Outbreak of maize leaf roller, *Cnaphalocrosis trapezalis* Guenee (= *Marasmia trapezalis*) (Crambidae: Lepidoptera) on sorghum in Karnataka, south India

Shankara Murthy, M. and Nagaraj, S. K.

Department of Agricultural Entomology
College of Agriculture, Bheemarayanagudi 585 287, Karnataka, India

E-mail: smurthyent@gmail.com

Sorghum is the third important cereal crop in India. It is mainly used for food, fodder and biofuels. It originated in north east Africa and is being cultivated virtually in 100 countries across the globe. In India, Karnataka is the second largest producer of sorghum after Maharashtra. The area under sorghum in Karnataka is about 12, 42,086 ha with a production of 14, 66,942 tonnes and productivity of 1,243 kg/ha (DES, 2011-12). The crop was prone to attack by insect as well as non-insect pests. Nearly 150 insect pests are known to infest sorghum at various stages of growth. Of which, shoot fly, stem borer, earhead midge and armyworm are the major limiting factor in successful cultivation of the crop. Apart from these pests, in the current year there was severe outbreak of maize leaf roller, *Cnaphalocrosis trapezalis* Guenee on sorghum particularly in Yadgir District Karnataka (Latitude 16077" N, Longitude 77013" S). Though it was listed as a minor pest on sorghum earlier by Nair (1970), it appeared in severe form causing greater damage to sorghum. This could be attributed to climatic changes in the recent years. In this context, studies were undertaken to assess the extent of damage caused by the pest in this region and also a descriptive study of the of male and female genitalia was done.

A roving survey was carried out during Kharif 2013 in and around Yadgir district of Karnataka. The survey revealed that incidence of *C. trapezalis* was noticed at different stages of growth, mostly in the early stages of the crop particularly when it is four to five leaved and gradually declines as the crop growth advances. The overall incidence during cropping period ranged from 35 to 58.70% with an average of 46.85 %. The larva rolls the two edges of leaves by pasting its saliva and feeds within the rolled leaves by scraping the green matter resulting drying of leaves. Under severe incidence, the entire plant dries up. In each leaf, a greenish yellow larva with setae over its body was found . Head and thoracic shield were brownish. The larva pupated inside the rolled leaves. These larvae and pupae were collected from infested fields and reared to adult stage on sorghum in the lab. The adults thus collected were identified based on
morphology and genitalia. The adults had yellowish-brown with brown wavy markings on the wings (Plate 1).

**Female genitalia:** Ostium transverse, membranous. Inception of ductus seminalis from posterior edge of bursa copulatrix. Ductus bursae short, flattened, sclerotized except for very narrow section where it joins bursa copulatrix. Bursa copulatrix membranous, posterior third studded with small spines. Signuma very small, scobinate plate.

**Male genitalia:** Harpe elongate oval, three times as long as wide; small projection from sacculus at basal third; sacculus narrowly rolled inwardly at middle. Uncus triangular with elongate, setose, lateral elements. Vinculum shield-shaped. Tegumen greatly reduced, wider than long; laterally swollen forming a nodule emitting hair-like scales. Anellus membranous. Aedeagus long, straight; vesica armed with two strong, large cornuti (Plate 2). Based on the structure of male and female genitalia it is confirmed that it is *C. trapezalis*. The structures are in conformity with Clark (1986) was also confirmed by Dr. C.A. Viraktamath.

![Plate 1: Adults of Ch nalocrosis trapezalis Guenee](image1)

![Plate 2: Female & Male genitalia of Ch nalocrosis trapezalis Guenee](image2)
Authors are grateful to Dr. C.A. Viraktamath, Principal Investigator, ICAR Network Project Insect Biosystematics, Department of Entomology, UAS, GKVK, Bangalore for confirming the identity of the pest.

References:


DES (Directorate of Economics & Statistics), 2011-12, GOK (Govt. of Karnataka), Bangalore