A SEARCH FOR A METHOD FOR ASSESSING THE DESTRUCTION BY THE TEA SHOT-HOLE BORER (*Xyleborus fornicatus*) IN THE TEA PLANATION

M. N. R. S. S. Manthilake[*], A.M. Razmy

Department of Mathematical Sciences, Faculty of Applied Sciences, South Eastern University of Sri Lanka

m.m.r.sithara@gmail.com

Abstract

The tea shot hole borer (*Xyleborus fornicates*) is a twig boring beetle, which causes serious damage to tea cultivation worldwide. Many treatments have been tested on this pest and the use of an accurate method and proper amount of chemical are depend on the assessment of the attack. At present, counting the number of big branch breakages (BBB) when the bush is bent is considered as the method of assessing the damage. As this is a very destructive practice an alternative method is demanded for assessing the severity of the attack. A set of experimental data from Rothschild estate, Pussellawa is used to propose new method to estimate the number of BBB through a backward elimination using Gehan's two stage technique. The tea variety used for this experiment is TRI 2025, which is high susceptibility towards this pest. A statistical association between the gallery count and the number of big branch breakages (BBB) were to be developed. Results obtained from the analysis clearly showed that there is a relationship between the BBB and gallery count. Logistic growth model and Poisson distribution were employed for developing a new assessment chart to determine the number of BBB according to the gallery count present in a considered branch. Using this new chart one can determine the number of BBB according to the gallery count without bending the bushes and breaking the branches which will lead to crop loss. However, further studies will be needed to evaluate the applicability of the generated table for the fields in different climates and altitudes.

Key words: Big branch breakages, Gallery count, Logistic Growth Model, Poisson distribution, Tea shot hole borer