

Is organic farming economically competitive at the farm gate in the tropics?

Introduction:

In resource-poor countries, where a high share of the worldwide organic producers is based¹, the question of the economic sustainability of farming becomes more complex. Organic production in these countries is often criticized for producing raw materials destined towards export markets, where premium prices can be gained for “main/cash crops”² while domestic markets for organic products are only marginally developed so many time premium prices cannot be obtained for associated crops. However, limiting the question of the economic viability of organic production in resource-poor countries to the main crops of a farming system, that are often grown as a main source for cash generation, does not shed light on the full farming context and performance of agricultural system. Thus, the question arises on whether organic farming systems can be financially competitive compared to conventional farming in the tropics. In the present study, we explore economic competitiveness of organic and conventional farming systems at farm gate and the contribution of cash crop and associated crop/s to economic scenarios of given systems.

Methods

	Kenya	India	Bolivia
Site	Sub-Saharan Africa - Kenya Central Highlands	South Asia - India Madhya Pradesh, Nimar Valley	South America - Bolivia Sara Ana
Climate	Sub-humid	Semi-arid	Tropical-humid
Crops	Maize-based systems, 3-year crop rotation with maize, vegetable and potato	Cotton-based systems, 2-years crop rotation with cotton, wheat and soybean	Cacao-based systems, cacao trees with plantain/banana, fruit, legume and timber trees
Systems	Organic vs conventional at low and high input level	Organic and biodynamic vs conventional with/without GMO	Organic vs conventional as monoculture or agroforestry

The present study draws on twelve years of economic data from four long-term experiments, located in Bolivia, India, and Kenya. The trials are based on three different main crops (cocoa, maize, and cotton) and compare the performance of organic and conventional farming systems. Organic and conventional farming systems are assessed for their economic viability by analyzing Cumulative Income, Cumulative Variable Production Cost, Cumulative Partial Gross Margin including actual farm gate premium achieved for organic cash and associated crops. To account for the variability in each system we used the average of high and low performing system context of each organic and conventional farming systems from the same experiment, e.g. Economic viability of high and low input systems were averaged for comparative analysis of organic and conventional systems from Kenya site. The evaluation of the economic performance of the different farming systems is also differentiating between main crops and associated crops, offering a holistic picture of the economic viability of organic compared to conventional farming systems in the tropics.

References

- ¹Willer, H. and Lernoud, J., 2019. The world of organic agriculture. Statistics and emerging trends 2019 (pp. 1-336). Research Institute of Organic Agriculture FiBL and IFOAM Organics International.
- ²Valkila, J., 2009. Fair Trade organic coffee production in Nicaragua—Sustainable development or a poverty trap?. Ecological economics, 68(12), pp.3018-3025.

Results

Cumulative Partial gross margins of organic and conventional were similar at Bolivia, Chuka and Thika of Kenya, whereas partial gross margins of organic was lower than conventional at India site.

Cumulative input cost for organic systems were lower in Bolivia, similar in India and higher in Kenya when compared with conventional counterparts.

Cumulative labour costs were similar for organic and conventional at all the sites for this study.

Associated crops have similar economic contribution in Conventional and Organic systems.

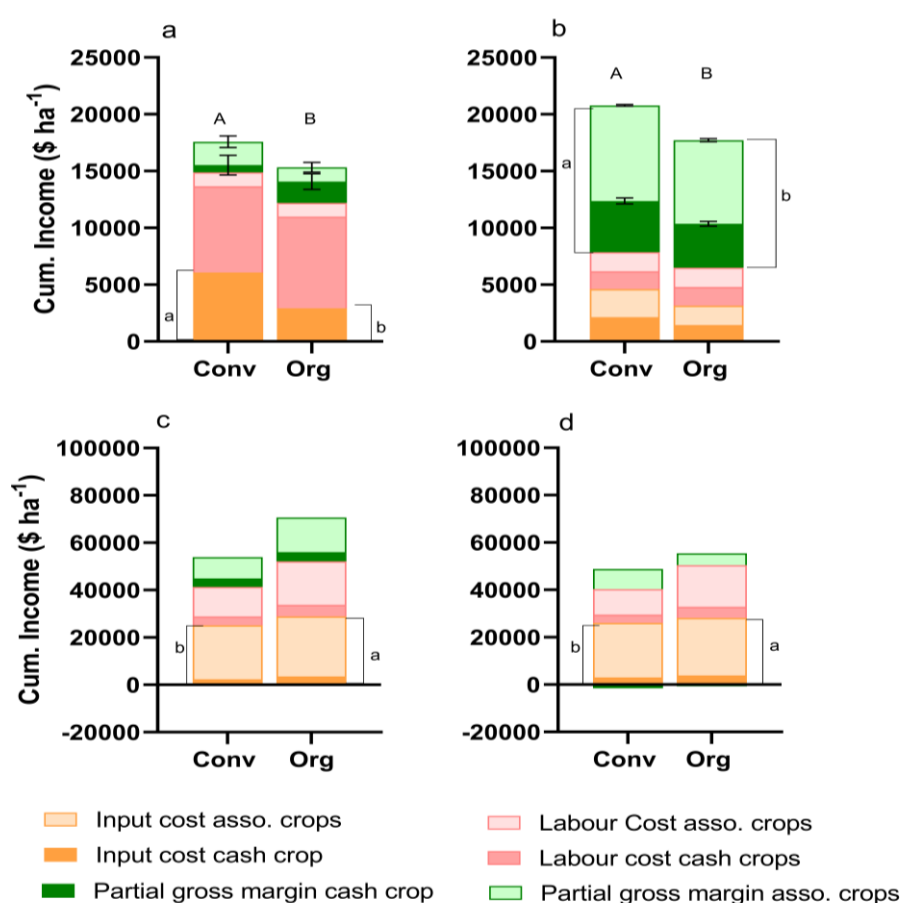


Figure 1. Cumulative Income, variable production costs and partial gross margin at farm gate for conventional and organic farming systems in the long-term system comparison trials at a) Bolivia, b) India, c) Chuka and d) Thika of Kenya.

Conclusions

Economic performance of organic farming systems is similar or comparable to conventional systems.

Economic performance of both farming systems is strongly site specific.

Organic systems are not necessarily dependent on main crops, associated crops contribute equally in Organic and Conventional systems.