

INTEGRATED PEST MANAGEMENT OF SWEET POTATO WEEVIL, *CYLAS FORMICARIUS* (FABRICIUS)

R. C. Basavaraj*, Suvarna Patil, Ambrish, Arunkumar Bhavidoddi and Y. S. Mahesh

Department of Entomology, College of Horticulture, Bagalkot, U. H. S., Bagalkot -587 104, India.

*e-mail: basavarajc6948@gmail.com

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ABSTRACT : The integrated pest management of sweet potato weevil, *Cylas formicarius* (Fabricius) was carried out at the Regional Horticultural Research and Extension Centre (RHREC), Kumbapur farm, Dharwad, University of Horticultural Sciences, Bagalkot, Karnataka, India during 2019-20. Among the different IPM modules, Integrated module comprising of i) Soil application of neem cake @ 250 kg ha⁻¹ in the last ploughing before ridge and furrow making, ii) Dip the vine cuttings in imidacloprid 17.8 % SL @ 0.5 ml/l for 10 minutes before planting, iii) Earthing up/ re-ridging the crop @ 30 and 60 days after planting (DAP), iv) Installation of synthetic sex pheromone traps @ one per 100 m² to collect and kill male weevils, v) Root zone application of *Beauveria bassiana* @ 10 g/kg of FYM @ 45 DAP and vi) Foliar spray of emamectin benzoate 5% SG @ 0.2 g/l @ 65 DAP recorded a significantly lower number of weevils per vine and per tuber (3.16/vine and 2.35/tuber, respectively), the highest mean number of male adult weevils catch per trap (121.75 weevils/trap), lowest percent tuber infestation (14.98 %), highest marketable tuber yield (20.8 t/ha) and higher net return of Rs. 371907.6 with the highest B:C ratio (3.50). Further, the Bio-intensive module was significantly superior over the Chemi-intensive module. So, it can be concluded that the Integrated module is sustainable, economically feasible, eco-friendly and easily adoptable by the farmers.

Key words : *Beauveria bassiana*, chemicals, earthing up, pheromone traps, sweet potato weevil.

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INTRODUCTION

Sweet potato (*Ipomoea batatas* L.) is one of the important edible starchy tuber crops that is widely grown in tropical and subtropical regions which possess high calorific value and yield potential. It is the most promising bio-fortified crop to combat malnutrition in the small and marginal farming community. More than 270 insect pests and 17 mite pests reduce sweet potato production in the world (Jansson and Raman, 1991). Among these pests, sweet potato weevil, *Cylas formicarius* (Fab.) (Coleoptera : Brentidae) is the key pest which is the most important cosmopolitan and destructive, inflicting heavy damage both in the field and storage. The extent of damage due to weevil varies from 60 to 100 per cent. The intensity of damage depends on the season, type of land, soil, age of crop, soil moisture, rainfall and temperature (Pillai *et al*, 1987). The adult weevils feed on the tender buds, leaves, vines and storage roots while the larvae, the most destructive stage feed and tunnel into the mature stems and storage roots.

The concealed feeding habit of grubs and the nocturnal activity of the adult weevils make it difficult to detect weevil infestation and its control by conventional pest management practices. In this perspective, the present study focuses on the evaluation of different ecosystem-based strategies to manage sweet potato weevil.

MATERIALS AND METHODS

The present investigation was carried out at the Regional Horticultural Research and Extension Centre, Kumbapur farm, Dharwad, University of Horticultural Sciences, Bagalkot, Karnataka during 2019-20, which is situated at 15° 17' North latitude and 76° 46' East longitude and an altitude of 678 meters above mean sea level. The average maximum temperature was 27.78°C and the minimum temperature was 19.41°C with relative humidity ranging from 50-85 per cent. It is located in the north transitional zone (Zone-8) and receives an annual rainfall of 600-800 mm distributed throughout the year. Local sweet potato variety, Shree Bhadra was planted in the