

ABSTRACT

The Distribution of *Phytophthora* in a Cocoa Field

Sandra Ramnarine

This study investigated the importance of the soil phase of *Phytophthora* in a selected field. The quantitation of the inoculum in the soil was also attempted by serial dilutions with sterile soil, and by baiting with leaf discs.

Baiting of the soil revealed *Phytophthora* at high densities immediately around the tree bases, and at lower densities as the distance from the tree bases increased. The pathogen was concentrated in the older part of the field, while it was distributed in small foci in the rest of the field.

A strong, positive correlation was obtained between soil moisture content and the infectivity of the pathogen contained in the soil. The pathogen was apparently quiescent at soil moisture contents less than 20 per cent.

Both sets of quantitative data supported the premise that the pathogen's spread occurred from a locus, which was a black pod infected tree in the experimental field. However, both assessments of the inoculum in the soil were not in complete agreement with respect to the other samples.

Ant tents/termite tunnels were baited, and *Phytophthora* was detected in 59.1 per cent of the samples. It was speculated that the insects play a role in the spread of the pathogen from the soil to the tree canopy.

The sporangial characteristics measured confirmed that the species of *Phytophthora* in the soil was *P. palmivora*. No other *Phytophthora* species was detected in the soil.

It was recognized that the experimental field soil contained viable *P. palmivora* inoculum, mainly originating from a black pod infected tree, and that insects play a role in the movement of the pathogen from soil to the tree canopy.