
IFOAM
International Federation of Organic Agriculture Movements

IFOAM Side Event, UNFCCC Sessions
May 24th, 2006

- 18:00 – 18:05 Welcome by IFOAM Executive Director, Angela B. Caudle
- 18:05 – 18:30 Organic Agriculture and Climate Change, Louise Luttikholt
  - IFOAM
  - Organic agriculture
  - Climate change mitigation: Emission reduction
  - Climate change mitigation: Carbon sequestration
  - Climate change adaptation
- 18:30 – 19:00 Pilot Project in Tanzania, by Ferko Bodnar
  - Clean development mechanism and carbon credits
  - Current agricultural practices and potential improvements
  - Payment mechanism for carbon credits to farmers
  - Climate neutral organic peanuts?
- 19:00 – 19:15 Break
- 19:15 – 19:30 Next steps and conclusions
- 19:30 - 20:00 Plenary discussion

The Role of Organic Agriculture in Climate Change Mitigation and Adaptation

Lobbying, Pilot Projects and an IFOAM –UNFCCC Dialogue

IFOAM

IFOAM's mission is leading, uniting and assisting the organic movement in its full diversity.

Our goal is the worldwide adoption of ecologically, socially and economically sound systems that are based on the Principles of Organic Agriculture.

UNITING THE ORGANIC WORLD

IFOAM

- IFOAM was founded in 1972.
- IFOAM is the international umbrella organization of the organic sector worldwide, uniting over 700 member organizations in 108 countries.
- Members are organizations which include the full breadth of the movement.
- The General Assembly (made up of members) is the leading body of the federation. The General Assembly occurs once every three years.
- IFOAM has democratically decided upon Basic Standards which are, together with the Codex Alimentarius, THE international reference point for organic regulation.
- IFOAM has an independently operated Accreditation system including the major organic certifiers in the world.
- IFOAM works to promote organic agriculture in developing countries.

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Ethiopian Farmer holding bean

IFOAM EU Group meeting with the EU Commission, 2005

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Organic Agriculture

Organic agriculture is a holistic production management system, which enhances agro-ecosystem health, utilizing both traditional and scientific knowledge.

Organic agricultural systems rely on ecosystem management rather than external agricultural inputs.

Organic agriculture is based on principles that apply to agriculture in the broadest sense, including the way people tend soils, water, plants and animals in order to produce, prepare and distribute goods.

The principles of organic agriculture concern the way people interact with living landscapes, relate to one another and shape the legacy of future generations.

Organic agriculture adheres to certifiable standards.

Principles of Organic Agriculture

The Principle of Health - Organic Agriculture should sustain and enhance the health of soil, plant, animal, human and planet as one and indivisible.

The Principle of Ecology - Organic Agriculture should be based on living ecological systems and cycles, work with them, emulate them and help sustain them.

The Principle of Fairness - Organic Agriculture should build on relationships that ensure fairness with regard to the common environment and life opportunities.

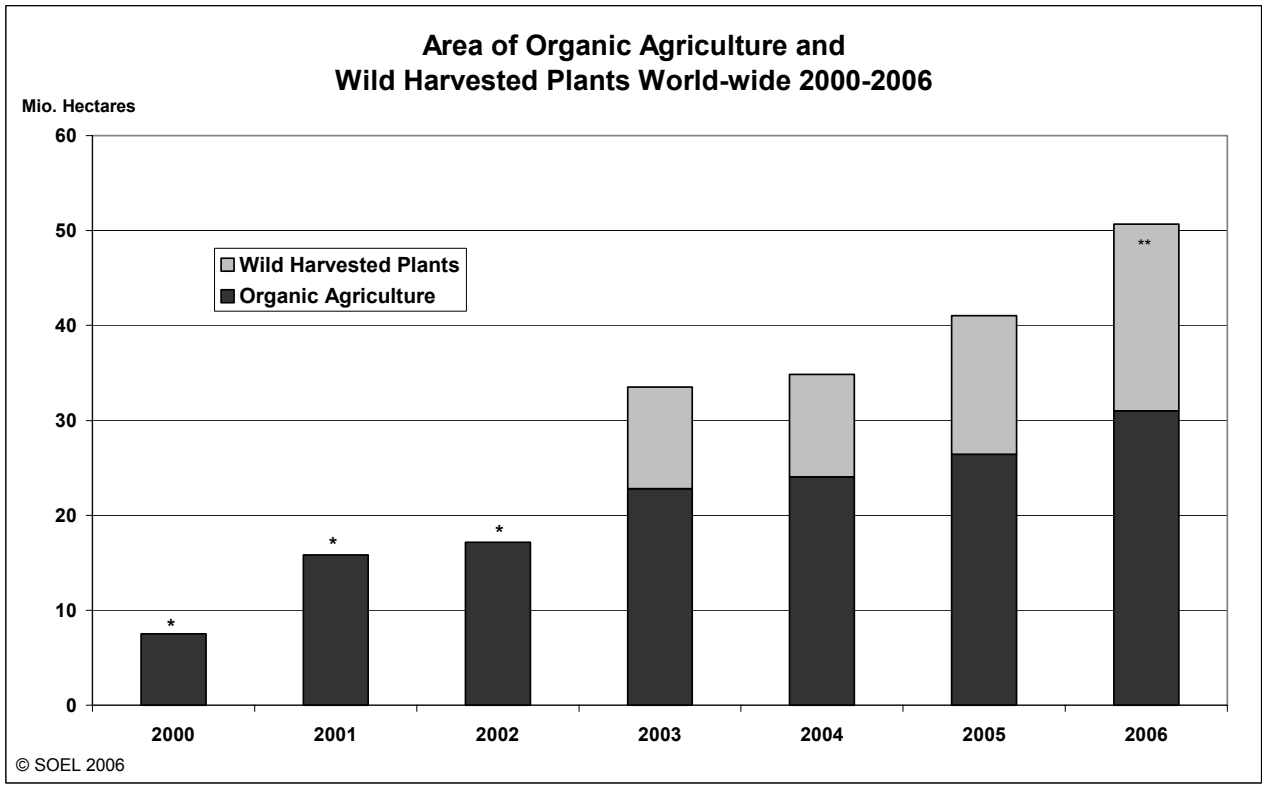
The Principle of Care - Organic Agriculture should be managed in a precautionary and responsible manner to protect the health and well being of current and future generations and the environment.

Organic Agriculture

Organic Agriculture

Organic Agriculture

31 million hectares organically managed in over 120 countries, rapidly increasing over recent years.

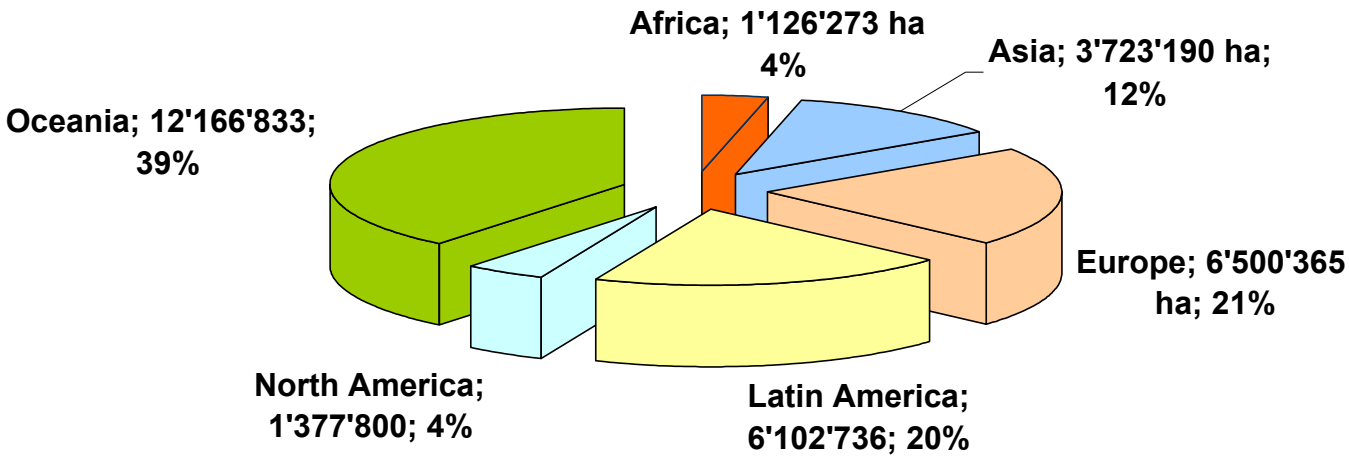


- The World of Organic Agriculture: Statistics & Emerging Trends 2006

Organic Agriculture

Area under organic management - share and hectares per continent

FiBL-Survey 2005/ 2006

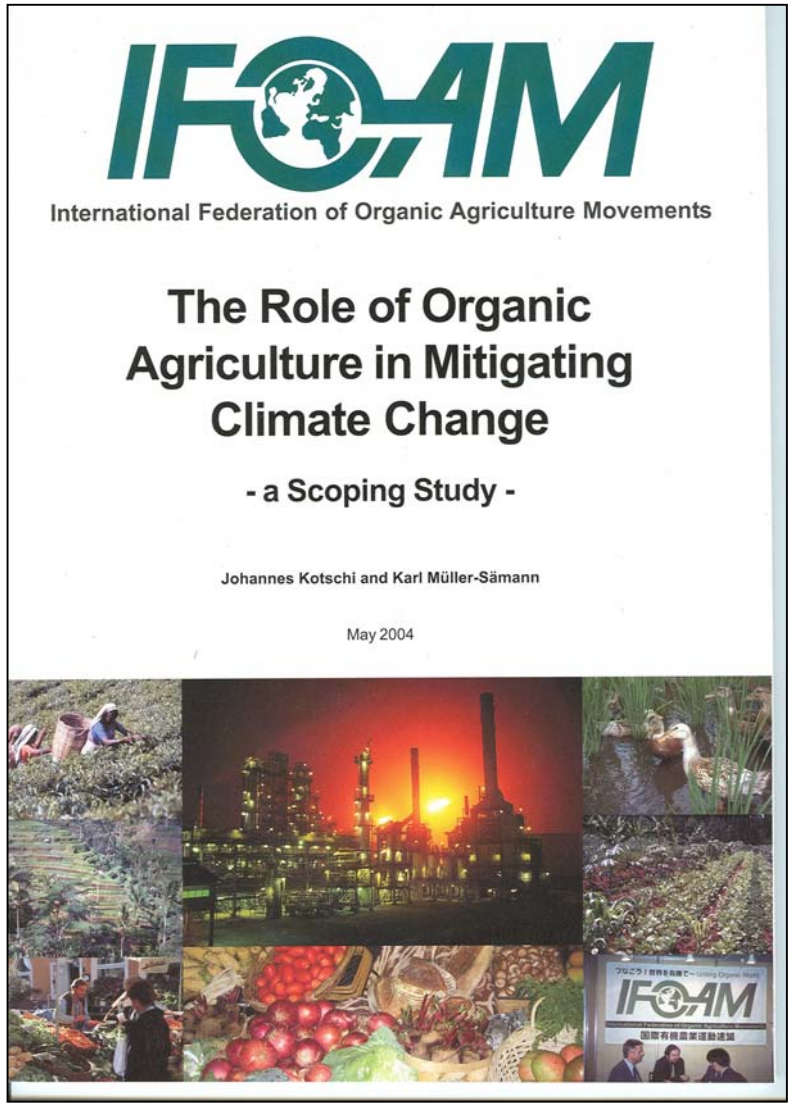


- The World of Organic Agriculture: Statistics & Emerging Trends 2006

Organic Agriculture and Climate Change

Mitigating climate change is not the primary goal of Organic Agriculture, however its systemic approach inherently means positive spin offs for carbon sequestration and adaptation strategies.

Organic Agriculture provides adaptive strategies for smallholders, who stand to suffer the most from climate change effects.



Organic Agriculture (OA) and Climate Change

- Promoting OA in the context of climate change does not attempt to divert attention away from the main causes of climate change, like the use of fossil fuels for transport…

- however, IFOAM does inadvertently address fossil fuel use within its Accreditation System (IFOAM Basic Standards) requiring adherence in agricultural operations around the world.

Reducing Emissions: Carbon

Organic Agriculture reduces Carbon Dioxide emissions by:

- Not permitting petroleum based fertilizers
- Limiting external animal feeds to a low level
- Avoiding shifting cultivation (slash & burn)
  - Organic agriculture offers permanent cropping with sustained productivity, maintaining carbon in its soils
- Avoiding land degradation and deforestation (more later on agroforestry)

Reducing Emissions: Carbon

Energy use in organic versus conventional agricultural systems

Country and system of production	Energy use ration of organic to conventional	% increase in energy required for 1% increase in yield in conventional systems
UK		
Winter Wheat	38%	+3.5%
Potato	49%	+4.9%
Carrot	28%	+1.6%
Calabrese	27%	+4.2%
USA		
Wheat	68%	+1.7%
Philipppines		
Rice	33%	+7.2%

Source: Pretty & Ball (2001), adapted from Pretty (1995); Cormack and Metcalfe (2000)

- The Role of Organic Agriculture in Mitigating Climate Change: A Scoping Study

Reducing Emissions: Methane

Organic Agriculture reduces Methane emissions by:

- Oxidizing methane in its highly biologically active soils
  - Soil the only significant terrestrial sink for methane
  - Methane oxidation is promoted by high biological activity in soils
  - High biological activity is an integral part of organic agriculture through its systemic approach to fertilization and general approach to agriculture

Reducing Emissions: Methane

Reducing Emissions: Nitrogen

Organic Agriculture reduces Nitrous Oxide emissions by:

- Not using synthetic nitrogen fertilizers
- Producing in tight nutrient cycles, hence avoiding losses
- Limiting animal stocking rates, linked to the available land and thus excessive production and application of animal manure is avoided
- Using lower protein and fiber diets in Dairy operations resulting in increased N efficiency (Berg 1997)

No Nitrate Fertilizers!

The manufacture of each kg of N as ammonium nitrate fertlizer:

- requires 40.61 MJ of fossil fuel energy (incl. Natural gas feedstock)
- releases 1.904 kg CO_2
- releases 0.01476 kg N_2O
- releases 0.0037 kg methane

- or a total of 6.7 kg CO_2 equivalent

  (using conversion factors 24.5 for methane & 320 for N_2O)

- Soil Association

No Nitrate Fertilizers!

- Organic agriculture avoids the use of petroleum based chemicals in its fertilizers…
- OA sequesters carbon by using a systemic approach to fertilization with green manures, rotations and nitrogen-fixation by plants.
- Provides more economically viable options to smallholders, relying on locally available resources rather than cost volatile petroleum based products.

Compost Fertilizer Production in Ethiopia

Reducing Emissions

Direct and indirect reduction of agricultural GHG emissions arising from the Principles of Organic Agriculture

	CO_2	CH_4	N_2O
1. Agricultural land use and management			
• Permanent soil cover	+++	—	+
• Reduced soil tillage	+	—	+
• Restriction of fallows in (semi)arid regions	+	—	—
• Diversification of crop rotations incl. fodder production	++	—	+
• Restoring the productivity of degraded soils	++	+	—
• Agroforestry	++	—	—
2. Use of manure and waste			
• Recycling of municipal waste and compost	++	—	+
• Biogas from slurry	—	++	—
3. Animal husbandry			
• Breeding and keeping for longevity	—	++	+
• Restriction of livestock density	—	+	+
• Reduction of fodder import	+	+	—
4 Management of fertilizers			
• Restriction of nutrient input (nutrient recycling)	++	—	++
• Leguminous plants	+	—	+
• Integration of plant and animal production	++	—	+
5. Change of consumer behaviour			
• Consumption of regional products	+++	—	—
• Shift towards vegetarian products	+	++	—

++ high, + low, — no potential

Source : Sauerbeck 2001; Cole et al. (1997) cited in FAO (2002)

Carbon Sequestration

- Worlwide the conversion of natural systems to agriculture has resulted in major losses of soil organic matter
  - Major release of carbon dioxide into the atmosphere: 55 Gt C (IPPC 1996)
  - Reduction of soil productivity, ie. Sequestration capacity

Carbon Sequestration

Organic Agriculture sequesters Carbon by:

- Following its principles of tight nutrient and energy cycles through organic matter management
- Permanent cropping
- Use of organic manures, plant residues, mixed cropping and legume-based crop rotations to improve soil productivity
- Conservation tillage (not to be confused with conservation agriculture which reduces tillage but employs petroleum based chemicals for fertilization and pest management)
- Agroforestry – incorporating trees into the cropping system

Carbon Sequestration: Agroforestry

Above ground carbon storage and annual growth rate for agroforestry practices in different eco-regions

Ecozone	Carbon storage t C / ha	Growth rate t C / ha+yr	Cutting cycle (years)
Semi-arid	9	2.6	5
Sub-humid	21	6.1	8
Humid	50	10	5
Temperate	63	3.9	30

Source: Schroeder (1994)

- The Role of Organic Agriculture in Mitigating Climate Change: A Scoping Study

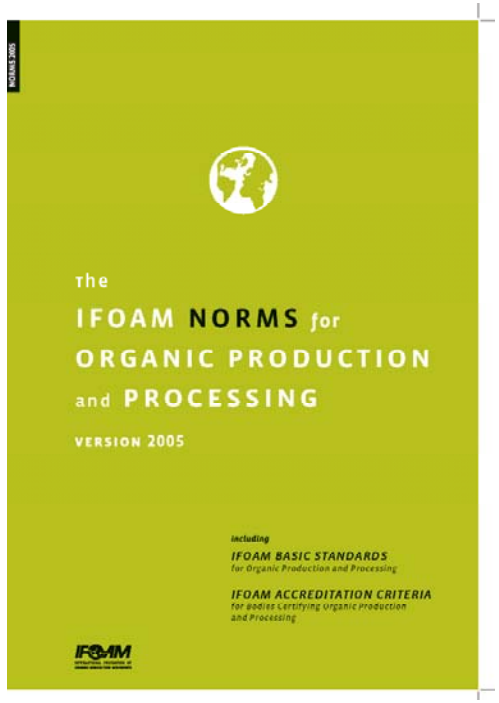
Carbon Sequestration: Agroforestry

Agroforestry in Ethiopia, photo credit: Tewolde

IFOAM Organic Guarantee System

- Significant infrastructure in place for the application, inspection and certification of standards

- Standards in place that reduce emissions and mitigate climate change



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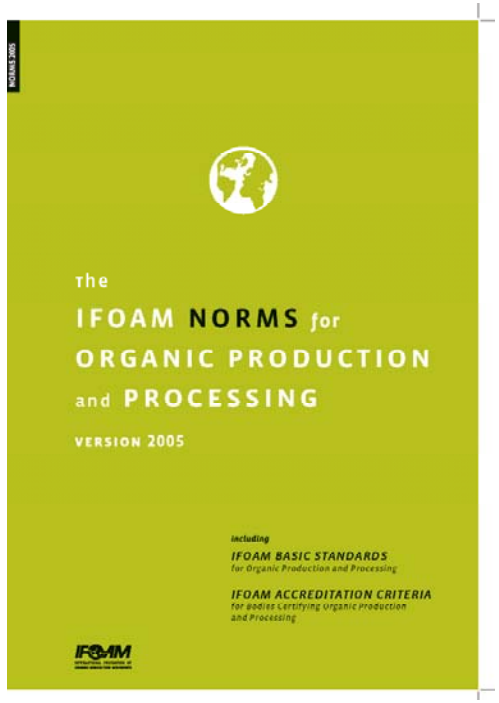
Organic Standards

4.4.5 Chilean nitrate and all synthetic nitrogenous fertilizers, including urea, are prohibited.

-IFOAM Norms

- Natural gas is the basic 'feedstock' chemical used in nitrogen fertilizer, emitting carbon in its production.



Organic Standards

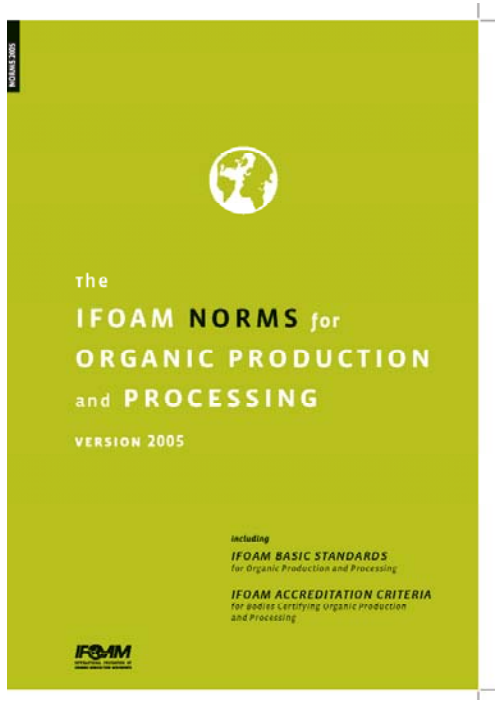
2.2 Soil and Water Conservation

2.2.1 All operators shall take defined and appropriate measures to prevent erosion.

2.2.2 Land preparation by burning vegetation shall be restricted to the minimum.

2.2.4 Grazing management shall not degrade land or pollute water resources.

-IFOAM Norms



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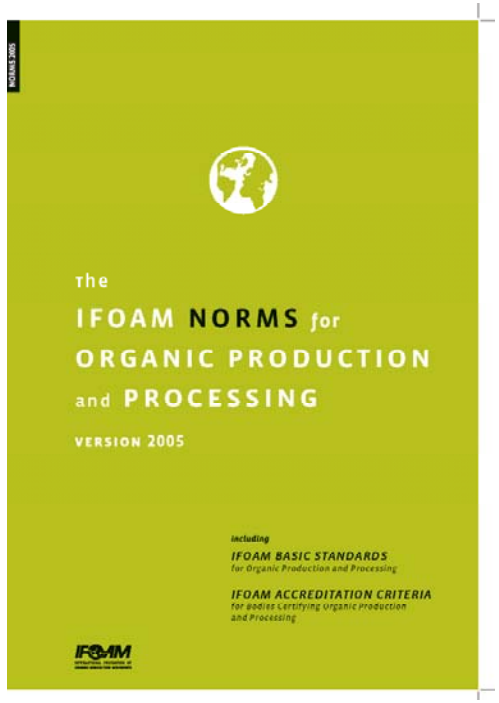
Organic Standards

5.6.2 The prevailing part (at least more than 50%) of the feed shall come from the farm unit itself or be produced in co-operation with other organic farms in the region.

-IFOAM Norms



- Organic agriculture excludes the possibility of highly intensive, industrial animal husbandry, one of the main sources of methane emissions.
- Uses local sources of animal feed reducing transport related carbon emissions.

Organic Agriculture as an Adaptation Strategy

- Climate change will affect the poor the most

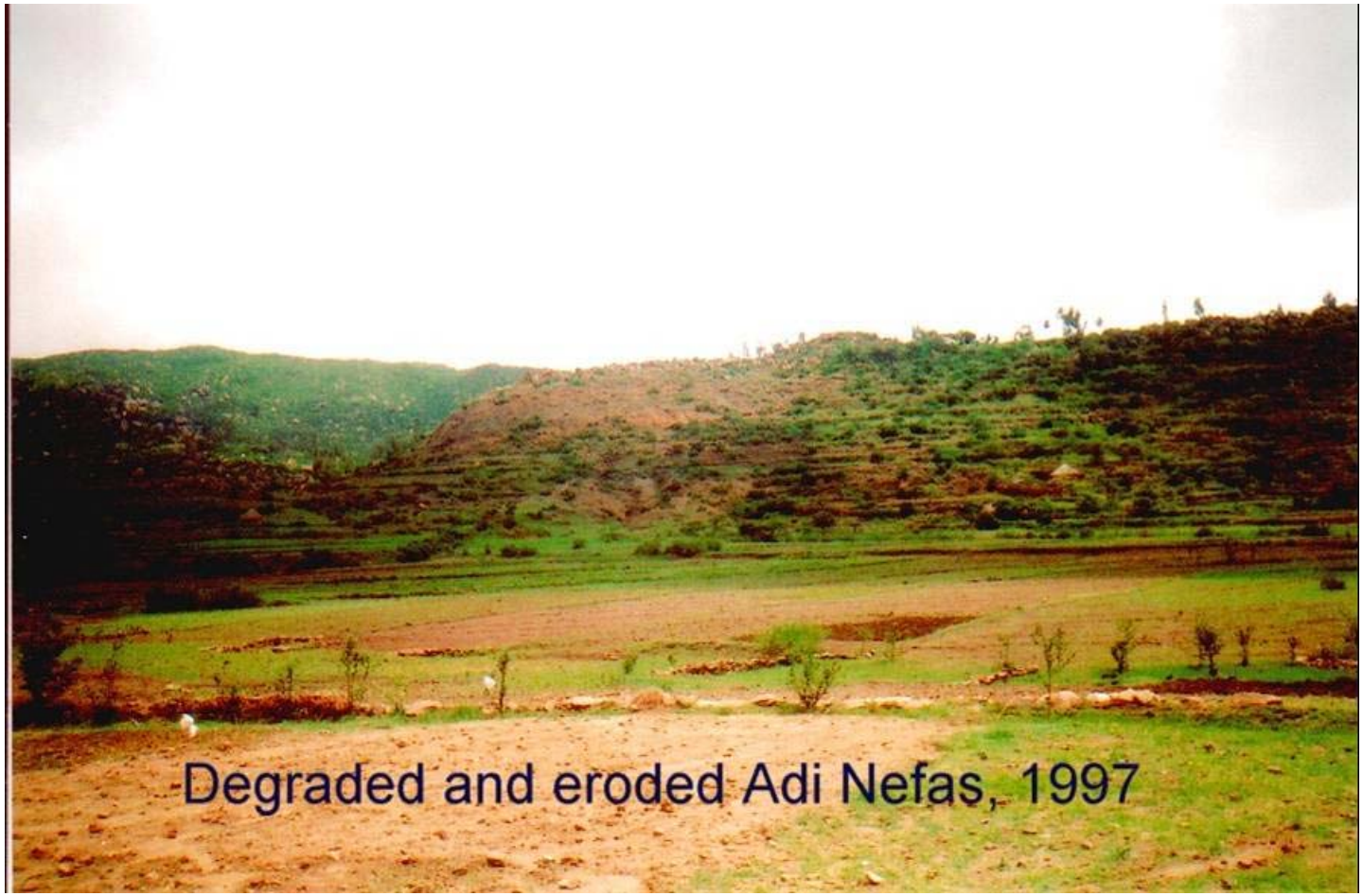
- Organic Agriculture presents an economically viable, sustainable development option – adaptable to changing conditions
  - Relies on locally available resources retaining independence
  - Uses local seed breeds – adapted to local conditions such as drought
  - OA is a stable system able to cope with extremes
  - OA aims at optimizing a continuous, sustainable harvest in respect of the soil's capacity (not maximizing yield which is inherently risky)
  - Combats desertification through land management, reduced deforestation, increasing soil integrity
  - Better retention of water

Organic Agriculture as an Adaptation Strategy

- Greening Ethiopia - trials in drought-prone degraded areas
  - Restriction of free-range grazing, encouraging grass and trees
  - Regeneration of woodlands with leguminous trees (up to 8000 in one community)
  - Trenches to maximimize infiltration of water into the soil, plants: if rain stops early, crops grown on composted soil resist wilting for about two weeks longer than those grown on soil treated with chemical fertilizer
  - Improved feed of animals and limited their range, able to collect their dung for compost & fertilizer
  - Increased productivity of land for the long term, increased smallholder income
  - Expamded to 69 pilot projects across Ehtiopia in 2004

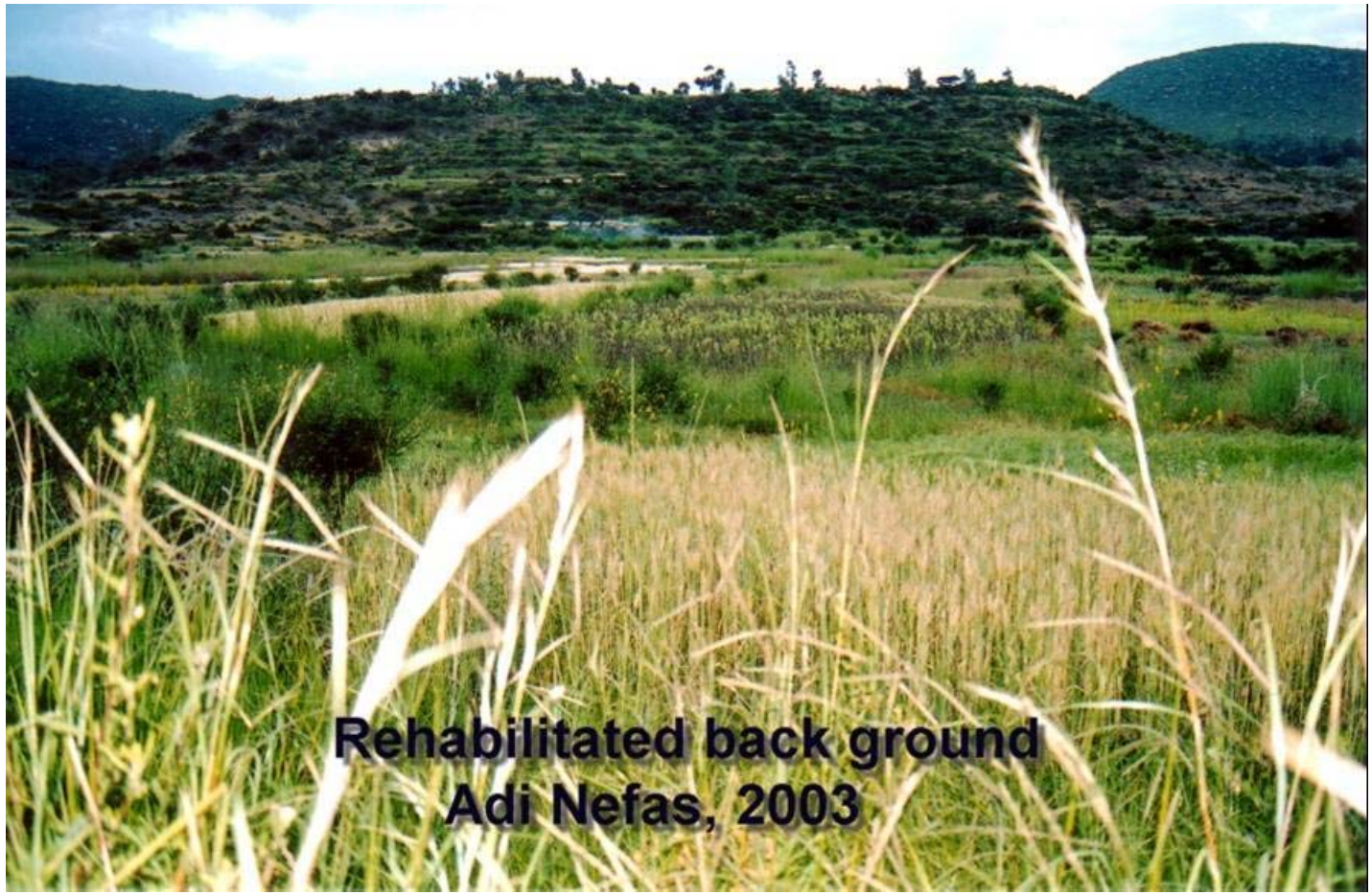
- Greening Ethiopia: Ecological Agriculture with smallholder farmers in Ehtiopia. Sue Edwards (2005)

Organic Agriculture as Sustainable Development



Eritrea, photo credit: Tewolde

Organic Agriculture as Sustainable Development



Eritrea, photo credit: Tewolde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Conclusion

- Present day agriculture is a major contributor of GHG emissions (15%)
- Agriculture CAN be an important contributor to mitigating climate change
- Organic Agriculture inherently reduces climate change impact based on its standards and principles
- Besides, organic agriculture can help farmers to adapt to climate change, in particular in (tropical) areas where more frequent droughts are expected.
- However, organic agriculture can not yet benefit from the attention and funds available for climate mitigation and adaptation activities.

Next steps, for Organic Agriculture playing a role in mitigation and adaptation

Roles for UNFCCC and governments

→ Allow agriculture as carbon sequestration activity *(as is already the case in industrialised countries)*

→ Consider avoided deforestation as climate change mitigation activity

→ Consider avoided land degradation as climate change mitigation activity

→ Make organic agriculture an explicit land use in national inventories. - *This needs a (scientific) inventory of country specific and system specific comparisons between conventional and organic agriculture.*

→ Lobby for funding to support pilot projects contributing to the scientific inventory

Roles for NGOs and projects (environment and agriculture)

→ Propose and lobby for climate change projects

→ Add a 'climate change monitoring' component to existing organic agriculture projects

→ Inform IFOAM as focal point about experienced climate effects

Roles for IFOAM

- → General political lobby for the role organic agriculture can play
- → Disseminate information about the climate effects of organic agriculture
- → Integrate climate change mitigation measures into Organic Agriculture Standards (IFOAM Organic Guarantee System) and certification:
  - → Develop procedures for promising climate projects
  - → Support certifiers who could implement such climate projects
  - → Develop and market a label for climate neutral agricultural products

Roles for funding organisations

→ Support pilot projects needed to gain experiences, evaluate climate effects, test payment mechanisms, develop inspection and certification system

→ Develop comprehensive ‘package for rural development, including climate change neutral development drawing on the benefits of Organic Agriculture’

Consumers

→ Ask for information about climate effects of different products

→ Choose ‘climate friendly’ products