ABSTRACT

Following its outbreak in 2015, Tuta absoluta Meyrick (Lepidoptera: Gelechiidae) immediately became one of the major threats to the food chain in Rwanda and, therefore, sustainable management options are needed to address the situation. Two field trials were established on 3rd April and 28th June 2019 to study the efficacy of entomopathogens and plant extracts on T. absoluta infestation in Rwanda. Similar procedures were followed and nine treatments were evaluated, including: entomopathogenic nematodes (EPNs) (Steinernema sp. RW14-M-C2a-3 and Steinernema sp. RW14-M-C2a-3), commercial formulations of entomopathogenic fungi (EPFs) [Metatech®WP: Metarhizium anisopliae (Metsch.) Sorok, Strain FCM Ar 23B3), Beauvitech® WP: Beauveria bassiana (Bals.) Vuill., Strain J25], plant extracts of Tephrosia vogelii and Phytolacca dodecandra, azadirachtin 0.03% EC, imidacloprid as positive control and water as negative control. The entomopathogens and azadirachtin significantly reduced leaf and leaflet damages compared to the plant extracts and the controls. However, leaf damage increased with time and reached the maximum level (100%) in 9–10 weeks after transplanting in all the treatments. In both trials, the maximum leaflet damage observed with entomopathogens and azadirachtin in 10 weeks after transplanting varied between 59.7% and 74.7% with the marketable fruit yield of 12.4–16.2 t ha^{-1}; while leaflet damage in positive control ranged 80.0%–92.1% with marketable yield of 3.0–3.5 t ha^{-1}. Our results suggest that the entomopathogens and azadirachtin have the potential for use in integrated pest management of T. absoluta in Rwanda, but further studies are needed to incorporate them in the IPM program.