Population Infected = ((Number of plants infected) \*100)/ Total number of plants observed

Rust Incidence =

Severity =

Coffee rust disease is known for its complexity. It has drawn on work by ecologists and phytopathologists. It could be the larger ecological structure of the agro system that needs to be considered. Calls for very nuanced approach to management. There are two ways coffee rust spreads (spatial scales of dynamics), transmission among leaves within a plant and from plant to plant on a farm. [1]

References:

[1] Local dynamics of the coffee rust disease and the potential effect of shade.

John Vandermeer, Pej Rohani, Ivette Perfecto     **Paper: The intensity of a coffee rust epidemic is dependent on production situations**

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**Abstract:**

To **gain a clearer understanding of conditions conducive to the development of coffee rust and improve disease control, we monitored the development** of rust epidemics in 73 plots in Honduras, over 1–3 years depending on the case, focusing on coffee tree characteristics, crop management patterns, and the environment. **A simple correspondence analysis was used to show that a link could be found between certain production situations and the intensity of coffee rust epidemics.** Local characteristics specific to each plantation were particularly well linked to the intensity of coffee rust epidemics, whereas regional factors such as rainfall appeared to be of secondary importance. **The yield and the number of leaves of the coffee trees were positively linked to epidemic development.** **Soil pH and fertilisation were negatively associated with epidemic development**. **Shade**, when it did not limit yield, **probably affected the microclimate in such a way that coffee rust incidence increased**. **Altitude was a serious constraint in disease development**.

**Intro:**

We feel that the risk of an epidemic could be assessed simply, by considering that **an epidemic is the outcome of a risk associated with the characteristics of the region, primarily with the climate, but also with the soil that seems to affect coffee rust** (Lamouroux et al., 1995; Avelino, 1999), and of a risk **attributable to local conditions, i.e. a risk primarily linked to the characteristics of the plant, but also to crop management patterns, and especially shade management,** which are known to act on coffee tree plantations microclimate.

In Honduras, a growing part of the coffee area **is being planted with dwarf varieties**. These varieties allow using high planting densities and usually represent the first step towards intensification. Generally, and mainly for economic reasons, **the producers put into practice only part of the available recommendations.** This is why one **can find varied crop management patterns** (Avelino, 1999).

Arabica coffee is cultivated in Honduras in a fairly large range of altitudes (mainly from 600 to 1700 m). The **annual rainfall and its pattern are very diverse as a consequence of different oceanic influences.** A substantial Pacific influence is felt in South East, marked by a long dry season. A clear Caribbean influence marks the North West along with a short dry season (Zu´niga˜ Andrade, 1990). **Consequently, Honduras has a large diversity of production situations** (De Wit, 1982). Honduran coffee growing was thus a good sphere for our survey.

Climate was characterised by the annual rainfall and altitude. Records from 29 rain gauges located near the study plots were used (one rain gauge for three plantations in general).

It can be seen that various soil characteristics were kept, notably those associated with its acidity, such as pH, aluminium, magnesium, or with its texture, such as the silt and clay percentages. Altitude and annual rainfall were also chosen. All the variables characterising foliage and yield were clearly associated with the disease and were kept. In terms of crop management patterns, good links were found with fertilisation, shade and the annual number of pickings.

The different combinations of soils, climates, crop management patterns and coffee tree productive characteristics constituted diverse production situations. The intensity of the coffee rust epidemics was therefore linked to the production situations.