0.45	0.31
40	0.03	0.47	0.53	0.41	0.36
60	0.03	0.34	0.44	0.38	0.30
Mean	0.03	0.40	0.46	0.41	
CD 5% P = 0.02		S = 0.09		PxS = 0.15	
<b>Sulphur uptake (mg pot<sup>-1</sup>)</b>					
Nitrogen					
30	1.85	24.83	38.31	34.42	24.85
60	1.41	40.20	41.87	38.08	30.39
90	1.51	51.73	57.90	50.93	40.52
Mean	1.59	38.92	46.03	41.14	
CD 5% N = NS		S = 2.17		NxS = 3.76	
Phosphorus					
20	1.26	39.56	45.73	51.21	34.54
40	1.32	51.63	54.03	41.51	37.12
60	1.48	34.50	44.64	37.80	29.60
Mean	1.35	42.03	48.14	43.51	
CD 5% P = 0.02		S = 2.38		PxS = 4.13	

NS = Non-significant

with uptake of S. The higher values of yield and uptake indicated that with increase in S, there was a definite increase in dry matter yield and uptake of S in mustard.

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