

Abstract

Nematode losses in vegetable crops have contributed to significant loss in yield reducing food security. Assessment of the potential of dual inoculation of *Bacillus subtilis* and *Rhizobium leguminosarum* biovar *phaseoli* strain USDA 2674 on plant parasitic nematodes in common bean was carried out on farmers' fields which were at varying cultivation period since conversion from forest as follows; 1-10, 10-20, 20-40 and >40 years. Bean seeds of variety Rose Coco, were treated with three *B. subtilis* isolates namely K158, K194 and K263 singly or in combination with *Rhizobium* and then planted in nematode infested fields. Plant parasitic nematodes in the genera *Meloidogyne*, *Pratylenchus* and *Scutelonema* were dominant. Nematode diversity assessed by Shannon (4.10-1.70), Simpson's (5.23-3.74), Trophic (2.84-1.26) and Maturity indices (3.92-2.31) declined with increased length of cultivation since conversion from forest. Plant parasitic index was 63% higher in the cultivated farms than in the control plots. The dual inoculant enhanced nodulation variably depending on the length of cultivation and increased bean yields compared to the control. *Bacillus subtilis* isolates K194, K158 and K263 suppressed plant parasitic nematodes by 42, 36 and 28%, respectively. The potential of dual inoculation of *Bacillus* and *Rhizobium* in addressing nematode and soil fertility challenges was demonstrated in this study.