

**EFFECTIVENESS AND FEASIBILITY STUDY OF
INTEGRATED PEST MANAGEMENT (IPM)
IN BUSHITAO (*Vigna unguiculata*) CULTIVATION**

BY

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ABSTRACT

Vegetables form very important part of agriculture, however a major constrain in their production faced by farmers is the frequent heavy infestation by several kinds of insect pests. Although the increased reliance on synthetic pesticides in vegetable cultivation has improved their production and apparent physical quality, yet their excessive and indiscriminate use has often posed the problem of health damaging residues in several countries. Therefore many researchers proposed Integrated Pest Management (IPM) as the best solution to minimize the problems faced by farmers for vegetable cultivation.

This experiment was conducted to evaluate effective and economically and environmentally feasible of integrated pest management for bushitao cultivation and compare it with the chemical and botanical pesticides in terms of yield, populations of insect pests and natural enemies, toxicity in marketable products, crop losses and cost of production. Chemical pesticide, botanical pesticide, IPM and control were used as the treatments with five replicates. Treatments and replicates were arranged in Randomized Complete Block Design (RCBD). Carbofuran and Admire used as chemical insecticide and applied one week after germination and when the insect populations at Economic Threshold Level respectively. Neem leaves solution and mixture of herbal leaves solution such as Neem, Adathodai, Lantana, Leucas, Errukku were used as botanical pesticide and applied weekly interval since one week after germination. Combinations of all pest control methods other than chemical which included cultural and biological control, weekly alternate application of botanicals and locally available pesticides such as ash solution and cow urine solution were used for Integrated Pest Management.

Overall results revealed that insect pest populations especially Mexican bean beetle and aphid significantly ($P < 0.05$) reduced in IPM than the other pest control methods. Chemical and botanical pesticides initially reduced the pest population. However they failed to control these pests continuously.

Population of natural enemies (Lady bird beetle and Dragon flies) was significantly ($P < 0.05$) high in IPM than other plots. Because of IPM has no any adverse effect on natural enemies. But chemicals and continues application of botanicals affected these populations due to its toxicity. Therefore Population of natural enemies reduced in chemical and botanical plots.

Due to the lowest populations of insect pests in IPM plot, crop losses were also low and therefore yield significantly ($P < 0.05$) increased in IPM plot than other plots. At last, income and profit of bushitao cultivation high in Integrated Pest Management plot than plots due to low cost of production and high productivity.

Integrated Pest Management is the hope for all concern with the least pesticides residues in food stuff. The objective of IPM is to minimize pesticide residues in food by limiting the use of synthetic insecticides. Therefore food toxicity also significantly ($P < 0.05$) low in harvested bushitao pods by IPM. Therefore IPM is best solution for problems faced by farmers and consumers..

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