

## **ABSTRACT**

Thrips are major pest of snap bean that cause losses as high as 60% but the use of synthetic pesticides is restricted due to strict market regulations on maximum residue levels (MRLs). This study aimed at reducing the use of synthetic pesticides by integrating biological and botanical pesticides in the management of thrips in snap bean. On farm experiments were carried out over two cropping cycles to evaluate the efficacy of spray regimes consisting of different combinations of the following: Thunder® (Imidacloprid 100g/L + Betacyfluthrin 45g/L), biological (Metarrhizium anisopliae ICIPE 69), botanical (Azadirachtin 0.15%), and Decis (Deltamethrin). Data on thrips population and pod yield were collected and benefit-cost ratio of each spray regime calculated. Integrating synthetic chemical with biological Metarrhizium anisopliae was the most cost effective causing more than 69% thrips reduction, and 50% increase in yields, while integrating Azadirachtin with Metarrhizium anisopliae was the least effective causing less than 20% thrips reduction, and 30% increase in yields compared to control. Integrating synthetic pesticide with Metarrhizium anisopliae had the highest benefit-cost ratio. The results indicated that integrating synthetic pesticides with neem-based and Metarrhizium anisopliae effectively reduces thrips infestation and increase yields, while reducing overall costs and chemical residues in the produce.