



Future of Food

Core strategic issues

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Future of Food

Core strategic issues

Land use practises

Land ownership; access to land

Soil protection

Water quality and access to water

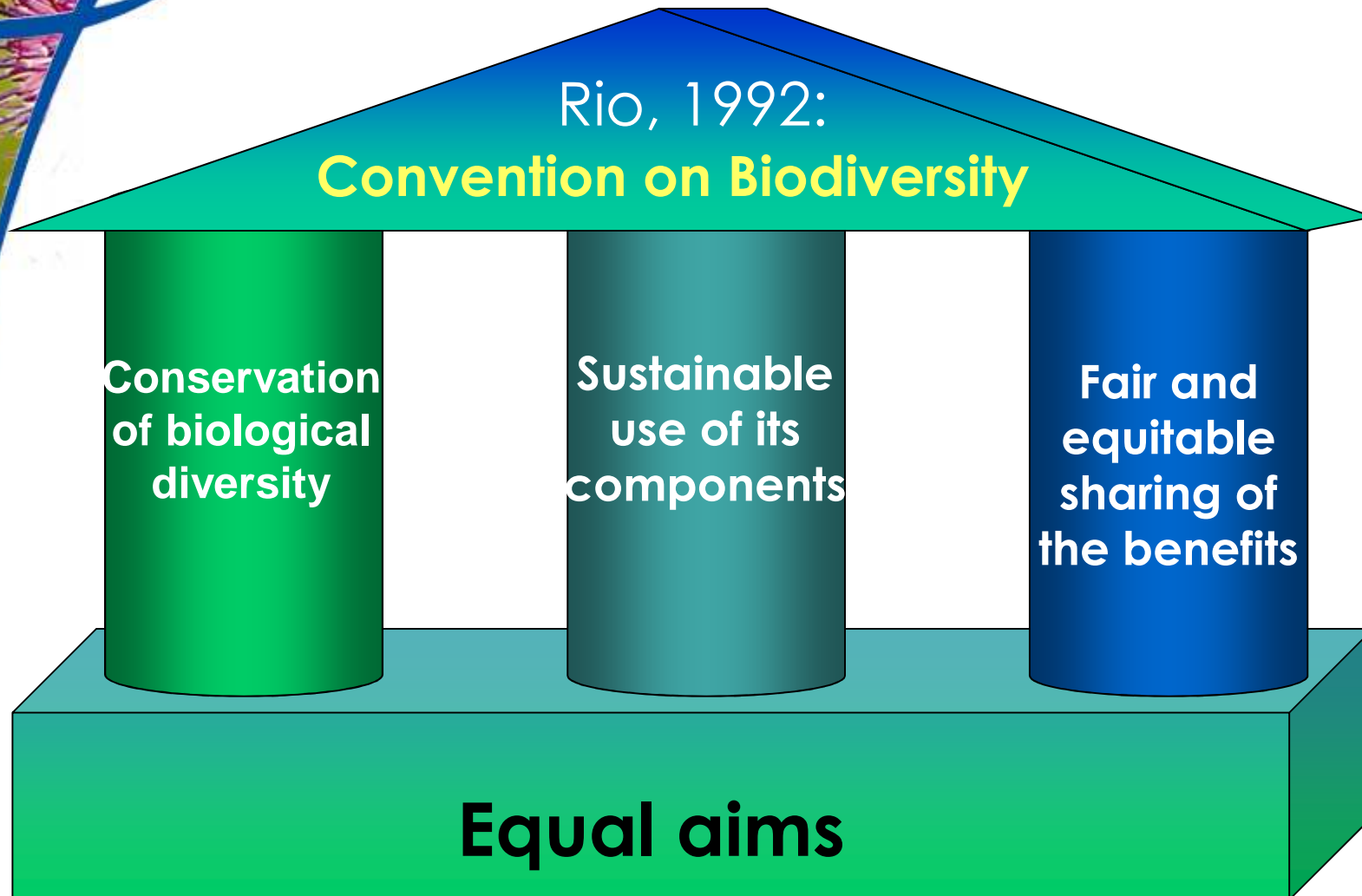
Energy utilisation / efficiency

Biodiversity protection

Social responsibility



Global Responsibility



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



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

29 % of terrestrial area



Agriculture and Biodiversity

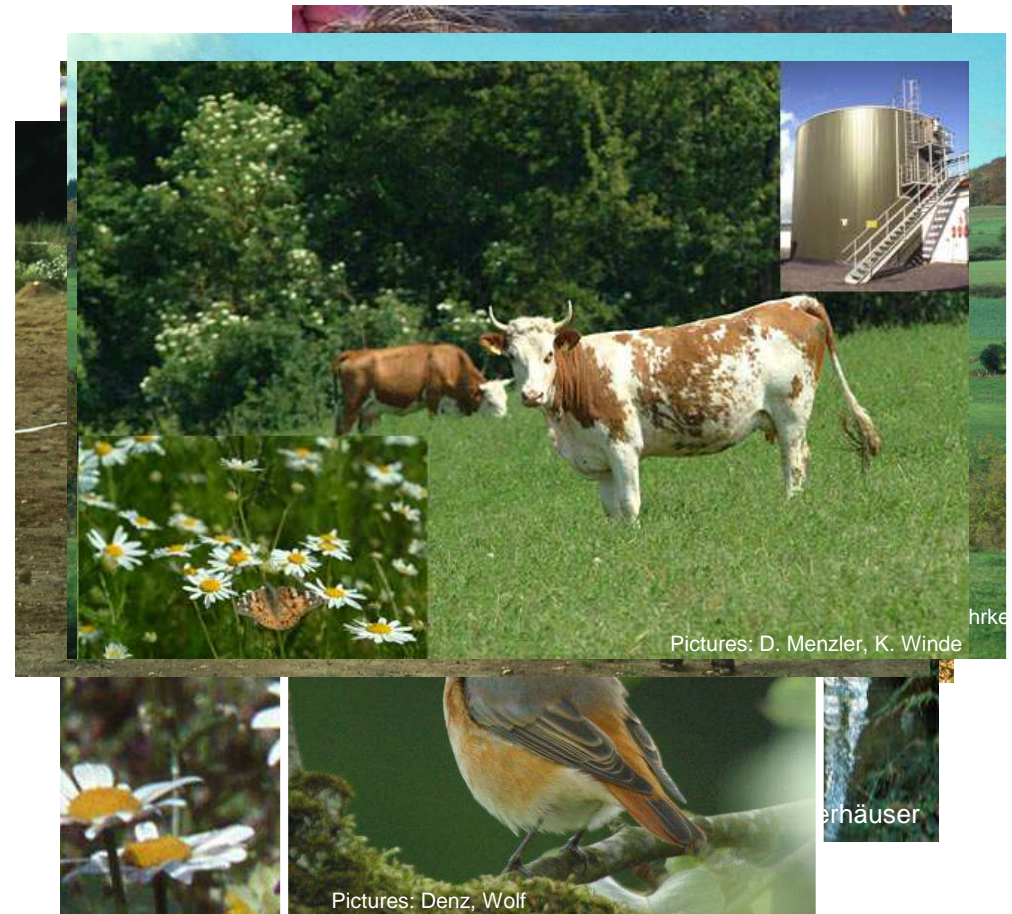
Agriculture is still one of the main threats to biodiversity

- **Conversion of natural habitat to agricultural land**
- **Intensification**
Monocultures, Uniform Species, Pesticides, Fertilizers
- **Degradation, Eutrophication**
- **„Uniforming the landscape“**
- **Use of GMO's**

Multifunctional, Naturesound Farming

Products

- Food
- Water
- Energy
- Soils & Landscape
- Biodiversity
- Recreation
- Education





Basis for Action

German constitution (article 20a)

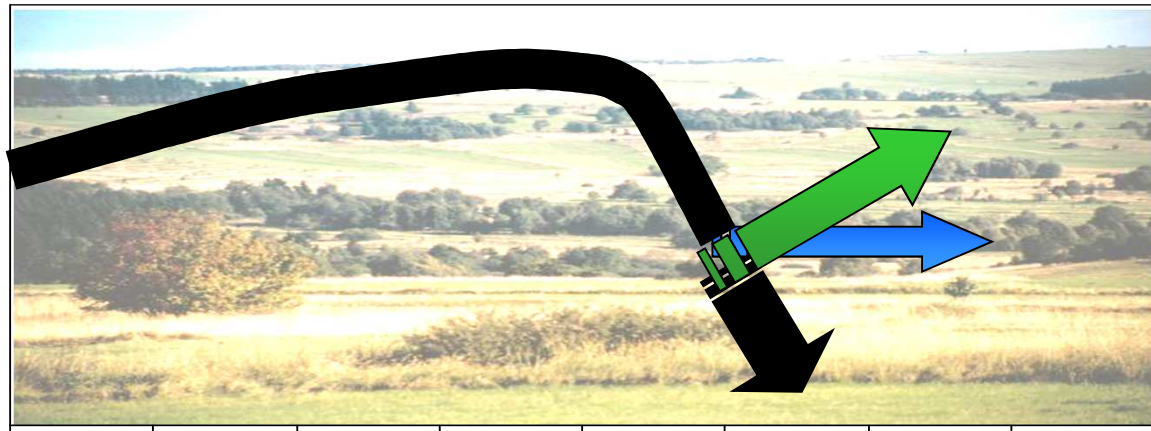
„The state in responsibility for future generations protects the natural foundation for life...“

- **CBD: Convention on Biodiversity**
- **TEEB: The Economics of Ecosystems and Biodiversity**
- **German Ministry of Environment (BMU) Biannual Report**
- **Reports from various Government Advisory Committees (WBGU; SRU)**

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:



„stopp the loss of biodiversity“



European Nature Conservation Agencies (ENCA)

Position Statement 6 – 2010

„Safeguarding existing European biodiversity and restoring many of the features lost in recent years requires more than can be delivered by existing Cross-Compliance requirements under the first pillar of CAP“

„Biodiversity as one of the desired environmental public goods provided by farmers, which due to their character are not delivered in desired quantity and quality via the market“



Land and Soils

**Land resources are under pressure
Changes in landscapes (nature), ecosystems
environment**

Loss of soil and soil quality

- **erosion**
- **contamination**
- **acidification**
- **sealing**

Land use / Urban sprawl / Roads

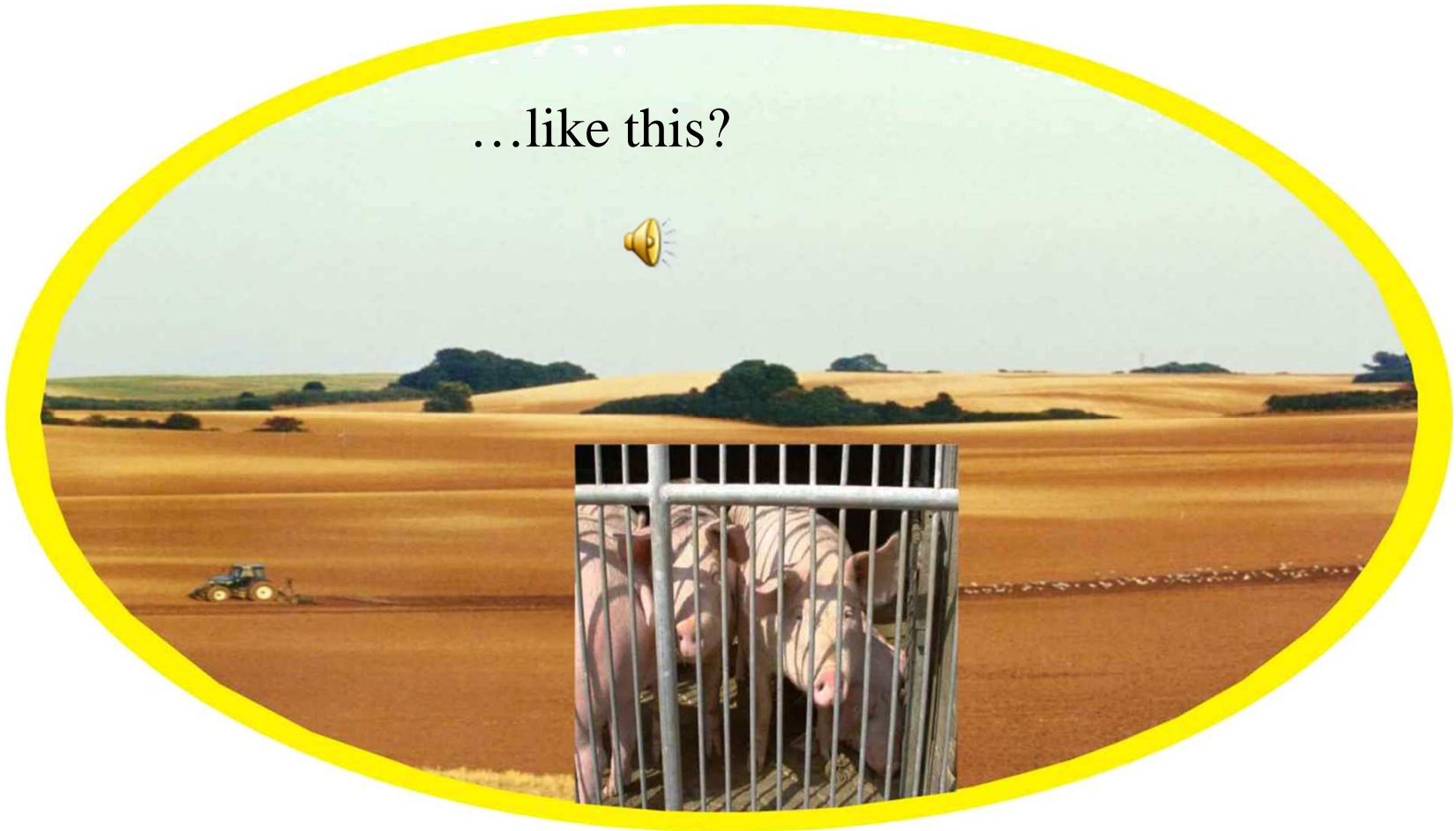


Settlements and traffic
Land use (2002-2005):
114 ha/day



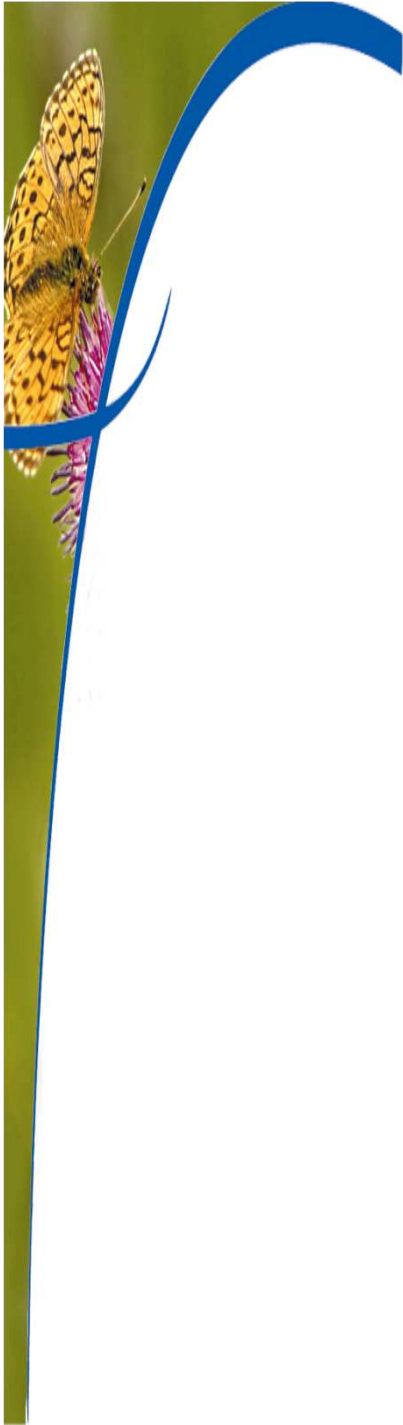
Would you like a landscape

...like this?



...or rather like that?





Money spent for consumers clarification and information

Ministry of Consumer protection, Food and Agriculture

0.03 € / consumer

Food industry (processing and trade)

13.8 € / consumer



Subsidies worldwide

Billion US \$

Subsidies in total

harmful for Biodiversity

Agriculture	376	207
Energy	85-244	64-216
Traffic(roads)	225-300	110-150
Water	69	50
Forest	35	35
Fishery	20	19
SUM	810-1044	485-677

Kjellingbro und Skotte, 2005



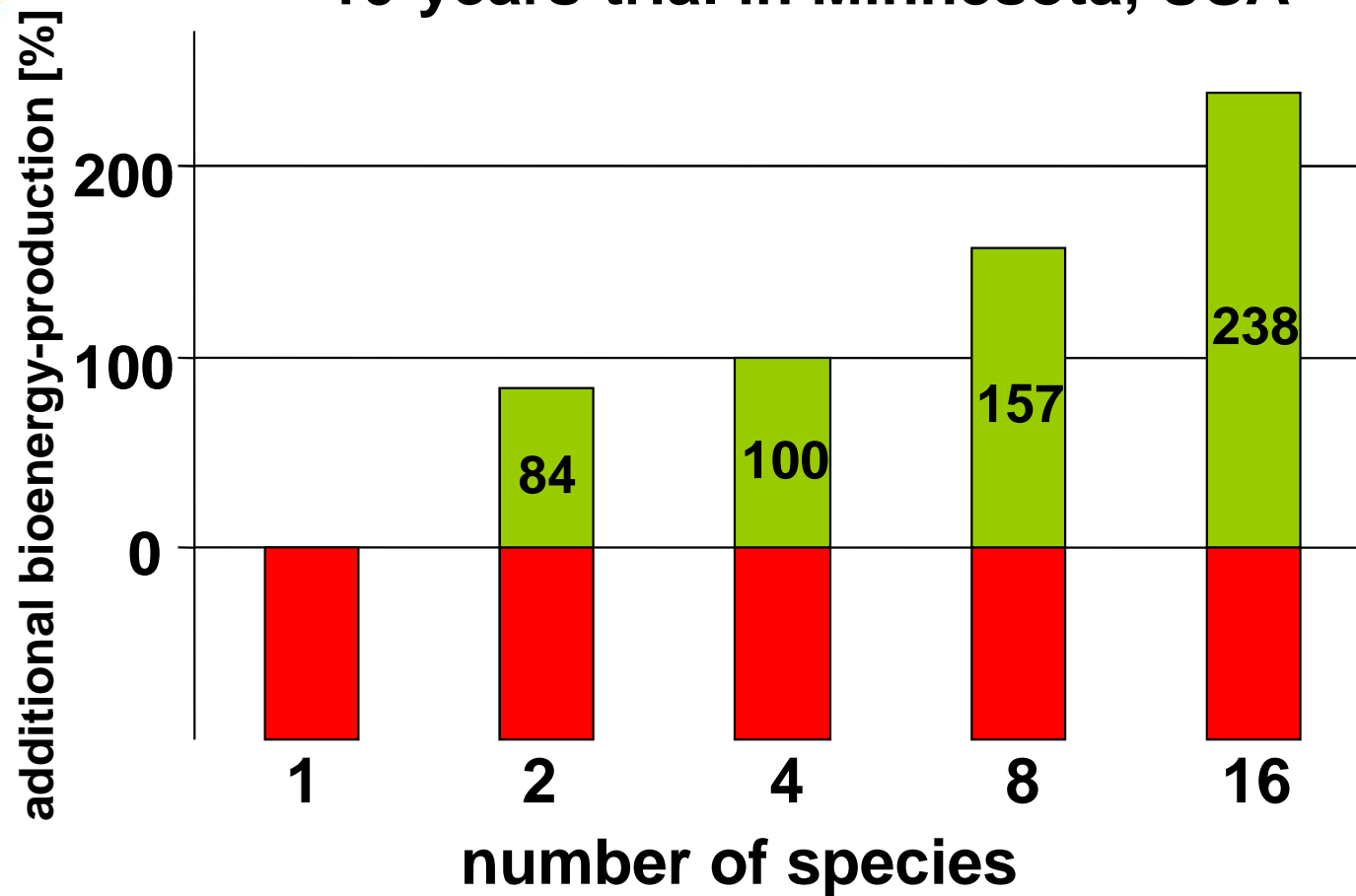
Food **or** Biomass for energy?

- additional pressure on land use
- high external input agriculture cannot deliver
- re-thinking agriculture
- development of appropriate technologies for agriculture

Food and Biomass for energy through biodiversity

Low-Input High Biodiversity Grassland Biomass

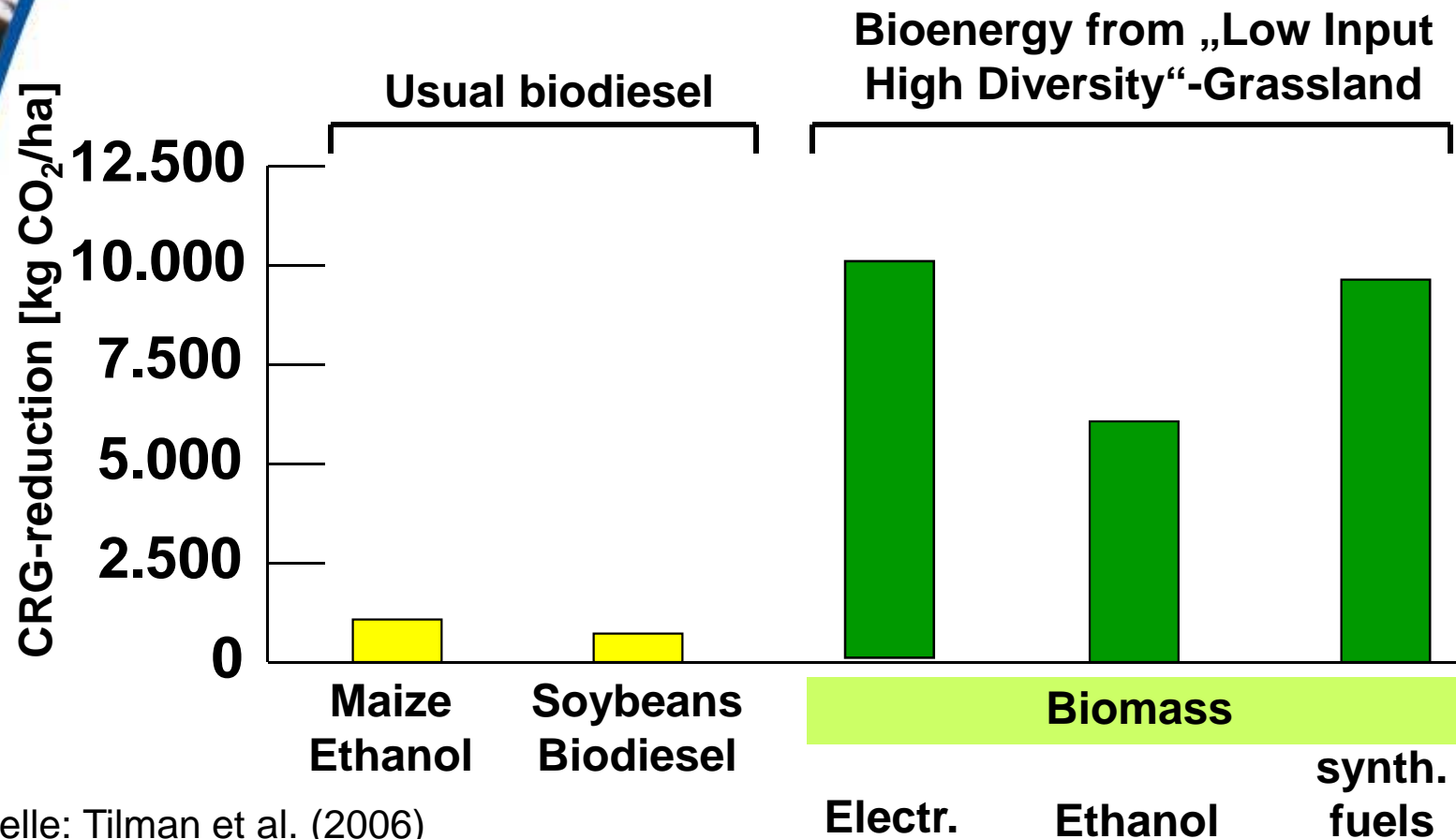
10-years-trial in Minnesota, USA



Source: Tilman et al. (2006)

Biodiversity and Biomass

CRG-reduction versus conventional fuels



Quelle: Tilman et al. (2006)



Biodiversity, Agriculture and Food Industry

**To act in partnership
requires the
consent in objectives,
norms and values**

Conclusion



Ecological health is economic welfare