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Organic Agriculture. Climate Change and Social Equity

Andre Leu, President

Doha, Qatar, December 06, 2012

IFOAM is the international umbrella organization for organic agriculture

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International Federation of Organic Agriculture Movements

Mission

Leading, uniting and assisting the organic movement in its full diversity.

Goal

The worldwide adoption of ecologically, socially and economically sound systems that are based on the principles of Organic Agriculture.

People

The global organic umbrella organization has 870 member organizations in over 120 countries worldwide.

1.6 million certified organic farmers and substantially more uncertified organic farmers

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The Definition of Organic Agriculture

‘Organic agriculture is 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 the use of inputs with adverse effects.’

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The Definition of Organic Agriculture

‘***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.’

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Small Holder Farmers are the Most Vulnerable

80% of the worlds hungry live in rural areas

50% of the worlds hungry are small farmers

They are the most vulnerable to the increasing weather extremes

– droughts, floods, destructive rains and winds

Source: ETC

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Small Scale Farmers Produce 70% of the Worlds Food

80% of the food in developing countries comes from small holder farmers (FAO 2011)

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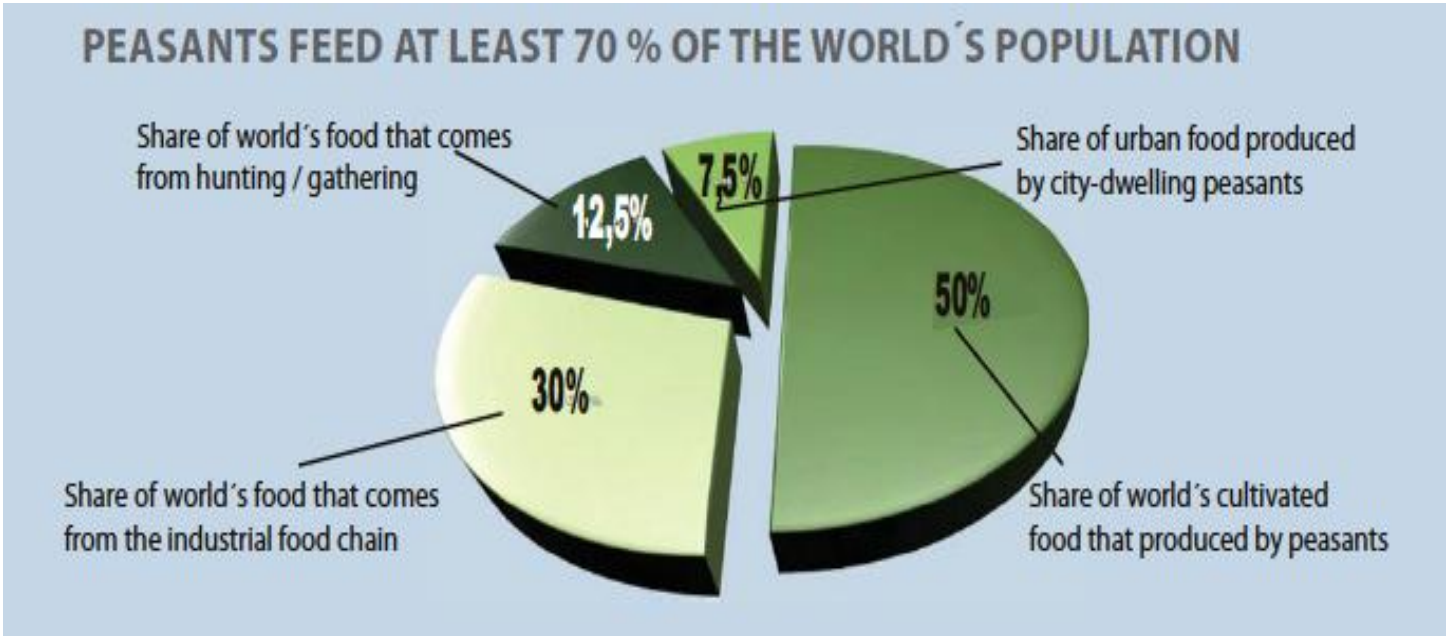
- The only practical way to achieve food security is to grow the food locally where it is needed by small holder farmers
- It is important to increase the resilience of small holders at local level to ensure adequate food security for the world



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Small Farmer Organic Agriculture and Food Security

- The majority of small holder farmers are traditional farmers – organic by default

- Teaching these farmers to add good organic practices to their traditional methods – organic by design:
  1. Better soil nutrition – recycling organic matter (carbon) and mineral balance
  2. Improved pest and disease control
  3. Water use efficiency – especially increasing SOM
  4. Better weed control methods
  5. Eco-function intensification: stacking systems
- Leads to significant increases in yields

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Organic High Yield

- A report by the United National Conference on Trade and Development (UNCTAD) and the United Nations Environment Programme (UNEP) stated on Organic Agriculture:

- *'…the average crop yield was … 116 per cent increase for all African projects and 128 per cent increase for the projects in East Africa.'*

- *Organic Agriculture and Food Security in Africa 2008*

Organic High Yield

- The report notes that despite the introduction of conventional agriculture in Africa food production per person is 10% lower now, than in the 1960s.
- *'The evidence presented in this study supports the argument that organic agriculture can be more conducive to food security in Africa than most conventional production systems, and that it is more likely to be sustainable in the long term.'*

Source: Supachai Panitchpakdi, Secretary general of UNCTAD and Achim Steiner, Executive Director of UNEP 2008

The African Union has included Ecological Organic Agriculture as a core part of its Agriculture and food security programs

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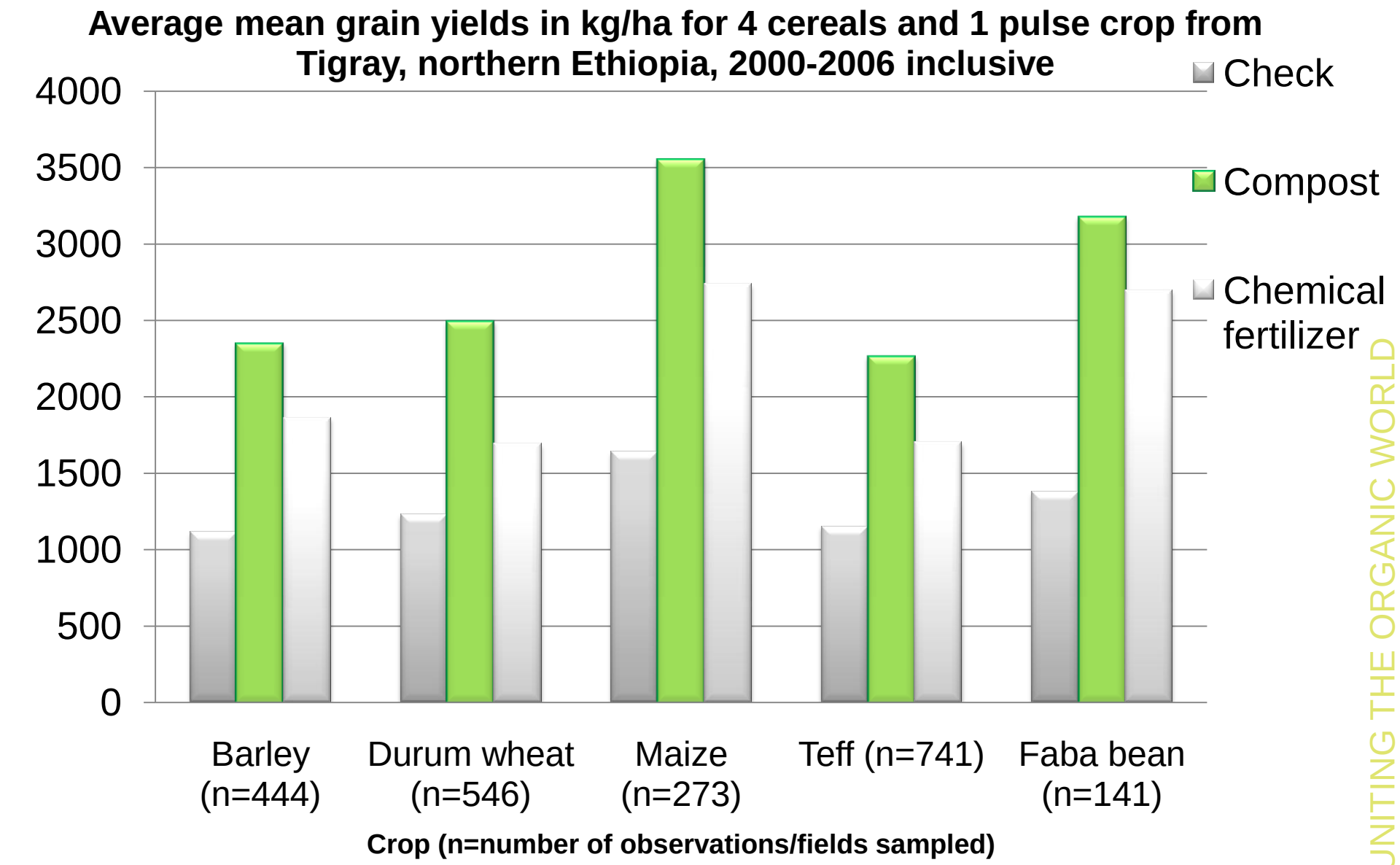
Impact of using compost - Grain yields from over 900 samples from farmers fields over 7 years



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Organic Matter - Benefits

- The term ‘Organic’ in Organic Agriculture comes form the recycling of organic matter as one of the primary management systems

- Increasing organic matter in farming systems brings multiple benefits

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Organic Higher Yields in Climate Extremes

- **Organic systems have higher yields** than conventional farming systems in weather extremes such as heavy rains and droughts. (Drinkwater, Wagoner and Sarrantonio 1998; Welsh, 1999; Lotter 2004)
- The Wisconsin Integrated Cropping Systems Trials found that organic yields were higher in drought years and the same as conventional in normal weather years. *(Posner et al. 2008)*
- The Rodale FST showed that the organic systems produced 30 per cent more corn than the conventional system in drought years. *(Pimentel D 2005, La Salle and Hepperly 2008)*

Organic Matter Increases Infiltration

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Organic

Conventional

Picture: FiBL DOK Trials

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Soil Organic Carbon Mitigates and Adapts

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- Higher corn and soybean yields in drought years
- Increased soil C and N

- Higher water infiltration
- Higher water holding cap
- Higher microbial activity
- Increased stability

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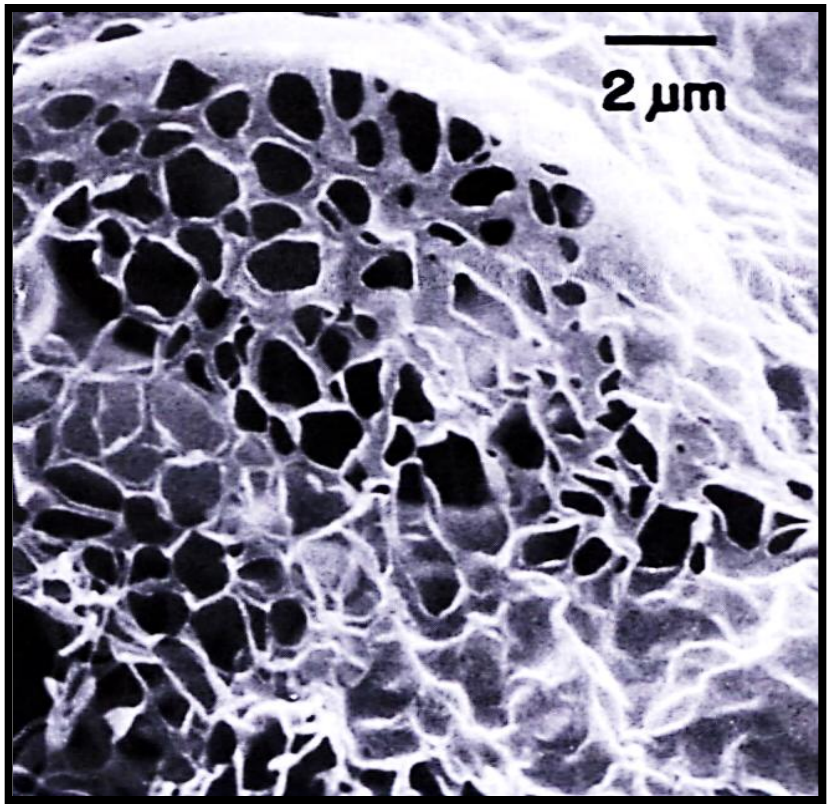
Soil Organic Matter
Living Carbon

- Holds up to 30X its weight in water
- Cements soil particles and reduces soil erosion
- Increases nutrient storage & availability
- Humus can last 2000 years in the soil

Electron micrograph of soil humus



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The RODALE INSTITUTE

Soil Organic Matter/Soil Carbon

Research Shows that Organic Systems use Water More Efficiently

- Volume of Water Retained /ha (to 30 cm) in relation to soil organic matter (OM).
- 0.5% OM = 80,000 litres (common conventional level)
- 1 % OM = 160,000 litres (common conventional level)
- 2 % OM = 320,000 litres
- 3 % OM = 480,000 litres
- 4 % OM = 640,000 litres
- 5 % OM = 800,000 litres

Organic Corn - 1995 Drought

High Yield Organic Agriculture

The average corn yields during the drought years were from 28% to 34% higher in the two organic systems.

The yields were 6,938 and 7,235 kg per ha in the organic animal and the organic legume systems, respectively, compared with 5,333 kg per ha in the conventional system (Pimentel, 2005)

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Innovative SEKEM:
- Aiming for the impossible…

Opening ceremony of the Sinai Project 2008

The land before…

…and changing our world.

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Apply COMPOST

… and after 18 months.

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SEKEM: Land Reclamation in the Desert
Minya, Upper Egypt, September 2010

Carbon Sequestration Potential

•Sekem has sequestered 3,303 kgs of CO2 per hectare per year for 30 years.
(Luske and van der Kamp, 2009; Koopmans et al, 2011)

•Based on these figures, the adoption of Sekem's practices globally has the potential
to sequester 16 Gt of CO2

• Equivalent to 30% of the world's current greenhouse gas emissions.

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The Multiple Benefits of Organic Agriculture

Conclusion

Organic Agriculture offers multiple benefits:

- Increasing SOM improves yield, water holding, adaptation resilience, soil fertility, stability and mitigation
- Appropriate for all farmers especially small holders
- Food Security, Adaptation and Mitigation

Thank You