Research Paper :

Bio-Efficacy of Bio-Pesticides against Jassid, *Amrasca biguttula biguttula* Ishida Infesting Cotton

H.V. BORICHA, K.L. RAGHAVANI, M.D. JOSHI AND R.R. MAKADIA

International Journal of Plant Protection, Vol. 2 No. 2 : 178-181 (October, 2009 to March, 2010)

See end of the article for authors' affiliations

Correspondence to :
M.D. JOSHI
Department of Entomology, College of Agriculture, Junagadh Agricultural Universtiy, JUNAGADH (GUJARAT) INDIA

SUMMARY

An experiment was conducted to evaluate the bio-efficacy of bio-pesticides against jassid, *Amrasca biguttula biguttula* Ishida infesting hybrid cotton at Instructional Farm, College of Agriculture, Junagadh Agricultural University, Junagadh during *Kharif* season of 2007. The results revealed that the treatments of thiamethoxam 0.008 per cent and acetamiprid 0.005 per cent were most effective insecticidal treatments against the pest. Among the biopesticides, combination of biopesticides with thiamethoxam 0.008 per cent was superior over combination of biopesticides with acetamiprid 0.005 per cent. Also, thiamethoxam 0.008 per recorded the highest yield of cotton (1154 kg/ha) followed by acetamiprid 0.005 per cent (1072 kg/ha). As far as the economics of various insecticides are concerned, acetamiprid 0.005 per cent gave the highest cost benefit ratio (1: 9.08) followed by thiamethoxam 0.008 per cent (1: 8.38).

Key words : Bio-pesticides, jassid, *A. biguttula biguttula*, cotton

Accepted :
July, 2009

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 greater extent. However, sucking pest *viz*, aphid, jassid, thrips and whitefly cause damage throughout the crop period. Information regarding effectiveness of bio-pesticides against jassid infesting cotton is meagre. Hence, an attempt was made to study the bio-efficacy of bio-pesticides against jassid, *A. biguttula biguttula* infesting hybrid cotton.

MATERIALS AND METHODS

With a view to test the bio-efficacy of bio-pesticides against jassid, *A. biguttula biguttula*, 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 jassid 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

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

After 1 day of insecticidal spray, thiamethoxam 0.008 per cent recorded the highest mortality per cent (98.46%) which was statistically at par with acetamiprid 0.005 per cent, *V. lecanii* @ 1.25 kg/ha + thiamethoxam 0.004 per cent and *B. bassiana* @ 1 kg/ha + thiamethoxam 0.004 per cent which recorded 96.98, 95.13 and 93.08 per cent mortality, respectively were found equally effective against the pest.

The treatments of *M. anisoplae* @ 1.25 kg/ha + thiamethoxam 0.004 per cent, *V. lecanii* @ 1.25 kg/ha + acetamiprid 0.0025 per