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## Impact of Plant Parasitic Nematodes in Following Suckers on A Root Necrosis Index in Six Commercial Banana Plantations of Costa Rica

ALFONSO CABRERA<sup>1</sup>, LUIS POCASANGRE<sup>2</sup>, RICHARD A. SIKORA<sup>1</sup>

<sup>1</sup>University of Bonn, Institute of Crop Science and Resource Conservation-Plant Pathology, Germany

<sup>2</sup>International Network for the Improvement of Banana and Plantain (INIBAP), Costa

### Abstract

The objective of the investigation was to study if a root necrosis index could be used to estimate amount of plant parasitic nematodes on banana roots. The research evaluated correlations between numbers of *Radopholus similis*, *Helycotylenchus multicinctus*, *Pratylenchus spp.*, *Meloidogyne spp.*, or the addition of the four genera per 100 g of functional roots and the root necrosis index described by Speijer and De Waele (1997) in six commercial banana plantations of Costa Rica. With a spade roots were taken ten centimeters in front of following suckers from an excavation of 15 cm long X 15 cm wide X 15 cm depth. Ten banana plants were sampled, mixed in a plastic bag and divided in half of the total root content to consider it as one sample. Samples were taken from high, medium and poor yielding sectors in each farm. Four samples per sector were taken. Roots were gently washed, separated into dead and functional roots, indexed the latter roots and from the indexed ones nematodes were extracted, counted and identified. Results showed that from 30 possible correlations only 8 were found. In some farms high population of nematodes and little root necrosis index was found and vice versa. No nematode genera in particular had a consistent correlation with the index. The study revealed that the root necrosis index evaluated couldn't be used to approximate or estimate amounts of plant parasitic nematodes. Results suggest that the index could reveal much more complex information such as soil chemical, physical and biological status as well as soil management. This index is more useful to give numeric value to root status and be able to compare it between different sites cultivated with banana. The investigation was conducted under the frame of the Banana Soil Health project funded by the Regional Fund for Agricultural Technology (FONTAGRO).

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