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**Original Research Article**

# Impact of Pesticidal Sprays in Reducing Sucking Pests Population on Chilli

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**Keywords**

Imidacloprid, Thiamethoxam, Triazophos, Acetamiprid, Diafenthiuron, Fenazaquin, Acephate and Fenpyroximate

**A B S T R A C T**

Investigation on impact of pesticidal sprays in reducing sucking pests population on chilli (GVC-111) was evaluated under field conditions at Main Vegetable Research Station, Anand Agricultural University, Anand (Gujarat) during *Kharif and Rabi* 2013. Maximum reduction (61.48, 60.29 and 73.45% during first, second and third spray, respectively) in thrips population during *kharif* was found in the plots treated with imidacloprid followed by thiamethoxam and triazophos. Acetamiprid and acephate found to be mediocre in reducing the thrips. In *rabi*, 63.01, 53.98 and 62.61 per cent reduction of the pest was found during first, second and third spray, respectively. Maximum reduction of chilli mite was found in fenpyroximate as it recorded 34.57 to 52.92 and 38.74 to 50.86% reduction during *kharif* and *rabi*, respectively. In terms of reduction of mite, diafenthiuron and fenazaquin stood second and third position, respectively.

## Introduction

Chilli, *Capsicum annum* L. belongs to the family Solanaceae is one of the important commercial spices crop grown in India. Over 35 species of insects and mites have been reported as pests of chilli which includes thrips, aphid, whitefly, fruit borer, cutworm, plant bug, mite and other minor pests (Sorensen, 2005). Among all the sucking pests attacking chilli, thrips (*Scirtothrips dorsalis* Hood), mite (*Polyphagotarsonemus latus* Banks) and aphids (*Myzus persicae* Sulzer, *Aphis gossypi* Glover) are dominant pests (Ananthakrishnan, 1971; Krishna Kumar *et al.,* 1996 and Berke and Sheih, 2000). Now-a- days, a large number of newer insecticides and acaricides are available in market. Bioefficacy of these pesticides need to be studied for formulating effective and economical management strategies of any insect pests. Enough work has been done on testing the bio-efficacy of conventional insecticides against pests of chilli. There was paucity of information about the efficacy of newer insecticides and acaricides against thrips and mites infesting chilli especially in middle Gujarat region. It is therefore imperative to resort the knowledge on above aspects, therefore the present investigations were undertaken.

## Materials and Methods

Impact of pesticidal sprays in reducing sucking pests population on chilli (GVC-111) was evaluated under field conditions at

Main Vegetable Research Station, Anand Agricultural University, Anand (Gujarat) during *Kharif and Rabi* 2013. The row-to-row and plant-to-plant spacing was 60 cm. All the standard agronomic practices were followed during the whole season. The insecticides were applied thrice with manually operated knapsack sprayer using 250 to 500 litres of water per ha. In order to record the incidence of thrips and whitefly, five plants were randomly selected from net plot area of each plot and tagged. Observations on population of thrips and whitefly were recorded from three tender leaves of tagged plants by counting the number of nymphs as well as adults in case of thrips and only adults in case of whitefly. Data on pest population recorded were used to determine the reduction in respective pest population. Observations of pest population present during before spray and 3, 5 and 7 days after each spray were recorded in all the treated plots. Thus, the data obtained were used to calculate the reduction in pest population by using the following formula (Henderson and Tilton, 1955).

$$\text{Reduction \%} = 1 - \frac{\text{n in Co before treatment x n in T after treatment}}{\text{n in Co after treatment x n in T before treatment}} X100$$

Where,

n = insect population
T = treated
Co = control

## Results and Discussion

### Reduction in thrips, *Scirtothrips dorsalis* population in chilli due to insecticidal sprays

In order to determine the reduction in thrips in chilli due to the various insecticidal treatments, per cent reduction values were worked out for the observations recorded at 3, 5 and 7 DAS. The data thus obtained for *Kharif* and *Rabi* season of the year 2013 are presented in Table 1 and 2, respectively.

### *Kharif* 2013

Pooled data (Table 1) worked out for each spray indicated maximum reduction in thrips, *S. dorsalis* population in plots treated with imidacloprid (0.005 %) as it showed 61.48, 60.29 and 73.45 % reduction during first, second and third spray, respectively. In terms of reduction in thrips population, thiamethoxam and triazophos stood next (second and third rank, respectively) to imidacloprid. Acetamiprid and acephate found to be mediocre in reducing the thrips population as these insecticidal treatments exhibited 21.06 to 45.58% reduction of the pest. Least percentage of reduction in thrips was observed in the plots treated with bifenthrin followed by thiacloprid.

Percentage reduction in thrips, *S. dorsalis* population in chilli due to the application of certain newer insecticides worked out in present study tally to some extent with few earlier reports. It was found that the reduction in thrips incidence following the spray of acephate was ranged from 21.06 to 45.58%. However, the report of Kumar *et al.,* (2001) showed very high (87.22%) percentage of reduction of the pest due to the acephate spray in chilli. In present investigation, the thrips population was reduced maximum up to 45.87% in the treatment of acetamiprid. In contrast to this, higher *i.e.* 89.80 (Ghosh *et al.*, 2009) to 93.30 (Mandi and Senapati, 2009) per cent reduction in *S. dorsalis* after spraying of acetamiprid in chilli has been reported in past.

Mandi and Senapati (2009) and Ghosh *et al.,* (2009) registered 90% reduction in thrips, *S. dorsalis* population in chilli through spraying of thiamethoxam, whereas in

present study it was maximum up to 69.58% in third spray. A maximum of 73.45% population of thrips, *S. dorsalis* was suppressed in imidacloprid treated chilli plots which is nearest to the report of Hosamani (2007) who showed 84% reduction of the pest in imidacloprid sprayed plots of chilli.

### *Rabi* 2013

The superiority of imidacloprid in reducing the thrips, *S. dorsalis* population noticed during *Kharif* season was also observed during *Rabi* season (Table 2) as it showed 63.01, 53.98 and 62.61% reduction of the pest in chilli during first, second and third spray, respectively. Thiacloprid and triazophos were also found better treatments in reducing the thrips incidence as they exhibited appreciable reduction (38.38 to 49.07%) of the pest. Plots treated with acetamiprid showed 8.20, 28.60 and 16.72% reduction in thrips population during first, second and third spray, respectively. Thiacloprid and acephate stood next to acetamiprid. Among the insecticides, bifenthrin proved least effective against thrips infesting chilli as it showed 2.33 to 9.62% reduction of the pest.

On the basis of reduction in thrips population following the insecticidal spray carried out during *Kharif* as well as *rabi* season, the effectiveness of insecticides can be arranged in descending order as: imidacloprid > thiamethoxam > triazophos > acetamiprid > acephate > thiacloprid > bifenthrin.

### Reduction in whitefly, *Bemisiatabaci* population in chilli

Reduction in whitefly, *B. tabaci* population due to insecticidal treatments was worked out based on the before and after spray counts made at 3, 5 and 7 DAS. Data on percentage suppression of whitefly incidence were worked out for each insecticidal spray and are presented in Table 3.

Data (Table 3) indicated that maximum (82.14%) reduction in whitefly, *B. tabaci* population owing to spray was revealed in acetamiprid followed by imidacloprid (69.12%). Plots sprayed with acetamiprid exhibited 78.41, 76.89 and 91.12% reduction in whitefly population, whereas it was 65.60, 69.25 and 72.51% in case of imidacloprid at 3, 5 and 7 DAS, respectively. The treatments of thiamethoxam and thiacloprid were found mediocre (49.69 to 54.29%) in their reduction potential. Among the insecticides, bifenthrin and acephate were found inferior in reducing the whitefly incidence in chilli as they exhibited a mean value of 39.99 and 41.35% reduction, respectively.

No much information is available on reduction in whitefly, *B. tabaci* population in chilli due to the spray application of newer insecticides, except the solitary report of Singh *et al.*, (2004). They reported that the imidacloprid 17.8 SL was the best insecticide in controlling whitefly on chilli as it reduced 58.98 to 95.58% population of the pest. These values are almost near to the present finding in which reduction in whitefly, *B. tabaci* population ranged from 65.60 to 72.51% with a mean value of 69.12%. Biswas and Chatterjee (2008) registered 80.29 and 74.37% reduction in whitefly population in brinjal crop with the application of thiamethoxam and acetamiprid, respectively. The corresponding mean percentage values of reduction in whitefly due to thiamethoxam and acetamiprid treatments were 54.29 and 41.35, respectively. These values are too high than the present finding.

**Reduction in mite, *Polyphagotarsonemus latus* population in chilli due toacaricidal treatments**

As like thrips, *S. dorsalis* population, per cent reduction values for mite, *P. latus* due to the treatment of various acaricides were also calculated for the observations recorded at 3, 5, and 7 DAS. The data on reduction in mite population worked out for *kharif* and *rabi* season are presented in Table 4 and 5, respectively.

***Kharif* 2013**

Data (Table 4) indicated the highest (34.57 to 52.92%) percentage of reduction in mite, *P. latus* population in chilli plots treated with fenpyroximate followed by fenazaquin and diafenthiuron as it evident from the pooled data worked for each spray. Fenpropathrin, spiromesifen and propargite were also found better acaricides for controlling the mite. Among the evaluated acaricides, minimum (0.70 to 9.01%) reduction of *P. latus* was observed in chilli plots sprayed with hexythiazoxm followed by chlorfenapyr (2.97 to 9.91 %).

***Rabi* 2013**

Superiority of fenpyroximate for maximum reduction in mite population noticed during *Kharif* season was also found during *rabi* season. It showed 50.53, 50.86 and 38.74% reduction of mite incidence during first, second and third spray, respectively (Table 5). Spiromesifen, fenazaquin and diafenthiuron also showed greater percentage of mite reduction followed by fenpyroximate. Of the eight acaricides evaluated, hexythiazox, chlorfenapyr and propargite found less effective in controlling the mite on chilli. On the basis of reduction in *P. latus* population due to the acaricidal spray, the potential of acaricides can be arranged in descending order as: Fenpyroximate > diafenthiuron > fenazaquin > spiromesifen > fenpropathrin > propargite > hexythiazox > chlorfenapyr.

Reduction in chilli mite, *P. latus* population due to different acaricidal spray during *Kharif* and *Rabi* trials concluded that maximum reduction of the pest was found in the treatment of fenpyroximate. It recorded 23.02 to 52.92 and 38.74 to 50.86% reduction during *Kharif* and *Rabi* season, respectively. Data on reduction of mite population in chilli due to the application of fenpyroximate is lacking in literature. However, Kumar *et al.,* (2009) recorded 60.30 and 78.73% reduction in mite, *Tetranychus urticae* Koch population in brinjal after first and second spray of fenpyroximate 5 EC, respectively.

This is in accordance with the above finding. Fenazaquin treated plots exhibited 27.79, 32.46, 41.66 and 13.46, 27.10, 32.89% reduction of *P. latus* in first, second and third spray applied during *Kharif* and *Rabi*, respectively. In the absence of such type of data in published literature, the present finding lacks comparison. However, Misra (2011) recorded highest percentage reduction (90.27 to 92.13%) of mite in tomato with fenazaquin 10 EC applied at 125 to 150 g a.i./ha, whereas it was 76.40 to 76.81% at 100 g a.i./ha. Diafenthiuron also evolved as one of the good acaricides which registered 35.25 to 40.22 and 23.30 to 36.28% reduction of chilli mite, *P. latus* during *Kharif* and *Rabi*, respectively. None of the earlier workers had attempted to work out reduction percentage of mite in chilli by spraying diafenthiuron, but Bhaskaran *et al.*,(2007) reported that the spraying of diafenthiuron 50 SC and 50 WP both applied at 450 g a.i./ha recorded 87.95, 96.08 and 89.38, 93.79% reduction in mite population on bhendi, respectively.

**Table.1** Reduction (%) in thrips, *S. dorsalis* population due to spraying of different insecticides (*Kharif* 2013)

| Treatments | First spray (at DAS) | | | | Second spray (at DAS) | | | | Third spray (at DAS) | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 3 | 5 | 7 | P | 3 | 5 | 7 | P | 3 | 5 | 7 | P |
| **Thiacloprid 21.7 SC (0.012%)** | -1.51 (16.33)* | 28.86 (11.33) | 23.45 (13.00) | 16.93 (13.56) | 14.30 (16.67) | 19.38 (13.67) | 20.86 (14.00) | 18.18 (14.78) | 26.08 (18.00) | 33.68 (12.33) | 21.22 (14.67) | 26.99 (15.00) |
| **Acetamiprid 20 SP (0.004%)** | 30.65 (10.67) | 43.72 (8.67) | 41.63 (9.67) | 38.67 (9.67) | 36.55 (12.00) | 35.29 (10.67) | 32.26 (11.33) | 34.70 (11.33) | 48.58 (12.33) | 51.55 (8.67) | 37.48 (11.33) | 45.87 (10.78) |
| **Bifenthrin 10 EC (0.016%)** | -10.17 (16.67) | 2.99 (14.67) | 4.09 (15.67) | -1.03 (15.67) | 5.69 (18.33) | 11.53 (15.33) | 10.10 (16.00) | 9.11 (16.56) | 27.33 (18.33) | 32.41 (12.33) | 22.05 (15.00) | 27.27 (15.22) |
| **Imidacloprid 17.8 SL (0.005%)** | 53.39 (6.67) | 67.57 (4.67) | 63.49 (5.67) | 61.48 (5.67) | 54.37 (9.00) | 66.64 (6.00) | 59.85 (7.33) | 60.29 (7.44) | 63.45 (8.33) | 83.22 (3.00) | 73.67 (4.67) | 73.45 (5.33) |
| **Triazophos 40 EC (0.04%)** | 46.96 (7.33) | 60.98 (5.33) | 57.62 (6.33) | 55.19 (6.33) | 48.76 (10.33) | 51.68 (8.67) | 42.10 (10.67) | 47.51 (9.89) | 63.23 (9.00) | 78.19 (3.67) | 70.74 (5.33) | 70.72 (6.00) |
| **Acephate 75 SP (0.075%)** | 12.02 (12.33) | 26.43 (10.33) | 24.74 (11.33) | 21.06 (11.33) | 28.21 (13.33) | 38.46 (10.00) | 30.23 (11.67) | 32.30 (11.67) | 49.36 (11.67) | 48.32 (8.67) | 39.07 (10.67) | 45.58 (10.33) |
| **Thiamethoxam 25 WG (0.005%)** | 40.76 (6.67) | 58.40 (4.67) | 53.73 (5.67) | 50.97 (5.67) | 44.94 (10.00) | 57.09 (7.00) | 53.96 (7.67) | 52.00 (8.22) | 58.90 (9.67) | 80.00 (3.67) | 69.83 (5.33) | 69.58 (6.22) |

DAS = Days after spray P= Pooled

*Figures in parentheses are original values and those outside are per cent reduction values

**Table.2** Reduction (%) in thrips, *S. dorsalis* population due to spraying of different insecticides (*Rabi* 2013)

| Treatments | First spray (at DAS) | | | | Second spray (at DAS) | | | | Third spray (at DAS) | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 3 | 5 | 7 | P | 3 | 5 | 7 | P | 3 | 5 | 7 | P |
| **Thiacloprid 21.7 SC (0.012%)** | -3.21 (12.67)* | 7.97 (11.33) | 9.73 (11.67) | 4.83 (11.89) | 22.68 (10.00) | 36.83 (7.33) | 24.97 (9.33) | 28.16 (8.89) | 6.27 (9.33) | 13.37 (8.33) | 9.68 (9.00) | 9.77 (8.89) |
| **Acetamiprid 20 SP (0.004%)** | -5.96 (11.33) | 17.57 (9.33) | 12.99 (10.00) | 8.20 (10.22) | 20.34 (9.67) | 24.94 (7.67) | 14.49 (9.00) | 19.92 (8.78) | 11.66 (8.33) | 20.08 (7.33) | 18.43 (7.67) | 16.72 (7.78) |
| **Bifenthrin 10 EC (0.016%)** | -2.38 (14.33) | 2.58 (13.33) | 6.78 (13.67) | 2.33 (13.78) | 0.16 (14.33) | 0.66 (13.00) | 6.17 (13.33) | 2.33 (13.56) | 4.66 (10.00) | 12.25 (9.00) | 11.95 (9.33) | 9.62 (9.44) |
| **Imidacloprid 17.8 SL (0.005%)** | 58.15 (5.33) | 66.45 (4.33) | 64.44 (5.00) | 63.01 (4.89) | 49.31 (5.67) | 56.20 (4.33) | 56.44 (5.00) | 53.98 (5.00) | 53.58 (4.33) | 70.00 (2.67) | 64.25 (3.33) | 62.61 (3.44) |
| **Triazophos 40 EC (0.04%)** | 35.53 (8.67) | 44.81 (7.33) | 46.88 (7.67) | 42.41 (7.89) | 39.67 (7.33) | 45.77 (6.00) | 41.53 (6.67) | 42.32 (6.67) | 39.20 (6.00) | 48.30 (5.00) | 46.21 (5.33) | 44.57 (5.44) |
| **Acephate 75 SP (0.075%)** | 0.00 (13.00) | 5.58 (12.00) | 8.31 (12.33) | 4.63 (12.44) | 23.16 (10.33) | 31.15 (8.33) | 31.48 (9.00) | 28.60 (9.22) | 6.10 (9.00) | 14.48 (8.00) | 13.93 (8.33) | 11.50 (8.44) |
| **Thiamethoxam 25 WG (0.005%)** | 29.34 (9.00) | 42.01 (7.00) | 43.78 (7.33) | 38.38 (7.78) | 45.00 (6.33) | 52.06 (5.00) | 50.14 (5.67) | 49.07 (5.67) | 42.33 (5.67) | 51.86 (4.67) | 48.53 (5.00) | 47.57 (5.11) |

DAS = Days after spray P= Pooled

*Figures in parentheses are original values and those outside are per cent reduction values

**Table.3** Reduction (%) in whitefly, *B. tabaci* population due to spraying of different insecticides (*Kharif* 2013)

| Treatments | Mean numbers of whitefly/leaf at DAS | | | |
|---|---|---|---|---|
| | 3 | 5 | 7 | P |
| **Thiacloprid 21.7 SC 0.012%** | 52.24 (1.83)* | 45.48 (1.67) | 51.36 (1.50) | 49.69 (1.67) |
| **Acetamiprid 20 SP 0.004%** | 78.41 (0.83) | 76.89 (0.67) | 91.12 (0.30) | 82.14 (0.60) |
| **Bifenthrin 10 EC 0.016%** | 42.34 (2.17) | 32.46 (2.17) | 45.16 (1.67) | 39.99 (2.00) |
| **Imidacloprid 17.8 SL 0.005%** | 65.60 (1.17) | 69.25 (1.00) | 72.51 (0.83) | 69.12 (1.00) |
| **Triazophos 40 EC 0.04%** | 64.66 (1.33) | 66.23 (1.17) | 74.91 (0.83) | 68.60 (1.11) |
| **Acephate 75 SP 0.075%** | 39.09 (2.17) | 42.07 (1.83) | 42.89 (1.73) | 41.35 (1.91) |
| **Thiamethoxam 25 WG 0.005%** | 52.92 (1.67) | 45.58 (1.50) | 64.38 (1.00) | 54.29 (1.39) |

DAS = Days after spray P= Pooled

*Figures in parentheses are original values and those outside are per cent reduction values

**Table.4** Reduction (%) in chilli mite, *P. latus* population due to spraying of different acaricides (*Kharif* 2013)

| Treatments | First spray (at DAS) | | | | Second spray (at DAS) | | | | Third spray (at DAS) | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 3 | 5 | 7 | P | 3 | 5 | 7 | P | 3 | 5 | 7 | P |
| **Fenpropathrin 30 EC (0.018%)** | 1.25 (15.33)* | 32.22 (12.00) | 27.55 (13.00) | 20.34 (13.44) | 9.02 (14.33) | 9.03 (12.67) | 2.04 (14.00) | 6.69 (13.67) | 10.05 (13.00) | 7.79 (12.33) | 18.66 (9.33) | 12.17 (11.56) |
| **Propargite 57 EC (0.17%)** | 4.37 (15.00) | 28.30 (12.33) | 24.07 (13.33) | 18.91 (13.56) | 9.82 (14.67) | -1.11 (14.67) | 0.21 (15.00) | 2.97 (14.78) | -0.36 (15.00) | 10.82 (13.00) | 20.21 (10.00) | 10.22 (12.67) |
| **Chlorfenapyr 10 SC (0.015%)** | 4.46 (15.67) | 14.53 (15.33) | 10.73 (16.33) | 9.91 (15.78) | 8.70 (16.00) | 2.99 (15.33) | 4.14 (15.67) | 5.28 (15.67) | -5.36 (15.00) | -12.80 (15.00) | -3.52 (11.67) | -7.23 (13.89) |
| **Diafenthiuron 50 WP (0.06%)** | 38.98 (10.00) | 55.13 (8.00) | 20.54 (9.00) | 38.22 (9.22) | 32.68 (9.33) | 53.46 (6.33) | 19.61 (9.67) | 35.25 (8.44) | 35.44 (9.67) | 46.38 (7.67) | 38.84 (5.33) | 40.22 (7.56) |
| **Fenazaquin 10 EC (0.025%)** | 26.47 (12.67) | 43.48 (10.67) | 13.42 (11.67) | 27.79 (11.67) | 37.69 (9.67) | 50.17 (6.67) | 9.52 (9.67) | 32.46 (8.67) | 35.65 (10.33) | 46.85 (8.33) | 42.50 (5.67) | 41.66 (8.11) |
| **Fenpyroximate 5 EC (0.005%)** | 43.32 (9.33) | 59.05 (7.33) | 54.28 (8.33) | 52.21 (8.33) | 33.95 (9.00) | 46.75 (6.00) | 23.02 (9.00) | 34.57 (8.00) | 41.16 (9.00) | 53.28 (7.00) | 64.31 (4.67) | 52.92 (6.89) |
| **Hexythiazox 5.45 EC (0.004%)** | -1.15 (15.33) | 16.13 (15.00) | 12.03 (16.00) | 9.01 (15.44) | 10.25 (16.00) | -0.61 (15.67) | 1.61 (16.00) | 3.75 (15.89) | -0.85 (15.33) | -1.99 (15.00) | 4.95 (12.00) | 0.70 (14.11) |
| **Spiromesifen 22.9 SC (0.02%)** | 2.11 (13.00) | 28.80 (11.00) | 24.36 (12.00) | 18.42 (12.00) | 10.71 (13.67) | 30.62 (9.33) | 25.58 (10.33) | 22.31 (11.11) | 19.54 (12.67) | 26.72 (11.33) | 38.02 (8.33) | 28.09 (10.78) |

DAS = Days after spray P=Pooled *Figures in parentheses are original values and those outside are per cent reduction values

**Table.5** Reduction (%) in chilli mite, *P. latus* population due to spraying of different acaricides (*Rabi* 2013)

| Treatments | First spray (at DAS) | | | | Second spray (at DAS) | | | | Third spray (at DAS) | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 3 | 5 | 7 | P | 3 | 5 | 7 | P | 3 | 5 | 7 | P |
| **Fenpropathrin 30 EC (0.018%)** | 16.36 (14.00)* | 37.51 (10.00) | 22.98 (13.00) | 25.62 (12.33) | 13.10 (14.33) | 32.20 (10.33) | 15.70 (13.33) | 20.33 (12.67) | 5.95 (13.00) | 23.35 (10.67) | -6.94 (13.33) | 7.45 (12.33) |
| **Propargite 57 EC (0.17%)** | 10.04 (15.67) | 29.71 (11.67) | 17.37 (14.67) | 19.04 (14.00) | 7.02 (15.00) | 12.13 (13.33) | 13.20 (13.33) | 10.78 (13.89) | 1.05 (14.33) | 5.82 (14.00) | -3.45 (13.67) | 1.14 (14.00) |
| **Chlorfenapyr 10 SC (0.015%)** | 7.50 (16.33) | 25.75 (12.33) | 5.62 (16.33) | 12.95 (15.00) | 5.56 (15.67) | 11.35 (14.00) | -4.76 (16.33) | 4.05 (15.33) | -4.00 (14.33) | -4.66 (14.00) | -18.88 (14.67) | -9.18 (14.33) |
| **Diafenthiuron 50 WP (0.06%)** | 35.47 (10.67) | 58.28 (6.67) | 15.08 (9.67) | 36.28 (9.00) | 42.33 (9.00) | 38.27 (9.00) | -10.71 (10.33) | 23.30 (9.44) | 33.61 (9.67) | 41.22 (8.67) | 22.42 (10.67) | 32.42 (9.67) |
| **Fenazaquin 10 EC (0.025%)** | 4.80 (14.00) | 33.65 (9.67) | 1.92 (12.67) | 13.46 (12.11) | 33.17 (11.00) | 40.85 (9.00) | 7.27 (11.00) | 27.10 (10.33) | 34.68 (10.33) | 42.49 (9.33) | 21.50 (11.67) | 32.89 (10.44) |
| **Fenpyroximate 5 EC (0.005%)** | 40.45 (9.67) | 63.18 (5.67) | 47.95 (8.67) | 50.53 (8.00) | 55.14 (7.67) | 56.90 (7.00) | 40.54 (9.33) | 50.86 (8.00) | 39.84 (9.00) | 46.13 (8.00) | 30.25 (10.00) | 38.74 (9.00) |
| **Hexythiazox 5.45 EC (0.004%)** | 8.98 (15.33) | 19.70 (13.00) | 7.65 (16.00) | 12.11 (14.78) | 7.41 (15.67) | 12.91 (14.00) | 2.86 (16.00) | 7.73 (15.22) | 3.16 (14.33) | 4.72 (14.33) | -5.86 (14.67) | 0.67 (14.44) |
| **Spiromesifen 22.9 SC (0.02%)** | 21.98 (13.67) | 40.78 (9.67) | 29.05 (12.33) | 30.60 (11.89) | 27.27 (12.00) | 36.20 (10.00) | 19.15 (13.00) | 27.54 (11.67) | 18.11 (12.67) | 34.04 (10.33) | 6.93 (13.33) | 19.69 (12.11) |

DAS = Days after spray P=Pooled

*Figures in parentheses are original values and those outside are per cent reduction values

In present study it was found that fenpropathrin reduced the mite *P. latus* population maximum up to 25.62 % in chilli. However, Jeyarani and Chandrasekaran (2006) reported that fenpropathrin at 2 ml/L exhibited 82.16 and 81.32 % reduction of the pest in chilli over control at three days after first and second spray, respectively. This variation might be due to difference in formulation and dose of the test product and crop on which it was evaluated. Reduction in mite population in plots treated with propargite was relatively low (maximum up to 19.4 %) as compared to other miticides evaluated. In contrast to this, Kumar *et al.,* (2005) and Singh and Singh (2013) showed very high level of reduction of the pest in chilli. According to Kumar *et al.,* (2005), the spray application of propargite (0.228 %) gave 90.66, 94.88, 68.77 and 50.55 % mortality after 1, 2, 7 and 14 days, respectively. Singh and Singh (2013) showed 72.66 % reduction of *P. latus* population with propargite. This discrepancy in values of reduction of mite numbers may be accounted due to variation in concentration of the chemical and period of observation.

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