



Developing the Organic Sector-Best Practices from Africa

Building Strategies for Africa: Adding Value through Organic Farming

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Support schemes and development - best practices from Africa

A case study of the “Long-term Farming System Comparisons in the Tropics”

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Research components

We have two activities:

- a) Long-term farming systems comparisons in on- station field trials with sites in Chuka and Thika, running since March 2007

- b) Participatory development of technologies to address problems of organic farmers, in Kangari Division, running since April 2009, with on-farm trials, demonstration trial and training on animal housing, manure handling and composting.



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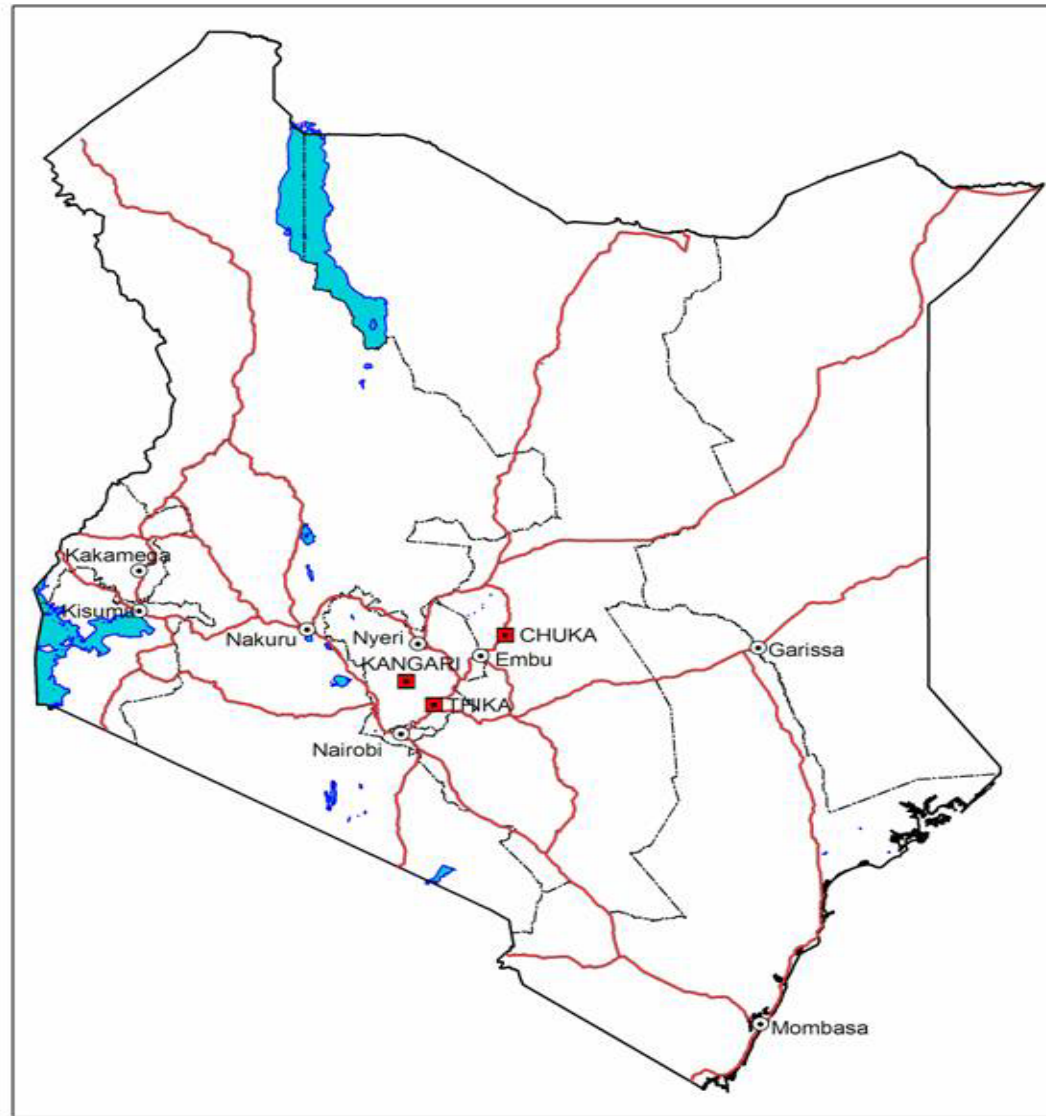


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Location project sites



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ROAN

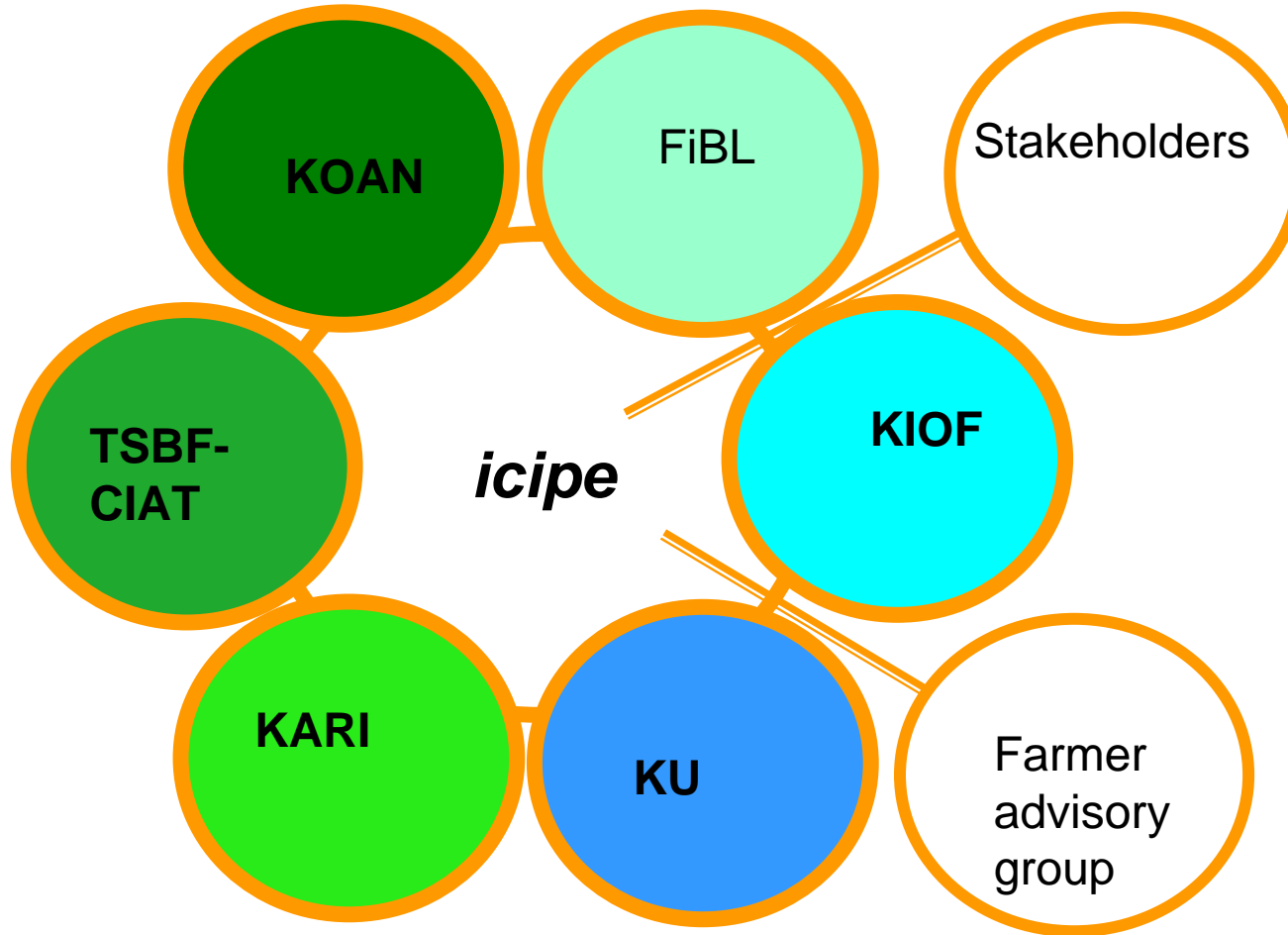


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Partner institutions





Treatment definition

	Farm type	Markets	Input use
CONV LOW	Small scale	Home consumption and local market	Organic & synthetic fertilisers, pesticides; limited rates (costs) (av. 25kg N / ha / season)
CONV HIGH	Commercial	Urban domestic and export market	Organic & synthetic fertilisers, pesticides; rates as recommended (av. 125kg N / ha / season)
ORG LOW	Small scale	Home consumption and local market (no premium prices)	Farm-own organic resources, no direct plant protection (av. 25kg N / ha / season)
ORG HIGH	Commercial	Urban domestic and export market (premium prices)	Organic & mineral fertilisers, biocontrol; rates as recommended (av. 125kg N / ha / season)



Treatment definition



→ Low input level

Small scale farmers' practise



KARI
Cropping
manual

→ High input level

Published recommendations





Crop rotation 2007-2009

	Year 1		Year 2		Year 3	
Subsistence „Low input“	Maize	Kales & Swiss chard	Maize & beans	Common beans	Maize & beans	Potatoes
Commercial „High input“	Maize*	Cabbage	Baby corn *	French beans	Baby corn *	Potatoes

* Organic “high input”: plus mucuna in maize crops



Irrigation in „High input“

Partners:

National: KARI, Kenyatta University, KIOF, KOAN
 International: ICIPE, TSBF-CIAT





What we measure routinely

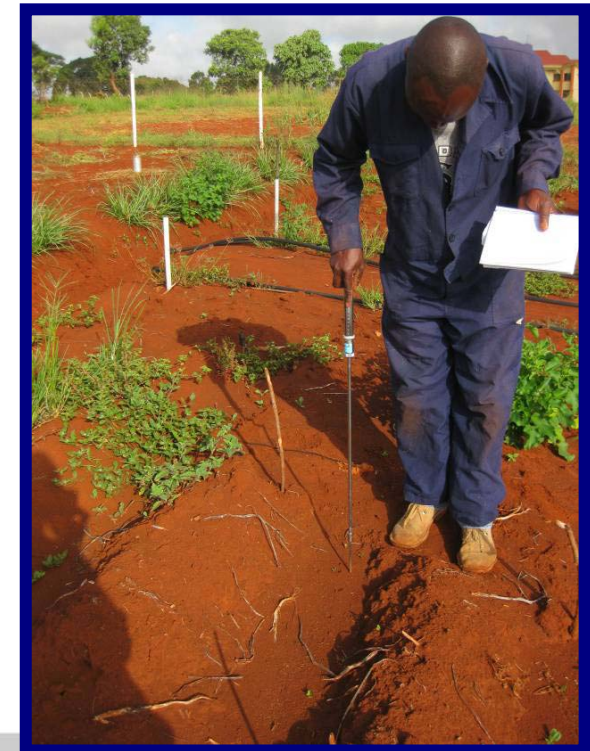
- Productivity: yield, biomass production
- Product quality: marketable quality, nutrient content
- Economics: costs (labour and inputs), product prices
- Efficiency: nutrient and energy input-output balances
- Soil fertility: pH, macro- and micronutrients, organic matter
- Biotics: pests, diseases, weeds, beneficial insects
- Weather: temperature, relative humidity, rainfall





Special studies before/in maize 2010

- Soil biota
Mycorrhiza, microbial biomass
- Soil physics
Aggregate stability, bulk density, soil moisture curve, penetration, infiltration
- Weed dynamics
- Arthropods diversity





Chuka Yields

		Conv (t/ha)	Org (t/ha)	% Org
Maize 2007	Low	2.5	3.7	150%*
	High	4.9	4.5	92%
Brassicas2007	Low	7.6	4.1	54%*
	High	32.2	14.1	49%*
Maize 2008	Low	2.3	2	84%
	High	2.8	3.9	140%
Legume 2008	Low	0.2	0.4	214%*
	High	22.7	15.6	69%*
Maize 2009	Low	3.7	4	110%
	High	14	14.1	101%
Potatoes 2009	Low	18.6	13.1	70%
	High	24.2	14.2	59%
Average over 6 seasons				70.4%
				58.7%



Thika Yields

		Conv (t/ha)	Org (t/ha)	% Org
Maize 2007	Low	0.9	0.3	38%*
	High	1.2	0.4	37%*
Brassicas	Low	8.2	2.0	25%*
	High	2.1	2.8	135%
Maize 2008	Low	0.1	0.07	65%
	High	0.6	0.2	28%*
Legume 2008	Low	0.4	0.3	81%*
	High	21.8	12.0	55%*
Maize 2009	Low	0.06	0.03	48%*
	High	24.6	8.6	35%*
Potatoes 2009	Low	20.1	15.5	77%
	High	27.7	24.4	88%
Average over 6 seasons				55.60%
				63.00%



Conclusions (so far...)

- Large variation between plots (site heterogeneity) and between years (interaction between crop and rainfall) require long-term data series to get a clear picture.
- Experience from other studies shows that organic yields will improve after a conversion phase of 2-4 years
- Competitiveness of organic crops depends on the favourability of the site
- Favourable sites: Organic agriculture can display competitiveness from the beginning
- Marginal sites: Organic agriculture can show its potential to build up soil fertility on a longer term



a) Participatory development of technologies to address problems of organic farmers, in Kangari Division, running since April 2009, with on-farm trials, demonstration trial and training on animal housing, manure handling and composting.



Composting techniques and manure types

- 55 farmers from 15 organic farmers groups were trained on
 - Composting techniques
 - Manure handling
 - Animal housing
- Follow up indicates that out of the 40 farmers visited during the follow up the following had improved or planned to improve

Topics	Improvement done	Improvement planned	Improvement difficulties
Animal housing	24 (farmers)	10 (farmers)	6 (farmers)
Manure handling	29 (farmers)	7(farmers)	4 (farmers)
Composting	13 (farmers)	18 (farmers)	9 (farmers)





Composting techniques and manure types

- 57 farmers from 14 organic farmer groups at Kangari were trained on livestock feeding, fodder production and preservation, Sourcing and diversifying composting material to improve manure quality.



Follow report

Topic	No of Farmers Trained	Farmers Followed – Up	Those who Implemented	Those in process of implementing	Those who have and are not in the process of implementing
Fodder Production And Preservation	58	41	27	10	4
Animal Feeding	58	41	35	6	0
Diversifying And Sourcing for Compositing Materials	58	41	30	9	2



Composting techniques and manure types

Trial concept

Farmers select treatments

Treatments:

Boma manure:	Fresh (farmers' practise)	14 days compost (box)	63 days compost (heap)
Masai manure:	Dry (farmers' practise)	14 days compost (box)	63 days compost (heap)

Experiences:

- Demonstration trial since 2009 (3rd season)
- On-farm trials since 2009 (2nd season)



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Composting techniques and manure types

Materials gathered



They are mixed together



The heap is then covered with dry material



Heaped in the box occasionally adding ash and topsoil





Composting techniques and manure types



14-Day compost
ready for use in the
farm





63-day compost preparation





All the publications will be uploaded in the website
www.systems-comparison.fibl.org

Lessons Learnt





Achievements within Organic Agriculture Sector in Africa

- Non Governmental organizations have been prominent in training, extension, and marketing.
- National Organic movements (NOAM's) have contributed to better organization and general development of OA.
- IFOAM Africa office has played a key role in coordination and information dissemination.
- Technical and financial support from technical and Development partners; EC, USAID, SIDA, UNCTAD-CBTF, ITC, HIVOS, and others.

Achievements Within the Organic Agriculture Sector in Africa-Cont'd



- Many farmers have been mobilized, trained on OA technologies
- Several success stories and models in technology adoption, market development, environmental conservation, food security and livelihoods have been created.
- The organic sector in Africa is growing; in value and volume.
- There are signs of success in getting government recognition – example of recent AU Decision by Heads of Government and State



Missing Links: Training and extension

- Training and extension primarily done by NGO's.
- Few trained organic agronomists-Organic agriculture is not offered as a major course in institutions of higher learning
- Inclusion of organic agriculture in the training programs for Govt employees and other relevant staff
- Limited outreach programmes in Africa



Missing links: Policy guidance and Support

- Passive role of government in promotion of OA - no explicit government policies
- Low investment in public research in organic agriculture.
- No budgetary allocation for organic agriculture development.
- Limited or no incentives or rebates for organic agriculture actors.



Missing Links: Certification and Standards

- Organic certification cost is unaffordable for smallholder farmers especially where there is no external support, incentives.
- Capacity for implementation of complex standards- not domesticated
- Certification for export done by European based certification bodies



Missing Links: Marketing

- Investment in Marketing infrastructure for organic products; (bulking, Logistics)
- Access to credit facilities: Organic is perceived more risky- need for investment in tailor made organic financial solutions.
- Capacity building at different levels; farmers, support organizations, government departments and traders.



Missing Link: Research

- Low investment public research in OA: Allocation of resources specifically to R&D in OA from government- ? %
- Participatory approach, in technology development based on the needs of the OA sector.
- Encourage research that builds on indigenous /farmers knowledge.
- Strengthen collaboration and linkages within and between agricultural research institutions at national, regional and international levels



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Missing links: Organic Inputs

- Availability of organic inputs
- Standardization of organic inputs
- Validation and upscaling of innovative indigenous technologies for pests and diseases control
- Conflict with phyto-sanitary regulations
- Availability of high quality planting materials



Missing Link: Production Constraints

- Farmers lack appropriate production technologies in production, pests and disease control, postharvest handling and quality mgt.
- Poor organization and management to enhance group certification.
- Weak information flow regarding solutions of production constraints



Missing Link: Processing and Quality

- Multi quality management protocols requirements
- Limited capacity of producers in Quality management
- Infrastructural costs for maintaining set quality management protocols



Missing Link: Institutional Framework

- Non coordinated efforts of OA development in Africa.
- NOAMs overwhelmed in most countries; capacity, scale of operation & financial challenges.
- Key institutions to spearhead development of specific OA areas missing in most countries (market development, training, research, certification & standards).
- Networking platforms limited and not active.



Concluding remarks and Future Prospects

- Networking and partnership between state and non state actors (Researchers, Support organizations, universities, National Movements etc)
- Commitment to supporting of OA by governments and donors.
- Increased investment in organic agriculture trade will spur development



Concluding remarks and Future Prospects

- Networking and partnership between state and non state actors (Researchers, Support organizations, universities, National Movements e.t.c.)
- Commitment to supporting of OA by governments and donors.
- Support OA Policy development – National, regional
- Increased investment in organic agriculture trade will spur development



Concluding remarks and Future Prospects

- Mainstream organic agriculture in African governments- AUC to take a leading role in development of Organic agriculture.
- Establish networks and linkages between organic research, training, extension and Farmers-Adoption
- Supporting NOAMs; regional and continental initiatives like EOA by AUC, OSEA, Biovision communication programme for Africa among others
- Harmonize equivalence efforts by international agencies such as IFOAM.



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Sustainability fund



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Thank You



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