



Analysis of the multiple coffee pathosystem in the South Pacific

Epidemiological research on *Coffea arabica* (var. *Typica* and *Bourbon*) has been conducted in the Plant Pathology Laboratory at ORSTOM's New Caledonia Centre since 1991. The aim is to understand the functioning of the 'pathosystem', which comprises coffee, its main pathogenic fungi (*Hemileia vastatrix*, *Colletotrichum gloeosporioides* and *Cercospora coffeicola*) and the environment, in order to model their interrelationships. More specifically, the goal is to

This research programme is mainly performed in New Caledonia, but also includes a regional research dimension, with the complementary investigations being carried out in Papua New Guinea (Coffee Research Institute, Kainantu, Eastern Highlands Province) and Vanuatu (Tanna Island).

The experimental approach is based on monthly epidemiological observations carried out in 20 traditional coffee-growing plots, using specific pathological survey methods (leaf-by-leaf inspection, etc.) and environmental characterisation procedures (weather station, soil analyses, etc.).

In a given annual cycle, surveys have confirmed the existence of a mosaic of highly-diverse pathological situations (disease distributions, infection and mortality kinetics, etc.) within the experimental design.

Analyses reveal significant trends:

- Anthracnose emerges as being closely linked to edaphic factors such as high pH values, a good soil structure or low shade.
- High pH and shade values, and to a lesser extent, low altitude are the main factors influencing the behaviour of Cercosporiosis.
- Rust differs from the two previous diseases, in that it is more likely to occur in sites featuring low soil pH values, low rainfall, quite high minimum temperatures, high shade and

L3185

Agricultural News



ISSN 1019-6234

Vol. 5, N°1, August 1996

Newsletter of the South Pacific Commission Agriculture Programme

