

The Efficacy of Botanicals and Inorganic Chemicals in Management of Pests and Diseases in Snow Peas (*pisum sativum* var. *saccharatum*) in Ngusishi Location, Buuri district, Kenya

BY

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ABSTRACT

Snow pea is a high value export crop grown in Ngusishi location and about 65% of farmers derive their income directly from the crop. The problems of Snow pea production are low yields, poor pods quality and chemical residue on pods. The general objective was to determine the effect of selected botanicals on insect pests and fungal diseases, plant growth, and pods yields and quality of Snow peas. On-farm experimentation was done for two seasons to evaluate four botanicals and two chemical pesticides. The experimental design used was a randomized complete block design with eight treatments namely; Garlic, Pyrethrum, Citrus peel, and Mexican marigold water extracts; Dynamic 018 EC (Abamectin 18g per litre), Decis 025 EC (synthetic pyrethroid with deltamethrin 25g per litre); Hand wash liquid Soap; and absolute control. The treatments were significantly different at $\alpha \leq 0.05$ on mortality rate of insect pests and fungal diseases severity. Garlic water extracts was the best in management of leafminers and thrips with efficacies of 87.3 and 85.2%. Pyrethrum water extract was also the best in control of aphids with efficacy of 86.7% and Mexican marigold water extract was the most effective against whiteflies with efficacy of 85.9%. Plots sprayed with botanicals had the lowest fungal diseases (powdery mildew, downy mildew, and early blight) severity as compared to those sprayed with Soap, Decis, and Abamectin and the absolute control. There was significant difference in export grade and reject weights across treatments. The results suggest that the four botanicals can be used as suitable replacements for chemical pesticides in managements of specified insect pests and fungal diseases in Snow peas.