

COMPARATIVE EFFECTIVENESS OF BIOPESTICIDES AND CHEMICAL INSECTICIDES AGAINST FALL ARMYWORM (*Spodoptera frugiperda*)

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Executive Summary

Experiments were conducted at the farmer's field of Barguna and Patuakhali districts to evaluate the effectiveness of some potential biopesticides and chemical insecticides against fall armyworm infesting maize during January to June 2022. Seven potential biopesticides and an untreated control as well as seven chemical insecticides and an untreated control were evaluated in experiment 1 and 2, respectively. Both of the experiments were conducted in Randomized Complete Block Design (RCBD) with three replications in one farmer's field at each district. Among the biopesticides, Fawligen (SfNPV) treatment was the most effective biopesticides in terms of lowest percent of maize plant infestation (14.69%), *whorl* (16.26%) and cob infestation (17.92%) with minimum number of larvae (2.10 larvae/10 plants) and produced higher amount of grain (7.05 t ha⁻¹) and stover yield (9.01 t ha⁻¹) of maize compared to all other treatments. This treatment provided better protection against fall armyworm by reducing 79.42% plant infestation, 78.26% *whorl* infestation and 77.57% larval population and by boosting up grain (47.49%) and stover (58.82%) yield of maize compared to untreated control. Spinosad also gave almost similar results of Fawligen (SfNPV) regarding all parameters. Among the chemical insecticides, Chlorantraniliprole (Chorazen 18.5 EC) treatment was the most effective insecticides in terms of lowest percent of maize plant infestation (13.73%), *whorl* (13.53%) and cob infestation (15.13%) with minimum number of larva (1.69 larvae/ 10 plants) and gave higher amount of grain (6.92 t ha⁻¹) and stover yield (9.02 t ha⁻¹) compared to all other treatments. This treatment (Chorazen18.5EC) provided maximum protection against fall armyworm infestation by reducing 80.66 % maize plant infestation, 81.66% *whorl* infestation, 82.18 %larval population and 78.65% cob infestation as well as by increasing 43.73% grain and 60.30% stover yield of maize. Proclame (Enamectin benzoate) 5 SG also gave almost similar results of Chorazen 18.5 EC regarding all parameters. The overall results of the two field experiments reveal that out of seven biopesticides Fawligen (SfNPV) and Spinosad and among seven chemical insecticides, Chlorantraniliprole and Enamectin benzoate showed better performance against fall army worm infesting maize. These two biopesticides and two chemical insecticides were equally effective for the management of this obnoxious pest. Considering environmental and other hazards biopesticides, Fawligen (SfNPV) may be used for fall armyworm.

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