30th Conference
27-31 October
Asic 2025
Lisbon, PORTUGAL
Rectory of the University of Lisbon
CANALLS
AGROECOLOGICAL PRACTICES FOR SUSTAINABLE TRANSITION
#34424
Horizon Europe
Grant Number:
101083653

How do cropping practices influence coffee quality?

A study from South-Kivu, Democratic Republic of Congo.

Timothée Cheriere[*,1,2], Isaac Balume[3], Kokou Kintche[4], Wivine Munyahali[5], Johan Six[3], Marc Corbeels[1,4]*

*timothee.cheriere@cirad.fr

1 cirad 2 CATIE 3 ETH zürich 4 IITA 5

Introduction

Coffee quality is an important driver of coffee price. The coffee's genetic, growing environment and pre- and post-harvest managements all affect quality. For farmers, adapting cropping practices might be the cheapest and fastest way to to improve coffee quality and thus potential revenue. Consequently, a better understanding of the influence of cropping system's components and management on the quality attributes of coffee is necessary.

Materials & Methods

In South Kivu, 24 farmers in Kalehe and 30 in Kabaré were interviewed for cropping systems' and practices description. In their fields, ripe and damage-free coffee cherries were sampled and wet processed before cupping (SCA standard). To account for pedoclimatic differences, the relation between farmers' practices and fields characteristics, and quality attributes were analyzed separately for Kabaré and Kalehe. The analysis was made through factorial analysis of mixed data.

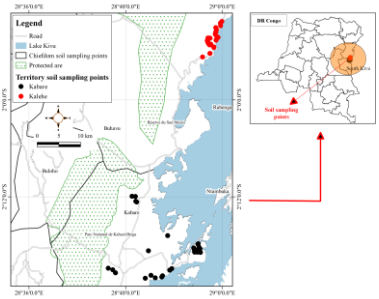

Figure 1: Farmers' fields location in South Kivu

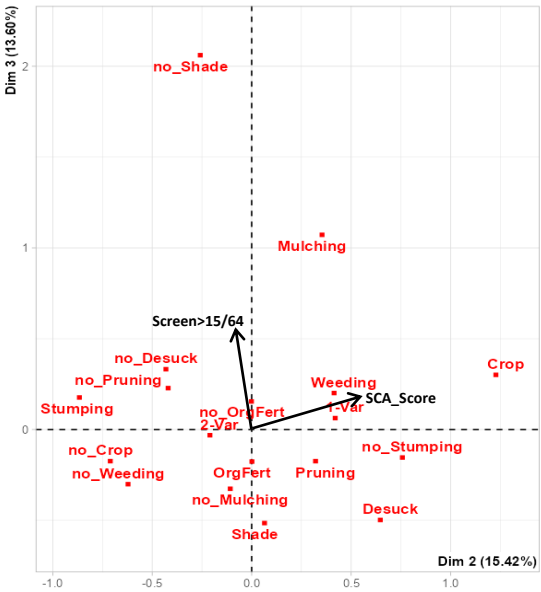

Figure 2: Axis 2 and 3 of the factorial analysis of farmers' cropping practices, SCA total score and screen size of coffee samples collected in Kabaré's field network.

Results

In their fields, farmers used the cultivar Kabaré 16 either alone or mixed with Catuaï. Kalehe and Kabaré's coffees cupping scores were in average 83,5 and 82,4, respectively, and were mainly characterized by citrus fruits and cocoa aromas.

In Kalehe fields, granulometry and cupping score could not be related to farmers' practices.

For Kabaré territory, the first 3 axes of the analysis explained 60% of the data variability. On axis 2, higher cupping scores were associated with the presence of understory crops, weeding, suckers' elimination and with coffee plants that were not stumped the year before. On axis 3, a higher proportion of large beans tended to be associated with the absence of shade trees and the practice of mulching.

Figure 3: Soybean intercropped with coffee

Conclusion & Perspectives

These preliminary results suggest a positive relation between quality parameters and farmers' management of the herbaceous strata (mulching, weeding and intercropping), and with coffee trees' vegetative development management. They also highlight the influence of shade management on quality. Further analysis of farmers practices, as well as yield and soil characteristics will bring more details in order to formulate recommendations for farmers and identify cropping systems and practices combinations with higher quality potential.