



Efficacy of Certain New Insecticides against Thrips on Chillies

Key words : Acetamiprid, Carbosulfan, Chillies, Fipronil, *Scirtothrips dorsalis*.

Chilli is an important spice of almost all parts of the world. Andhra Pradesh alone commands 46% of the chilli production in India. It grows chillies on an area of 2,25,000 ha. with a production of productivity of 591,000 and 2,631 kg ha⁻¹, respectively. In Andhra Pradesh, Khammam is one of the important chilli growing district with an area of 22,000 ha producing 88,000 tonnes.

Chilli is ravaged by more than 20 species of insects at various stages of its growth. The important pests are thrips (*Scirtothrips dorsalis* Hood, white mite *Polyphagotarsonemus latus* Banks; aphids, *Aphis gossypii* Glover; and *Mayzus persica sulzer* as sucking complex and tobacco caterpillar, *Spodoptera litura* Fabricius and gram caterpillar, *Helicoverpa armigera* Hubner as pod borers.

Scirtothrips dorsalis Hood (Thysanoptera; thripidae) is a serious pest of *Capsicum annuum* L., in India, responsible for leaf curling. Severe infestation of thrips on chilli results in loss to an extent of 60.5 to 74.3%. The thrips have developed resistance to many of existing and commonly used insecticides. Farmers in this Khammam region are making an hue and cry about the ineffectiveness of existing chemicals in giving satisfactory control of thrips on chilli. Hence, the present study was under taken to know effective insecticides to manage chilli thrips.

The investigation was carried out at Agricultural Research Station, Madhira (Khamma district) during rabi 2005-2006. The experiment was laid out in randomised block design with nine treatments replicated thrice. Raised seed beds of 5 x 1m were prepared near mainfield sprayings with Dithane m-45 @ 0.3% and one spraying of monocrotophos @ 0.01% were given to protect the nursery from damping of disease and thrips damage respectively. The seedlings were transplanted at a spacing of 75x33cm. All the agronomic practices were followed as per the ANGRAU package of practices. During the crop

period six rounds of sprayings with insecticidal treatments were given at ten days interval starting from 25 days after transplanting and continued upto 85 days. The exception being the third spray which was to synchronize the insecticidal application with the pest infestation. The treatments were terminated after sixth spray at 85 days after transplanting, since the thrips population was far below than the economic threshold level. The percent reduction in thrips population over control was calculated by modified Abbot's formula (Fleming and Retnakaran 1985) and the data were subjected to analysis of variance.

The results of the present investigation (Table 1) indicated that at one day after application of six sprayings showed that all the treatments were significantly superior over untreated control. Among the treatments fipronil-0.01% was the most effective and significantly superior over all the other treatments by recording 88.88% mean population reduction of thrips over untreated control.

Carbosulfan-0.05%(86.20%), fenobucarb-0.1% (82.43%) and fenpropathrin-0.05% (79.16%) with more than 79% reduction in thrips population followed by acetamiprid-0.004% (76.77%) and imidacloprid-0.0045% (75.30%) being on par with each other and significantly superior over remaining treatments. Among treatments dimethoate-0.06% (65.44%) and monocrotophos-0.054% (61.19%) were found least effective.

At fifth day of six sprayings revealed that fipronil-0.01% (69.23%) and carbosulfan-0.05% (63.76%) were more effective and significantly superior over the rest of the treatments. The next best treatments were fenpropathrin-0.05% (61.65%) and Acetamiprid-0.004% (60.36%) being on par with one another and significantly superior over remaining treatments.

The present observation is in conformity with the findings of ANGRAU Annual Report, RARS Lam (2001) who reported that fipronil was effective against chilli thrips. The findings of Rupal

Table : Cumulative efficacy of six sprayings against Chilli thrips during *rabi* 2003-2004.

Treatment	Concentration	Mean population before spray (per 5 plants)	Per cent reduction over control			
			1 DAT	5 DAT	10 DAT	Overall efficacy
T ₁ Fipronil	0.01%	17.46	88.88 (70.56)a	69.23 (69.23)a	44.12 (41.62)a	67.41 (55.18)a
T ₂ Acetamiprid	0.004%	21.13	76.77 (61.19)e	60.36 (50.97)c	26.53 (30.96)d	54.55 (47.61)d
T ₃ Monocrotophos	0.054%	24.75	61.19 (51.46)g	31.31 (34.02)f	5.37 (13.39)g	32.62 (34.82)g
T ₄ Carbosulfan	0.05%	19.20	86.20 (68.20)b	63.76 (52.98)b	37.49 (37.15)b	62.14 (52.03)b
T ₅ Fenobucarb	0.1%	24.16	82.43 (65.22)c	50.27 (45.15)e	17.30 (24.58)f	50.00 (45.00)e
T ₆ Fenpropathrin	0.05%	20.96	79.16 (62.84)d	61.65 (51.73)c	33.06 (35.10)c	57.95 (49.57)c
T ₇ Imidacloprid	0.0045%	22.67	75.30 (60.19)e	54.75 (47.72)d	22.39 (28.23)e	50.81 (45.46)e
T ₈ Dimethoate	0.06%	26.24	65.44 (53.99)f	30.88 (33.75)f	5.33 (13.34)g	33.88 (35.59)f
T ₉ Control	—	32.28	0.00 (0.00)h	0.00 (0.00)g	0.00 (0.00)h	0.00 (0.00)g
'F' test			Sig.	Sig.	Sig.	Sig.
SEm±			0.477	0.29	0.501	0.215
CD (P=0.05)			1.43	0.886	1.50	0.645

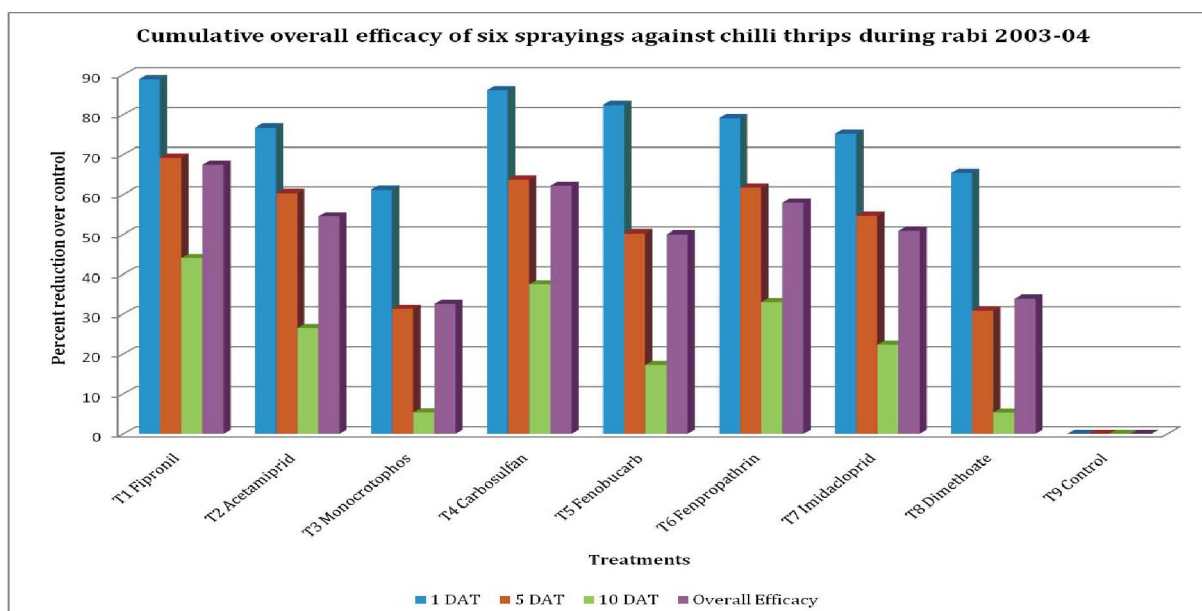
Mean Separation by DMRT at 5% level.

Sig. : Significant.

Figures in parenthesis are $\sqrt{\text{arc}}$ sine transformed values

DAT: Days After Treatment

Numbers followed by same letter are not significantly different



et al (2003) are also in close agreement with the present observation.

The present findings of acetamiprid is in agreement with the findings of Jayewar *et al* (2003). The present findings of imidacloprid are in agreement with Patil *et al* (2002) who reported that Imidacloprid @ 150 ml/ha was effective against chilli thrips Jassids and Aphids than Monocrotophos and Dimethoate.

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