Productivity and profitability of organic farming systems in East Africa

Literature review – commissioned by IFOAM

Presentation at the East African Organic Conference

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Literature review

- IFOAM / OSEA II project
- Literature review:
  - December 2012 - February 2013
  - Internet literature search
  - Library literature search
  - Contacts with key experts
- To be published in August 2013.

For East African Organic conference:
- What happens?
- How does it work?
- How to compare?
- How does it compare?
- What lessons to draw?
What happens?: OA in East Africa

• **Data**
  – “The World of Organic Agriculture”
  – Certified-organic only

• **Certified organic land**
  – Total (2011): 309,876 ha
  – Uganda: 65%
  – Tanzania: 33%

• **Area growth**
  – Season 2010/11: + 14%
  – 2007-2011: + 34%

• **Producers**
  – Total (2011): > 330,000
  – Uganda: 187,993
  – Tanzania: 145,000
How does it work?: Organisation

- Export-oriented crops
  - Coffee
  - Tea
  - Tropical fruits (fresh, processed, canned)
  - Cotton

- Export supply chain
  - Quality requirements (product, import)
  - Quantity requirements
  - Delivery conditions

- Contract farming
  - Producer selection & organisation
  - Producer training
  - Contract arrangements
  - Conditions of payment
  - Access to inputs
How to compare OA? (1/2)

• **What organic system?**
• **Organic farming systems**
  – IFOAM definition
  – Non-certified organic systems
  – Certified organic systems
  – “Real organic”
• **Literature review**
  – Certified organic systems
  – Comparative organic research
  – Detailed organic research
• **Not covered:** Organic-compatible practices

**Organic agriculture (IFOAM):**
“A production system that sustains the health of soils, ecosystems and people. It relies on ecological processes, biodiversity and cycles adapted to local conditions, rather than on inputs with adverse effects. Organic agriculture combines tradition, innovation and science to benefit the shared environment and promote fair relationships and a good quality of life for all involved.”
How to compare OA? (2/2)

- What to compare with?
  - Traditional agriculture
    - Endogenous knowledge
    - Slash & burn
    - Optimised system?
    - Soil mining?
  - Conventional agriculture
    - External inputs
    - Synthetic fertilizers
    - Synthetic pesticides
- Mutual exclusion...?
  - Smallholder production is often low-external-input

How does OA compare? (1/2)

- **Productivity:**
  - Output of system, Crop output, Crop yield

- **Seufert et al. (2012) comparing Crop yield globally**
  - OA Yield is often lower - depending on crop, species, rainfed/irrigation (fruits: -3%; oilseeds: -11%; cereals: -26%; vegetables: -33%)
  - Partly due to N availability at peak period
  - Developing countries (high-input systems): minus 43%
  - “We can not rule out that OA can increase yields in smallholder agriculture, but owing to a lack of quantitative studies with appropriate controls we do not have sufficient scientific evidence to support it either.”

- **Gibbon & Bolwig (2007), Economics of certified organic farming**
  - Uganda: Coffee, cocoa, pineapple
  - Organic conversion: yield increases through better farm practices.
  - Interfering factor: “access to good quality farmer education and extension”
How does OA compare? (2/2)

• **Profitability**
  - Production x Quality x Price - Costs
  - Gross income, Costs of external inputs, Costs of production, Quality & Price, Net income

• **Gibbon & Bolwig (2007), Economics of certified organic farming**
  - Organic conversion in Uganda: Coffee, cocoa, pineapple
  - Production: yield increases through better farm practices
  - Quality is often better – but comes at a cost (processing, rejected crop)
  - Price is higher through premium minus additional costs (processing)
  - Costs: production costs are often lower (less external inputs).

• **Interfering factors**
  - Producer characteristics (access to factors of production)
  - Production contexts (market access, contract farming)
What lessons? (1/2)

Process

• Organic agriculture
  – Organic agriculture > Certified-organic!
  – Certified-organic is expanding, and so is demand
  – EAC markets start to emerge and are to be developed

• Organic research
  – Very little comparative research
  – Little detailed organic research (under-represented in funding)
  – New projects launched recently (FiBL, ProGrOV, BOKU, AELBI)

• Research vs. Advocacy
  – Advocacy is to diffuse (the positives of) what is known
  – Research is to provide new insights.
  – Research should contribute to review and refine advocacy.
What lessons? (2/2)

**Content**

- **Organic = Production x Trade**
  - Explain why it does work economically for 100,000s!
  - Production techniques are just one input.
  - Organisation is required (volume, education & training, contract farming)

- **Acknowledge biases**
  - Crop, producer, access to land, trade arrangements

- **Productivity**
  - Is often lower (depending on crop, system, rainfed/irrigation)
  - Is often higher in low-intensive smallholder farming (thanks to education & training)

- **Profitability**
  - Is often higher for participants: production costs, quality/processing, price, premium
  - Sector growth is an indicator for profitability of OA.
Conclusions

Organic research
• Organic is more than farming: *Production x Trade*
• More funding is required for in-depth organic research.

Farming system
• Many smallholders need *education & training* to upgrade and intensify their farming system
• Smallholders can generally not afford expensive solutions
• *Organic practices are appropriate for ecological intensification* by smallholders.
• Organic conversion leads to higher productivity and profitability.
• Organic has positive system impacts (diverse, resilient, healthy)
• *Organic practices are still a largely untapped opportunity.*
Thank you!

Why organic matter is so important:

- A loose and soft soil structure with a lot of cavities
- Good aeration and good infiltration of rain and irrigation water
- Visible parts of organic matter act like tiny sponges
- Non-visible parts of organic matter act like a glue, sticking soil particles together
- Many beneficial soil organisms such as earth worms feed on organic material
- Soil organic matter provides a suitable environment for soil organisms

Source: FiBL (2005), OC Training manual.