

Introduction

- ❖ The bioassay techniques are very handy and important in understanding plant-insect interactions, especially for assessing the susceptibility/tolerance of plants to insect pests.
- ❖ So far, coffee researchers are relying only on the natural field infestation data to measure the tolerance level of different cultivars against Coffee White Stem Borer (CWSB) (Ram *et. al.*, 2008)
- ❖ Development of a simple bioassay technique is an imperative need to understand the exact tolerance of cultivars against CWSB



Fig. 1. Coffee White Stem Borer Adult



Fig. 3. Larval feeding and mortality in the caged portion



Fig. 4. Caged release on coffee plants using plastic vials in the field

Materials/Methods

- ❖ A new technique was developed by inoculation of CWSB adults through caged releases using plastic vials of 25 ml with a size of 7.5 × 2.5 cm (l × b).
- ❖ A small window of 4.5 x 1.0 cm was made at one side of the vial and fixed to the coffee plants with adhesive tape positioning the cut-opened portion facing the stem surface.
- ❖ A pair of mated adults was released inside the vial and periodically the caged stem portion was cut and observed for egg laying and larval mortality.



Fig. 2. Release of adults inside the vial

Results/Discussion

- ❖ The new bioassay method was found very efficient in generating the data on the infestation process.
- ❖ This bioassay technique was deployed for field screening of different cultivars and revealed that S.4595 was highly tolerant and Cauvery was highly susceptible to CWSB comparatively.
- ❖ Further, this method provides an insight to the researchers on the reasons behind the tolerance mechanism of the cultivars.

Conclusion/Perspectives

This technique generates accurate information on the response of the host to the pest which is more reliable than the general field infestation data. Hence, this technique can be effectively used in breeding programs for assessing CWSB tolerance and also useful in the evaluation of new pesticide molecules to develop a pragmatic IPM strategy for CWSB

References:

Ram, A.S., Sabir, R.K., Mythrasree, S.R., Seetharama, H.G., And R.V. Rao. 2008. White Stem Borer Resistance in Coffee: Perspectives on Breeding, Management and Consumption. XXII International Colloquium on Coffee Science At: Sao Paulo, Brazil. 1323-1335