

## MANAGEMENT OF STRAWBERRY INSECTS IN FARMERS FIELD SCHOOLS WITH MICROBIAL INSECTICIDES

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### Abstract

The present work was carried out to train (a) agronomists working as facilitators in IPM/FFS project, (b) farmers on microbial insecticides application and (c) evaluate the possibility of using of microbial insecticides compared to conventional chemical pesticides against major strawberry pests at Ismailia governorates. Three IPM/FFSs were selected, and then all tested material was sprayed according to the economic threshold after field's inspection. In these trials, five microbial insecticides namely Protecto (*Bacillus thuringiensis*), Viroset (*Spodoptera littoralis nuclear polyhedrosis virus*), Profect (*B.t. + S. littoralis NPV*), Biovar (*Beauveria bassiana*) and Bioranza (*Metarhizium anisoplae*) were used in comparison with Vertemic (Abamectin) pesticide. The results show that reduction percentage of *S. littoralis* larvae on strawberry canopy increased with increasing the time elapsed after spray. Reduction percentage was ranged between 13.6 - 53.8% after the first day of spray, while it was ranged between 23.2 - 53.9%, 55 - 80% and 81.4 - 93.8% after the 3<sup>rd</sup>, 5<sup>th</sup> and 7<sup>th</sup> day post spray. For aphids, results indicated that all tested compounds reduced significantly aphid nymphs and adults in treated plots in comparison with the untreated one. No significant differences were found between different compounds at different time's intervals. Regarding two spotted mite, *Tetranychus urticae*, the data showed that the efficacy of microbial, mineral oil and Vertemic against *T. urticae* increased gradually with increasing the time elapsed after spray, whereas mites individual sharply decreased to became lower than the economic threshold in most cases. So, it could be concluded that educating facilitators and farmers about biological control result in farmers using less chemical insecticides and becoming more efficient in their production activities.

**Key words:** FFS, Microbial Insecticides, Strawberry, *S. littoralis*, *T. urticae*.

### INTRUDUCTION

Over the last decade, the Integrated Pest Management (IPM) Farmer Field School (FFS) has emerged as a robust approach to educate poor farmers to manage their crops more efficiently, not just in Asia but also in Africa and South America. The defining principles of an FFS have been clearly described by ter Weel and van der Wulp (1999) and Pontius *et al.* (2002). The FFS is the primary learning approach piloted in Indonesia (Dilts and Pontius 2000), Egypt (Impiglia *et. al.*, 2006). IPM/FFS is