

Sustainable Agriculture

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The Answer to Ecological Problems

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for Nature Conservation
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Yerevan, 11 October 2007

Global Responsibility

Rio, 1992:
Convention on Biodiversity

Conservation
of biological
diversity

Sustainable
use of its
components

Fair and
equitable
sharing of
the benefits

Equal aims

Land Use

Global Perspective



**Protected Areas ¹⁾
(IUCN Cat I + II)**

4% of terrestrial area



Agricultural Land ²⁾

37 % of terrestrial area



Forests ³⁾

30 % of terrestrial area



**Inland Waters
High Mountains
Deserts
Urban and Built-Up Land
Others**

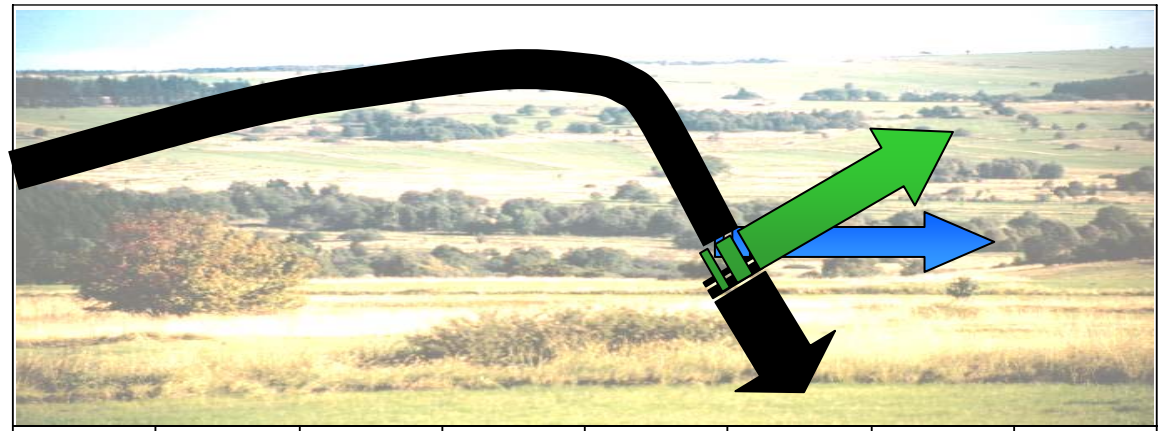
29 % of terrestrial area

Sources: ¹⁾Chape et al. (2005)/ ²⁾FAO (2001)/ ³⁾FAO (2003)

Agriculture and Biodiversity

Flora and Fauna

Development of the number of species;
focus on
Europe



14th Cent. 16th Cent. 18th Cent. 19th Cent. 20th Cent. 21st Century

CBD – 2010 target:



„significant reduction of the current rate of biodiversity loss“

EU – 2010 target:



Europe

„stopp the loss of biodiversity“

Principle of „Health“

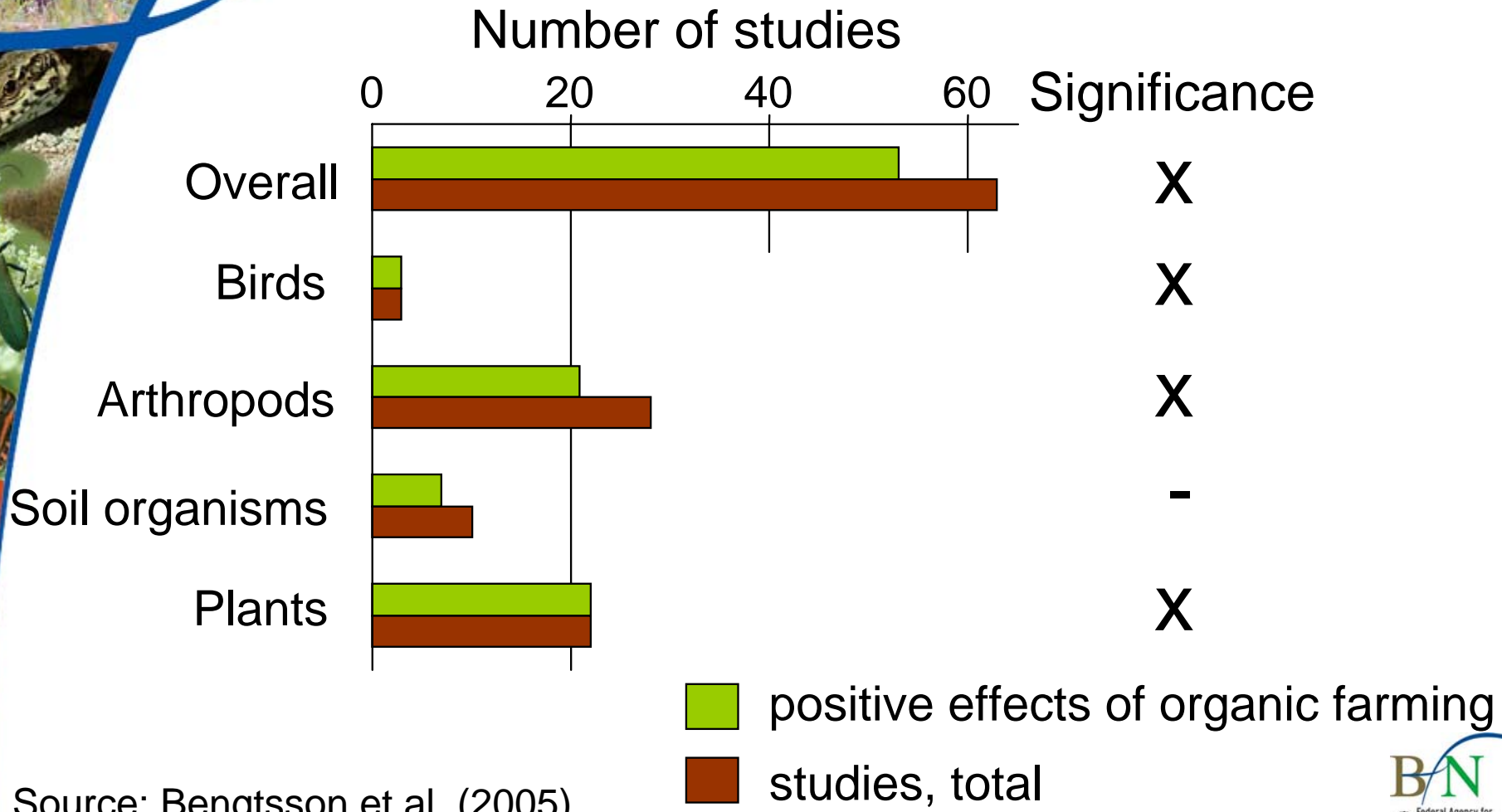
Organic Agriculture should sustain and enhance the health of soil, plant, animal, human and planet as one and indivisible.





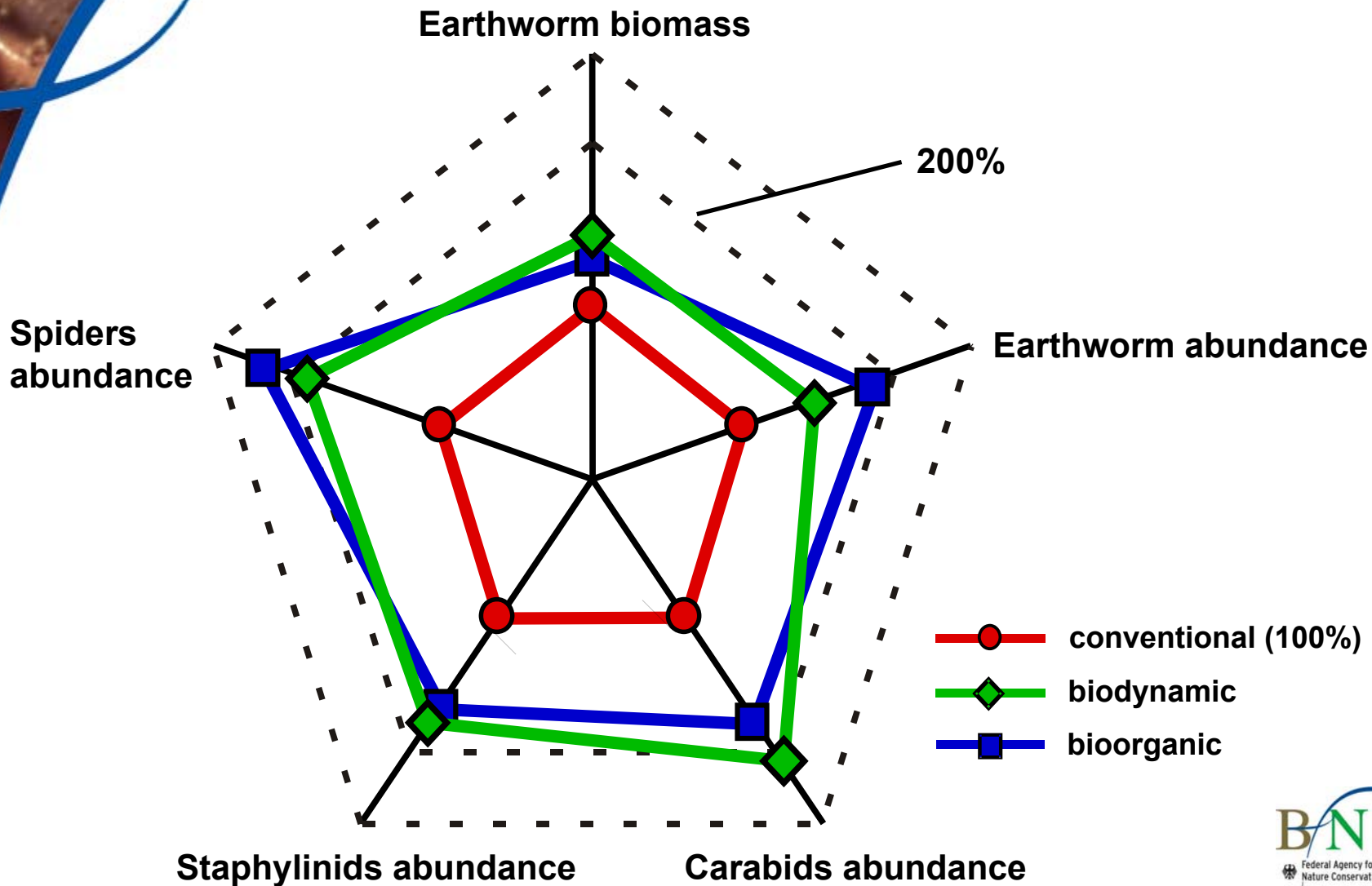
Biodiversity

Comparing Conventional and Organic Farming



Source: Bengtsson et al. (2005)

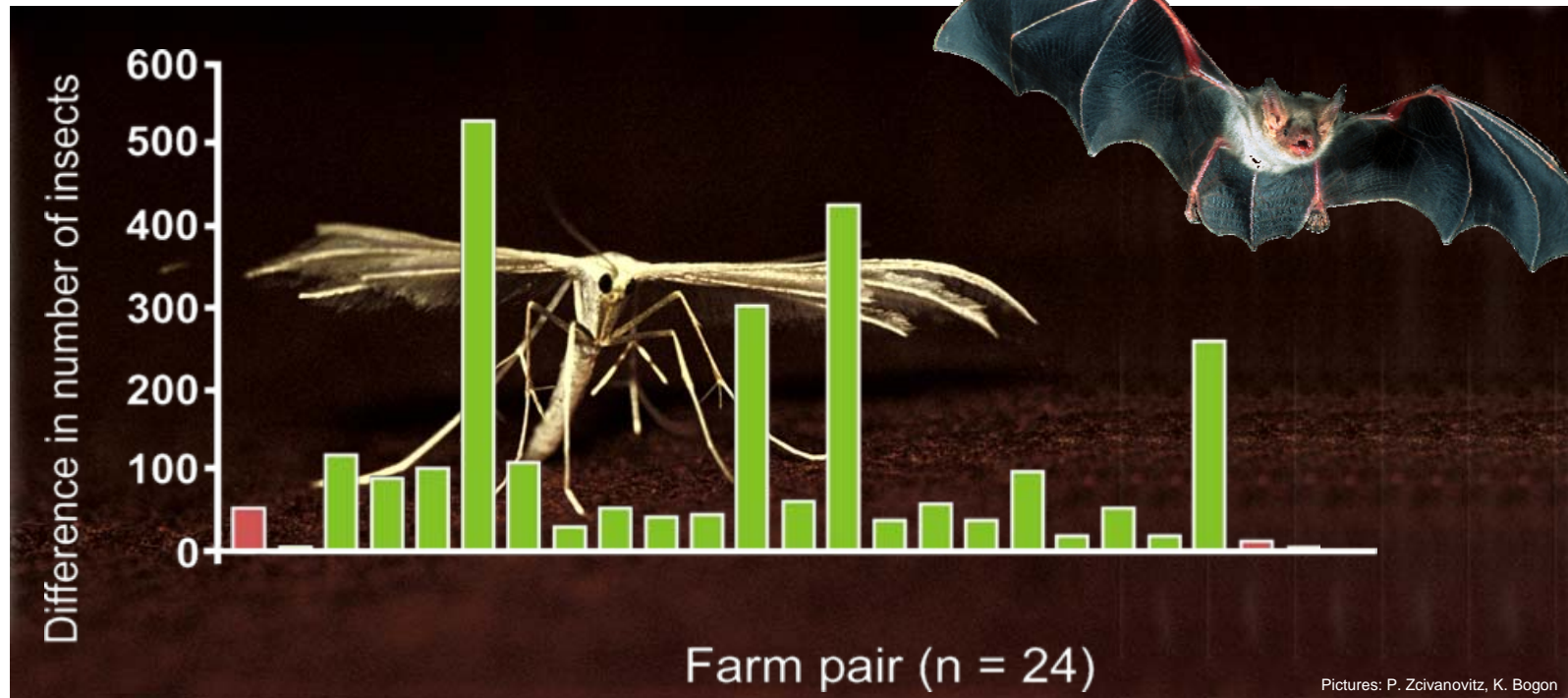
Biodiversity in Soil





Source: Mäder et al., 2002

- Nocturnal Insects -

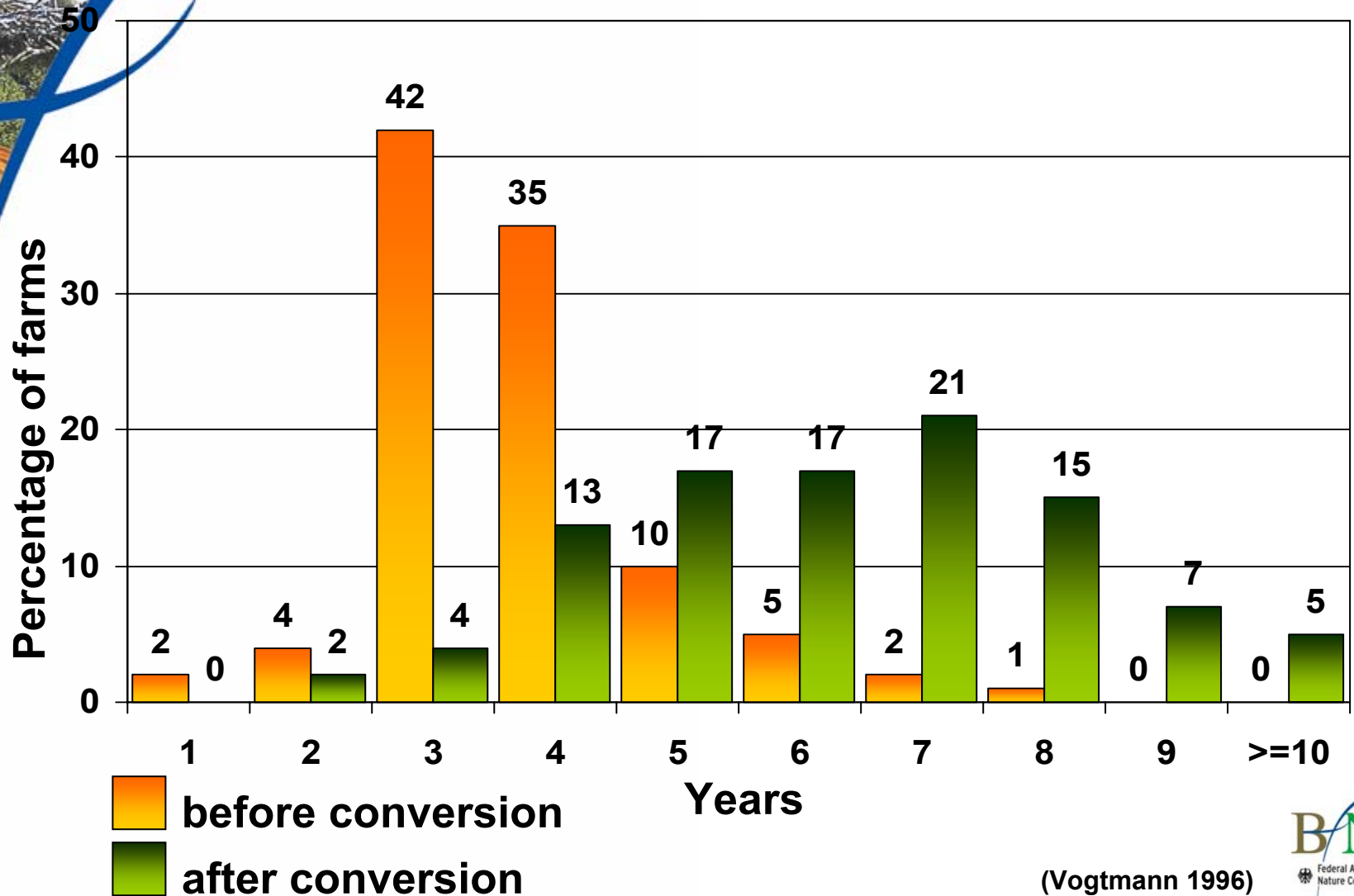
Comparison of organic and conventional Farms in UK



-  = more insects on organic farms
-  = more insects on conventional farms

Source: Wickramasinghe et al. (2004)

Crop Rotation (Years)



(Vogtmann 1996)



Typical 7-Years Crop Rotation

Year 1 Grass-Clover

Year 2 Grass-Clover

Year 3 Winter Wheat

➤ Green Manure

Year 4 Potatoes

Year 5 Winter Rye

➤ Green Manure

Year 6 Field Beans

Year 7 Winter Wheat

➤ spring undersown with Grass-Clover

Positive Effects of Crop Rotation

soil nitrogen	↗
soil organic matter	↗
soil structure	↗
soil water holding capacity	↗
soil biodiversity	↗
soil compaction	↘
soil erosion	↘
weed problems	↘

Nature Conservation Farms

Farm: "Brockenbauer", Harz Mountains

- endangered cattle breed: "Rotes Höhenvieh"
- rare upland grasland

- ~ 300 vascular plant species

- beautiful cultural landscape





Added Value in Rural Regions

- Nature conservation and open landscape -

	1997	1998	1999	2001
Production	- million kg of milk -			
milk organic	2.0	4.0	10.0	14.0
milk conv.	7.0	6.0	7.0	7.0
Added value	- million € -			
milk organic	0.5	1.0	2.6	4.8
milk conv.	1.1	0.9	1.1	1.0
Organic-farmers	0.1	0.2	0.5	0.8
Total	1.7	2.1	4.2	6.6

Upländer Dairy (Usseln, Hesse)

Nature Conservation Farms

Organic vinyard "Seiler", Pfälzer Weinstraße



extensive soil management

300 flowering plant species

structures: hedgerows, fallow land, walls

nest boxes, bee posts



Sustainable landuse and regional marketing

Biosphere reserve "Rhön"

Initiatives, brands and associations



Agriculture and
forestry

Fishery



Nature
conservation



Handicraft
and industry

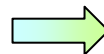
Trade

Gastronomy

Environmental
education



Tourism



Rhön Sheep Production



Rhön Biosphere Cattle



Rhön Apple Initiative



Team Vegetable Oil



From Grain to Bread



Rhön Trout

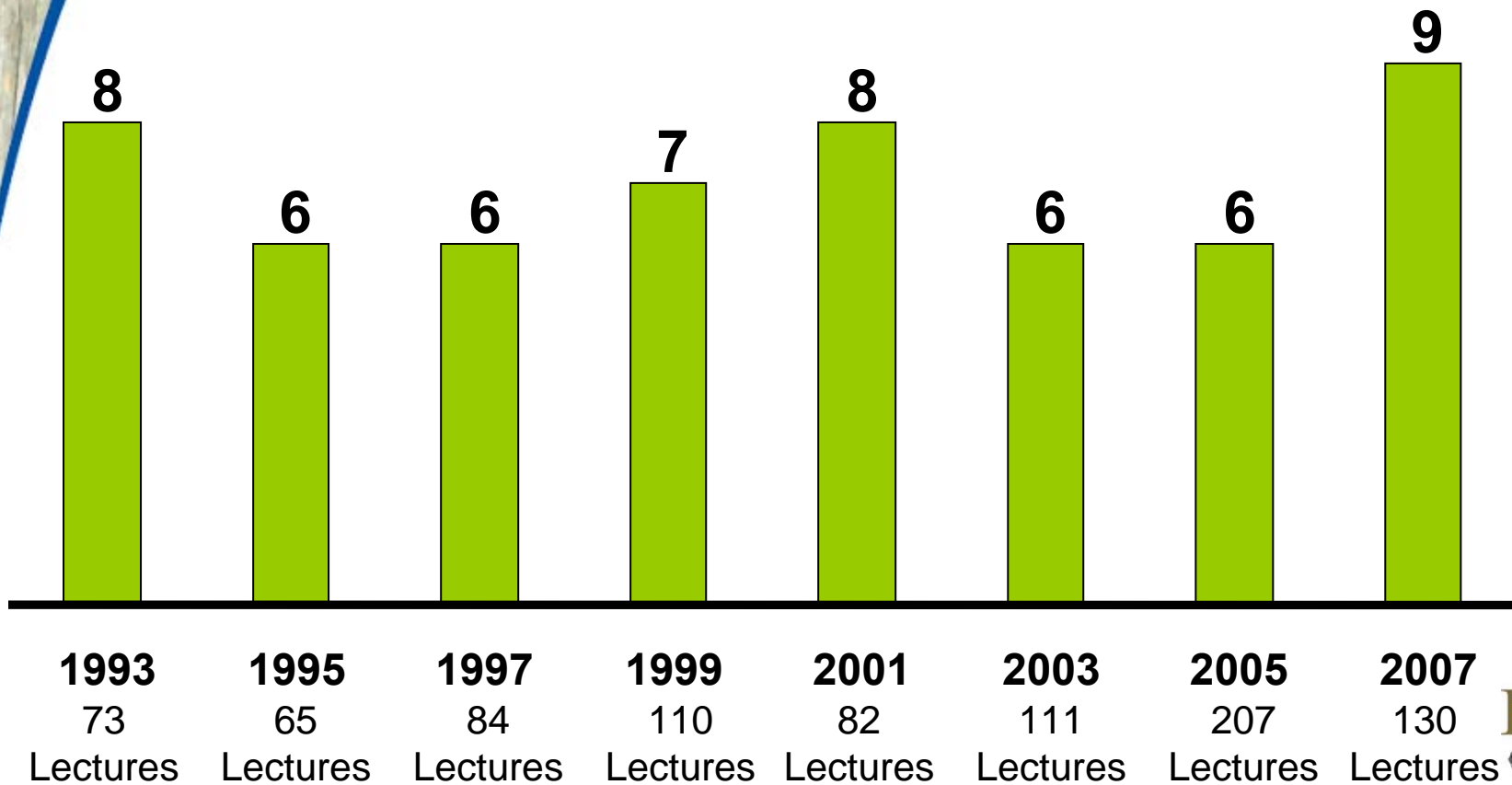


Rhön Timber Processing



The Role of Science

Biodiversity and landscape protection being topics of german-speaking scientific conferences on organic farming ("Wissenschaftstagung")



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Up from 15 **October 2007** on

www.bfn.de

Service / Vorträge

Busy *for* Nature



Federal Agency for
Nature Conservation

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