Spatial Distribution of Nematodes at Organic and Conventional Crop Fields in Cape Coast, Ghana

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Abstract

Globally, plant-parasitic nematodes cause large reductions in crop yields and quality. The conditions prevalent in organic crop production fields can favour or inhibit nematode build-up. An overview of the spatial distribution of nematodes can help the design of targeted, site-specific management strategies. This paper assessed and compared the spatial distribution of nematode population in an organic crop field and a conventional crop field using Inverse Distance Weighted (IDW) and ordinary Kriging spatial interpolation techniques. The results show that nematode population is higher on the organic field compared to the conventional crop field. Spatial distribution of nematode population showed a north-south gradient in the organic field but small patches of large population in the conventional field. The two interpolation methods did not show substantial differences in mapping the spatial distribution of the nematode population. It is concluded that nematode control strategies employed on the organic field might be less effective than expected. Both inverse distance weighted and ordinary kriging can be used to map the spatial distribution of nematodes under similar conditions and in a non-complex terrain.