



Life cycle and seasonal infestation of *Erionota torus* Evans (Lepidoptera: Hesperiiidae) on banana in Shimoga, Karnataka

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ABSTRACT: In the present investigation the life cycle, distribution and seasonal infestation of *Erionota torus* on banana crop at two locations viz., Agasavalli and Mandagadde in Shimoga district of Karnataka were studied. Medium number of banana skipper was noted throughout the cropping season. The seasonal incidence was studied from first week of October 2017 to April 2018. During the study, it was found that the percentage of infestation increased from October to February and it gradually decreased. There was a slight variation in the percentage of infestation at both study areas. The current outbreaks in south India may be due to possible climate shifts and non-availability of adequate natural enemies. © 2018 Association for Advancement of Entomology

KEYWORDS: *Erionota torus*, banana crop, distribution and infestation

Erionota species are pest of *Musa* species. Its indigenous range is from Northern India and Southern China to South East mainland Asia. It has spread to Mauritius, Southern Philippines, Taiwan, Japan and Western India. Among the *Erionota* species, *Erionota torus* Evans is common and well known banana pest where their larva lives in the rolled up strips of banana leaves. In India, *Erionota thrax* was reported in Patak and Shriram (1972) from NEH region of India. Outbreaks in south India, especially in Karnataka (Kamala Jayanthi *et al.*, 2015; Sharanabasappa and Adivappar, 2016; Onkara Naik, 2016), Kerala (Smitha *et al.*, 2015), Tamil Nadu (Padmanaban *et al.*, 2014, 2016), Andhra Pradesh (Shrinivasareddy *et al.*, 2018) were reported and it may be due to the non-availability of adequate natural enemies and possible climate shifts

that could have helped the banana skipper population to reach damaging threshold (Raju *et al.*, 2015). The infestation stage of *E. torus* on banana plant was observed as larvae. They were found feeding on the young leaves by making leaf rolls on edges of leaves. To assess the incidence of banana skipper, the observation was made twice in a month on random selected spots and the percentage of damage was estimated by counting both damaged and total number of banana plants. Banana was cultivated as an intercrop in areca nut and coconut garden (Fig. 1, 2, 3).

The life cycle of *E. torus* includes egg, larva, pupa and adult stages. Larvae were found to feed on the leaves of plants inside the leaf rolls, under the natural conditions. Each female skipper laid about

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Fig. 1 intercropping



Fig. 2 Infested banana plant with *E. torus*



Fig. 3 Banana - leaf rolls



Plate 1a. Eggs of *Erionota torus*



Plate 1b. I instar larvae of *E. torus*



Plate 1c. II instar of *E. torus*



Plate 1d. III instar larvae of *E. torus*



Plate 1e. IV instar larvae of *E. torus*



Plate 1f. V instar larvae of *E. torus*

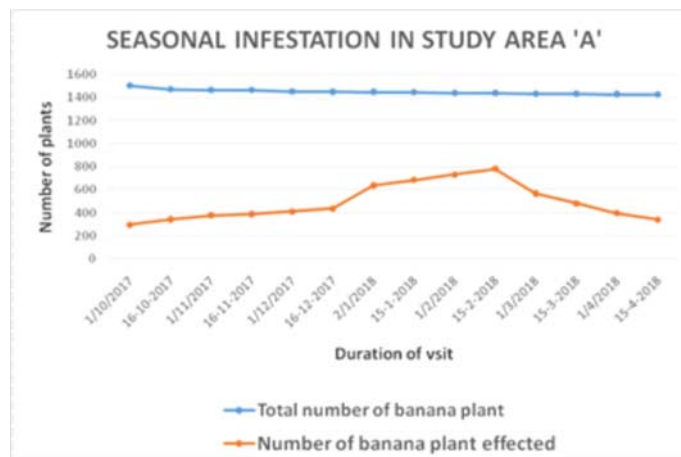


Fig. 4 Population of *E. torus* on banana plant during rainy, winter and summer season in Study area A

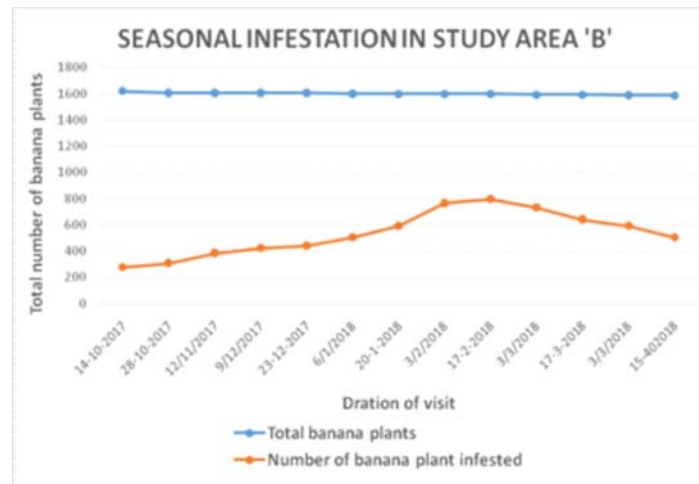


Fig. 5 Population of *E.torus* on banana plant during rainy, winter and summer season in Study area B



Plate 2c. Adult after emergence



Plate 2d. Winged adult of *E. torus*

12 to 25 eggs in batches. Larva moult four times and transform into pupa within 20 to 30 days and pupa metamorphose into adult in 12 to 15 days and is brown in color. Eggs are observed under the leaf and they hatched into I instar larvae after 8 to 10 days. The young larvae feed on the tender leaves and started constructing leaf rolls on the edge of the leaves. The V instar larva transformed into pupa after 2 to 3 days depending on the temperature. The pupation occurs within the leaf rolls and it took 12 to 15 days to emerge into adults. Adults were brown in color and lived for five months and can produce five generations in a year. The life cycle of this pest completed in 55-60 days (Plate 1, 2).

Line transect method was adapted to study *E. torus* in different sites depending upon the nature of

habitats. A pre-transect survey was conducted to identify and photograph *E. torus* found in the area, Agasavalli (latitude of 13.52°, longitude of 75.24°) and Mandagadde (latitude of 13.688° and 75.24° longitudes) in Shimoga district. The study was carried out during October 2017 to April 2018 and observations were recorded at fortnightly intervals. The pest incidence was observed throughout the crop period. It was observed that in the winter season maximum pest's incidence was recorded and the infestation decreased in the summer season (Fig. 4 and 5). The percentage of infestation increased from 20 to 55.23 per cent during winter season due to the prolonged life cycle of *E. torus* and it gradually decreased to 24.02 per cent in summer season (Study area A) and the percentage of infestation increased from 17.04 to



Plate 2a. V instar larva under pupation



Plate 2b. Pupa after 10 days of pupation

50.01 per cent during winter and gradually decreased to 31.05 per cent during summer season (Study area B) due to high temperature which affected the larval lifespan.

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