

Insecticide baits for management of tobacco caterpillar, *Spodopteralitura*

Complete Details of Technology:

Tobacco caterpillar, *Spodopteralitura* is the key pest of tobacco both in nursery and planted crop. Management of the pest with foliar sprays of insecticides under outbreak situation, cyclonic weather conditions and in grown up crop is a problem. Under such situations insecticide baits have been recommended for management of the pest. However, the baits with chemical insecticides viz., chlorpyrifos, monocrotophos and carbaryl are not eco-friendly and pose a hazard when used indiscriminately. Hence, there is need to search for alternative eco-friendly baits for management of the pest. A replicated field experiment was conducted for three seasons (2009-12) in planted flue cured Virginia tobacco cv Kanchan. Baits were prepared with the test insecticide +rice bran+ jaggery+ water and applied in the leaf axils of the plant at 60 days after planting (DAP) in FCV tobacco.

The insecticides used in the bait were lufenuron 5 EC @ 30 g a.i. /ha, novoluron 10 EC @ 50 g a.i. /ha, emamectin benzoate 5 SG @ 11 g a.i. /ha SI NPV @ 1.5 X 10¹² PIBs/ha + boric acid 1%, *Bacillus thuringiensis* (B.t.k.)1 kg + potassium carbonate@ 375 g/ha and compared with chlorpyrifos 20 EC @ 500 g a.i./ha bait. Pooled analysis data showed that the infestation was least (10.64%) in the plots treated with emamectin benzoate bait at 4 days after treatment (DAT) followed by novoluron bait treated plots (12.26%) which was on par with lufenuron treated plots (13.60%). All the three treatments were significantly superior to chlorpyrifos bait treated plots (16.36%). At 10 DAT emamectin benzoate treated plots continued to be the least infested (10.64%) followed by that in novoluron treated plots (12.26 %) both of which were superior to all other treatments except that of novoluron. As regards to the mean number of leaves damaged, emamectin benzoate recorded least number of leaves damaged both at 4 and 10 DAT. It remained on par with novoluron at 4 DAT and was significantly superior to all the treatments at 10 DAT.

The per cent leaf area damaged was also least in emamectin benzoate treated plots both at 4 and 10 DAT (8.43% & 9.59%) which was significantly superior to all the treatments except to that of chlorpyrifos (9.75 & 10.62) which was found to be on par with novoluron and lufenuron treated plots both at 4 and 10 DAT. The highest (1982 kg/ha) cured leaf yield was recorded in emamectin benzoate bait treated plots followed by that in Novoluron treated plots (1931) which was on par with that of lufenuron bait treated plots.

Brief Description of Technology Including Salient Features:

Baits prepared with novaluron, lufenuron and emamectin benzoate along with rice bran and jaggery were found highly effective against *S.litura* as shown by less infestation, leaf damage and higher yield parameters on FCV tobacco. Emamectin benzoate bait treatment recorded highest cured leaf yield (1982 kg/ha) and net returns (₹ 1,39,966/ha) with an ICBR of 1:16.28 where as novaluron and lufenuron bait treated plots recorded 1931 & 1812 kg cured leaf yields per hectare with net returns of ₹ 1,34,203 & 1,20,756 and ICBR of 1:14.83 and 1:11.48 respectively.

Benefits/Utility :

The baiting technology will avoid blanket application of insecticides and contribute in reduction in pesticide pollution. The baiting technology has direct relevance to IPM under outbreak situations and cyclonic weather conditions as it will avoid repeated blanket application of insecticides, conserve the natural enemies and contribute to the reduction in pesticide pollution due to drift and water pollution. *Spodopteralitura* is the key pest of several crops viz., tobacco, groundnut, chilli, pulses, sunflower, soybean in India and this technology is applicable in all these crops along with tobacco.