

Demand driven research in Dutch organic food chains

Wijnand Sukkel, Paris March 4, 2010



Organic agriculture in the Netherlands

	1996	1999	2008
Area organic farming (ha)	12,500	22,997	50,435
Percentage of total agricultural area	0.7%	1.2%	2.6%
Number of org. farms	n.d.	1216	1473
Sales organic food (€ million)	160	235	583
Share of total consumption	n.d.	1.1%	2.1%

- Import (2007): € 250-300 million
- Export (2007): € 500-550 million. (70% is exported)

Policy priority area's (2008-2011)

- Stimulation demand en chain connections
- Knowledge and innovation
- No production, area or conversion subsidies for organic
- *Total stimulation budget 2008 – 2011: € 49.2 million*

Policy background organic research

- Organic agriculture considered to have high potential for sustainable agriculture
- Inspiration source for conventional agriculture
- 10% of the public research budget for agriculture is to be spent for organic agriculture
 - Organic sector 'owns' the research
 - Preferred research suppliers: Wageningen UR (85%) and Louis Bolk Institute (15%)

How to spend the money?

- Organization of a network



**The Dutch knowledge network
for organic food and farming**

- Setting ambition agenda for 2025
- Setting research agenda (short term and long term)
- Organizing ownership and participation
- Organizing communication and knowledge circulation

Important research issues

- Healthy varieties, seeds and propagation material
- Sustainable soil management
- Resilient production systems
- Management of weeds, pests and diseases
- Animal welfare and animal health
- Minimizing emission and accumulation
- Healthy, safe and tasteful food
- Enhancement Biodiversity, Nature and Landscape
- Connections to consumers and society



Research food chain

- Consumer preferences
- Shelf presentation
- Branding and certification
- Sustainability in the food chain
- Creating new added values
- Cost price reduction
- Contamination risks in the total chain



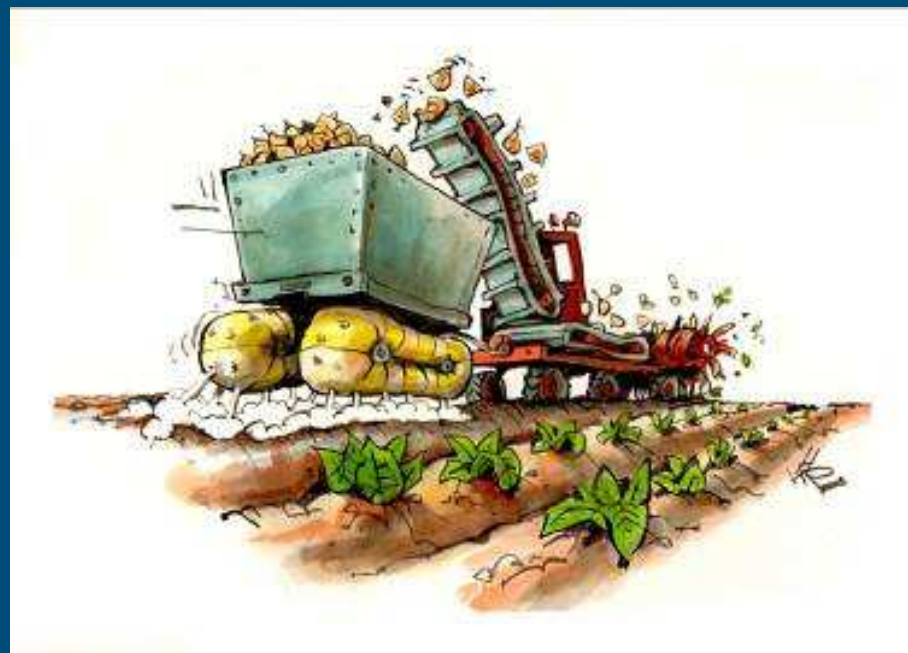
Robust varieties and vigorous propagation material

- Organic seed production techniques
 - Vigour selection
 - Seed health: Xanthomonas, Alternaria, Silver scurf
- Organic breeding programs
 - Bread wheat
 - Late blight potato
 - Trips in cabbage
 - Downy mildew in onion
 - Nutrient efficiency
 - Root systems and mycorrhiza



Soil and mechanisation

- Minimum tillage techniques
- Controlled Traffic systems
GPS
- Ridge tillage
- Minimal soil compaction
- Organic matter and
nutrient management
- N₂O emissions



Controlled Traffic Systems

RTK-DGPS
positioning

30 cm wide
caterpillars

3,15 m

6,30 m

Management of pests and diseases (examples)

- Resilience through diversity
- Resistance breeding
- Enhancement natural enemies



- UV light and ozone
- Onion oil against carrot fly
- Physical pest control (Beetle eater)

Weed management



Animal health and welfare (examples)



Space for natural
behaviour, animal
friendly stables

Ecology-welfare-economy

- Herb therapy
- Fly control
- Worm prevention



Organic vegetable juice from crop residues

- Co-operation between research and Provalor
- Vegetable residues get an added value
- Processing on location, less transport
- Expectation: within a few years 50% of vegetable residues can be processed to vegetable juice



Product development: Organic cucumbers



- Joint R&D of gene bank, cultivation research and Eosta
- How to explore the available genetic diversity
- Successful market introduction
- More forgotten cucumbers coming up (5-10 years)



Organic agriculture and climate change

- Carbon footprints in Dutch agriculture.
 - Plant production: organic/conventional ≈ 1
 - Dairy production: organic/conventional $\approx 0,8$
 - Meat production: organic/conventional $\approx 1,2$
- In the food chain, the distribution network plays an important role (consumers kilometers caused by 'food deserts')
- Sometimes conflicting objectives
 - Low carbon footprint \leftrightarrow animal welfare
 - Low carbon footprint \leftrightarrow no synthetic pesticides

Feed conversion rate pork		
	Conventional	Organic
Netherlands	2.7	3.3
England	2.6	3.5
Germany	2.9	3.8
Denmark	2.7	3.3

Organic agriculture and climate change

- For organic primary production two key factors
 - Sustainable Soil Management (mitigation, adaptation, resilience and long term production capacity)
 - Organic matter cycles and management (storage, energy production, composting, carbon sequestration etc)

Future challenges for research

- Resilient systems: Soil, Organic matter and (functional) Biodiversity in focus
- Development non chemical weed, pest and disease management
- Staying fore-runners in sustainability
- Developing standards, branding and consumer information (Fair trade, biodiversity, carbon footprint, sustainable soil management,)
- Involve mainstream research and practice
- International research agenda and cooperation in research

**Thank you very much
for your attention!!**



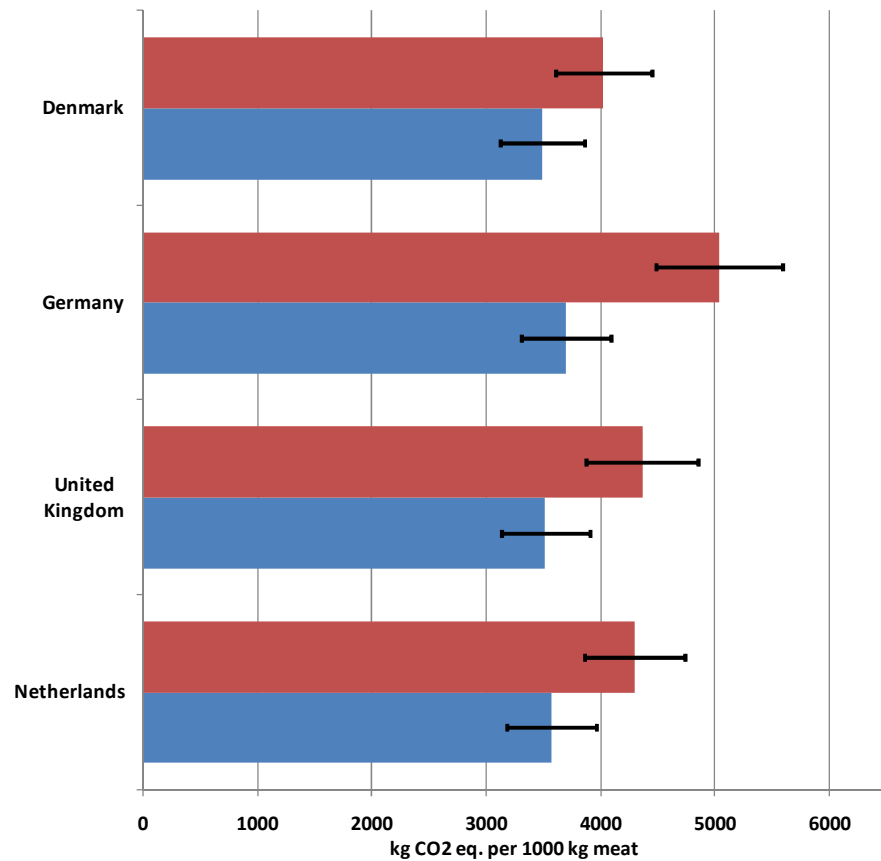
Spare slide



WAGENINGENUR
For quality of life

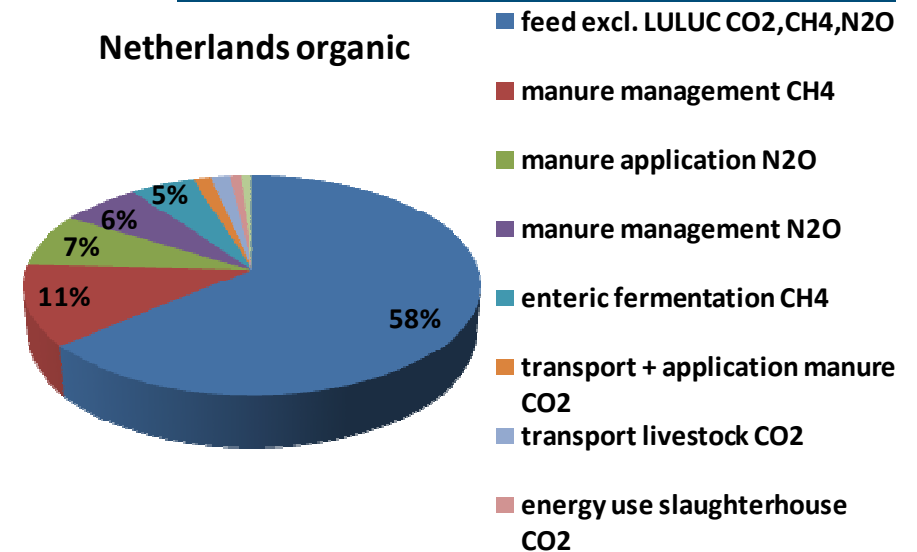
Carbon Footprint Pork

Carbon footprint of pork production included processing (excl. LULUC)



■ Organic excl LULUC
■ Conventional excl LULUC

Netherlands organic



Feed conversion rate

	Conventional	Organic
Netherlands	2.7	3.3
England	2.6	3.5
Germany	2.9	3.8
Denmark	2.7	3.3