

Research Paper :

Evaluation of new promising molecules against fruit borers in okra

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SUMMARY

Investigations were carried out during *Kharif* 2005-06 at Main Agricultural Research Station, Dharwad to evaluate the newer molecules against fruit borers on okra. The results revealed that emamectin benzoate 5 SG @ 0.2 g/l was the most superior treatment by recording the least per cent fruit damage (7.82%) and resulted in highest good fruit yield (47.02 q/ha). The next effective treatments included spinosad 45 SC @ 0.1 ml/l (9.19% damage with 45.94 q/ha yield) and indoxacarb 14.5 SC @ 0.3 ml/l (10.74% damage with 43.03 q/ha yield). The maximum net returns were obtained in emamectin benzoate (Rs.10586/ha) and spinosad (Rs.10188/ha). Among different newer molecules, emamectin benzoate, spinosad and acetamiprid proved quite safe to natural enemies. Imidacloprid 200SL @ 0.5 ml/l, fenazaquin 10EC @ 1.0 ml/l and oxydemeton methyl 25EC @ 1.5 ml/l were slightly toxic while, indoxacarb was relatively more toxic.

Key words :

New molecules,
Fruit borers, Okra

Amongst the cultivated fruit vegetables grown in the country, okra [*Abelmoschus esculentus* (L.) Moench] is one of the important crops. Insect pests are the major constraints in the higher productivity of okra. The fruit borers viz., *Earias vitella* (Fab.), *Earias insulana* (Boisd.) and *Helicoverpa armigera* (Hub.) are known to cause severe damage (88-100% fruit damage) to the crop (Bhemanna *et al.*, 2005). For the management of fruit borers, farmers use several insecticides indiscriminately, which has led to development of resistance, resurgence of pests and problem of residual toxicity. To overcome these problems, identification of safe molecules with better insecticidal properties, lower mammalian toxicity, safety to natural enemies etc., which fit well in the IPM concept is need of the hour.

Keeping this in view, field experiments were undertaken to generate information on the efficacy of newer molecules in suppressing fruit borer population and to know their influence on the occurrence of natural enemies.

MATERIALS AND METHODS

A field experiment was conducted during *kharif* 2005-06 at Main Agricultural Research Station, University of Agricultural Sciences, Dharwad. The experiment was laid out in Randomized Block Design with eight treatments replicated thrice involving six new molecules

along with one standard chemical check and an untreated control (Table 1). The okra hybrid, Rasi-5 was sown at a spacing of 90'30cm over a plot size of 4.0x3.6m and the crop was raised by following all the recommended packages except insecticidal interventions. Two sprays were imposed on need basis.

Fruit damage was recorded at each picking by observing healthy and damaged fruits. Good fruit yield was recorded during each picking. Observations on the predator population was recorded after seven days of spray to know the influence of new molecules on natural enemies fauna. The cost benefit ratio was worked out for each treatment.

RESULTS AND DISCUSSION

Among different new molecules, emamectin benzoate recorded the least fruit borer damage (8.48%) during first set of picking and was found at par with spinosad (9.86%) (Table 1). The next best treatment was indoxacarb (11.03%). On the contrary, significantly high fruit damage was recorded in fenazaquin (29.36%), which was as ineffective as oxydemeton methyl (25.18%), acetamiprid (23.69%) and imidacloprid (23.39%). In the untreated plots, the fruit damage was to the tune of 35.56 per cent. A similar trend in the fruit damage was observed during second set of picking also. The per cent

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