

Research Paper :

# Evaluation of new insecticide molecules, botanicals and biopesticides against maize stem borer, *Chilo partellus* (Swinhoe) Crambidae: Lepidoptera

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## SUMMARY

Field experiment was conducted at College of Agriculture, Navile, Shimoga, during *Kharif* 2007. There were six insecticidal treatments, one botanical and a biopesticide along with control, each of which replicated thrice in 6 x 3 meter plots. The insecticides were applied 40 days after sowing to strike the activity of insect pest on the crop. The results revealed that all the insecticides tested were effective in suppressing the stem borer. Indoxacarb 0.0145, lambda cyhalothrin 0.005 and cypermethrin 0.01 per cent spray showed higher efficacy in suppressing the stem borer. All other chemicals showed moderate to least effectiveness but they were significantly superior to untreated control.

## Key words :

Insecticide,  
Biopesticides,  
Maize stem borer

Maize or corn (*Zea mays* Linn.) is one of the important cereal crops of the world, cultivated for food, fodder and for raw material in many industries. In many parts of the world, it is an important food crop providing daily bread for the rural population.

Stem borer, *Chilo partellus* (Swinhoe) is one of the major pests of maize and causes considerable yield loss. Heavy infestation may result in total loss of the crop leading to resowing during *Kharif* season. Chemical insecticides and biopesticides represent a major class of insecticides, which have been widely recognised and exploited for suppression of the pest. The variable results obtained with different *Bt* formulations suggest that insecticidal activities appeared different against a given target pest species (Brownbridge, 2001).

## MATERIALS AND METHODS

To evaluate the efficacy of insecticides to control maize stem borer, an experiment was laid out at College of Agriculture, Navile, Shimoga, during *Kharif* 2007. There were six insecticidal treatments, one botanical and a biopesticide along with control, each of which replicated thrice in 6 x 3 meter plots. The insecticides were applied 40 days after sowing to strike the activity of insect pest on the crop. Efficacy of the treatments was judged based

on per cent mortality of the stem borer after first, third and fifth day after application and pre-treatment counts of the pest were made by randomly selecting 10 plants in each plot a day prior to spraying. Finally, the data obtained were subjected for arc sin transformation and then statistically analyzed.

The treatment details for the management of maize stem borer were as follows:

| Sr. No. | Treatments              | Concentrations (%) | Trade name |
|---------|-------------------------|--------------------|------------|
| 1.      | Bt-toxin(Dipel 8L)      | 0.008              | Dipel      |
| 2.      | Imidacloprid(17.8 SL)   | 0.0056             | Confidar   |
| 3.      | Cypermethrin 10EC       | 0.01               | Cyperkill  |
| 4.      | Lambda-cyhalothrin 5 EC | 0.005              | Karate     |
| 5.      | Indoxacarb 14.5 SC      | 0.0145             | Avaunt     |
| 6.      | Endosulfan 35 EC        | 0.007              | Thiodan    |
| 7.      | Azadirachtin (1%)       | 0.20               | Econeem    |
| 8.      | Untreated control       |                    |            |

## RESULTS AND DISCUSSION

Pre treatment count of stem borer per ten plants ranged from 11.66 to 21.30. The stem borer population reduced among all the treatments on different days of observation (Table 1). A day after imposition of treatment, indoxacarb 14.5 SC showed the highest

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