



Bioefficacy of Insecticides for the Management of Cashew Thrips (*Scirtotrips dorsalis* Hood.) Under South Konkan Coastal Region of Maharashtra

V. K. ZOTE*, A. Y. MUNJ, S. P. SALVI and R. C. GAJBHIYE

Regional Fruit Research Station
Vengurle, Sindhurg - 416 516, Maharashtra

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Cashew (*Anacardium occidentale* L.) is one of the important cash crops grown in Konkan region of Maharashtra. Cashew flower thrips (*Scirtotrips dorsalis* Hood.) is one of the important pests of cashew influencing the yield and quality of cashew nut. The experiments were carried out at Regional Fruit Research Station, Vengurle for management of cashew thrips during 2012-13 to 2014-15. Among the different insecticides tested against cashew thrips, 0.003 per cent lambda cyhalothrin (three sprays) was observed to be the most effective with the least per cent incidence (2.15%) followed by a treatment comprising three sprays of different insecticides (monocrotophos 0.05 per cent at flushing, profenophos 0.05 per cent at flowering and lambda cyhalothrin 0.003 per cent at fruit & nut development stage).

(**Key Words:** Bioefficacy, Management, *Scirtotrips dorsalis*, Thrips)

Cashew is one of the most important commercial crops grown in India. Earlier cashew was grown for reducing soil erosion but, now a days it has become a dollar earner crop of India. The productivity of cashew crop is influenced by many factors; among which the incidence of insect pest is the major one causing crop loss of 30 to 40 per cent (Sathapathy, 1993). Sundararaju (1993) reported 180 insect and non insect pests causing substantial yield losses in cashew crop. Dwomoh *et al.*, (2008) reported that cashew crop is infested by 170 insect species in Ghana. Whereas, Godase *et al.*, (2004) reported 58 insect pests on cashew crop in the Konkan region of Maharashtra. There are 24 species of minor insect pests infesting cashew in Konkan region of Maharashtra. However, only stem and root borer (*Plocaederus ferrugineus* L.), cashew tea mosquito bug (*Helopiltis antonii* Sign.), cashew flower thrips (*Scirtotrips dorsalis* Hood.) are the major pest of cashew in Konkan region of Maharashtra (Godase *et al.*, 1990).

Among the sucking pests of cashew the flower thrips has become a serious threat now a days. About six species of thrips are known to attack cashew in India; out of which four species viz., *Scirtotrips dorsalis* Hood., *Thrips hawaiiensis* Morgan., *Selenothrips rubrocinctus* Giard and *Haplothrips tenuipennis* Bagnal have been recorded infesting cashew in Konkan region of

Maharashtra (Parab, 2010). Patil and Dumbre, (1979) reported that *S. dorsalis* is the predominant species of cashew thrips in Konkan region. The adult and nymphs of thrips are observed in colonies on the lower surface of leaves. As a result of their rasping and sucking activity the leaves become pale brown and slightly crinkled with roughening of leaf surface. They also lacerate the flowers, panicles, apples and nuts. As a result, the flowers turn brownish and there is flower drop which ultimately affect the fruit setting. The panicles turn brownish and wither. Due to voracious feeding by huge number of thrips the apples and nuts become corky, remain under sized with shabby appearance. Panda (2013) reported that the thrips alone accounts for 16.39 % fruit drop.

For management of flower thrips many scientists have reported the efficacy of different insecticides. Godase *et al.* (1990) reported the efficacy of 0.05 per cent monocrotophos, 0.1 per cent carbaryl and 0.05 per cent dimethoate for management of cashew thrips. Jalgaonkar *et al.* (2015) reported the efficacy of 0.003 per cent lambda cyhalothrin and 0.01 per cent triazophos against cashew thrips.

Considering the cashew flower thrips as a limiting factor in cashew production, experiments were conducted at Regional Fruit Research Station Vengurle during the year 2012-13 to 2014-15 for effective management of cashew flower thrips.

*Corresponding Author : E-mail: vaishalizote@gmail.com

MATERIALS AND METHODS

Field experiments were conducted during 2012-13 to 2014-15 at Regional Fruit Research Station, Vengurle in RBD with six treatments and four replications.

Treatment details

T₁ - First spray of neem oil soap (4%) at flushing stage followed by spray of lambda cyhalothrin 5EC (0.003%) at flowering stage followed by spray of neem oil soap at fruit setting.

T₂ - Imidacloprid 17.8 SL (0.01%) (all three spray).

T₃ - Acetamiprid 20 SP(0.01%) (all three spray).

T₄ - Lambda cyhalothrin 5 EC (0.003%) (all three spray).

T₅ - Monocrotophos (0.05%) at flushing, profenophos (0.05%) at flowering and lambda cyhalothrin (0.003%) at fruit & nut development stages.

T₆ - Untreated control

For recording per cent incidence of thrips (corky growth or presence of scabs) 100 nuts as well as apples per tree were selected randomly and damage score recorded in 0-4 scale (Godase *et al.*, 1990) as given below.

0 No damage

1 1-25 per cent nut or apple surface damaged (up to 1/4 of the damaged surface area)

2 26-50 per cent nut or apple surface damaged (up to 1/2 of the damaged surface area)

3 51-75 per cent nut or apple surface damaged (up to 3/4 of the damaged surface area)

4 76-100 per cent nut or apple surface damaged (more than 3/4 of the damaged surface area)

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

RESULTS AND DISCUSSIONS

The data on per cent incidence of flower thrips 30 days after last spray recorded during 2012-13, 2013-14, 2014-15 and the pooled data is presented in Table 1. From the data it is revealed that during the year 2012-13, all the insecticide treatments were significantly superior over control. Among the different insecticide treatments studied, the treatment T₄ (lambda cyhalothrin 0.003%) recorded significantly lowest incidence of cashew flower thrips (1.95%) after last spray. However, it was at par with treatment T₅ (monocrotophos 0.05% at flushing, profenophos 0.05% at flowering and lambda cyhalothrin 0.003% at fruit & nut development stage).

During the year 2013-14, the incidence of thrips ranged between 1.56 to 4.46 per cent among the different insecticide treatments. The treatment T₃ (acetamiprid

Table 1. Efficacy of different insecticides against cashew flower thrips

Treatments	Per cent incidence of flower thrips 30 days after last spray during			
	2012-13	2013-14	2014-15	Pooled mean
T ₁ First spray of neem oil soap (4%) at flushing followed by lambda cyhalothrin 5 EC (0.003%) at flowering followed by neem oil soap at fruiting stage	12.88 (21.03)	3.00 (9.85)	2.52 (8.90)	6.13 (13.28)
T ₂ Imidacloprid 17.8 SL (0.01%) all three spray	8.13 (16.65)	3.42 (10.47)	2.34 (8.65)	4.63 (11.92)
T ₃ Acetamiprid 20SP (0.01%) all three spray	7.93 (16.22)	1.56 (6.44)	3.06 (10.04)	4.18 (10.90)
T ₄ Lambda cyhalothrin 5 EC (0.003%) all three spray	1.95 (7.52)	2.76 (8.59)	1.74 (7.14)	2.15 (7.75)
T ₅ Monocrotophos (0.05%) at flushing, profenophos (0.05%) at flowering and lambda cyhalothrin (0.003%) at fruit & nut development stage	4.48 (12.17)	3.17 (9.63)	2.64 (9.25)	3.43 (10.35)
T ₆ Untreated control	25.05 (29.62)	4.46 (12.73)	5.04 (12.83)	11.51 (18.40)
CD at 5%	5.07	3.74	2.42	2.12

(*figures in parenthesis are arc sine transformed values)

0.01%) was found to be the best treatment for the management of thrips with least incidence of flower thrips (1.56%). However, it was at par with T₄ (lambda cyhalothrin 0.003%), T₅ (monocrotophos 0.05% at flushing, profenophos 0.05% at flowering and lambda cyhalothrin 0.003% at fruit & nut development stage) and T₁ (first spray of neem oil soap 4% at flushing followed by lambda cyhalothrin 5 EC 0.003% at flowering followed by neem oil soap at fruiting stage).

During the year 2014-15, all the insecticide treatments were significantly superior over control. The treatment T₄ (lambda cyhalothrin 0.003%) was found most effective for the management of cashew flower thrips with only 1.74 per cent incidence. However, it was at par with T₂ (imidacloprid 17.8 SL 0.01%), T₁ (first spray of neem oil soap 4% at flushing followed by lambda cyhalothrin 5 EC 0.003% at flowering followed by neem oil soap at fruiting stage) and T₅ (monocrotophos 0.05% at flushing, profenophos 0.05% at flowering and lambda cyhalothrin 0.003% at fruit & nut development stage).

The data on pooled mean of two years is presented in Table 1. From the data it is evident that all the insecticide treatments were significantly superior over control. The treatment T₄ (lambda cyhalothrin 0.003%) was most effective with only 2.15 per cent thrip damage; however, it was at par with treatments T₅ (monocrotophos 0.05% at flushing, profenophos 0.05% at flowering and lambda cyhalothrin 0.003% at fruit & nut development stage) and T₃ (acetamiprid 20 SP 0.01%).

Similarly, Godase et al., (2004) recorded the efficacy of monocrotophos against cashew thrips and Jalgaonkar (2015) recorded the efficacy of lambda cyhalothrin (0.003%) for the management of thrips.

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