B-22: Integrated approach to the control of coffee twig borer (*Xyleborus morstatti*, Coleoptera, Scolytidae)

M Dharmadasa[1], J B Palipane[2]
([1]*Research Station, Dept of Export Agriculture, Matale*
[2]*Research Sub Station, Dept of Export Agriculture, Nillambe*)

Damage of twig borer (*Xyleborus morstatti*, Coleoptera, Scolytidae) in coffee leads to death of the fruit producing secondary branches. Adult of this Ambrosia beetle bore the twigs, make galleries inside and grow fungus as the food source for their larvae. The pest cannot be controlled successfully by applying systemic insecticides alone. Application of small quantities of potassium acetate to reduce the shot hole borer damage in tea has been suggested. If a systemic fungicide can retard the growth of the food fungi, use of acetate together with it may control the growth of larvae.

An experiment was carried out to investigate the effect of an insecticide, a fungicide and sodium acetate on twig borer damage in coffee at the Nillambe Export Agriculture Sub Research Station with 5 year old coffee plants from October 1993 to December 1994. The cultivated variety was IMY. Fenthion (Lebycid 40EC) as insecticide at the rate of 28 ml in 15 l of water and Benomyl (Benlate 50% w/w) as the fungicide at the rate of 10g in 20 l of water were used in this experiment. One percent solution of sodium acetate was applied as the source of acetate. The treatment combination was 2 x 2 x 2 factorial with 3 replicates. Chemicals were applied by a knapsack sprayer, twice a season at 2 week intervals, in the middle of rainy seasons. The total number of secondary branches,number of infected and dead branches were recorded separately, each month.

The borer damage was observed in the field throughout the year and higher damage was observed in the months of March and August. The percentage damage in acetate treated plants was significantly lower (10.54%) ($p=0.01$) than in no acetate treatments (14.37%). The number of dead branches was also less (0.82/tree) in acetate treated plants than in no acetate treated plants. (1.34/tree). Effect of insecticide, fungicide or interactions of treatments on the damage of twig borer in coffee was not observed. Application of acetate to plants may increase the secondary plant chemicals that are not acceptable to the pest and this may reduce the number of borer infestations. Increase of

saponin activity in tea with the application of potassium acetate in small quantities has been shown. Feeding on gallery fungus other than on plant tissues may be the reason of ineffectiveness of the insecticides on the growing larvae. The concentration of applied fungicide may not be sufficient to control the growth of the gallery fungus and probably it has no effect on the growth of the fungus and larvae.

Application of insecticide and fungicide had hardly any effect on the twig borer damage of the coffee plants, but the application of sodium acetate 1% solution reduced the damage significantly. Therefore, application of sodium acetate 1% solution is a control measure of the twig borer in coffee cultivation.