



Tropentag, September 17-19, 2018, Ghent

“Global food security and food safety:
The role of universities”

Sustainable Use of Resources: Soil and Water Management Practices on Cocoa Farms in Ecuador

LISETTE T. PHELAN

De Montfort University, Faculty of Business and Law, United Kingdom

Abstract

Cocoa (*Theobroma cacao* L.) is a cash crop produced by an estimated 5–6 million smallholder farmers globally. In Ecuador, as in other origin countries, the viability of production is threatened by climate change and already showing signs of being impacted by changing precipitation patterns, increasing temperatures, and more frequent occurrence of drought and flooding events. As cocoa is highly sensitive to water stress, the sustainability of future production will be determined by farmers' water use efficiency and management of soil and water resources. Ecuador is an interesting country case study offering key insights into the opportunities and challenges associated with cultivating fine-flavour and bulk cocoa varieties under water-limited conditions, and optimising water use, in cocoa-growing regions.

This study used a mixed methods approach to collecting qualitative and quantitative data in the provinces of Los Rios, Esmeraldas, Manabi, and Santa Domingo in Ecuador. A semi-structured household survey was administered to 70 smallholder cocoa farmers to evaluate the impact of climate change on production, and management of soil and water resources. Soil and water management practices were documented through observation and photography. Key informant interviews were held with cocoa sector stakeholders to elicit and triangulate data collected.

The study results reveal that smallholder farmers engaged in cocoa production in Ecuador are aware of the impact of climate change, and specifically, the impact of increasingly erratic and unpredictable rainfall patterns. Moreover, they recognise the need for adaptation and sustainable use and management of soil and water resources. Farmers are taking action to improve soil fertility and soil health, from the application of fertiliser based on soil analysis to reducing the use of herbicide and pesticide. Regarding water availability as the factor most influencing cocoa production and productivity, farmers are establishing small-scale irrigation systems, restoring water bodies (streams, pools), and establishing drainage systems and hillside terraces. Given the human, natural, and financial capital required to adopt new production practices, only those farmers who are willing, and in a position, to take risks are proactively looking to increase their resilience to climate change by adopting new and improved soil and water management practices.

Keywords: Climate change, management practices, soil, water