Distribution of infected oil palms with Ganoderma basal stems root disease

Abstract

The objective of this study is to spatially identify the pattern of Ganoderma disease under natural field epidemic using three different spatial point pattern analyses, which are nearest neighbor analysis and refined nearest neighbor analysis for first order spatial analysis, and Ripley's K function for second order spatial analysis. Three commercial oil palm sites with three replicate areas per site were selected in this study with different age of palm tree. The nearest neighbor analysis showed that the spatial distribution of the infected palms in all the replicate areas at SKE0224 was clustered. Refined nearest neighbor analysis and Ripley's K function also showed that the distribution of the infected palms in all the areas studied was clustered. But statistical test through Monte Carlo simulation showed that the cluster distribution of the infected palms in most of the areas studied was not statistically significant. Nevertheless, the study has proved that the spatial distribution of the infected palms under natural epidemic is not random, disperse or uniform but it is more to cluster pattern. This suggests the spread of the disease could be from tree to tree possibly through root contact as proved by many past studies.