Adapting agriculture to changes in Africa – the path to agroecology

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Critical Questions for sustainability in Africa (?)

• How can we produce more food?
• How can we produce more, nutritious and healthy food?
• How can we produce more food which is nutritious and healthy without affecting the biosphere?
• How can we produce culturally appropriate food which is nutritious and healthy and without affecting the biosphere and in a just way?
Challenges to the future of agriculture

• Population explosion
• Land and forest degradation
• Decrease in biodiversity
• Cultural erosion
• Unplanned urbanization
• Climate change
TWO COMPETING NARRATIVES
FOR THE FUTURE OF AGRICULTURE IN AFRICA

Productivist

Agroecological
Productivist narrative

Focusing on productivity mainly

• agrochemicals
• High Yielding Varieties
• irrigation
• Land consolidation
• Focusing on technology (emerging technologies)
• Training farmers new techniques – knowledge substitution
Institutions pushing industrial agriculture in Africa
Philanthrocapitalists, Development agents, Business with Local scientist and government bureaucracy (NEPAD, CADDPP, AU, RECs)
Narratives for industrial agriculture

• Priority to business to feed Africa
• Farmers seed is part of the problem and should be replaced by patented hybrids
• Problem is of calorie so more calories is the solution.
• Land should be given to those who can make it productive.
• Knowledge comes from science
• It is possible to produce one fits all solutions.
What is wrong with our current food production system in times of climate change? IPES Food

• **Triple burden of malnutrition**
  • Hunger, micronutrient deficiencies, obesity & NCDs (cardiovascular, respiratory, cancer and diabetes)

• **Environmentally unsustainable**
  • Biodiversity losses, water pollution, soil degradation, GHG emissions, unsustainable use of natural resources, low resilience ...

• **Social inequities**
  • Poverty, disempowerment ...

• **Neglect of cultural values**
What prevents change: 8 Lock-ins

- Export Orientation
- Expectation of cheap food
- Path dependency
- Concentration of power
- Feeding the world narratives
- Compartmentalized thinking
- Measures of success
- Short-term thinking
Planetary and social Boundaries

Agroecology

Action and change that brings sustainability and resistance to all parts of the food system: ecological, economic, cultural and social.

- Agroecology as science
- Agroecology as practice
- Agroecology as a social justice movement

It has to be all three or it is not Agroecology!
Conservation tillage
Minimum tillage improves soil structure, aeration and water infiltration/retention, and increases organic matter (maintains soil carbon).

Natural nitrogen fixation
Use of legumes like beans, peas, clover, lucern, acacia are used to fix nitrogen. These plants contain symbiotic bacteria in their roots that sequester nitrogen from the air.

Natural pest control
Increasing resilience to pests, e.g. by favouring pests' natural enemies, use crop rotations and a diversity of crop varieties.

Agroforestry
Integrating trees in farming systems can provide fodder, fuel and shade, erosion control and natural nitrogen fertilization.

Cover crop & mulching
Cover crops and mulching: provide soil nutrients, reduce erosion, and enhance biological pest control.

Rainwater harvesting
Small-scale collection and storing of rainwater combined with innovative watering techniques for better water resource management.

Empowerment and stakeholder engagement
Taking advantage of local stakeholder's knowledge, initiatives and creativity, e.g. through participatory research projects and establishment of value change groups.

Recycling of nutrients
Local recycling of plant nutrients and improved fertility by composting, which build humus that increases water retention and soil permeability.

Biodiversity & ecosystem services
Diversity on different scales; varieties, crops, animals, crop rotations, farming systems and use of ecosystems services for more resilient production and food security.

Socio-economic regulations
If agriculture is to deliver both livelihoods and collective benefits, there is a need for economic instruments (e.g. subsidies, certification) and law based regulations (e.g. environmental legislation, procurement schemes).
Monoculture

ESS

Crop production

Natural pest control

Timber production

Maintenance of Biodiversity

Water regulation

Erosion control

Pollination

Carbon sequestration
Agroecology

(Agroforestry)

- Crop production
- Natural pest control
- Timber production
- Maintenance of Biodiversity
- Water regulation
- Erosion control
- Pollination
- Carbon sequestration
AFSA – What is in a name?
Purpose is creating single African voice
37 networks of networks – the biggest in the Continent –
working in 50 of the 55 countries.

Representing food producers (farmers, fisher folks and pastoralists), women, youth, faith based organizations, consumer groups, indigenous peoples and indigenous CSOs.

Potentially reaching 200,000,000 Africans
AFSA believes in:

• Championing small African family farming/production systems – through agro-ecology and Farmers Managed Seed System
• Resisting the corporate industrialization of African agriculture – seed and land grabs.
AFSA MEMBERS
Countries where members of AFSA are active
Four working groups

• Land and agroecology
• Citizens for agroecology
• Seed and agroecology
• Climate change and agroecology
The Goal of making a case for agroecology

To make an evidence-based and coherent case for agroecology as the sustainable long-term solution for farming in Africa
AFSA

CASE STUDIES

www.afsafrika.org/case-studies/
PLAIDOYER EN FAVEUR DE L’AGROÉCOLOGIE

MAKING THE CASE FOR AGROECOLOGY
Never Ending Food in Malawi

‘Never Ending Food’ Demonstration Site

At the homes of Never Ending Food (NEF) intern, Hardwell Kanwe (middle) and former NEF permaculture manager, Luweno Biswick (right).
Reviving the Ankole Longhorns of Uganda
African leafy vegetable enterprise boosts livelihood of rural communities in Kenya

Introduction

In Africa and in particular, Sub-Saharan Africa, it is estimated that there are more than 45,000 species of plants, of which about 1,000 can be eaten as green leafy vegetables. Most of the latter fall within the category of African Leafy Vegetables (ALVs). ALVs are also known to be rich in vitamins, proteins, minerals and micronutrients such as selenium, zinc, potassium, beta-carotene, iron, folate, copper and iodine. They have also been found to have medicinal value in addressing illnesses such as diarrhea, eye and oral ailments, hypertension and even HIV/AIDS.
SCI: Planting with Space

The use of finger millet seedlings has shown very positive results in the region of Taitai Marchew, near Aksum, Ethiopia, as has the use of alternative management practices for a number of other crops. Unreliable rainfall has pressed farmers to shift their cropping patterns – especially in the most water-stressed regions. When the rainy season comes late, and as the moisture content in the ground becomes more problematic.
Degraded Land

High over-grazing and burning = Deep, wide and long erosion gullies

Low soil organic matter = Low soil fertility

Serious food insecurity in dry years

Thousands died in famines

Tigray, Ethiopia
Tigray, Ethiopia - Regenerating Soils, Landscapes and Communities

- Pond
- Rehabilitated gullies
- Faba bean
- Rehabilitated biodiverse hillside
- Sesbania trees and long grasses
- Composted fields growing tef, wheat and barley
Tigray harvests - compost and fertilizer

![Barley, Durum wheat, Maize, Teff, Faba bean harvest comparisons with compost and chemical fertilizer](image)

- **Barley (n=444)**
- **Durum wheat (n=546)**
- **Maize (n=273)**
- **Teff (n=741)**
- **Faba bean (n=141)**

**kg ha⁻¹**

- **Check**
- **Compost**
- **Chemical fertilizer**
KEY findings
Substantial income increases
Higher yields and productivity
Improved soil fertility
Drought resistant varieties increase yield
Organic markets increase incomes
Increased crop diversity lowers risk, increases resilience

Photo courtesy of Never Ending Food
Pesticidal plants work, are cost effective, sustainable and safe

Using SCI, tef yields of over 6 tons/ha have been observed under research conditions.

Soil moisture increase reported
practice

• Use of diverse local varieties of food crops improves nutrition, health and food security

• Intercropping, and rotation improve soil fertility, and reduce dependence on external inputs

• Organic fertilizers and composting improves soil fertility

Photo courtesy of TRAX
Social movement

• Formation of farmer groups
• Enhanced social capacity and leadership of farmers.
• Focusing on rural women and youth brings results
• Mediators (CSOs and other actors) play a huge role in mobilizing farmers

Photo courtesy of TRAX
Measuring impact against SDGs

A meta-analysis of the 50 case studies from 22 African countries shows the contribution of Agroecology to the attainment of the UN Sustainable Development Goals.
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<th>Sustainable Development Goals</th>
<th>Positive Impacts Recorded</th>
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<tbody>
<tr>
<td></td>
<td>No. of cases (Out of 50 total)</td>
</tr>
<tr>
<td>1. No Poverty</td>
<td>27</td>
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<td>2. Zero Hunger</td>
<td>50</td>
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<td>3. Good Health &amp; Well Being</td>
<td>11</td>
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<td>4. Quality Education</td>
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<td>5. Gender Equality</td>
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<td>6. Clean Water &amp; Sanitation</td>
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<td>8. Decent Work &amp; Economic Growth</td>
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<td>12. Responsible Consumption &amp; Production</td>
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<td>13. Climate Action</td>
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<td>15. Life on Land</td>
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AFSA Flagship programs

• Campaign on climate change
• African Food Policy
• Biofertilizers for healthy life and ecosystems.
• Promoting agroecological products
Thanks