



APPLIED PLANT RESEARCH

# Research on Organic Agriculture in the Netherlands



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## Personal introduction

- Wijnand Sukkel

Wageningen University and Research Centre (WUR), Business Unit: Applied Plant Research

- Specialist organic agriculture

- Research Coördinator: Organic open field production
- RC: Energy use and ghg emissions in organic agric.





## Organic agriculture in the Netherlands

- Conditions: high land and labour costs, capital intensive, specialised
  
- Acreage: 48.000 ha (2,5% of total)
  - Grass and fodder: 34 000 ha
  - Potatoes, fruits, vegetables: 6 000 ha
  - Cereals 5 000 ha
  
- No farmers: 1 500



# Organic agriculture in the Netherlands

## ■ Main Products

- Dairy
- Pig meat
- Potatoes, carrots, onions, cabbage
- Fresh market vegetables
- Glasshouse vegetables

## ■ Multifunctional

- nature, health care, recreation,
- direct selling, .....





# Policy on organic agriculture

- Motivation:
  - sustainable development
- Goals:
  - 10% annual growth of consumer spendings
  - 5% annual growth of acreage
- Public investments
  - No direct subsidies for farmers
  - Development of the market for organic
  - Investments in Research and Development
- Spin off:
  - innovation and inspiration for conventional agriculture

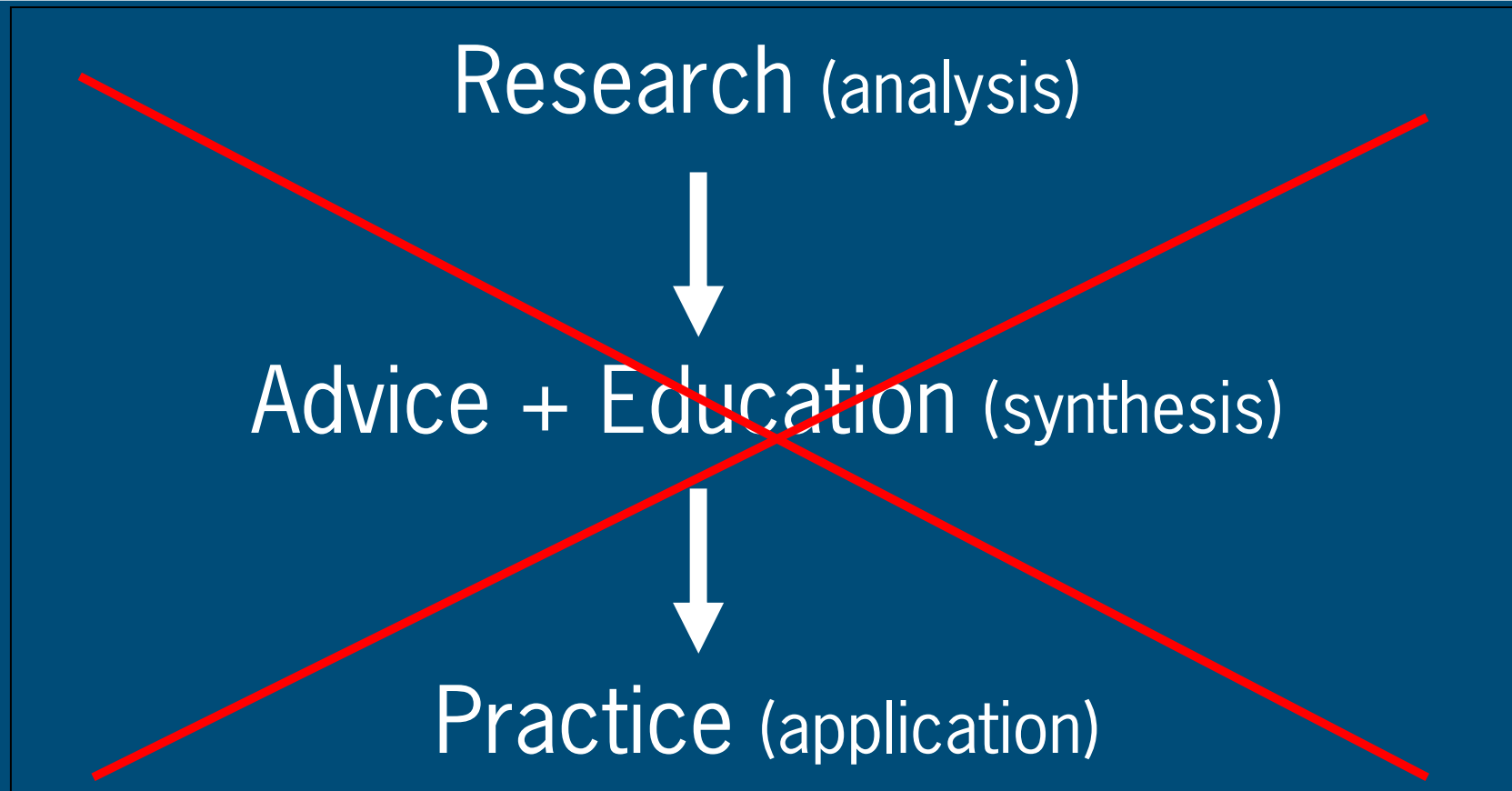


## Research in organic agriculture

- 10 % of public research funds to organic
- 9 million public + ap. 2 million private (Euro's/year)
- Organic sector has the lead in the agenda for research and knowledge transfer
  - Bioconnect (total organic production chain)
  - Ownership
  - Vision development



## Research vision and methods

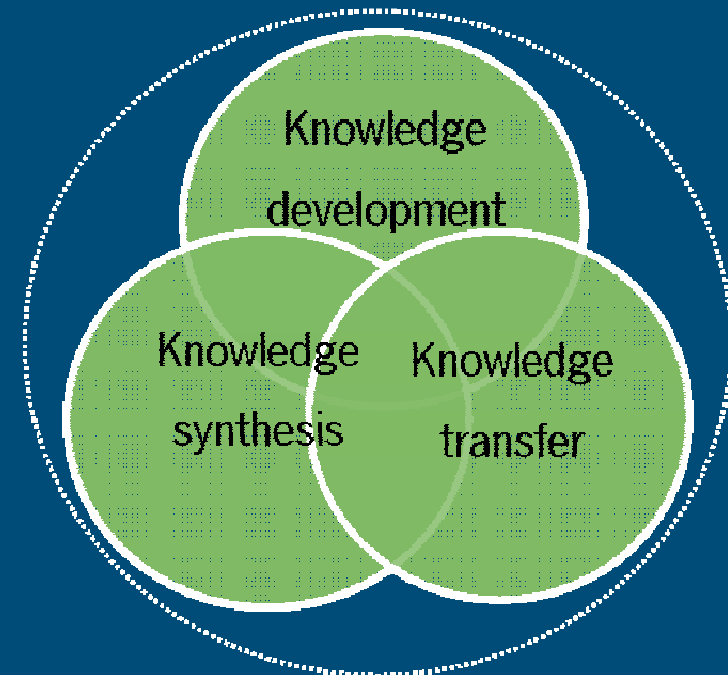
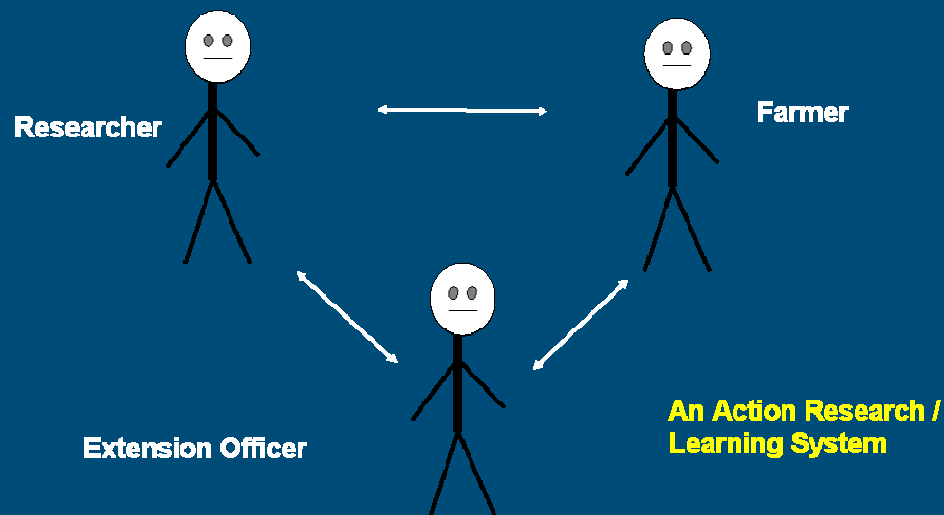


The classic model for the knowledge system is hardly used



# Vision on research and knowledge

- Integration of knowledge development, synthesis and transfer
- Participatory approaches (networks)
- System/holistic approaches







Conventional	Organic
Uniformity	Diversity
Recipy	Concept
Reductionism	Holism
General	Situational
Control	Cooperation
Specialist	Universalist
Reaction	Precaution
Economy	Ecology
Global	Regional



## Research programs for organic agriculture

- Plantbreeding and seed technology
- Soil fertility
- Animal production
- Plant production (outdoor and glasshouse)
- Energy use and climate
- Nature, landscape and multifunctional agriculture
- Market and production chains



## Important research issues

- Control of weeds pests and diseases
- Sustainable soil management
- Animal welfare and animal health
- Minimising emission and accumulation
- Healthy, safe and tasteful food
- Enhancement Biodiversity, Nature and Landscape
- Connections to consumers and society



## Control of pests and diseases (examples)



- UV light and ozone
- Onion oil against carrot fly
- Beetle eater

- Natural enemies against pea aphids
- Functional biodiversity
- Breeding for thrips resistance



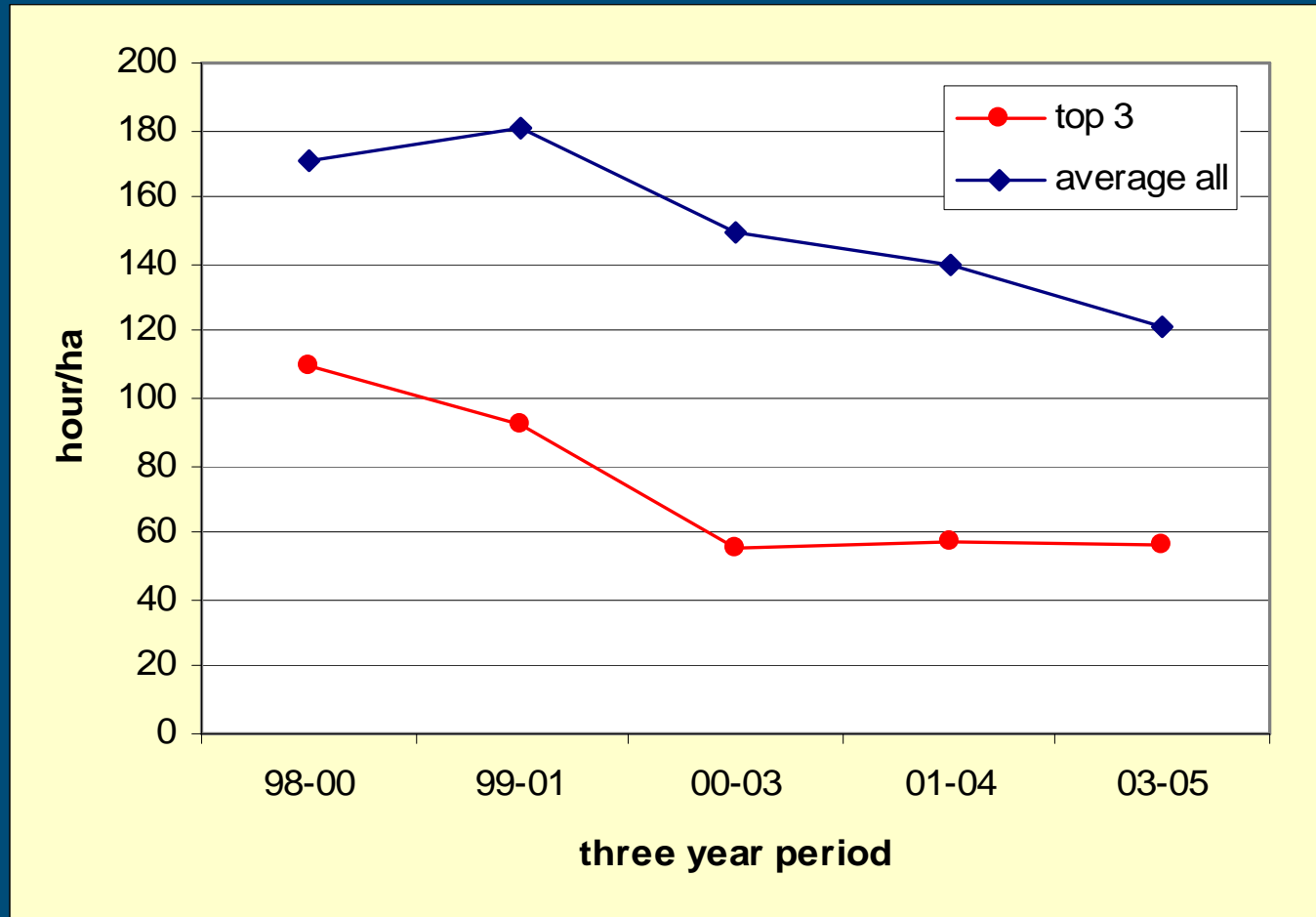


# Weed control





# Hours of handweeding in wintercarrots







## Soil and mechanisation

- Zero tillage techniques
- Fixed track systems GPS
- Ridge tillage
- Minimal soil compaction
- Organic matter management
- N<sub>2</sub>O emissions

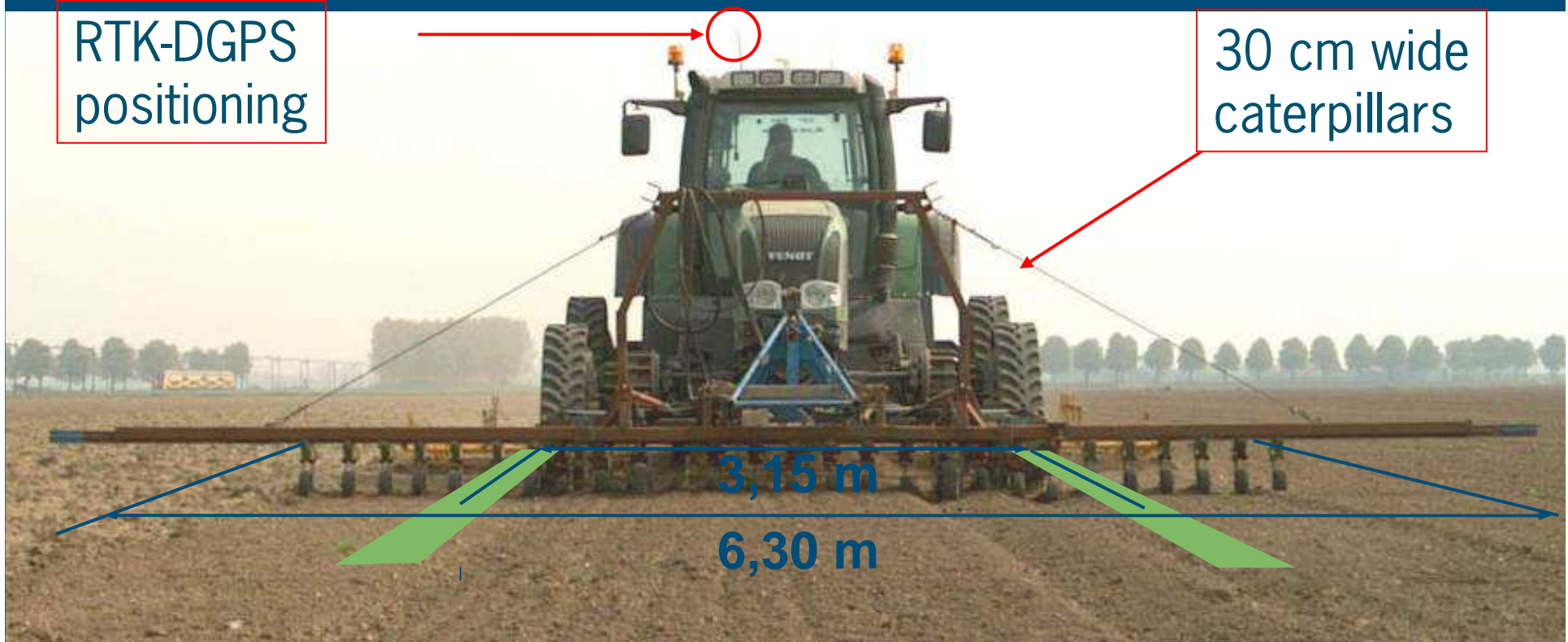




# Controlled Traffic System

RTK-DGPS  
positioning

30 cm wide  
caterpillars







## Animal health and welfare (examples)



Calves staying with their mother

Space for natural behaviour





## Healthy and tasteful products

- More Conjugated Linoleic Acids (LCA) in breast milk
- Biomarkers for health effects



- Breeding and cultivation for taste
- Prevent contaminants and micro organisms



# Economy, market and food chain

- Cost price calculations
- Product innovation and marketing



- Consumers preferences
- Product promotion





## People and society

- Agrigulture and health care
- Urban agriculture
- Consumers participating in farms



- Recreation on farms
- Combining agriculture and nature



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

