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Economic Performance and GHG Emissions of Traditional and Organic Cocoa Farms in the Peruvian Amazon

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Abstract

Organic certification for agricultural commodities has been promoted as a way to reduce the environmental impacts of food production and improving the welfare of smallholder farmers. Nevertheless, per capita net incomes in both conventional and certified farms appear insufficient to cover the average household basic needs and the share of the profits reaching smallholders from the chocolate industry remains marginal, raising governance questions regarding the effectiveness and fairness of the cocoa value chain and the certification schemes. On the other hand, while the environmental benefits of organic production are well documented, the effect of changing low-input cocoa systems in the Amazon to organic production systems on profitability and GHG emissions is unclear.

In this study, we assess the profitability and carbon footprint of cocoa production under traditional (low input) and organic systems in the Amazonian region of Ucayali, Peru. For this, we used the Typical Farm Approach, combining participatory farmer workshops and expert guidance to define farms' typologies and obtaining a detailed quantification of all activities, processes, as well as input and output flows of both production systems. Subsequently, we calculated economic indicators and carbon footprint under different scenarios to assess their performance and trade-offs.

Our results show that organic production allows higher yields and farm gate prices compared to traditional production systems, yet current price premiums and yield gains are insufficient to cover the additional costs of engaging in organic certification. Both systems require more than 4 hectares to provide the household with two monthly minimum wages, which is above the average of household cultivated area in the region, and could imply increasing pressure on the forests. Additionally, GHG emission increases with the inclusion of organic fertiliser are not offset by the declared yield gains when compared to traditional farming. Based on our results, we do not discourage organic cocoa production, but raise questions on adequate farm gate prices and fair share of the final product value reaching the producer, as well as on the need for tying production to zero deforestation commitments and compensating the aggregate environmental and social benefits when promoting more sustainable cacao production systems.

Keywords: Carbon footprint, cocoa production, cost-benefit analysis, GHG emissions, organic agriculture, typical farm