Research Paper :

Chemical control of aphid *Lipaphis erysimi* (Kalt) on cabbage

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SUMMARY

The results on the efficacy of different insecticides tested against aphid, *Lipaphis erysimi* (Kalt.) showed that the treatment of thiamethoxam 0.01 per cent recorded the highest mortality percentage of aphid and was found most effective followed by imidacloprid 0.01 per cent, acetamiprid 0.004 per cent and methyl-o-demeton 0.025 per cent. Higher yield of healthy cabbage head was recorded in the treatment of thiamethoxam 0.01 per cent (221.54 q/ha) followed by imidacloprid 0.01 per cent, acetamiprid 0.004 per cent and methyl-o-demeton 0.025 per cent (218.10 to 206.83 q/ha). The treatment of thiamethoxam 0.01 per cent was found most economical with highest cost benefit ratio (1:42.44) followed by methyl-o-demeton 0.025 per cent, acetamiprid 0.004 per cent and imidacloprid 0.01 per cent (1:26.19 to 1:22.49).

Key words : Chemical control, cabbage, Aphid, *Lipaphis erysimi*

Cabbage is one of the important cruciferous leafy vegetables and cultivated in all five continents including Asia. India ranks next to China in production in Asia. In Gujarat, total cultivated area of cabbage is about 19,046 hectares with the total production of 3,29,236 metric tonnes and the average productivity of cabbage is 17,286 kg per hectare (Anonymous, 2006). The crop is attacked by 375 species of insects (Oatman and Plantner, 1969). Among these pests, the aphids cause both qualitative as well as quantitative losses to the crop in Saurashtra region and have been observed as the most destructive and regularly occurring sucking pest throughout the world (Sharma and Bhalla, 1964). The estimated loss in yield due to aphid, *Lipaphis erysimi* (Kalt.) in cabbage crop was reported 47.1 to 96.0 per cent (Bakhetia, 1986 and Suri *et al.*, 1988). Attempts were, therefore, made to study the relative merits of some insecticides for the control of *Lipaphis erysimi* (Kalt.) on cabbage.

MATERIALS AND METHODS

With a view to test the efficacy of different insecticides against cabbage aphid, *L. erysimi*, a field trial was conducted during *Rabi* season of 2006-07 at College Farm, College of Agriculture, Junagadh on cabbage cv. GOLDEN ACRE. Ten treatments were tried in randomized block design with four replications. The seedlings were transplanted at the spacing of 120 cm x 45 cm having gross and net plot size of 3.6 m x 2.7 m and 3.0 m x 1.8 m, respectively. First spray was given after initiation of pest infestation. Subsequent sprays (second and third) were given at 10 days interval. For the purpose of recording the observations, five plants were selected randomly. Observations of aphids were recorded from 3 leaves *viz.*, top, middle and bottom from each randomly selected plant before 24 hours and after 24 hours, 3 days and 7 days. The data thus, obtained were converted into per cent mortality by using a modified formula given by Henderson and Tilton (1955). Data on per cent mortality of aphids obtained after each spraying were analyzed statistically by using statistical procedure of RBD as suggested by Panse and Sukhatme (1985). The yield and economics for each treatment was worked out.

RESULTS AND DISCUSSION

Data presented in Table 1 indicate that the differences in mortality per cent of aphids in various insecticidal treatments after different intervals of spraying was found significant.

Per cent reduction of aphid, L. erysimi after first spray:

After 24 hours of insecticidal spray, thiamethoxam 0.01 per cent recorded the highest mortality of aphid (82.67 per cent), which was statistically at par with acetamiprid 0.004 per cent, imidacloprid 0.01 per cent and methyl-o-demeton 0.025 per cent (77.37, 77.23

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