Research Paper :

Bio-efficacy of bio-pesticides against whitefly, *Bemisia tabaci* infesting cotton

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SUMMARY

An experiment was conducted to evaluate the bio-efficacy of bio-pesticides against whitefly, *Bemisia tabaci* infesting hybrid cotton at Instructional Farm, College of Agriculture, Junagadh Agricultural University, Junagadh during *Kharif* season of 2007. The results revealed that the treatment of acetamiprid (0.005 per cent) was found effective against whitefly followed by thiamethoxam (0.008 per cent). Among the biopesticides, combination of biopesticides, *viz.*, *V. lecanii* 1.25 kg/ha and *B. bassiana* 1 kg/ha with thiamethoxam (0.008 per cent) was effective against the pest.

Key words : Bio-pesticides, Whitefly, *Bemisia. tabaci*, Cotton

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Cotton, the "white gold" is a premier commercial crop of Gujarat. In Gujarat, cotton is cultivated in 23.90 lakh hectares with a production of 101.00 lakh bales and productivity of 718 kg/ha (Anonymous, 2008). In India, 160 species of insect pests have been reported to attack the cotton crop right from the time of germination till the final harvesting of cotton (Agrawal, 1978). Due to introduction of transgenic cotton in India, problem of bollworm has been solved up to the greater extent. However, sucking pest causes damage throughout the crop period. Hence, an attempt was made to study the bio-efficacy of bio-pesticides against whitefly, *B. tabaci* infesting hybrid cotton.

MATERIALS AND METHODS

With a view to test the bio-efficacy of bio-pesticides against whitefly, *B. tabaci*, a field trial was conducted during *Kharif* season of 2007 at Instructional Farm, College of Agriculture, Junagadh on Cotton variety G. Cot. Hybrid–10. Eleven treatments were tested in Randomized Block Design with four replications. The crop was sown at the spacing of 120 cm x 45 cm having gross and net plot size of 5.4 m x 4.8 m and 3.6 x 2.4 m, respectively. All the recommended agronomical practices were followed for raising the crop. Total three applications of the treatments were given with the help of high volume knapsack sprayer. Five plants were randomly selected from each net plot and tagged. Observation of whitefly was recorded before 24 hours and 1, 3 and 7 days after treatment from three leaves (upper, middle and lower) of each tagged plant. The data thus, obtained were converted into per cent mortality by using a modified formula given by Henderson and Tilton (1955).

RESULTS AND DISCUSSION

The results obtained from the present investigation are summarized below :

First spray :

Data presented in Table 1 indicated that the differences in mortality per cent of whitefly in different treatments after 1 day, 3 days and 7 days of spraying was found statistically significant.

After 1 day of insecticidal spray, the treatment of acetamiprid (0.005 per cent) recorded the highest mortality per cent of whitefly *i.e.* (97.82 per cent) which was statistically at par with thiamethoxam 0.008 per cent, *V. lecanii* @ 1.25 kg/ha + thiamethoxam (0.004 per cent), *B. bassiana* @ 1 kg/ha + thiamethoxam (0.004 per cent) and *M. anisoplae* 1.25 kg/ha + thiamethoxam 0.004 per cent which recorded 97.35, 94.94, 93.08 and 89.83 per cent mortality of whitefly, respectively and thus, found equally effective against cotton whitefly.

The treatments of *V. lecanii* @ 1.25 kg/ha + acetamiprid 0.0025 per cent, *B. bassiana*