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“Bridging the gap between increasing knowledge and decreasing resources”

## Productivity of Maize and Baby Corn in Organic and Conventional Farming System

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### Abstract

Productivity (output per unit of land or labor) growth in Africa is far behind that in other regions of the world and is well below the growth required to meet food security and poverty reduction goals set forth in national and regional plans. To increase food security, reduce hunger and poverty, soil fertility improvement is urgently needed in sub-Saharan Africa. Farming systems have been developed using conventional (fertilisers, improved seeds, pesticides) and organic (system optimisation, organic fertilisers, nutrient recycling) approaches. Conventional farming systems aim at high productivity but also at high financial and environmental costs. Organic farming systems aim at improving the stability and resilience of the whole agro-ecosystem, maximising nutrient and energy use efficiency and using natural renewable inputs, but have generally been perceived not to be able to support and sustain high productivity and production levels. To create a scientific basis for discussions the Research Institute of Organic Agriculture (FiBL) established long-term farming systems comparison trials in Kenya, India and Bolivia. In two agro-ecological zones in Kenya (Chuka and Thika), FiBL and its partners are comparing two farming systems (organic and conventional) at low and high level of management intensity (low fertilisation without irrigation/high fertilisation with irrigation) since 2007. The three-year crop rotation is consisting of maize-beans-vegetable-Irish potato. The productivity of maize and baby corn in the organic and conventional farming systems will be presented. The maize yields in 2007 and 2010 for the conventional high input system (Conv-High) were similar to those of the organic high input systems (Org-High) at both Chuka and Thika, except in the first year (2007), when Conv-High yields were 4 times higher ( $P < 0.05$ ) than the ones from Org-High in Thika. In the low input systems, Conv-Low and Org-Low showed similar yields in 2007 and 2010 at Chuka, whilst at Thika, maize yields for Conv-Low was 3.5 times ( $P = 0.010$ ) higher than the yields of Org. Low in 2007 and 2010. Baby corn yields over 4 years were similar for both Conv. High and Org. High at both sites.

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