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## What Can Organic Agriculture Contribute to Sustainable Development? — Long-Term Farming System Comparisons in the Tropics

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### Abstract

Organic agriculture is an interesting option to agricultural stakeholders because it combines environmental conservation with low-cost technology and access to premium price markets. The organic farming system has proven its advantageous aspects regarding resource efficiency, ecosystem functioning, soil fertility conservation and economic impact in a wide range of experiments and studies in the developed countries of the temperate areas. In low-income countries of the tropics, NGOs and farmers' groups are now increasingly adopting organic techniques as a method of improving productivity and food security. Despite the high demand of producer organisations, development agencies, national authorities, and international donors for secured data regarding the agronomic, ecological and economic performance of organic agriculture in developing countries, no systematic comparisons between organic and conventional farming systems have been conducted which allow long-term statements in these areas. The Research Institute of Organic Farming (FiBL), together with its partners, is presently establishing long-term farming systems comparisons in various agro-ecological and agro-economic contexts to study the various parameters which are essential for sustainable development. To present, three study areas have been selected: (a) a sub-humid area in Kenya where farming is subsistence-oriented; (b) a semi-arid area in India where cotton is produced for the export market; and (c) a humid area in Bolivia where perennial fruits and cacao are produced for the domestic and the export market. The key elements in these comparisons are long-term exact field trials. They are completed with short term trials under on-farm conditions and with farm surveys. This network of systems comparisons in the tropics is expected to (1) bring the discussion about the benefits and drawbacks of organic agriculture on a rational basis; (2) contribute to identification of challenges for organic agriculture, which can subsequently be addressed in a systematic way; (2) provide physical reference points to stakeholders in agricultural research and development and thus support decision making and agricultural policy dialogue at different levels.

**Keywords:** Africa, Asia, comparison, economic performance, Latin America, long-term experiments, organic agriculture, productivity, resource efficiency, soil fertility