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## STUDY OF EFFECTIVENESS OF SOME INSECTICIDES AGAINST CASHEW TEA MOSQUITO BUG

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## ABSTRACT

Tea mosquito bug is the one of the most important pest of cashew in konkan region of Maharashtra causing heavy damage and considerable yield loss in cashew. Therefore . Field experiment was conducted to find out the efficacy of some insecticide Viz. Triazophos, Lambda Cyhalothrin, Chloropyriphos and Profenophos were tested in comparison with recommended spray schedule during year 2009-10 and 2010-11 at Regional Fruit Research Station, Vengurle. Considering the cumulative average, the treatment T<sub>4</sub> (Lambda Cyhalothrin 0.003%) was the significantly superior treatment over rest of the treatment after first, second and third spray. The treatment T<sub>4</sub> (Profenophos 0.05%) was found second best treatment as compare to recommended spray schedule for management of Tea mosquito bug in cashew.

## INTRODUCTION

Cashew is one of the major source of foreign currency for our country. Among the several pests infesting cashew the Tea mosquito bug, *Helopeltis antonii* sign is the most serious pest in cashew, which is responsible for yield losses in cashew. The introduction of high yielding varieties increasing demand and prices to cashewnuts in market have opened large vistas for cashew plantation and area under the crop was increased in last two decades.

Among the various production constrain the insect pest damage one of the major important factor for crop loses up to 40 -50% Anon (1999). In cashew Tea mosquito bug is one of the most important pest damaging cashew crop in various developing stages. In very seviour cases it damage up to 100% Sundarraju and Sundarbabu (1999) losses in the yield may be reported. This situation aggravated the problem of Tea mosquito bug, which is most destructive enemy of the cashew. The nymphs and adults suck the sap from tender shoots, inflorescence, immature nuts and apple. For management of these pest many conventional insecticide are recommended. The average damage to tender shoots was estimated 14 to 25 per cent. (Sathiamma, 1977, Pillai 1980). 48 per cent panicle damage was reported by Sathiamma (1977) whereas Pillai (1980) reported the nut and fruit drop to extent of 15 to 29 per cent, respectively. Since last decade the spray schedule comprising of monocrotophos (0.05 %) or propenophos (0.05 %) at flushing stage, endosulphan (0.05 %) at flowering and carbaryl (0.1%) or diamethoate (0.3%) at fruiting stage are being used to control to Tea mosquito bug.

However, there is continuously repeated application of same group insectides which create the problems. Considering all this the present investigation is undertaken to find out the newer insecticide to comparison with previously recommended insecticide for the management of Tea mosquito bug in cashew.

## MATERIALS AND METHODS

The experiment was conducted during 2009-10 &2011-12 on cashew variety Vengurla-7 following randomized block design comparing of six treatment replicated four times at Regional Fruit Research Station, Vengurle. The observations on Tea mosquito bug incidence were recorded 30 days after application of the insecticides. For recording observations, fresh 52 leader shoots were selected randomly at 4 sides (E,W,N,S) of the trees under observation and labeled individually. TMB damage grading in 0-4 scale was done as suggested by Ambika *et al.* (1979). The incidence of tea mosquito bug was recorded in 0 to 4 scales as given below.

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 - Lesion/streaks confluent or wilting or drying of affected shoot/panicles.

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The data thus obtained were converted into per cent incidence using following formula:

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

## RESULTS AND DISCUSSION

During the year 2009-10 there was a high incidence at Tea mosquito bug was observed at flushing stage due to availability of succulent plant sap is abundant in all the plant parts. The observations were recorded 30 days after each spray on percentage shoot/panicle/nut damage by Tea mosquito bug. The result indicated that after first spray the treatment  $T_4$  (Lambda Cyhalothrin 0.003%) was the most effective treatment in management of Tea mosquito bug incidences (2.95%) was observed to be significantly superior over rest of the treatment except, the treatment  $T_6$  (Profenophos 0.05%) 3.35 %, which was at par with it. In order of merit the treatment  $T_3$  (Triazophos 0.01%) 4.21% was second best treatment followed by  $T_6$  (Triazophos 0.01%) 4.65%,  $T_2$  (Chloropyriphos 0.05%) 4.94% and  $T_1$  (recommended spray schedule *i.e.* Monocrotophos) 4.64% infestation. The damage of 7.57 per cent was recorded in treatment ( $T_7$ ) in control.

The data on per cent incidences of Tea mosquito bug after 30 days of second spray (Table 1) revealed that the treatment  $T_4$  (Lambda Cyhalothrin 0.003%) recorded lowest infestation due to Tea mosquito bug (3.01%), followed by treatment  $T_5$  (Profenophos 0.05%) 4.37%,  $T_6$  (Profenophos as second spray) 4.97%,  $T_2$  (Chloropyriphos 0.05%) 5.06%,  $T_3$  Triazophos 5.23% and  $T_1$  recommended spray schedule *i.e.* (Endosulphan 0.05%) 5.33% infestation. The treatment  $T_7$  *i.e.* control recorded highest per cent incidence (8.35%) of Tea

mosquito bug.

On the basis of data recorded on per cent incidences of Tea mosquito bug after 30 days of 3<sup>rd</sup> spray (Table-1) revealed that the treatment  $T_4$  (Lambda Cyhalothrin, 0.003%) recorded minimum 1.91% infestation of Tea mosquito bug. The second best treatment was treatment  $T_5$  (Profenophos 0.05%), 2.66% followed by treatment  $T_3$  (Triazophos 0.01%), 4.70%,  $T_6$  (Carbaryl 0.01% *i.e.* third spray) 5.00% infestation. The treatment  $T_2$  (Chloropyriphos 0.05%) 5.07% and treatment  $T_1$  (Recommended spray *i.e.* Carbaryl 0.01%) 5.36% Tea mosquito bug infestation. The control  $T_7$  recorded highest per cent infestation of 8.25 due to Tea mosquito bug.

Considering the cumulative average, the treatment  $T_4$  (Lambda Cyhalothrin 0.003%) was the significantly superior treatment over rest of the treatment after first, second and third spray. The treatment  $T_4$  (Profenophos 0.05%) was found second best treatment for management of Tea mosquito bug in cashew.

Regarding year 2010-11 the observations on per cent incidences of Tea mosquito bug after 30 day of first spray (Table 2) revealed that, the treatment  $T_4$  (Lambda Cyhalothrin 0.03%) was the most efficient treatment in reducing the per cent incidences of Tea mosquito bug (3.24%). The treatment  $T_5$  (Profenophos 0.05%) was at par with treatment  $T_4$  (4.08%) incidences. The treatment  $T_1$  (Recommended spray schedule *i.e.* Monocrotophos 0.05%, (5.16% incidence),  $T_2$  Chloropyriphos 0.05%, (5.52%) and treatment  $T_3$  Triazophos 0.01%, (5.64 %) incidence was recorded. The treatment  $T_6$  recorded slightly higher percentage of Tea mosquito bug incidence of 6.36 %. The damage of 8.53 percent was recorded in treatment  $T_7$  *i.e.* in Control.

The data on per cent incidence of Tea mosquito bug after 30 days of second spray (Table 2) revealed that the treatment  $T_4$

**Table 1: Incidence of Tea mosquito bug in various treatments. (2009-10)**

Sr. No.	Treatment details	Per cent incidence 30 days after			
		First spray	Second spray	Third spray	Cu. Av.
$T_1$	Recommended spray schedule	4.64(12.40)	5.33(13.30)	5.36(13.36)	5.11(13.02)
$T_2$	Chlorpyriphos 0.05%	4.94(12.20)	5.06(12.98)	5.07(12.99)	5.02(12.72)
$T_3$	Triazophos 0.01%	4.21(11.81)	5.23(13.20)	4.70(12.50)	4.71(12.50)
$T_4$	Lambda-cyhalothrin 0.003%	2.95(9.84)	3.01(9.96)	1.91(9.31)	2.62(9.70)
$T_5$	Profenophos 0.05%	3.35(10.49)	4.37(11.95)	2.66(10.73)	3.46(11.05)
$T_6$	Control	7.57(15.96)	8.35(15.78)	8.25(16.80)	8.05(16.18)
$T_7$	Triazophos, Profenophos, Carbaryl	4.65(12.44)	4.97(12.88)	5.00(12.78)	4.87(12.70)
	S.E. $\pm$	0.29	0.37	0.32	0.25
	C.D. at 5%	0.87	1.10	0.95	0.78

**Table 2: Incidence of Tea mosquito bug in various treatments. (2010-11)**

Sr. No.	Treatment details	Per cent incidence 30 days after			
		First spray	Second spray	Third spray	Cu. Av.
$T_1$	Recommended spray schedule	5.16(13.07)	5.04(12.90)	6.00(14.04)	5.40(13.33)
$T_2$	Chlorpyriphos 0.05%	5.52(13.33)	5.40(13.80)	6.12(14.21)	5.68(13.64)
$T_3$	Triazophos 0.01%	5.64(13.65)	4.56(12.22)	5.88(14.06)	5.36(13.31)
$T_4$	Lambda-cyhalothrin 0.003%	3.24(10.16)	1.92(7.85)	3.60(10.82)	2.92(9.61)
$T_5$	Profenophos 0.05%	4.08(11.48)	3.84(10.64)	5.28(13.20)	4.40(11.77)
$T_6$	Triazophos, Profenophos, Carbaryl	6.36(14.54)	4.80(12.52)	5.88(14.05)	5.68(13.70)
$T_7$	Control	8.53(16.91)	7.69(16.03)	7.93(16.29)	8.05(16.41)
	S.E. $\pm$	0.50	0.51	0.50	0.36
	C.D. at 5%	1.50	1.51	1.49	1.12

\* Figures in parenthesis are arcsine values.

(Lambda - Cyhalothrin 0.03%) recorded the minimum damage due to tea mosquito bug i.e. (1.92%) followed by treatment T<sub>5</sub> Profenophos 0.05%, (3.84%), treatment T<sub>3</sub> Triazophos 0.01%, (4.56 %) and treatment T<sub>6</sub> Profenophos 0.05%, (4.80%) damage. The treatment T<sub>1</sub> (Recommended spray schedule i. e. Endosulfan 0.05% and T<sub>2</sub> (Chloroapyriphos 0.05%) recorded slightly higher per cent damage of 5.04 and 5.40 due to tea mosquito bug. The treatment T<sub>7</sub> i. e. (Control) recorded 7.69 per cent incidence of due to Tea mosquito bug.

The perusal of data recorded on per cent incidence of tea mosquito bug after 30 days of 3<sup>rd</sup> spray (Table 2) revealed that the treatment T<sub>4</sub> (Lambda Cyhalothrin 0.03%) showed lowest per cent Tea mosquito bug damage (3.60%). The second best treatment was treatment T<sub>5</sub> (Profenophos 0.05%), (5.28 %) damage followed by treatment T<sub>3</sub> (Triazophos 0.01%) and T<sub>6</sub> (Carbaryl 0.2%) each heavily per cent incidence of 5.88% damage. Treatment T<sub>1</sub> (Recommended spray schedule i.e. Carbaryl 0.2%), (6.60%) damage and treatment T<sub>2</sub> (Chloroapyriphos 0.05%, (6.12%) damage which were on par with each other. The untreated control recorded per cent incidence of 7.93 due to Tea mosquito bug.

Over all result indicated that the treatment T4 (Lambda Cyhalothrin 0.003%) was the most efficient and unnamed treatments after 30 days of all the three sprays followed by treatment T5 (Profenophos 0.05%) for control of Tea mosquito bug.

Based on the two year data its revealed that the treatment T4 (Lambda Cyhalothrin 0.003%) was the most efficient and unnamed treatments after 30 days of all the three sprays followed by treatment T5 (Profenophos 0.05%) for control of Tea mosquito bug.

## REFERENCES

- Ambika B., Abraham, C. C. 1979.** Bioecology of *Helopeltis antonii* Sign. (Miridae: Hemiptera) infesting cashew trees. *Entomon. India.* **4:** 335-342.
- Anonymous 1999.** All India Co-ordinated Cashew improvement project Annual Report 1998, NRCC, Puttur, India. p. 39.
- Godase, S. K. 2002.** An annotated list of pest infesting cashew in Konkan region of Maharashtra, Cashew : Jul.- Sept., Vol. XVI NO 3 pp. 15-20.
- Pillai, G. B. Singh, V., Dubey, O. P. and Abraham, V. A. 1984.** Seasonal abundance tea mosquito *Helopeltis antonii* Sign. On cashew in relation to meteorological factors. In Int. Cashew Symp. (Research and development )
- Sathiamma, B. 1977.** Nature and extent of damage by *Helopeltis antonii* S. the tea mosquito on cashew. *J. Plant Crop.* **5(1):** 55-59.
- Sundarraju, D. and Sundarababu, P. C. 1999.** *Helopeltis* Sp. (Heteroptera: Miridae) and their management in plantation and horticultural crops in India. *J. Plantation crops.* **27:** 155-174.
- Sundararaju, D. 1993.** Compilation of recently recorded and some new pests of cashew in India. *The cashew.* **VII(1):** 15-19.