Research Paper :

Effect of synthetic insecticides and biopesticides on the extent of pod borers damage and grain yield in pigeonpea

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SUMMARY

A field experimental results of pod and grain damage due to pod borer of pigeonpea revealed that the treatment with monocrotophos was superior in reducing collective pod and grain damage to the lowest extent than other treatments. The next promising treatment was endosulfan. The maximum grain yield was also obtained from the plots treated with monocrotophos which was at par with endosulfan treatment.

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In India, pigeonpea is one of the major pulse crops grown on nearly 4.6 million hectares with an annual production of 2.5 million tonnes (Anonymous, 2000). More than 150 insect species have been reported feeding on pigeanpea at various stages of its growth in India (Davies and Lateef, 1975).

The pigeonpea pod borers are of great significance as they attack developing grains in the pods. The pod and grain damage has been reported separately to the extent of 60% due to infestation of pod borers (Reed *et al.,* 1980, Lateef and Reed, 1985 and Singh, 1986).

Keeping this in view and considering economic importance of pigeonpea, the present investigation was undertaken to know the effect of synthetic insecticides and biopesticides on the extent of pod damage, grain damage and grain yield by different borers on pigeonpea.

MATERIALS AND METHODS

At the instructional farm during *Kharif* season, a field experiment was conducted in Randomized Block Design taking three replications and thirteen treatments along with control, by sowing 'ICPL-87'as pigeonpea variety at a spacing of 30cm x 15 cm and plot size of 3.9 m x 2.7 m The details of insecticides and biopesticides used for treatment are given in the tables. Three sprayings were done by hand operated Knapsack sprayer using the spray fluid @ 500 l/ha, for each spray. The first spray was given at 50% flowering and subsequent sprays were given at 15 days interval. Neem seed kernel extract (NSKE) was prepared just before the application. At the time of harvesting, randomly selected five plants of each plots were critically examined for recording the number of damaged pods as suggested by Bindra and Jokhmola (1967). On the basis of symptom caused the attack of different borers on pigeonpea was counted *H.armigera* larvae bored large holes inside pod shells which were devoid of excreta, while *E.atosoma* larvae showed holes opposite to seed and partially eaten grains with blackish excreta. In case of *M.obtusa,* maggot prepared mines below the grain testa by initially feeding internally and later becoming an external grain feeder. Also, the pods were opened and examined for grain damage. The yield of pigeonpea per plot was recorded at harvest separately. The yield per plot was later converted into yield per hectare. Statistical analysis of the data on per cent damage