

Efficacy of Entomopathogenic Nematodes in Management of Banana Weevil

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Abstract

Banana (*Musa spp*) is an important economic resource for rural farmers in Kenya. However, bananas are being affected by several constraints such as insect pests and diseases. Some of the pathogens have mutated and become resistant to the synthetic chemicals. Recently, the use of biological pest control methods has become the most preferred method of controlling crop insect pests. Several studies have been conducted on the use entomopathogenic nematodes on several crops such as maize but intense research has not been conducted on the use of entomopathogenic nematodes in the control of banana weevil borers. The objective of this study will be determining the efficacy of entomopathogenic nematodes in control of banana weevil borers compared to chemical control in banana plants. The experiment involved use of experimental units which included metarhizium 69(EPNs in full) and karate 2.5(synthetic chemical treatment).The experiment was laid in a completely randomized design with three treatments that is; EPN treatment, chemical treatment and a control experiment replicated thrice. Adults of *C. sordidus adults* were collected with pseudostem traps (roof tile-type baits) installed in the University of Embu demo farm on *nanicão banana* cultivar. The insects were transferred to the laboratory, kept in plastic containers with moistened sand and bits of banana pseudostem and kept at $26 \pm 1^{\circ}$ C and natural photoperiod, where they remained until their use in experiment. Both chemical and EPN treatments were applied at a rate of 1g per container. Data was be collected at an interval of 24 hours, 48 hours,7 days,14 days and finally 28 days. The data collected included mortality rate of the weevils, number of weevils not affected by the treatment. The data collected was subjected to analysis of variance (ANOVA) and differences among treatments compared using Tukey mean separation test ($p < 0.05$) using the statistical program Sisvar. Results of the study showed that all the treatments (Chemicals, EPNs and Control experiment) showed variability in the total number of weevils present after every other day per replicate. Nematode numbers dropped as the number of days increased and plots treated with entomopathogenic nematodes had the least number of nematodes. It is recommended that the study be repeated for another season to confirm the results of this study.