

DIVERSITY OF PLANT PARASITIC NEMATODES AND *BACILLUS SUBTILIS* AFFECTING COMMON BEAN (*PHASEOLUS VULGARIS* L.) IN EMBU KENYA

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Abstract

Plant parasitic nematodes cause estimated US \$100 billion damage to agricultural crops. They are among the pests that threaten bean production by smallholder farmers in Kenya. The study sought to determine the presence of plant parasitic nematodes in Embu Kenya and different management techniques including strains of *Bacillus subtilis*, and soil fertility improvement by use of manure and inorganic fertilizer (TSP). The experimental set up included control plots with no soil amendment. The experiment was laid in a completely randomized design with 4 replications. Plant parasitic nematodes were isolated from soils by the modified baermanns technique while *Bacillus subtilis* were isolated using the procedure by Racke and Sikora. The Data was subjected to analysis of variance using general statistical package for least significant differences. *Rotylenchus* and *Meloydogyne* were among the most abundant nematode genera in soils from Embu with 20% and 15% of the total nematodes respectively. *Bacillus subtilis* combined with manure led to the highest (89%) reduction in plant parasitic nematodes. There were significant ($P < 5$) differences among the treatments with the control having the highest galling index (4.5) on bean roots. *B. subtilis* and manure led to the least damage to bean roots in the on farm experiments with galling indices of 1.6 and 1.8 respectively and contributed to the effective control of *Meloydogyne* spp.

Key words: Manure, *Rotylenchus* *Meloydogyne*.