

Contribution of organic farming to agricultural, environmental and rural development policy goals

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Outline

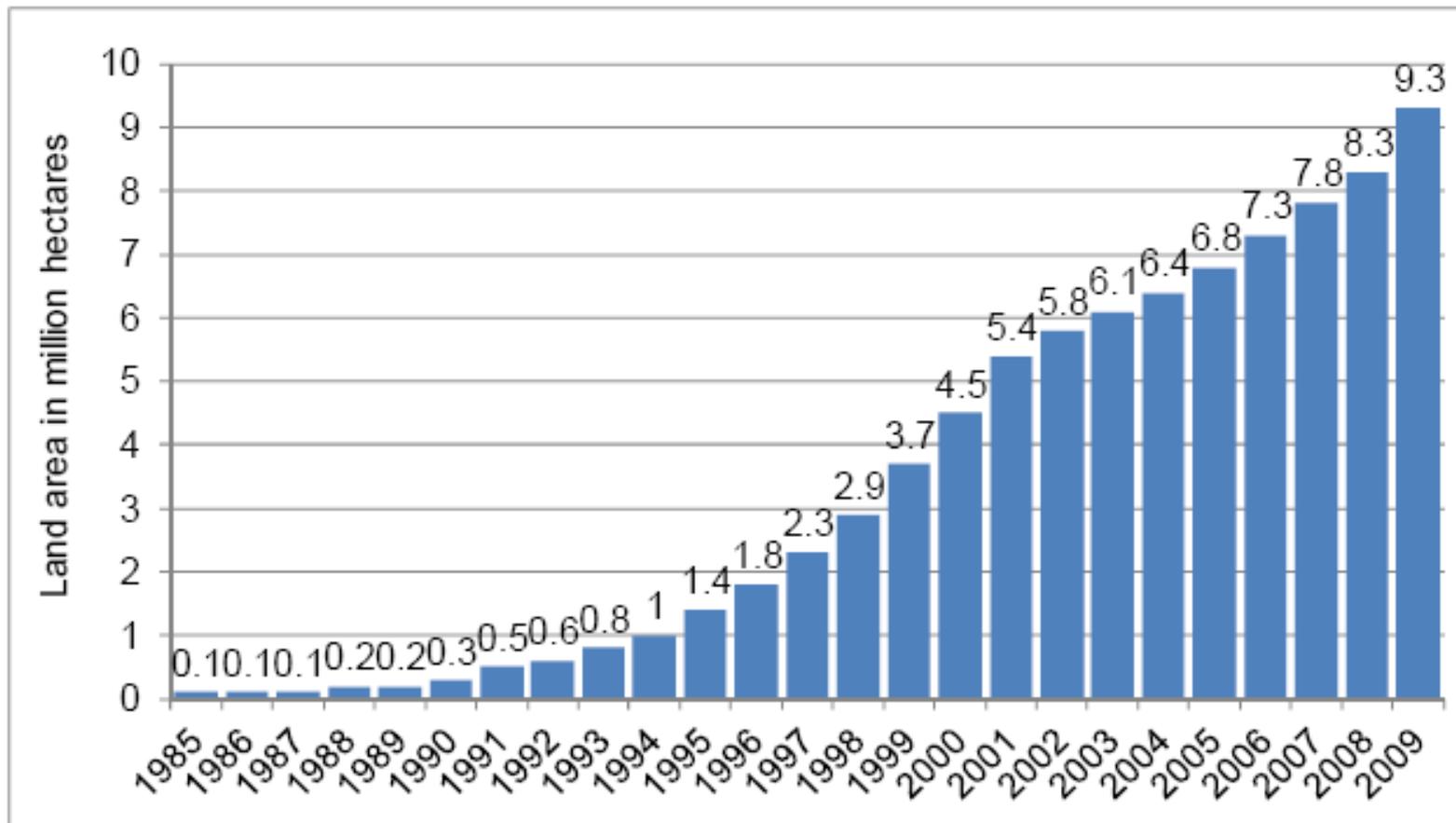
- Why is organic farming relevant for policy?
- What are the benefits of organic farming?
- What are organic farming's limitations?
- How can policy help resolve them?
- How is organic farming supported in Europe?
- What are the key policy challenges?

Relevance to policy

Organic farming is:

- Developed over nearly 100 years as a response to problems arising from agricultural intensification/industrialisation
- Globally recognised and adopted, with market worth €20 billion in Europe, and €30 billion in rest of world.
- Legally defined under EU and other regulations
- Practised by 250,000 farmers in the EU, on 10 Mha, or 5% of EU land area

European organic area 1985-2009



Source: FiBL, Aberystwyth University, AMI/ZMP

European organic land area density in different countries, 2009



Source: FIBL Survey 2011

Policy support justification

- Delivery of public goods
 - ◆ Environmental protection (pollution and climate change)
 - ◆ Resource (soil, water, energy, nutrients) and biodiversity conservation
 - ◆ Animal welfare
 - ◆ Rural development
 - ◆ Food security and public health?
- Infant industry
 - ◆ Still applies in some countries

Delivery of public goods

What does organic farming deliver?

- Environmental benefits

European Commission:

- 'Clear ecological benefits' from organic farming
- Support should encourage farmers to 'meet society's demand for the use of environmentally friendly farm practices and high standards of animal welfare'

European Court of Auditors:

- In a critical review of agri-environment schemes, the ECA concluded that organic farming is :
 - ◆ a more demanding scheme
 - ◆ implemented over large geographical area
 - ◆ particularly effective in achieving environmental benefits
 - ◆ for which the (beneficial) effects are well documented
- For the next programming period, the Commission should consider support for organic farming as a (distinct) third type of agri-environment measure

What is the evidence?

A complex question, because organic farming:

- delivers many environmental outputs
- some result directly from organic standards (e.g restricted nitrogen, pesticide use)
- some result indirectly from the practices that are used to replace prohibited inputs
- many types of organic farms (from intensive horticulture to mountain farms)
- many regional soil/climatic contexts
- many levels of producer skills, experience

Pollution and climate change

In general there is strong evidence that organic farming generates:

- less pollution from pesticide and nutrient losses to water and the atmosphere
- less contamination of food products with pesticide residues
- less carbon dioxide and nitrous oxide emissions, on farm and in input processing
- in some contexts (e.g. arable production) may result in soil carbon sequestration
- methane emissions from livestock may be higher per unit food produced

GHG emissions from UK milk production (Allen et al., 2007)

	<i>Conv. average</i>	<i>Conv. top 25%</i>	<i>Org. average</i>	<i>Org. top 25%</i>
g CO ₂ equiv. per litre milk	907	745	828	705
% from CO ₂	23	25	21	22
% from CH ₄	52	55	69	68
% from N ₂ O	25	20	10	10

Delivery of public goods

What does organic farming deliver?

- Environmental benefits
- Pollution and climate change
- Resource conservation

Critical resources

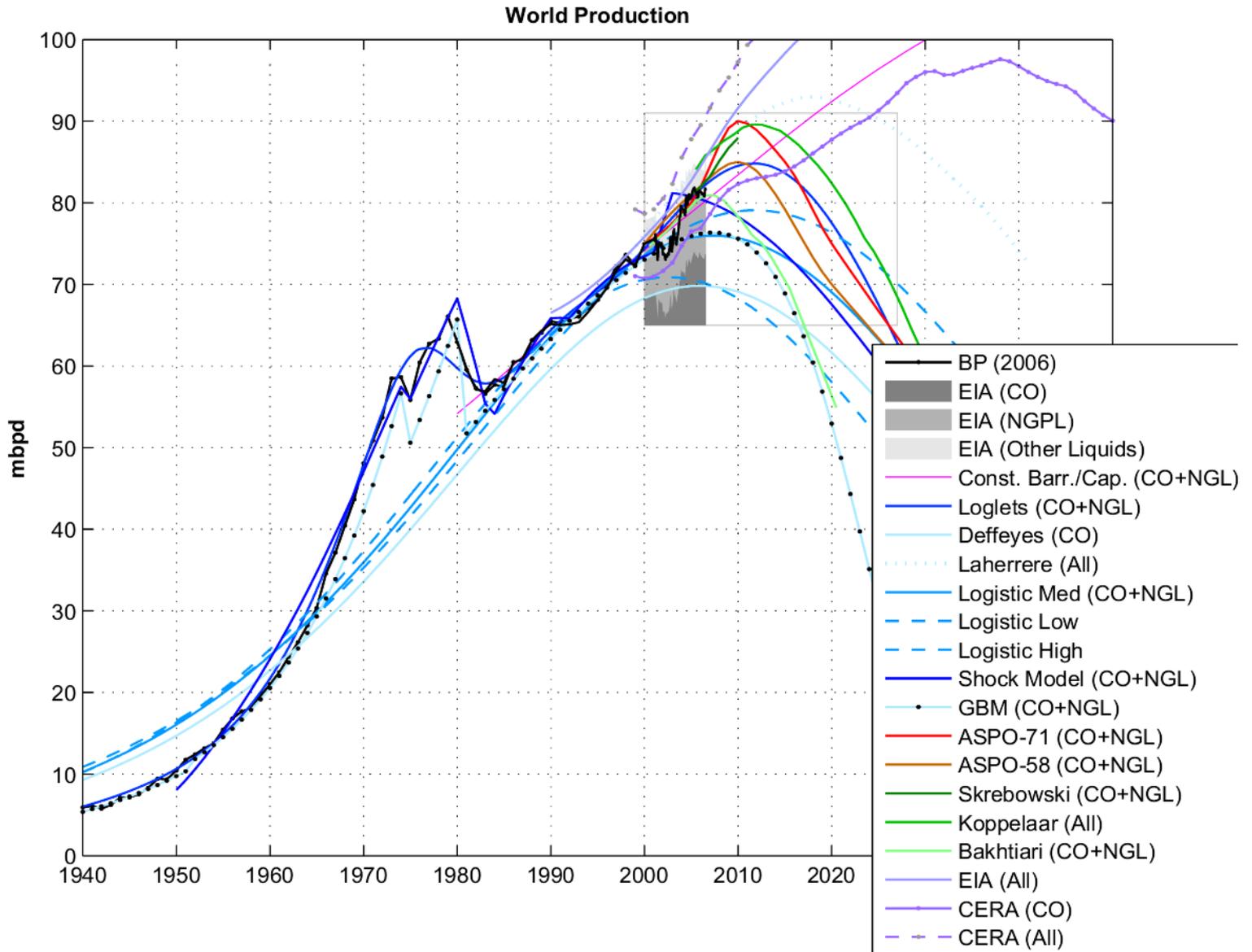
Non-renewable

- Fossil energy
- Mineral nutrients e.g. phosphate

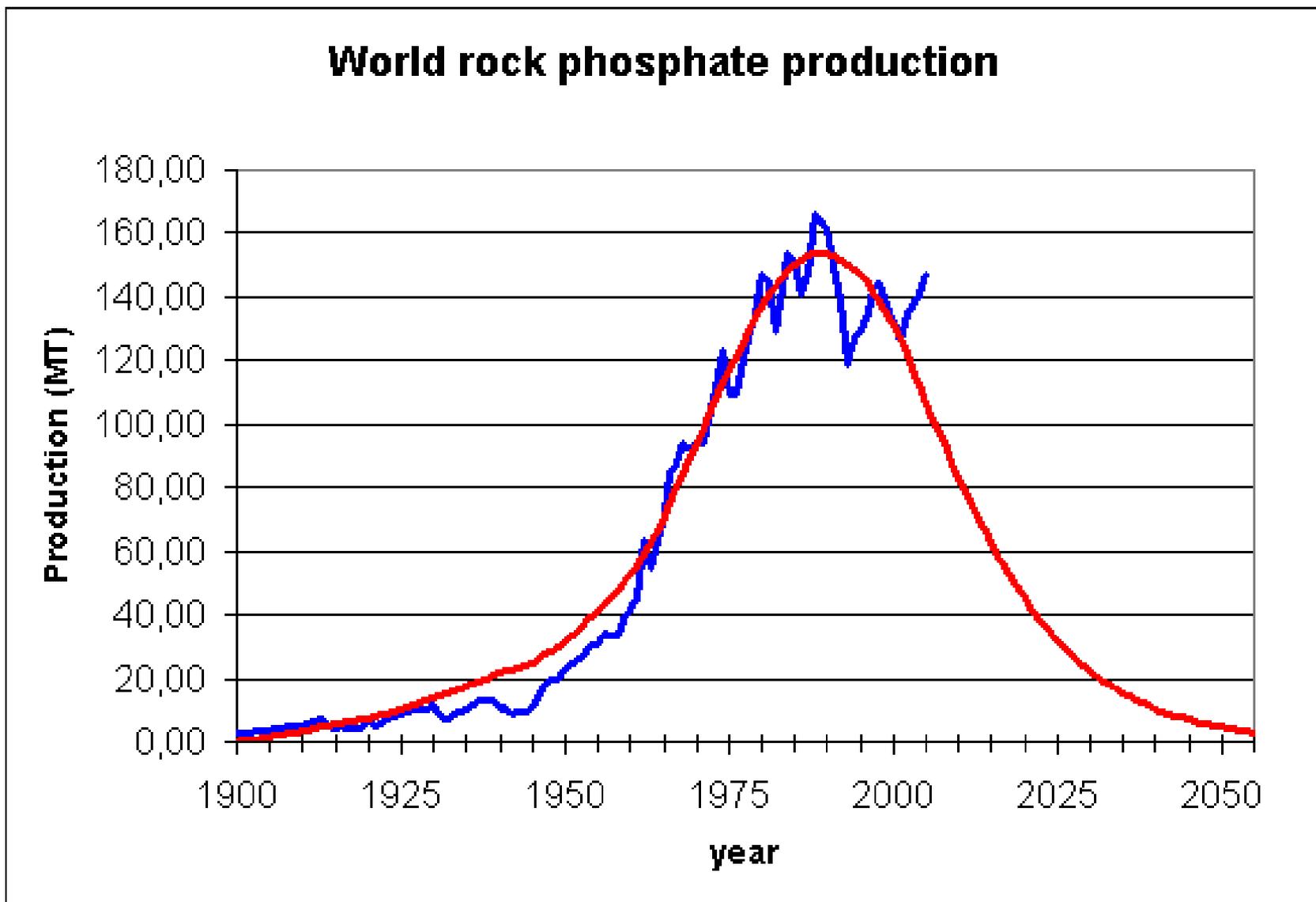
Potentially non-renewable

- Soil
- Water
- Biodiversity

Peak oil?



Peak phosphate?



Soil – fertility, organic matter, salinity and erosion



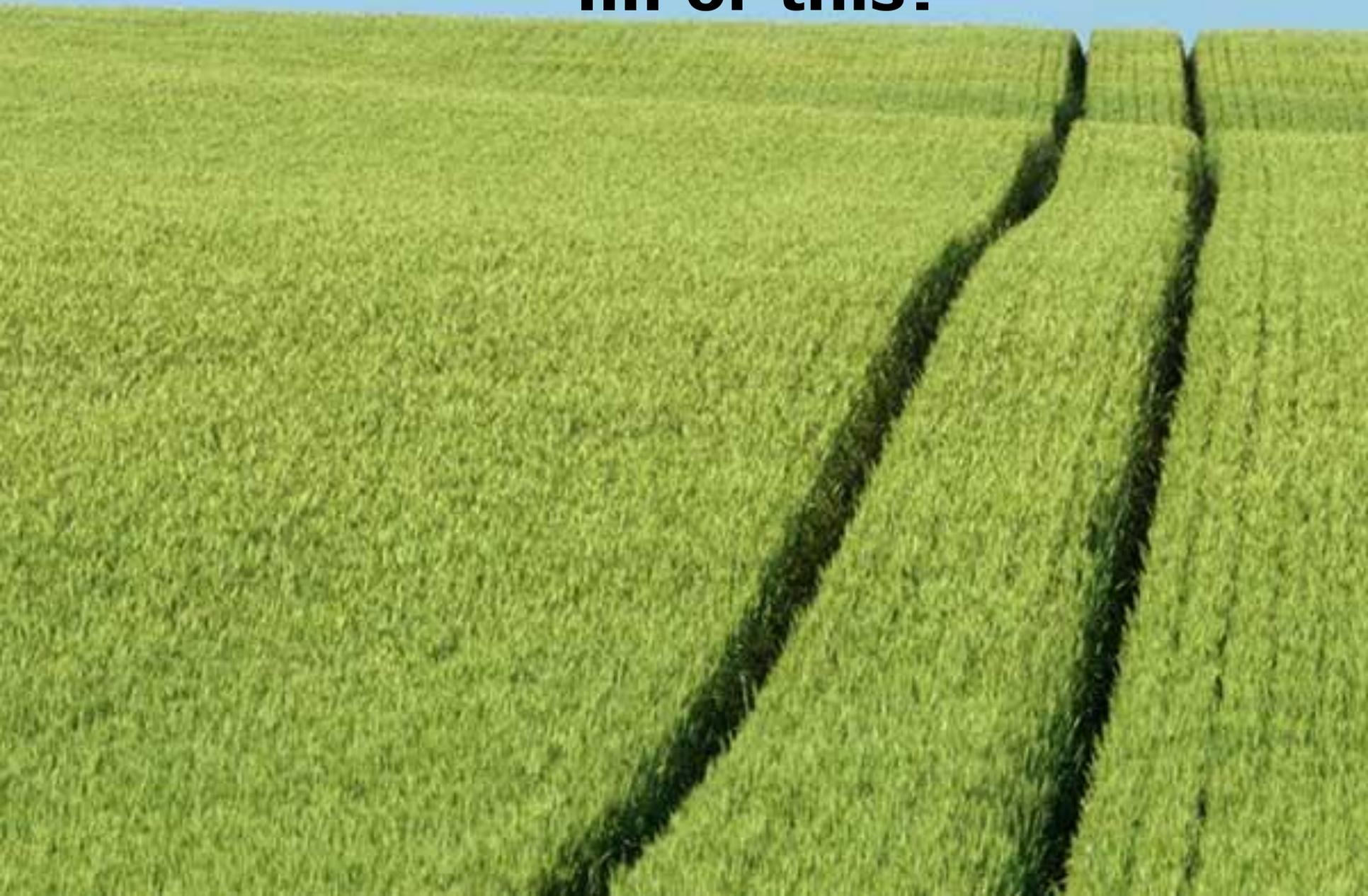
Water – too little and too much!



Biodiversity - this....



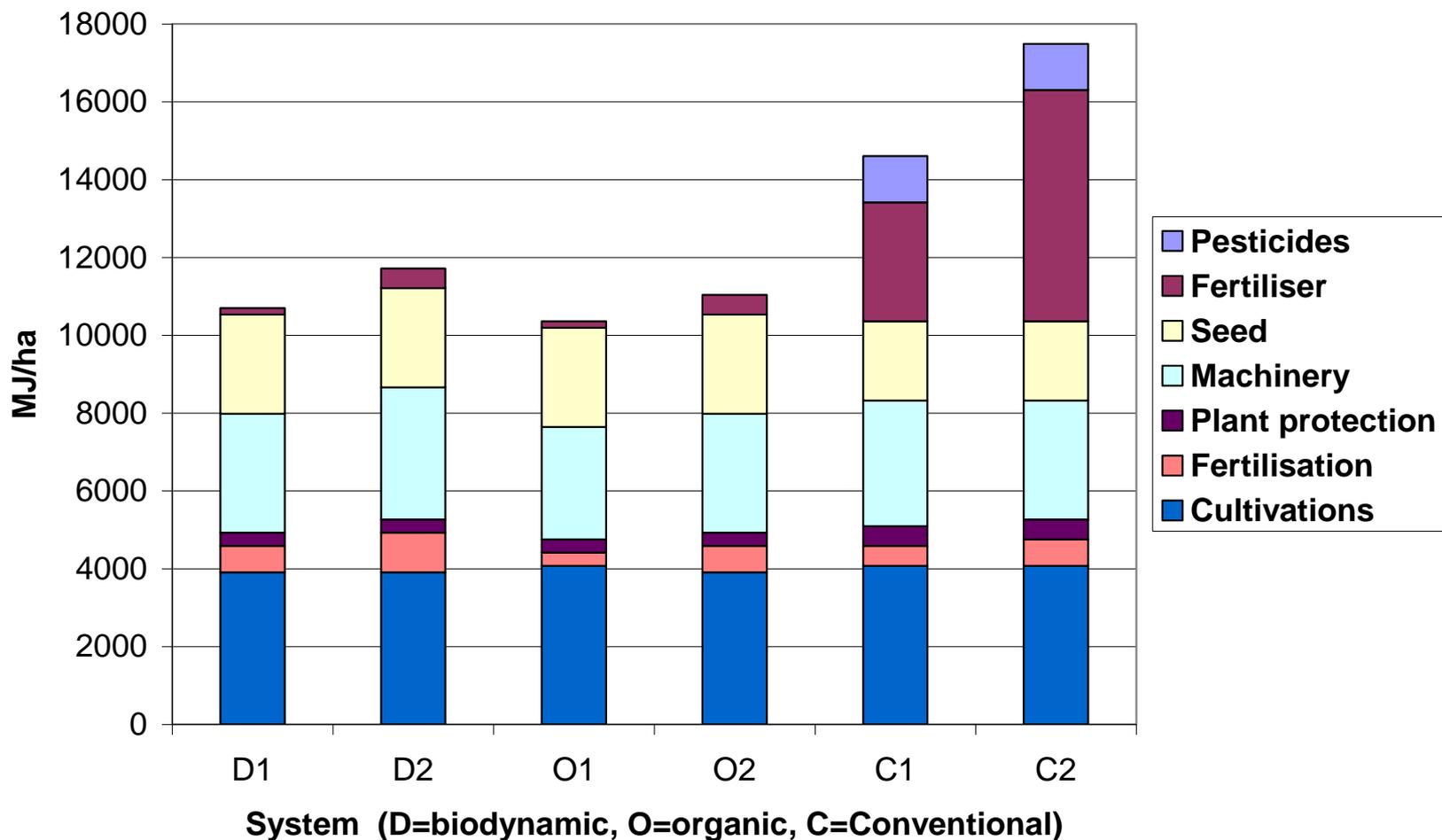
.... or this?



Fossil energy use

- In general, organic farming uses less fossil energy than intensive, conventional farming systems
 - ◆ per hectare and per unit food produced
 - ◆ but some crops, e.g. potatoes, more problematic
- Main factor is not using fossil energy to manufacture fertilisers and pesticides, relying instead on biological processes and solar energy (directly and indirectly)

Role of fertilisers and pesticides



Source: Alfoeldi et al., 1995

Soil, water and nutrients

In general, organic farming:

- Emphasises biological cycling of nitrogen and carbon, not industrial fixation
- Increases soil biological activity
- Sustains soil organic matter levels
- Reduces soil erosion
- Reduces other mineral nutrient inputs
- Improves water infiltration and conservation
- Protects water quality

Biodiversity and complexity

- Is a fundamental component of the agro-ecological approach to farming that organic farming represents
- In general there is strong evidence that organic farming supports higher plant, insect, bird and animal diversity
(ORC reviews at www.efrc.com)
- But the system not only supports biodiversity
- biodiversity also supports the system
- Some examples...

ARKIVE



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Delivery of public goods

What does organic farming deliver?

- Environmental benefits
- Pollution and climate change
- Resource conservation
- Animal welfare
 - ◆ Specific provisions in standards for housing and access to range
 - ◆ Possible conflict with some health provisions



Delivery of public goods

What does organic farming deliver?

- Environmental benefits
- Pollution and climate change
- Resource conservation
- Animal welfare
- Rural development

Specialist organic markets

Provide an opportunity:

- for farmers to be recompensed for adopting more sustainable methods and delivery public goods
- for consumers to express preferences relating to food quality and the way food is produced and processed
- to help make organic farming profitability comparable or better than non-organic systems
- in combination with local processing can support rural employment and incomes

Delivery of public goods

What does organic farming deliver?

- Environmental benefits
- Pollution and climate change
- Resource conservation
- Animal welfare
- Rural development
- Food security and public health?

Food security

Depends not just on how much is produced, but also

- How what is produced is utilised (livestock feeds, processing, retailing and consumer waste)
- Affordable access to food (food sovereignty)
- Access to inputs on a sustainable, long term basis
- If input availability is restricted due to cost or availability, organic systems based on effective management of local resources and ecosystems can actually increase productivity
- In many cases, the value of the organic approach in contributing to food security is not connected with premium markets or certification

Compared with intensive conventional systems

- Food quality and public health evidence not conclusive
- Organic farming does yield less when crops considered individually, but
- Total system productivity is important, including ecosystem services
- If resources are becoming scarcer can 'sustainable intensification' really deliver a long term solution?
- Need for further research in this area

Role of policy

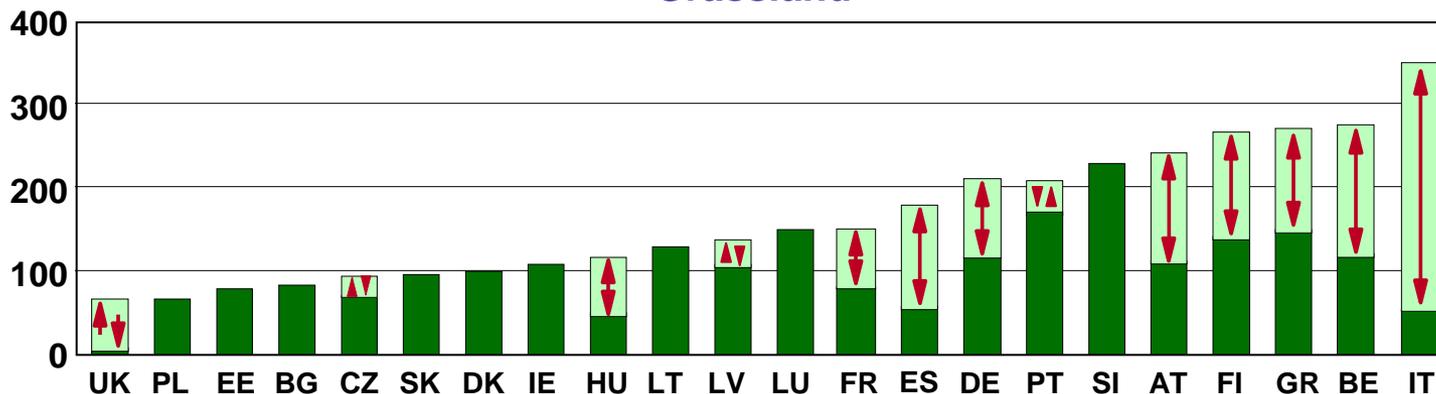
- Market mechanisms
- Standards and regulations
- Direct payments (supply push)
- Capital investment
- Information (research, training, advice)
- Market development
- Consumer awareness (demand pull)

EU provides policy framework for all of these

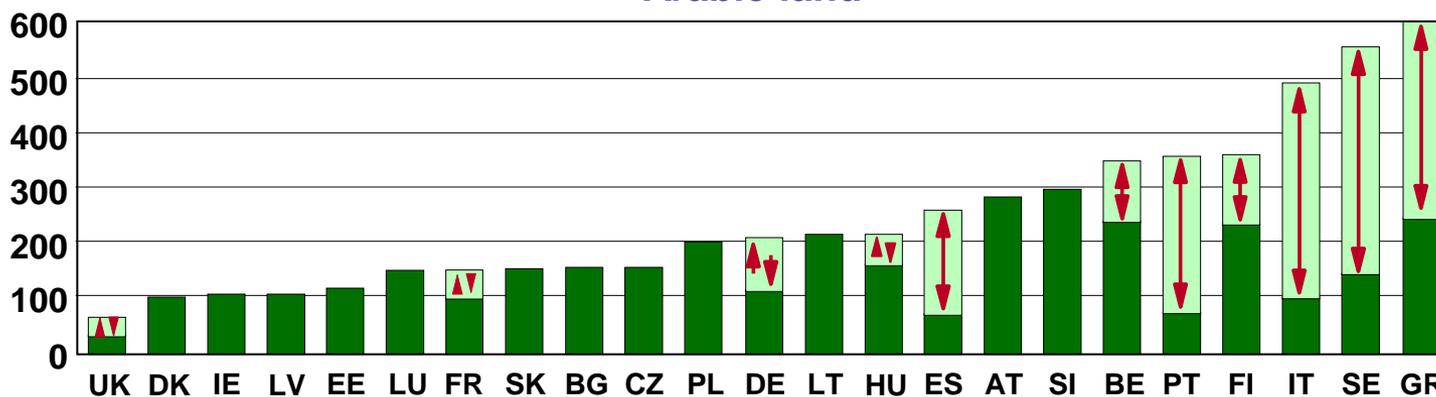
Maintenance payments in EU Member States

(2009, grassland and arable land)

Grassland



Arable land



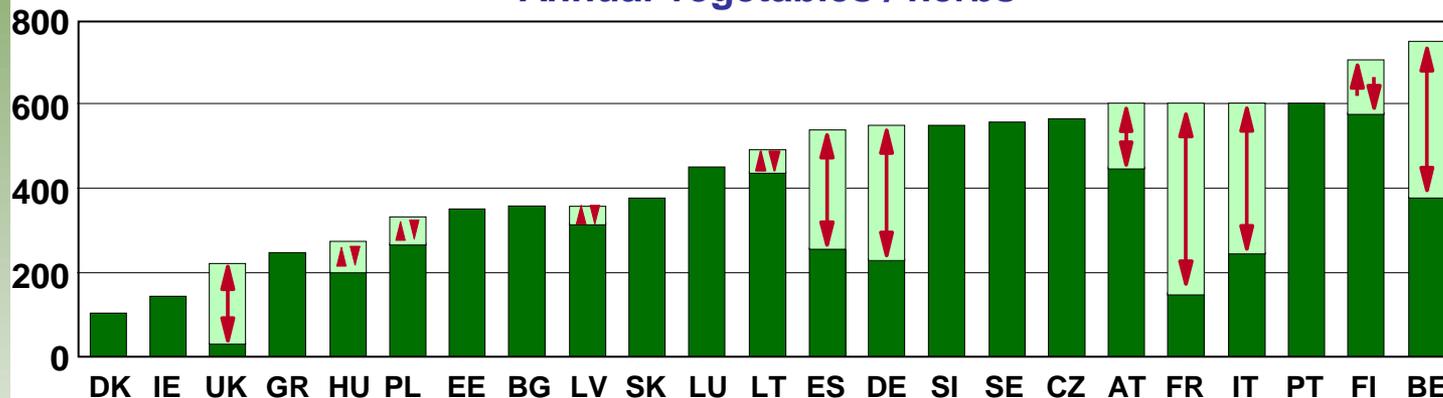
↕ = regional or crop-specific variation within one country

Maintenance payments in EU Member States

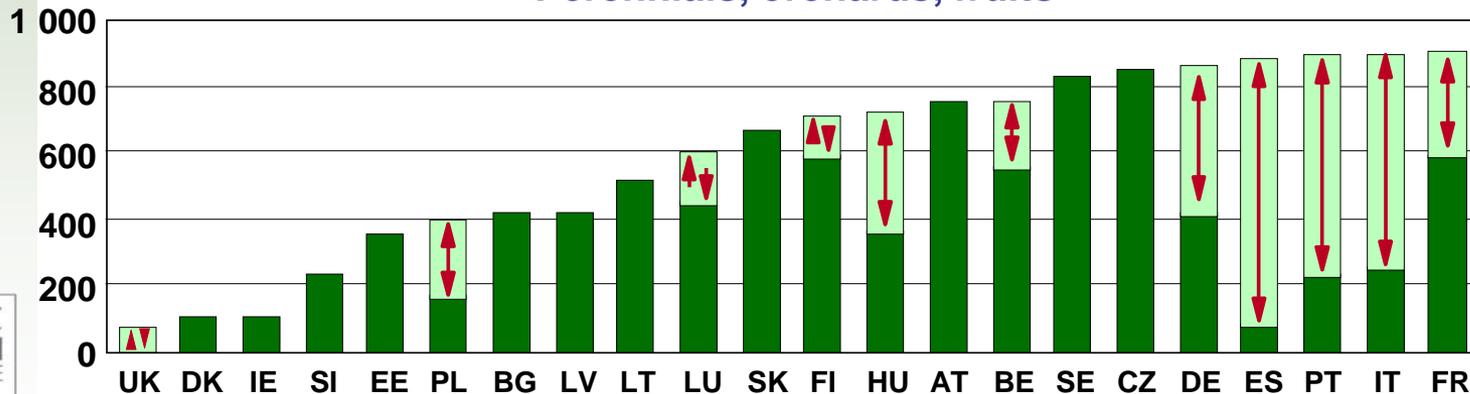
(2009, annual vegetables/herbs and perennials, orchards, fruits)

€ per ha

Annual vegetables / herbs



Perennials, orchards, fruits



Interaction with markets

- Organic schemes unique because of market interaction
- Certification systems can help verification but also a transaction cost
- Policies have led to strong increase in supply in some countries
 - ◆ But direct payments alone may not be sufficient to stimulate growth

Market – policy conflicts

- Financial support can lead to over-supply problems, decreasing organic prices and inter-regional trade imbalances
- Should schemes be restricted to prevent growth in supply ahead of demand?
- Increased supply needed for new entrants and market growth, which expands trade opportunities
- Should potential for environmental benefits from land management be restricted to avoid market disruption?

Looking at it another way

- Environmental and other public benefits come from the production, not marketing, of organic products
- Should minority of consumers pay for benefits accruing to society as a whole?
- Are consumers looking for the same benefits as policy makers?
- Consumer interest not primarily focused on the environmental or other public benefits

Resolving the conflict?

- Historically, organic producers turned to the consumer to help them achieve this
- Market developed as a means to an end
- Should we consider decoupling of direct support, certification and organic markets?
- Historically, Sweden has not linked AE scheme to OF certification
- Or should we be thinking about only relying on markets?
- Need to balance the dual roles