Spatial And Temporal Dynamics Of Coffee Berry Disease And Coffee Leaf Rust In Murang'a

By

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OBJECTIVES

Broad objective

- To promote sustainable coffee production by enabling management of coffee diseases through establishment of their distribution and status.

Specific objectives

- To determine the spatial and temporal distribution, severity and incidence of Coffee Berry Disease and Coffee Leaf Rust in relation to altitude, temperature and precipitation.

- To determine the effects of shade on the incidence and progression of Coffee Berry Disease and Coffee Leaf Rust

MATERIALS AND METHODS

Site description

- The study was carried out in Murang'a County in Central Kenya. 34 farms planted with susceptible coffee varieties and have no history of chemical control were identified

Data collection

- Ten trees were randomly selected in each of the 34 farms
- Data on CLR and CBD was recorded on two branches one at the top canopy and another at the mid canopy of the coffee bush
- MET data was obtained from the Kenya Meteorological Services

MATERIALS AND METHODS

Distribution of disease

- The presence or absence of the disease was scored in all the farms visited

Disease incidence

- The percentage of the infected bushes per farm

Disease prevalence

- The percentage of the farms with the disease

Data analysis

- The data was analyzed using SAS version 2.1 and COSTAT 2010

RESULTS AND DISCUSSION

- **YIELDS**

The yields were significantly higher (P≥0.05) in the shaded plots than unshaded.

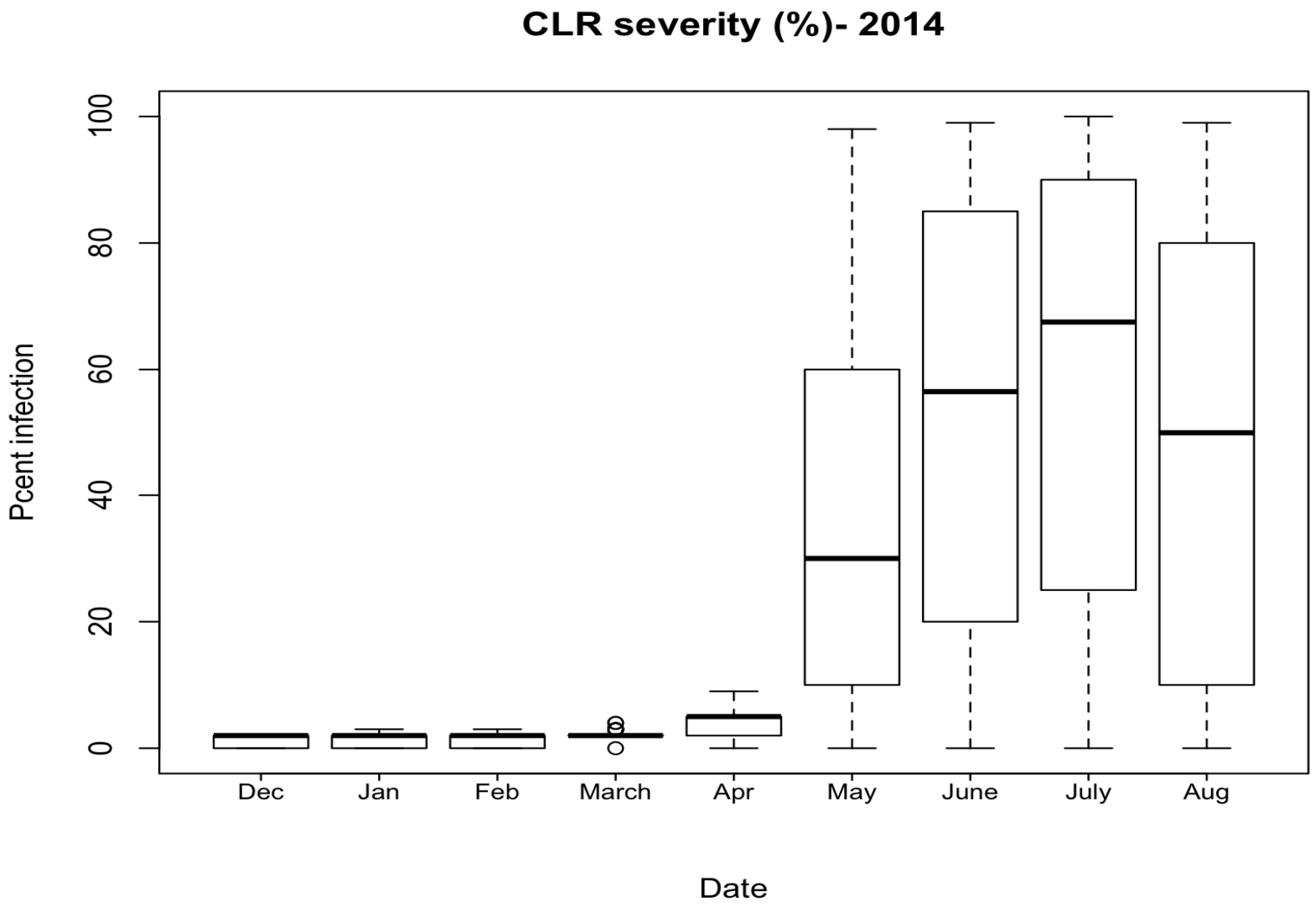
- **DISEASE INCIDENCE**

Table 1: Percent Coffee leaf rust (CLR) and Coffee berry disease (CBD) incidence at different agro-ecological zones

ECO ZONE Altitude	% CLR INCIDENCE	% CBD INCIDENCE
High	23.2 b	60.79 a
Medium	70.8 a	33.85 b
Low	87.7 a	15.25 c

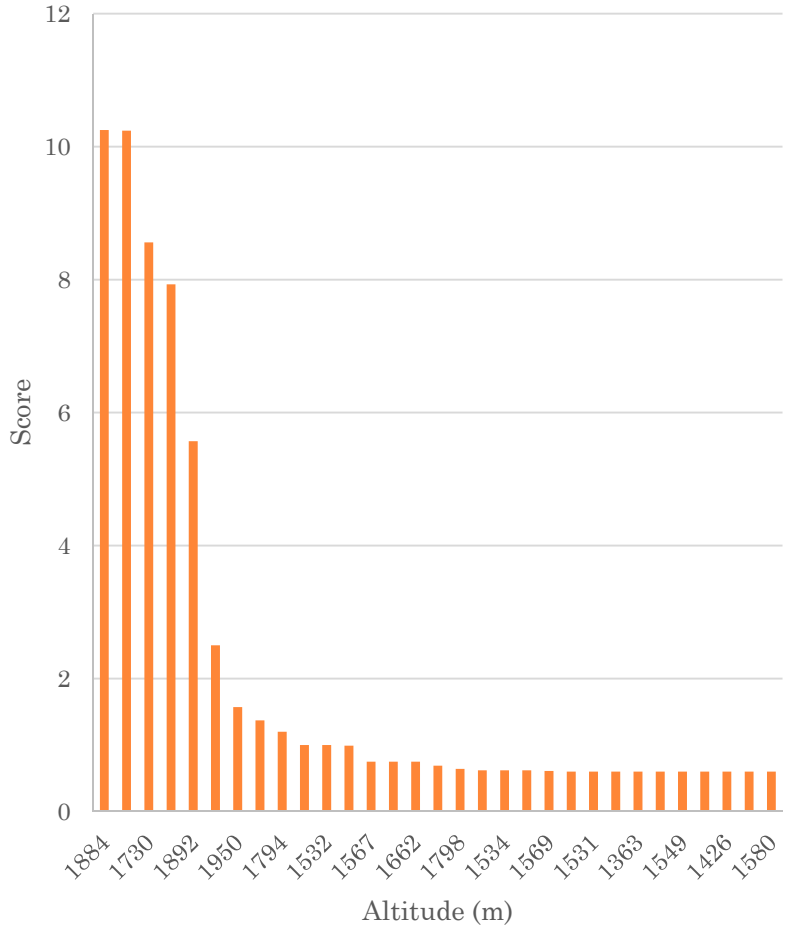
RESULTS AND DISCUSSION

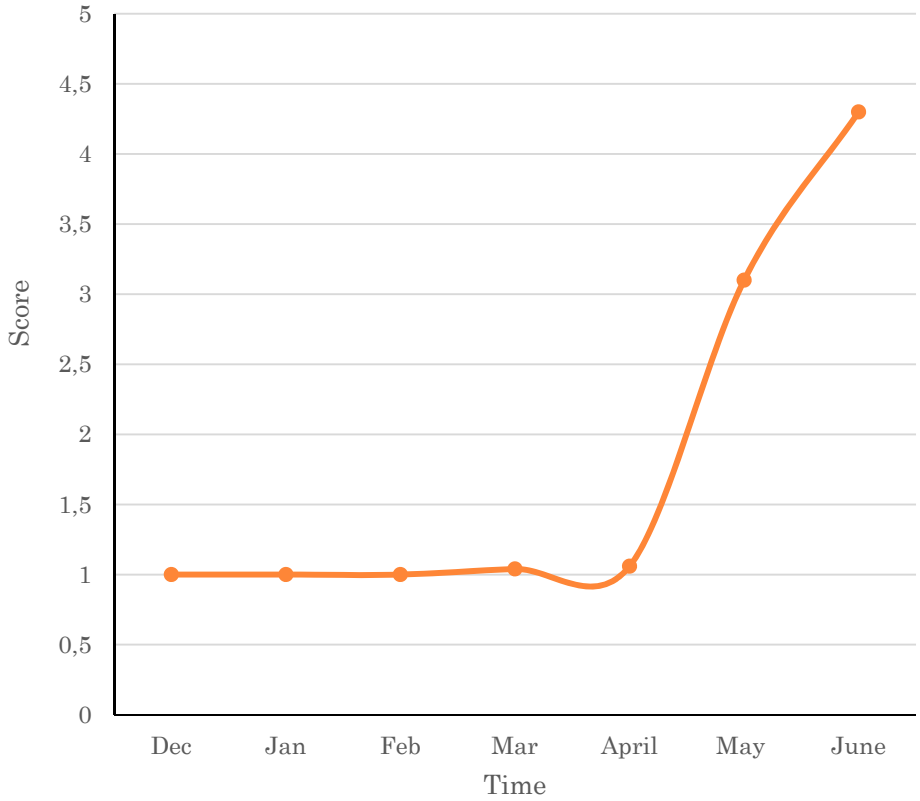
Figure 1:



RESULTS AND DISCUSSION

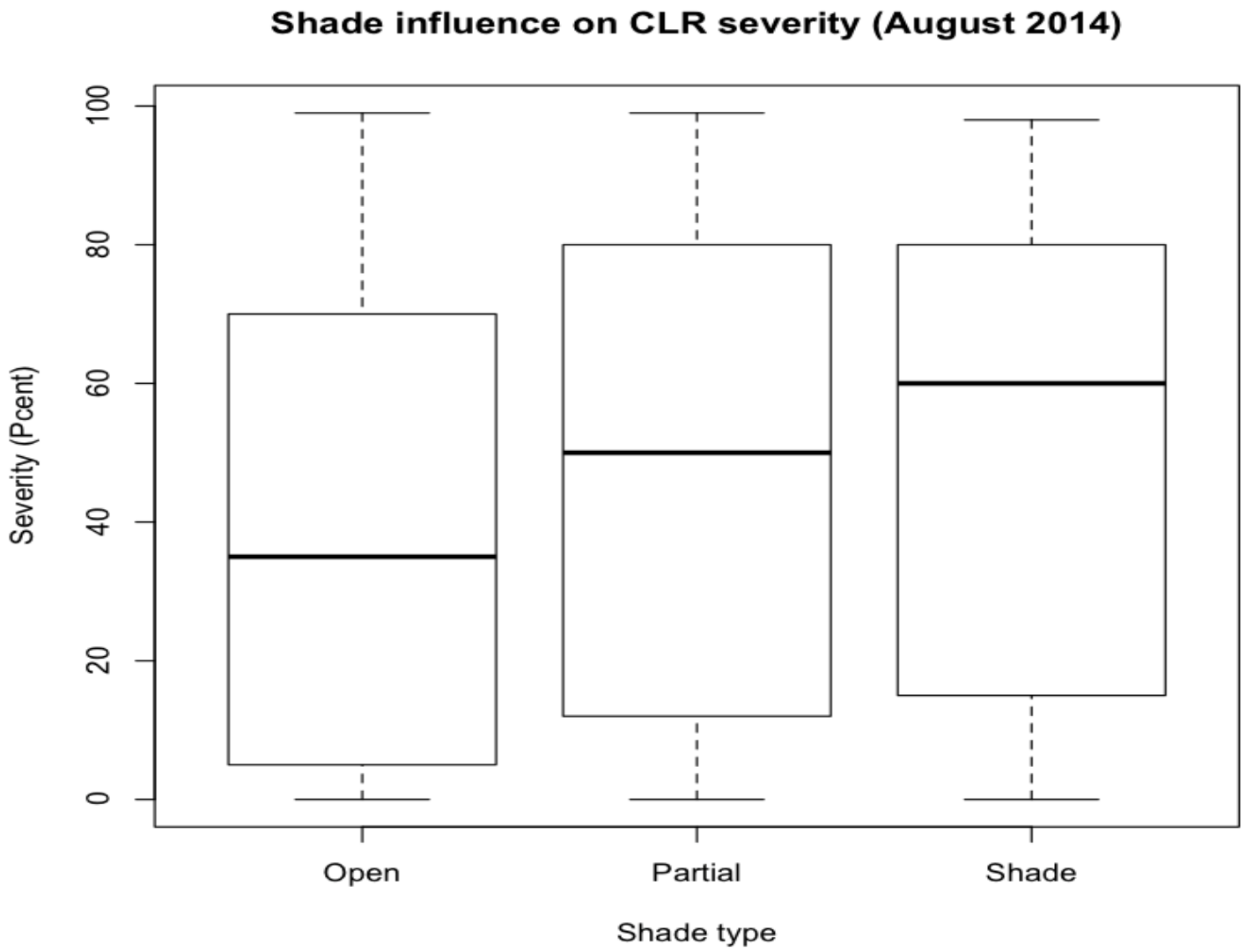
Figure 2: CBD severity with altitude(left) and time (right)





RESULTS AND DISCUSSION

Figure 3:



STATUS

- The study was concluded in September 2014
- Data analysis is on going
- One publication has been made (Proceedings of the ASIC 2014 conference)

Plate 1:Tagging trees and braches

Plate 2:recording