

How consumers can actively promote biodiversity
 A pioneer project in cooperation with farmers, retailers and consumers

A Greener Agriculture for a Bluer Baltic Sea
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(1) Focus: Eutrophication

Areas of the Baltic Sea that have oxygen-free seabeds (< 2 ml O/l)

(Gustavsson et al. 2012)

Baltic Sea Oxygen (ml O/l)
 0 1 2 3 4 5 6 7 8 9 10 11

(2) Focus: Pesticides

An increasing problem in future for streams in Europe
 Helmholtz Centre for Environmental Research (UFZ) Leipzig (2011)

Assumption: The climate changes will result in an increase in the rate of development of insects and their rate of survival in winter. Therefore, the warmer it gets in a region, the more insecticides will be used along with a general intensification in agricultural land use (Scenario for 2090 expects the use of insecticides will more than double in Europe compared to 1990).

(3) Focus: Biodiversity

EU agricultural reform fails on biodiversity
 Source: Pe'er et al., Science, Vol 344, 6 June 2014

Extra steps are needed to protect farmed and grassland ecosystems

Many EU politicians are announcing the new CAP as 'greener', but the new environmental prescriptions are so diluted that they are unlikely to benefit biodiversity.

Farmland bird index
 0.5 0.7 0.9 1.1 1.3
 1990 1995 2000 2005 2010
 Data: FCBMS

Risks through the biodiversity losses
 (www.glocalist.com /news)
 PwC-Studie 13th Annual Global CEO Survey 2010

The loss of biodiversity cause annual costs between 2 and 4.5 billion US Dollar (number from 2008). A lot of enterprises have to calculate with negative effects on their business success.

Economic consequences of ecological damages:

The extinction of a huge amount of swarms of bees in North America costed about 15 billion US-Dollar for the producers in 2007.

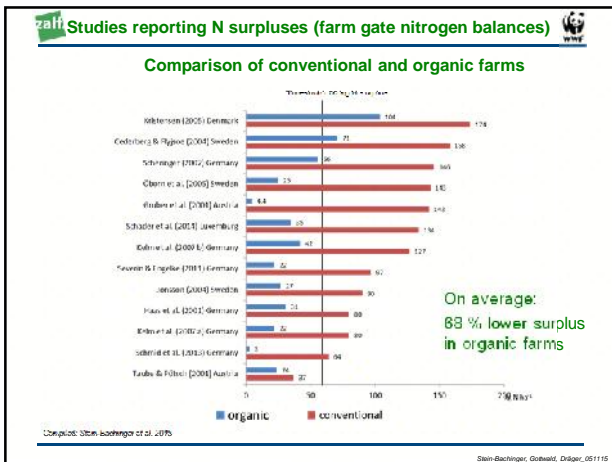
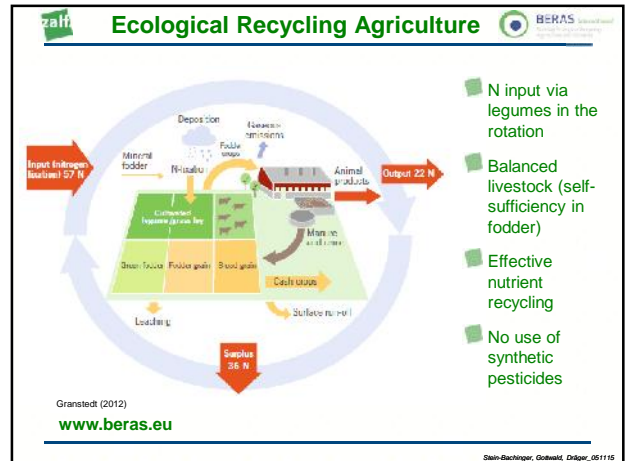
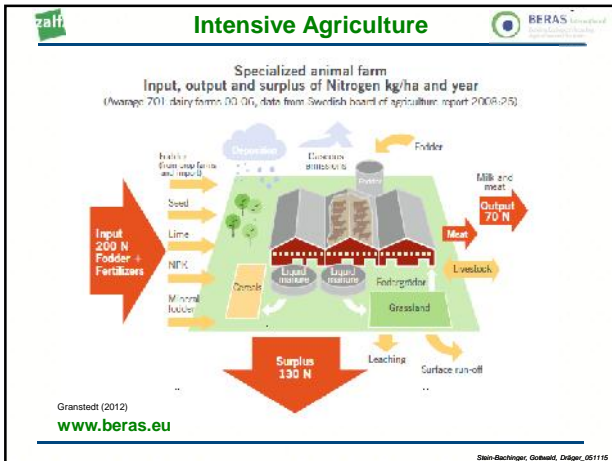
The consequences of soil erosion per annum add up to 53 Euro/ha in Europe.

Reasons for:

Pollution problems and loss of biodiversity (some examples)

(1) Farming practice

- High nutrient (N and P) surplus on farm level
- Concentration of specialized farms with high livestock units
- High input of agrochemicals
- Lack of sustainable crop rotations
- Concentration of crop on large fields
-



Effects of organic agriculture on species abundance and diversity in comparison to conventional farming

Evaluation of 76 studies (Hole et al. 2005; englische Literatur: ISI Web of Science 1981-2004)

	positive	negative	no difference/mixed
Farmland birds	7		2
Mammals	2		
Butterflies	1		1
Spiders	7		3
Earthworms	7	2	4
Beetles	13	5	3
Other arthropods	7	1	2
Segetal flora	13		2
Soil microorganisms	9		8
Total	66	8	25

(total amount higher because of consideration of several indicators in some studies)

- ### Nutrient recycling and biodiversity
- a key concept of Organic Agriculture -
- Nutrient recycling enhances soil fertility and reduces nutrient losses
 - Enhanced biodiversity and habitat conservation support biological pest control and pollination
 - Clear positive effects on environmental impacts of organic farming documented in many publications (e.g. Tuck et al. 2014, Rahmann 2011, Hole et al. 2005)
 - But: Increasing intensification due to increasing economic pressure (e.g. insufficient / uncertain financial support and consultation, land grabbing, prices don't include polluter principle)
 - What is needed? Some examples:
 - Better documentation and dissemination of the environmental and nature conservation services of organic and other sustainable farming systems
 - Better information and engagement of all actors along the food chain
 - Better advice and implementation of effective (additional) measures for promoting environmental and biodiversity services (e.g. Stein-Bachinger et al. 2010, 2013, Gotwald & Stein-Bachinger 2015, Herzog et al. 2012)



Project partner

Initiated by

- Organic association Biopark e.V.
- WWF Germany *Tanja Dräger de Teran*

Key enabler and supporter

- Ministry of Agriculture, Environment and Consumer Protection of Mecklenburg Western Pomerania
- EDEKA (food retailer)

Scientific supervision and implementation

- Leibniz-Centre for Agricultural Landscape Research (ZALF) e.V., *Dipl. Biol. Frank Gottwald, Dr. agr. Karin Stein-Bachinger*
- DUENE e.V., *Univ. Greifswald Dr. agr. Michael Rühls*
- Fruchtwechsel e.V. *Arne Bilau, Weert Sweers*

Pilotregion: Mecklenburg-Vorpommern
Duration: 11/2011 – 10/2017

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Goals

- Develop and implement a nature conservation standard to assess and enhance biodiversity on farm level
- Give farmers flexibility to choose between various measures and achievements
- Improve the efficiency of nature conservation through professional consulting and monitoring of species and measures
- Offer high transparency for consumers (special labelling)
- Remunerate farmers for nature conservation services via marketing (active part of retailer)
- Increase demand for organic products / Expand organic farming by increasing sale of organic products

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Scientific background

2001 – 2006:
Testing and development project
Nature conservation farm Brodowin
German Federal Agency for Nature Conservation (BIN)
Stein-Bachinger, Fuchs, Gottwald et al. 2010
Stein-Bachinger & Fuchs (2012): Org. Agr. 2, 145-162

2007 – 2008:
Manual for arable organic farming in north-east Germany
German Federal Agency for Nature Conservation (BIN)
Fuchs & Stein-Bachinger 2008 (dt) / 2010 (engl)

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Catalogue of measures and achievements

43 main modules (ca. 70 submodules) in

➤ **Evaluation of conservation achievements on the whole farm**
= existing + additional conservation achievements based on a points system
=> conversion on total farm area (points/100ha)

Minimum of 120 points necessary

Weighting based on:

- results of long-term scientific investigations
- own data sets
- expert knowledge

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Target species

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Investigation and implementation area

55 organic farms in 3 federal states (ca. 35 000 ha)

Farm sizes

- < 100 ha - > 1000 ha
- mean LU/ha: 0.6

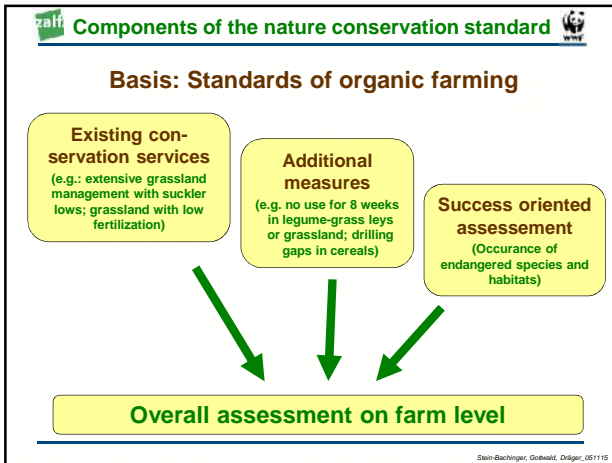
Farm structures

- Suckler cow farms
- Mixed farms
- Dairy farms

Share of organically managed land

Brandenburg:	10.9%
Mecklenburg W.-P.:	9.2%
Schleswig-Holstein:	3.5%

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Service catalogue – Arable land

No harrowing on special areas

Drilling gaps in cereals

Further measures:
Delayed stubble breaking, diverse crop rotation, blossom strips.....

Target species: Segetal flora, farmland bird, brown hare

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Service catalogue – Grassland

Reduced fertilization

Temporal set-aside of small areas

Further measures:
No rolling/dragging, late cut, hay making.....

Target species: Grassland flora, farmland birds, insects

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Service catalogue – Landscape elements

Asses and optimize existing structures: z.B. hedges, ponds

Establishment of new structures, e.g. buffer strips around water bodies, field margins

Further measures:
Cutting back of trees, artificial nests, clearance cairn.....

Target species: Birds, insects, amphibians, small mammals

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Advisory service and implementation


- **Nature conservation consultant identifies**
 - important areas for nature conservation
 - potential conflicts
- **Farmer and consultant develop**
 - strategies, where and how measures would best fit into the farming procedure
- **Farmer implements measures**
 - with the help of maps, information materials (manual)
- **Continuous contact between farmer and consultant shall foster mutual understanding**
- **Knowledge exchange among farmers and farm visits for consumers help to appreciate outstanding performances**

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Monitoring and evaluation

Scientific research on the effectiveness of selected measures for special species

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zalf **Marketing** 

- ❖ EDEKA guarantees to take delivery of the agricultural products from the farmers and rewards their achievements through higher producer prices
- ❖ First products available since Mai 2015 in shops of EDEKA Nord (meat, potatoes etc.)
- ❖ High transparency for consumers on the website: www.landwirtschaft-artenvielfalt.de



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BERAS **Strategy for the Baltic Sea region**

Core network from 12 countries in Europe with 48 farms including 20 learning centres (SFS – Sustainable Food Societies)



www.beras.eu

BERAS **Guidelines for effective nutrient management through Ecological Recycling Agriculture**

for farmers and advisors

- in English, Swedish, German, Russian, Estonian, Danish, Lithuanian



Stein-Bachinger, Reckling & Granstedt (2013)

www.beras.eu

BERAS **Diet for a Clean Baltic / Planet**

The consumer engagement concept

- Tasty, attractive and healthy
- Organically, seasonally, locally produced
- More vegetables and less meat (80 : 20)
 - Preferably products from ruminants
- Reducing left-over food



Ecological Recycling Agriculture and Sustainable Food Societies can influence all actors in the food chain – from field to fork

- ❖ Cooperation with restaurants, public kitchens, schools, hospitals etc.
- Cookbook Diet for a Clean Baltic in Practice
- ❖ in English, Swedish, Catalan, Polish, Lithuanian, Russian

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zalf **Strategies for a Greener Agriculture for a Bluer Baltic Sea** 

- 1) Develop and support long-term examples of environment- and biodiversity-friendly farms (e.g. based on the BERAS network of Sustainable Food Societies; pilot organic farms of the WWF/EDEKA project; Baltic Sea Farmers of the Year Award;
- 2) Establish monitoring and evaluation programmes on selected farms to assess and improve the effectiveness of nature conservation measures
- 3) Provide consumers, retailers and politicians with good practical examples
- 4) Remunerate farmers for provable environmentally and nature conservation performances (e.g. through marketing)
- 5) Linking-up of practice, research and entrepreneurship to implement ecological alternatives along the whole food chain from farmer to consumer
- 6) Qualify and expand consultancy services
- 7) Strengthen marketing and communication to reach more farmers and consumers

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zalf www.landwirtschaft-artenvielfalt.de 

Thank you very much!

Thanks to all involved farmers and supporters

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majority of fotos by Frank Gotwald



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