



Science Day, biofach 2014

How will organic farming look like in 20 years and to which challenges will it have to respond to?

A stimulus for the TIPI workshop on February 14, 2014, BIOFACH, Nuremberg, Germany

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Development of Organic Agriculture

Organic Farming 1.0

Organic Farming 2.0

Organic Farming 3.0

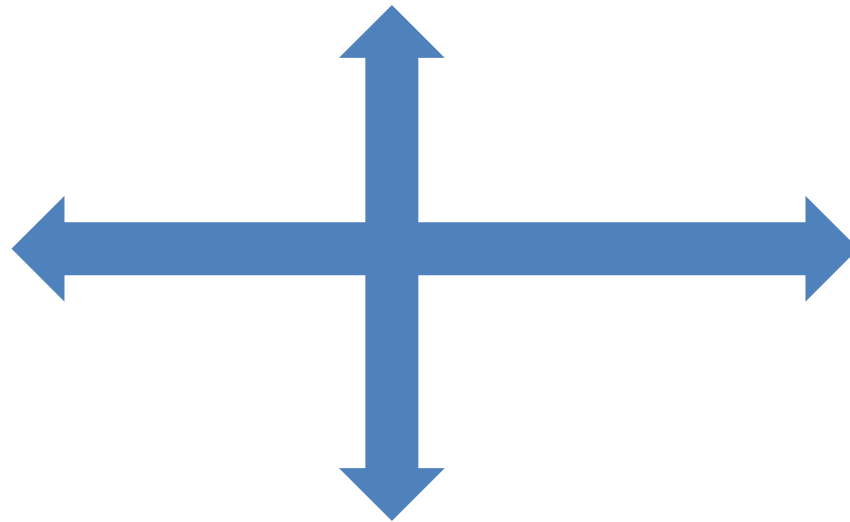


?

Hypothesis 1

Organic Agriculture 3.0 will neither be a continuation nor a perfectionism of 1.0 and 2.0. It will be something really new.

Organic farming – one solution for all problems?



Hypothesis 2

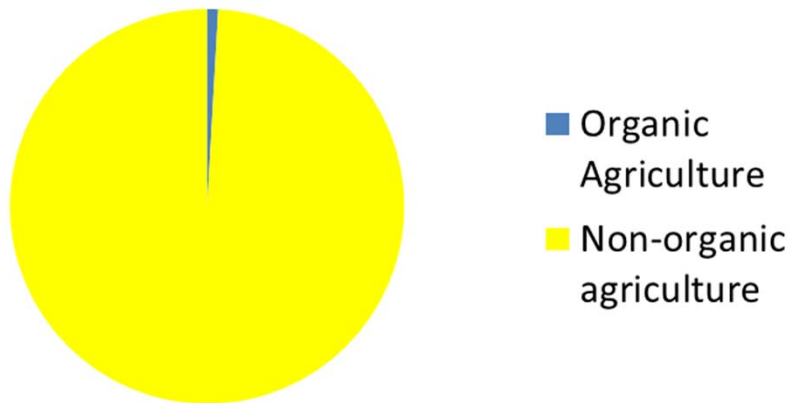
Organic farming cannot be both a strategy to feed the world (or to mitigate climate change) and to satisfy elitist gourmet markets.

Solutions:

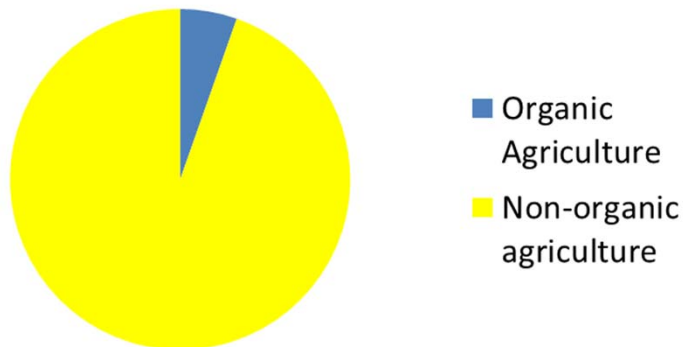
- **Two organic standards are needed if we want to stick with the claims.**
- **One standard for a niche market which is not relevant for solving global challenges but is not contradicting or worsening them.**
- **Or we become more modest: Organic is and will remain a niche concept. At least: buying organic and subsidizing organic doesn't contradict solving the global challenges.**

Mainstreaming not achieved so far

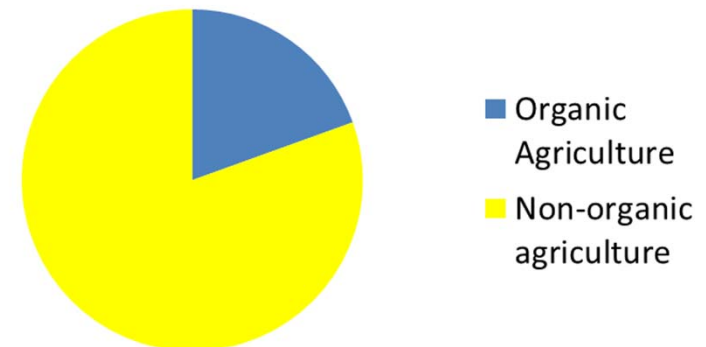
World



EU

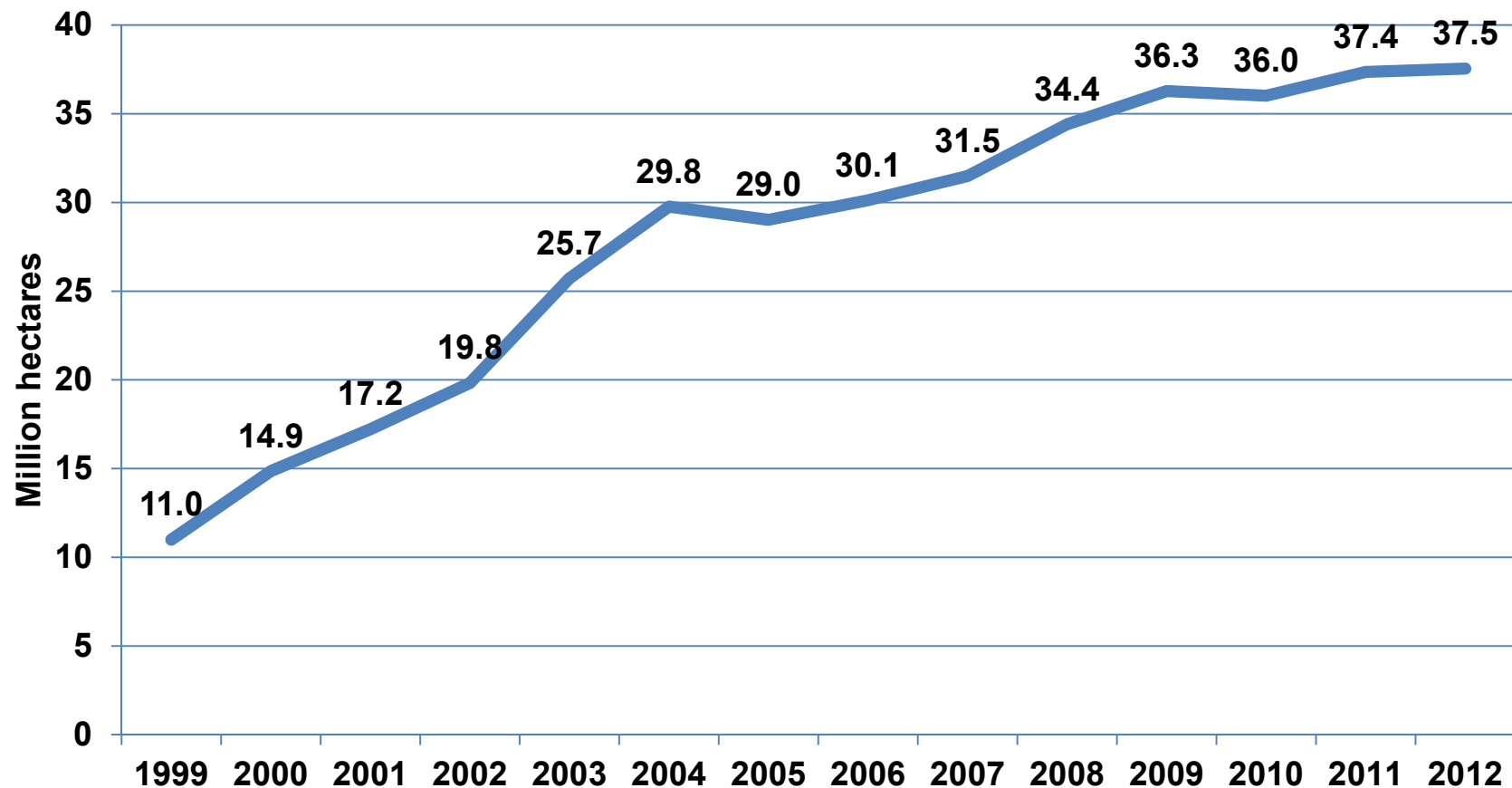


Austria



Global growth of the organic agricultural land 1999-2012

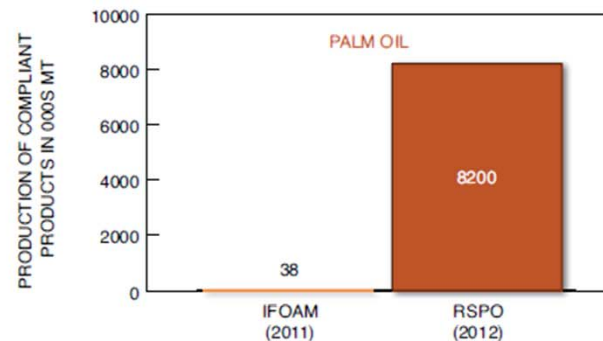
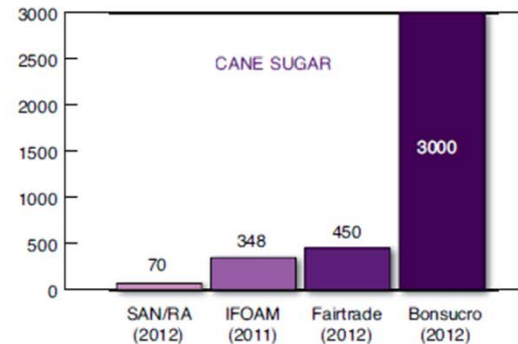
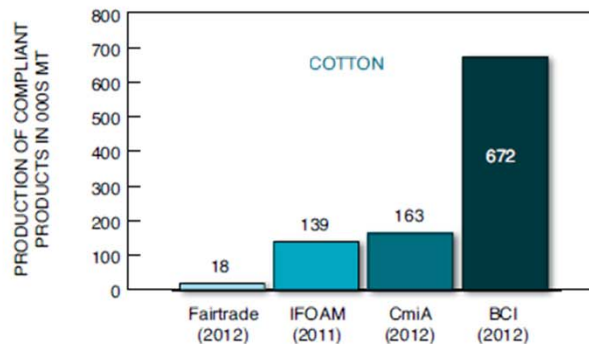
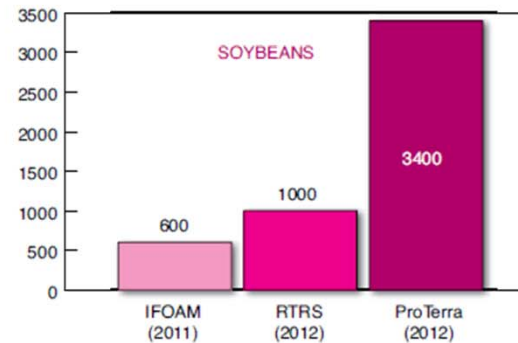
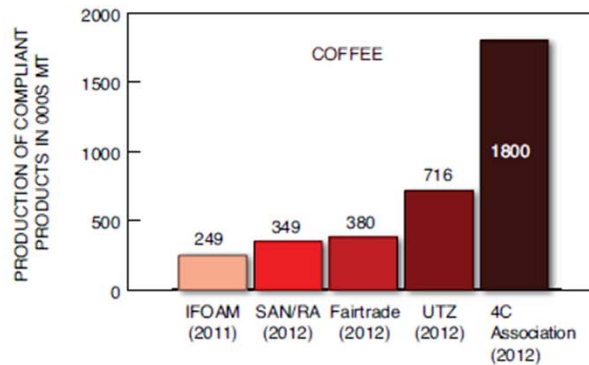
Source: FiBL-IFOAM-SOEL-Surveys 1999-2014



Voluntary sustainability standards getting important



Production size of different voluntary SS



Hypothesis 3

Organic farming is stagnating or growing only slowly. Other voluntary SS have overtaken organic farming. Mainstreaming is not realistic, even in most advanced countries (Austria, Switzerland, Denmark) growth is coming to a stop.

Organic farming is not regionally adapted

- › Organic agriculture works properly only in temperate zones and best in West and North Europe where pedo-climatic, landscape, structure of farming
- › Organic matter deficits especially in the South.
- › Phosphorous availability insufficient in many soils.
- › Costs of certification too high.
- › Transportation and logistic is difficult in many parts of the world.
- › Subsidies only in Europe.

Hypothesis 4

- › **The standards of organic farming have to become adapted world-wide by respecting the individual pedo-climatic, socio-cultural and economic situation. First step have been done by for the latter by PGS.**

Sustainability becoming to global paradigm for production and consumption.

- › Resource scarcity is the dominant challenge of at least the next 200 years.
- › Ecosystem services will continue to be threatend.
- › Huge natural ecosystems like rainforest, coatslines, permafrost systems will add to the unstability of the planet.
- › Agricultural subsidies will become restricted to those farmers who mitigate these problems.

Hypothesis 5

- › Organic standards have to become assessed towards a catalogue of sustainability indicators (see SOAAN).
- › An intensive discussion about how organic standards can become amended will be important. There are e.g. many contradictions between «quality and naturalness» claims and sustainability performance. In some cases, novel technical solutions can be more sustainable than what organic standards allow.



Organic farming doesn't have a clear strategy for innovation

- The approach taken by the organic movement towards innovation is controversial:
 - For some innovations like bio-control, ICT, precision farming, robots or food processing technology, food storage and packaging, food logistic, glasshouse production, a quite technology-affine approach is taken.
 - Whilst in many cases, technology is seen as a diametric opposite to traditional farmer knowledge.
- There is an increasing gap between small-holder organic farmers (relying a lot on indigenous knowledge – at least verbally) and professional organic producers thrashing out all technologies which are excepted under the standards.

Hypothesis 6

- › Organic farming need to develop a clear strategy for innovation.
- › Such a strategy could be:

Traditional farmer knowledge → farmer driven innovation → eco-functional innovation → social innovation ('cooperation') → scientific, technical and technological innovation.

- › We need more innovation, otherwise organic farming will become irrelevant.
- › Organic farming should better adopt the full pathway to innovation. Being a critical 'guidepost' for technology development - trusted by citizen, consumers and policy makers.

Hypothesis 7

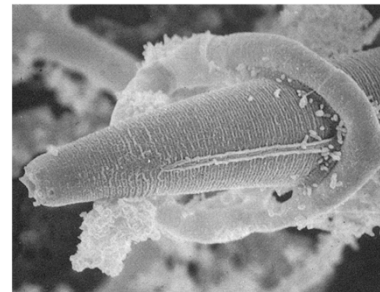
- › Organic research should be the spearhead of innovative solutions also beyond organic farming systems. It should be the one delivering amazing solutions to farmers and the society.



Breeding maize with hairy stems againsts *Ostrinia nubilalis* (corn borer)



Producing protein and fat from food waste with larvae of the Black Soldier Fly (*Hermetia illuscens*)



Novel bio control agents in plant and livestock health management (expl. *Duddingtonia flagrans*)



Making functional biodiversity work (e.g. companion plants in crops)



Breeding for the 100 % roughage-fed dairy cow



Developing more resilient and self-supporting (self-sufficient) cropping systems and rotations.

Conclusion

- › Will the hypotheses lead to a new global vision for organic farming research?
- › Please discuss them in the workshop!
- › Thanks a lot.