

Seasonal incidence and damage potentiality of Litchi fruit Borer (*Conopomorpha sinensis* Bradley, 1986) in relation to major abiotic environmental factors

Tirthankar Dalui^{1*} and Subhankar Kumar Sarkar²

¹Department of Zoology, Barasat College, Kolkata 700 126, West Bengal, India

²Entomology Laboratory, Department of Zoology, University of Kalyani, Kalyani 741 235, W.B., India

(Received 25 August, 2020; Accepted 26 September, 2020)

ABSTRACT

Litchi (*Litchi chinensis* Sonn.) has been one of the major subtropical fruits, native of China. It belongs to the family Sapindaceae and was first introduced to India in the late 17th century. After its introduction, the fruit received considerable attention from the Indian farmers and agro based agencies and eventually became an important producer of Indian agriculture. Though India is the second largest producer of Litchi after China, net productivity still falls behind the optimum mark. Chiefly, the diseases associated with litchi and the related problems account for this low productivity. Pest complexes which damage fruits, flowers, stems, and leaves are one of the major issues faced by the litchi industry. Among insect pests, the litchi fruit borer *Conopomorpha sinensis* Bradley, 1986 (Lepidoptera: Gracillariidae) is one of the biggest threats to litchi farmers causing severe loss in fruit production. The fruit borer larva bores into the fruit by making tunnels inside the cotyledon and then feeds on the inner soft tissue. To determine the pattern and degree of infestation and its relationship to major environmental abiotic factors, a study was conducted on selected uniform plants (cv. Bombai) at a private orchard in Barasat, West Bengal, India. The study was conducted in three replications, with one tree served as one replication. 100 fruits were randomly selected from each replication to examine the degree of infestation by the fruit borers. Fruits having the symptom of infestation by the fruit borer were counted and transformed into percentage value. Various meteorological parameters were also recorded simultaneously to study the relationship of major abiotic environmental factors with fruit borer infestation. The association between these factors and fruit infestation was revealed through two methods: 1. descriptive and linear multiple regressions; 2. analysis of variance. As evident from the study, the infestation (3.3%) was first observed at 21 days (26th March 2018), and attack by the borer gradually increased and reached its peak (42.66 %) after 60 days of fruit set (4th May 2018). After that, a considerable decrease was observed. According to our statistical analysis, it was found that rainfall has little influence on the activity of the pest species, while temperature has a significant impact on the pest, particularly on their larval activity.

Key words: Abiotic, Bombai, Borer, *Conopomorpha*, Litchi, Sapindaceae.

Introduction

Litchi (*Litchi chinensis*), belonging to the family Sapindaceae, originated in the mountain regions of central and western China and was introduced to

India by the end of 17th century. India occupies second position in terms of cultivation area and production after China (Mehta, 2017). Besides India and China, litchi is extensively grown in Australia, South Africa, Hong Kong, Thailand, Mauritius,

*Corresponding author e-mail: tirthankardalui@gmail.com