

Front Line Demonstration on Management of Tea Mosquito Bug

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Abstract

Cashew is one of the important crops in India occupying 24,000 ha in agency area of East Godavari district of Andhra Pradesh state. Even though quiet a number of pests are reported, the tea mosquito bug, *Helopeltis antonii* is the most serious pest causing considerable yield losses in cashew. Tribal farmers in agency area hardly follow any pest management practices and in the light of this a front line demonstration was conducted during 2009 - '10 to help farmers in the management of *H. antonii*. The objective of the present study was to demonstrate and disseminate the technology to the needy tribal farmers on the management of this serious pest in cashew plantation. The results of the demonstration indicated that out of four treatments Monocrotophos or Profenofos + Endosulfan + Carbaryl or Dimethoate was found to be superior to all other treatments in the management of tea mosquito bug. The demonstration convinced the farmers about its superiority over their traditional practice of using Monocrotophos once in two years.

Keywords: Tea mosquito bug, *Helopeltis antonii*, front line demonstration, pest management, tribal farmers

Introduction

Among several pests infesting cashew, Tea mosquito bug (TMB), *Helopeltis antonii* Sign is the most destructive pest of cashew causing yield reduction up to 30-40%, damaging tender shoots, inflorescence, immature nuts and apple during crop development. It attacks the tree in all the seasons at various stages flushing, flowering and fruit setting period but the peak period of infestation is from October to March. The nymphs and adults suck the sap from tender shoots, inflorescence, immature nuts and apple. The saliva of insects is very toxic, which causes blistering at the site of infestation. Severe attack on the young shoots cause dieback. The damage due to TMB was observed to be 50-60% in agency area, due to which the dieback situation is seen up to 10% in cashew orchards (ITDA Report, 2005, Fig 1).

To control the pest, many insecticides are recommended at present. The spray schedule recommended comprised of monocrotophos (0.05 %) or profenofos (0.05%) at flushing stage, endosulfan (0.05%) at flowering stage and carbaryl (0.1%) or quinalphos (0.03%) or phosphamidon (0.03 %) at fruiting stage are being used to control TMB. Therefore, efforts were made to test the effect of insecticide for management of Tea mosquito bug in agency area. This demonstration was taken up in order to disseminate the

improved pest management practices among tribal farmers in the agency area of East Godavari district (Figs.1,2,3).

Materials and methods

A Front Line Demonstration (FLD) was conducted at Pedageddada and Thallapalem villages (Rampachodavaram

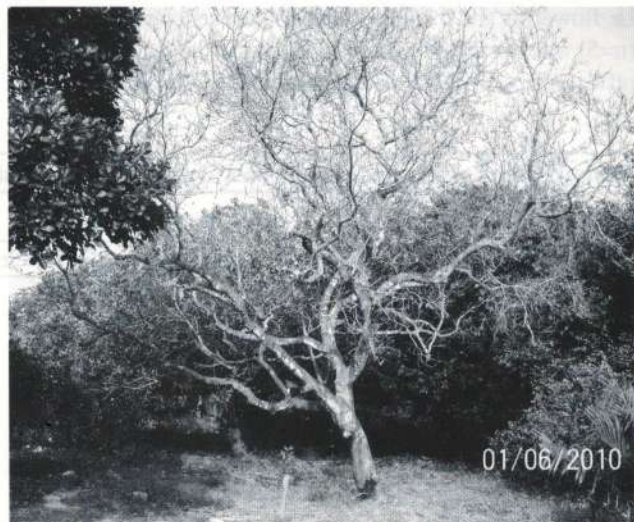


Figure 1. Cashew tree dieback and defoliation due to tea mosquito bug

mandal) were selected based on purposive random sampling during 2009-10 crop season in agency area of East Godavari district (Fig 2). Two hectares was allotted as a representative area for demonstrating the management at two locations in Rampachodavaram. The chemicals at known concentrations as per the schedule were applied at different stages using power sprayers. The spray schedule followed is given below.

Pest incidence

Observations were recorded on Tea mosquito bug incidence at different intervals after application of the insecticides as detailed in Table 1. For recording observations, 52 leader shoots were selected randomly in four directions and labeled individually. The incidence of tea mosquito was recorded on 0-4 point scale.

- 0- No lesions/ streaks
- 1- 1 to 3 necrotic lesions/ streaks
- 2- 4 to 6 coalescing or non- coalescing lesions/streaks
- 3- above six coalescing or non- coalescing lesions/streaks
- 4- lesions/streaks confluent or wilting or drying of affected shoots

The data obtained were converted into per cent pest incidence using following formula.

$$\text{Per cent pest incidence} = \frac{\text{Sum of all numerical ratings}}{(\text{No. of shoots observed} \times \text{maximum rating})} \times 100$$

Panicle damage

For observing the panicle damage, 52 panicles (13 each from four directions) were randomly chosen and per cent panicles affected by TMB were recorded after treatment at two stages i.e. flowering and fruiting. The Mean per cent panicle damage (n=5) was calculated and the reduction in the panicle damage reflected the efficacy of the treatment. The data from the

Table 1. Effect of selected insecticides against TMB on cashew

Treatment details	Ist Spray (flushing stage)	IInd Spray (flowering stage)	IIIrd Spray (fruiting stage)
T1- Farmers practice (Monocrotophos once in two years)	-	-	-
T2 -Monocrotophos or Profenophos	√	-	-
T3 -T1 + Endosulfan	√	√	-
T4 -T2+ Carbaryl / Dimethoate	√	√	√

above tests were subjected to statistical analysis.

Results and discussion

Pest incidence

The results revealed that the treatment T4, Monocrotophos (0.05%) + Endosulfan (0.05%) + carbaryl (0.1%) was significantly effective (8.8 to 4.3%) in reducing the infestation of tea mosquito bug compared to remaining treatments. This was followed by T3 (Monocrotophos + Endosulfan) with 4.3 to 5.2% incidence, T2 (only Monocrotophos) with 9.2% and T1 (Farmers' practice) with 13.9% TMB incidence. This indicates that out of 4 treatments selected, the treatment, T4 was found to be significantly superior over all other three treatments with low pest incidence (Table 2).

Panicle damage

There was significant reduction in panicle damage in T4 treatment (3.8%) followed by T3 treatment (13.5%), T2

Table 2. Effect of selected insecticides against TMB on cashew

Treatments	% of pest incidence			% of panicle damage		
	Ist Spray	IInd Spray	IIIrd Spray	Flowering stage	Fruiting stage	Mean
Insecticide						
T1- Farmers practice (Monocrotophos once in two years)	13.9	-	-	25.8	28.0	26.9
T2 - Monocrotophos or Profenofos	9.2	-	-	16.2	18.2	17.2
T3 - T1 + Endosulfan	4.3	5.2	-	12.2	14.8	13.5
T4 - T2+ Carbaryl / Dimethoate	4.3	4.8	3.8	4.4	3.2	3.8



Figure 2. Preparatory work in full swing for field level demonstration

(17.2%) and Farmer's practice (26.9%) (Table 2).

Farmer's feed back

Farmer's having experienced the convincing results of the demonstration, learnt the skills of applying insecticides. These resource poor farmers from agency area showed keen interest to follow spraying schedule in cashew cultivation to secure higher yields

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Figure 3. Spraying of infested trees for field level demonstration

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Table 1. Details of insecticides and their dosage

Insecticide	Trade name	Dosage
Imidacloprid	Imidacloprid 17.8 EC	1.5 ml/l
Thiamethoxam	Thiamethoxam 25 WP	1.5 g/l
Acetamiprid	Acetamiprid 90 SP	1.5 g/l
Spinosad	Spinosad 45 SC	1.5 ml/l
Chlorpyrifos	Chlorpyrifos 25 WP	1.5 ml/l
Permethrin	Permethrin 25 EC	1.5 ml/l