

The role of the agricultural and innovation policy in the Dutch food system

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Krijn J. Poppe

- Economist
- Research Manager at Wageningen Economic Research
- Member of the Council for the Environment and Infrastructure



(foto: Fred Ernst)

- Member Advisory Committee Province South-Holland on the quality of the Living Environment, Chair Agro Expert Council Flevoland
- Board member of SKAL – Dutch organic certification body
- Former Secretary General of the EAAE, now involved in managing its publications (ERAЕ, EuroChoices)
- Former Chief Science Officer Ministry of Agriculture

To explore the potential of nature to improve the quality of life

Society and well-being



- Food and Living environment
- Lifestyle
- Perceptions
- Governance
- Market and chains
- Social innovations

- Sustainable production and food processing
- Animal feed and biobased products
- International food chains and networks
- Food security and food health aspects



Food, feed and biobased production



Natural resources and Living environment

- Nature and landscape
- Land use
- Water, sea and natural resource management
- Biodiversity

Wageningen UR: 2 partners

Wageningen University

Wageningen Research



- 9,840 BSc/MSc students from >100 countries
- >1,900 PhD candidates
- 2,529 FTE of faculty and staff
- Revenue in 2015: €635 million
- WUR ranking in Higher Education Selection Guide in full-time university education 2017: 1 (12 consecutive years)

Wageningen UR: 2 partners

Wageningen University

Wageningen Research



- 2,410 FTE of faculty and staff
- Revenue in 2015: €635 million

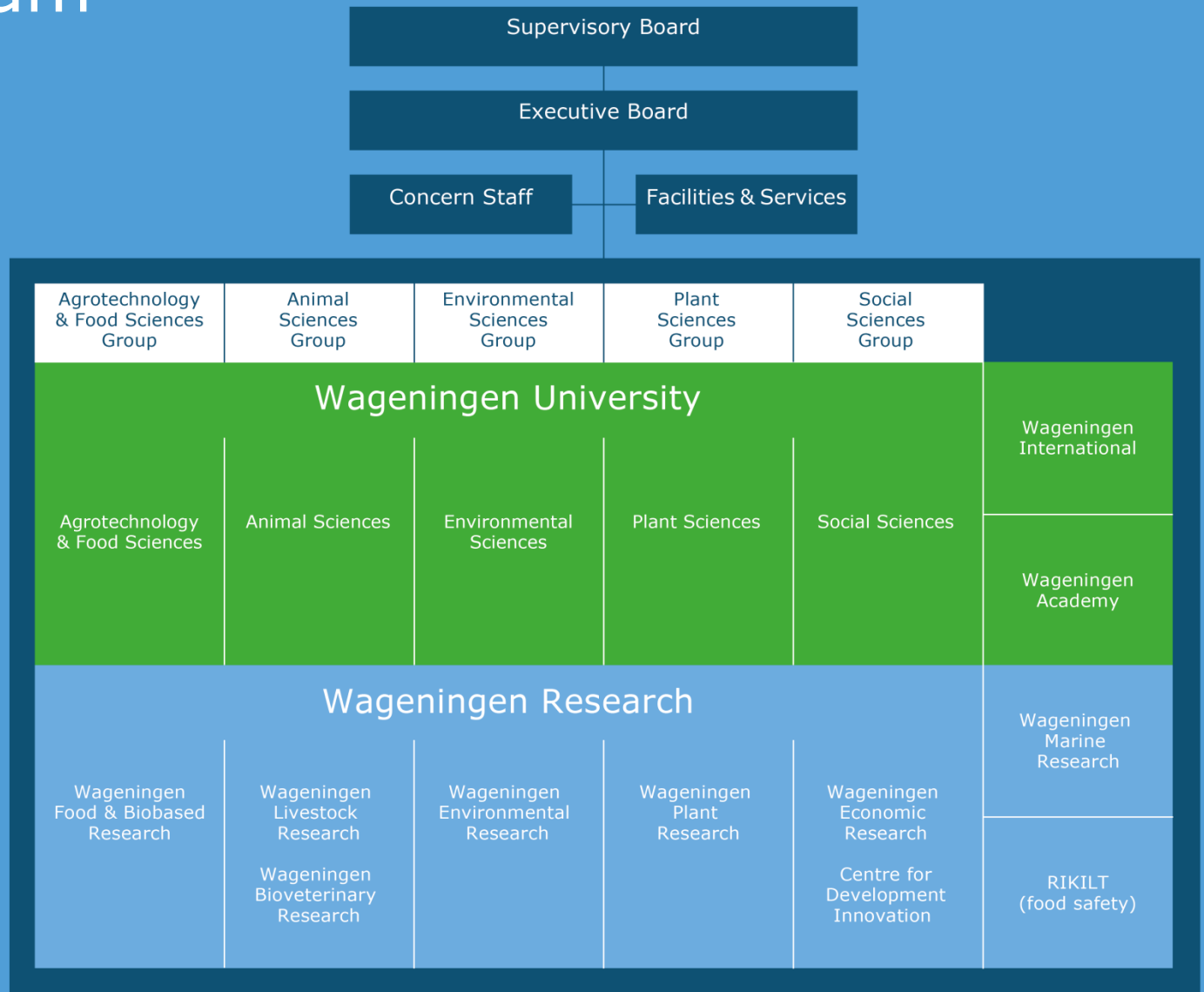


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Organigram



Strong position in the rankings

1

WUR ranking in QS World University
Rankings 2016-2017
"Agriculture and Forestry"

47

WUR ranking in Times Higher Education
World University Rankings 2015-2016

4

WUR ranking in QS World University Rankings
2016-2017
"Environmental Sciences"

29

WUR ranking in Academic Ranking of
World Universities 2015
"Life & Agriculture Sciences"

1

WUR ranking in National Taiwan
University Ranking,
World Universities 2015-2016
"Agriculture"

1

(12 years running)

WUR ranking in Keuzegids
in full time
university education
2017



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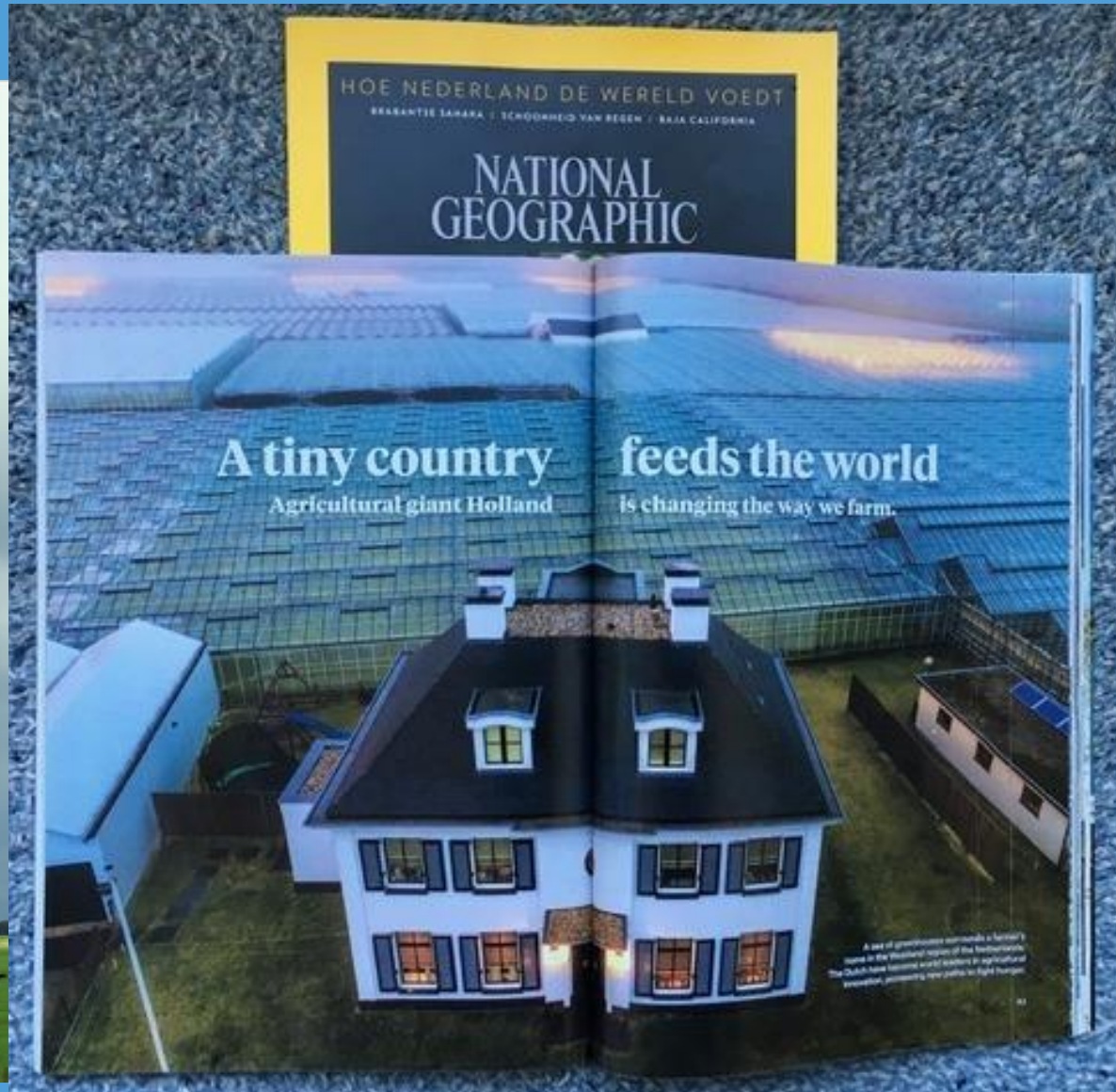


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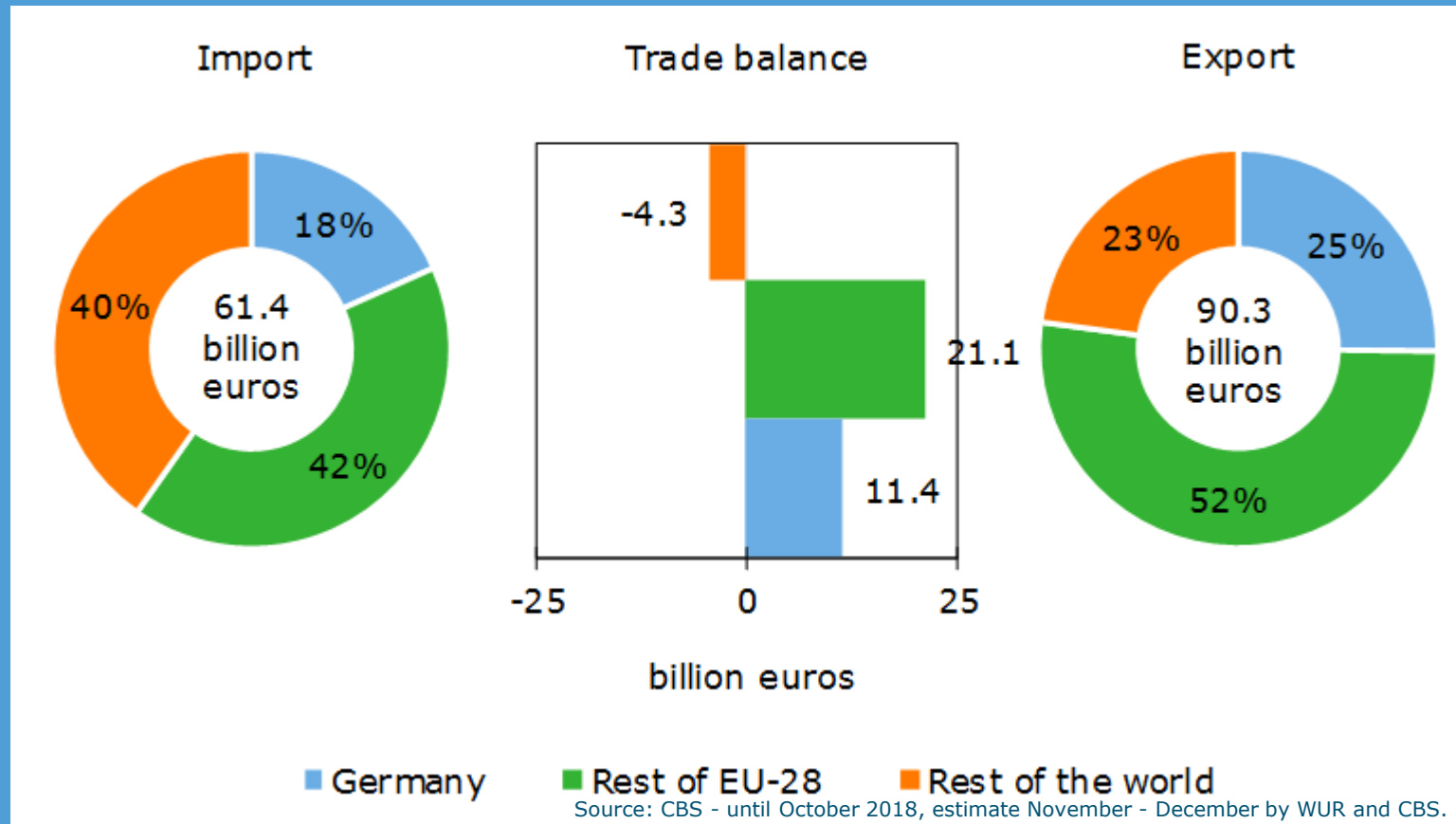
A closer look into Dutch farming



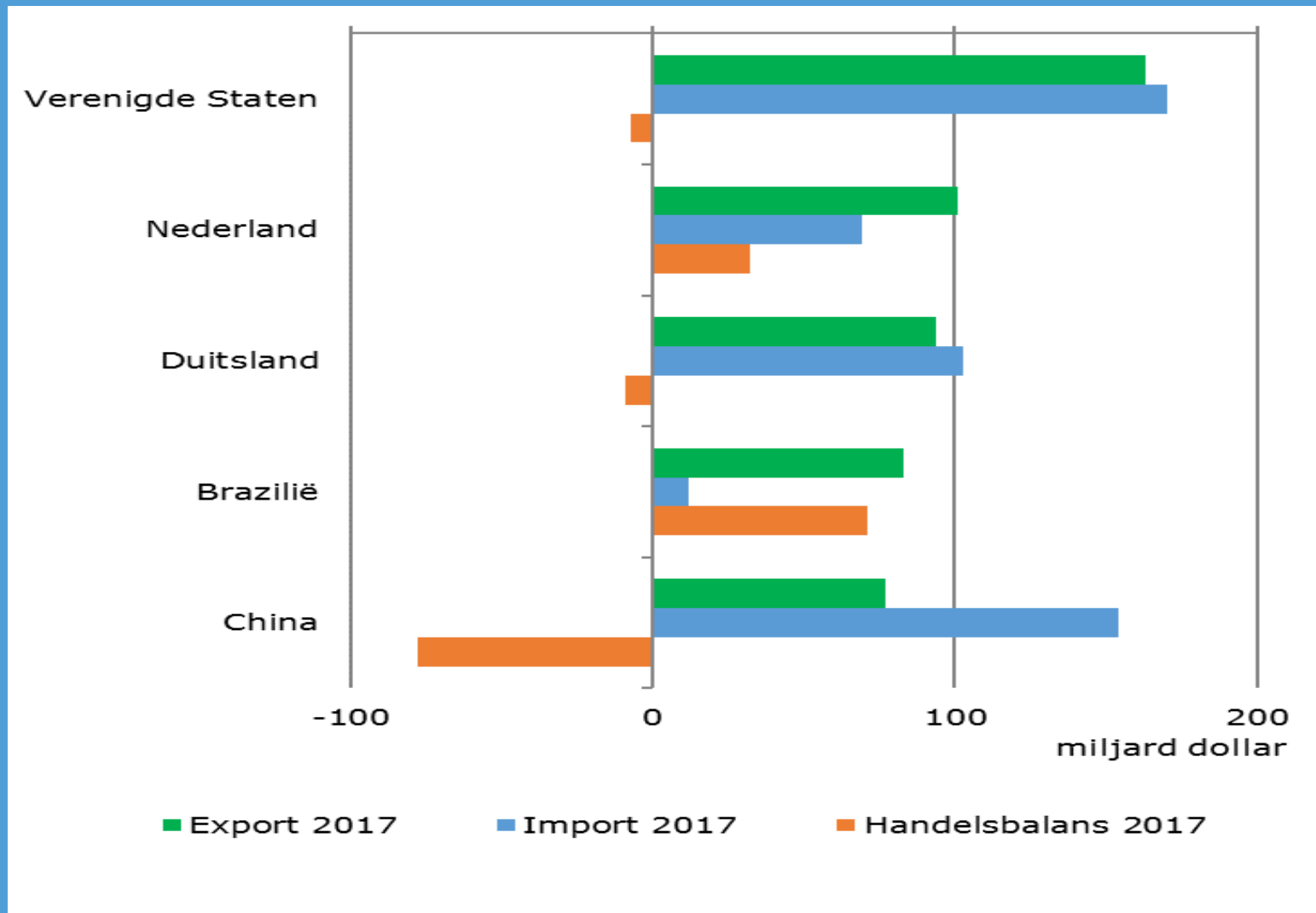
A tiny country that feeds the world ???



Import and export of agricultural goods by region in 2018: a city state with export



The big five in agri-food export (in bln. \$)

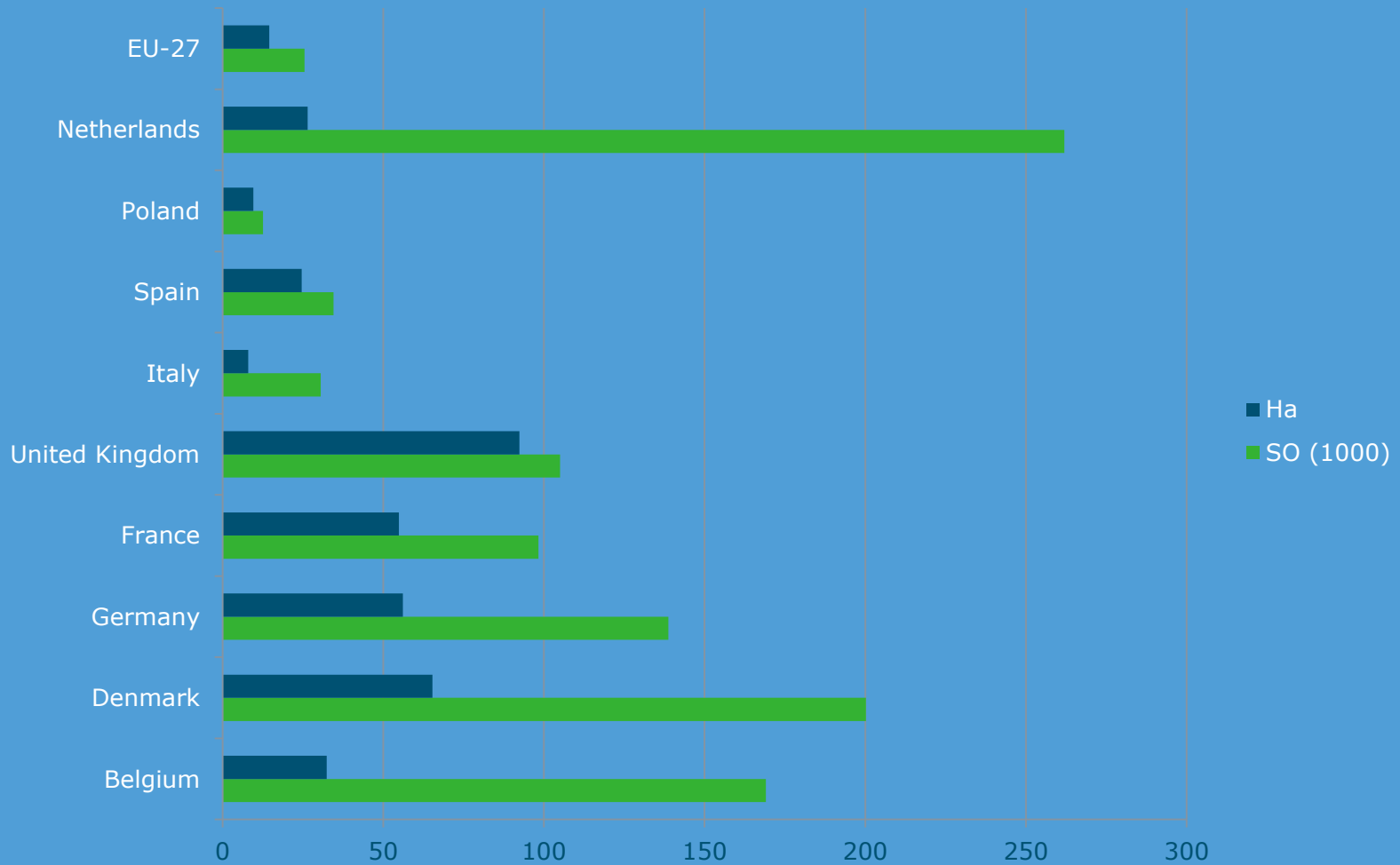


Be aware that:

- The agri-food products include cacao, coffee, oranges (and other tropical fruits)
- This is due to the port of Rotterdam as point of entry for (N.W.) Europe
- The Netherlands is also a big importer, including feed: in total we export € 90 bln. And import € 60 bln.
- Some of the export is at very short distance (from the SE of the country to the Ruhr area in Germany: 100 km).
- Nevertheless the value added resulting from exports is € 45 bln. (all sectors). Agri-food is 8% of the economy.
- ***Dutch agriculture is strongly embedded in international food trade***



Farm size in the EU, 2011



Source: Eurostat



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Explanations: the delta



Delta characteristics

- Flat and fertile soils (clay, peat)
- Cheap water transport: trade, specialisation (in farms)
- Cities: markets for luxury products, high labour costs (alternative employment is close), cheap capital: innovation for labour productivity
- No mining, no industrial revolutions that created industries and their institutional environment
- ***Leads to an agriculture that is strongly embedded in international food trade and that has to rely on innovation to realise labour productivity / a comparable income to attract the next generation***



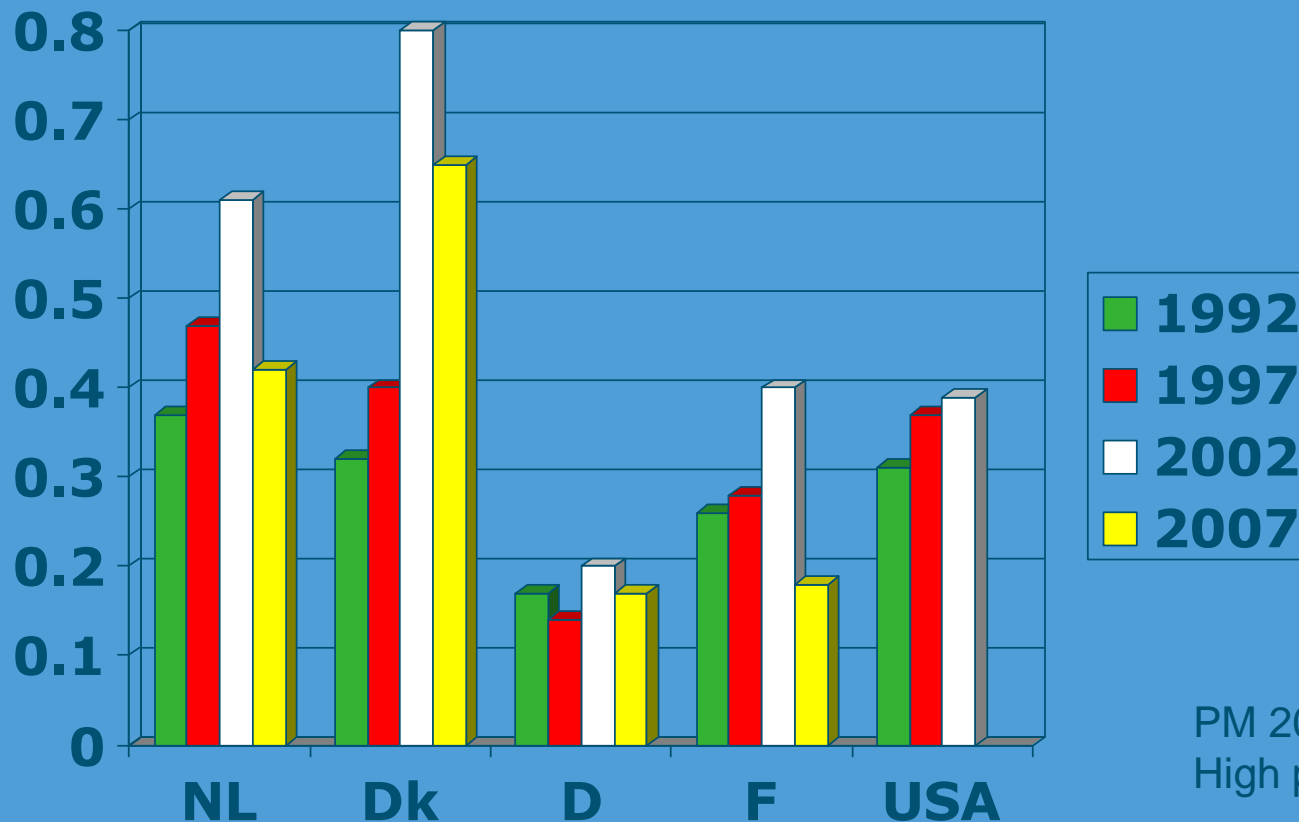
A short history:

- Middle ages: colonisation, water authorities, trust
- 1600s: Republic of the NL, Golden Age, cities (high value products, tulips, import of cereals and oxen, Von Thunen)
- 1800: Napoleon, modernisation of institutions
- Kingdom of the NL: profits from Indonesia invested in infrastructure, but low prices (E. Europe cereals)
- 1839: exit Belgium – coal mines and steel leave....
- 1850: demand from UK (cities, industrial revolution)
- 1886: crisis (USA cereals): innovation as only option, cooperatives, education, food safety laws. Start agricultural policy. Saved by German demand.



Innovation as basis for competitiveness

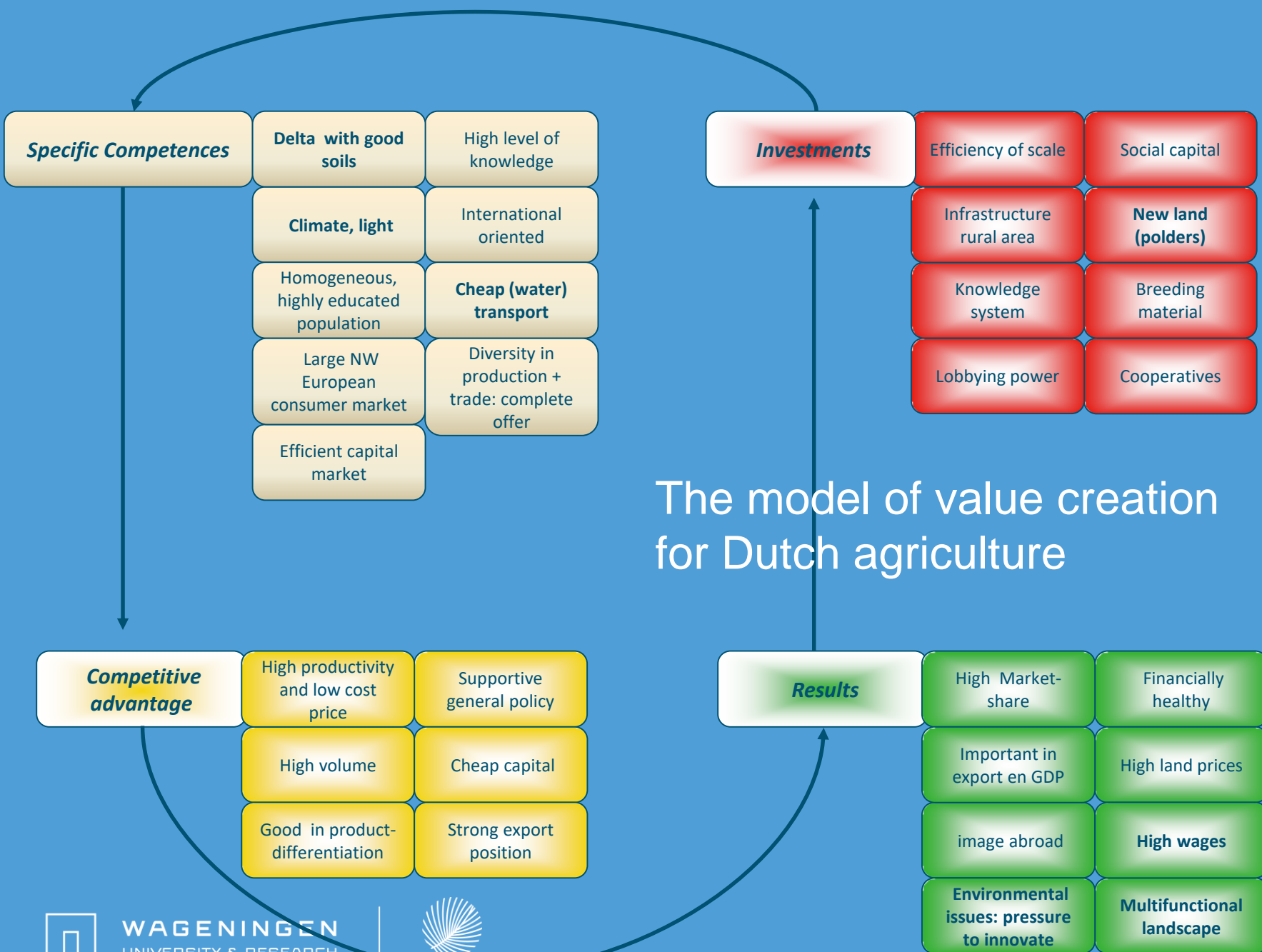
R&D expenditure as % of value of production in food products, beverages and tobacco



A short history:

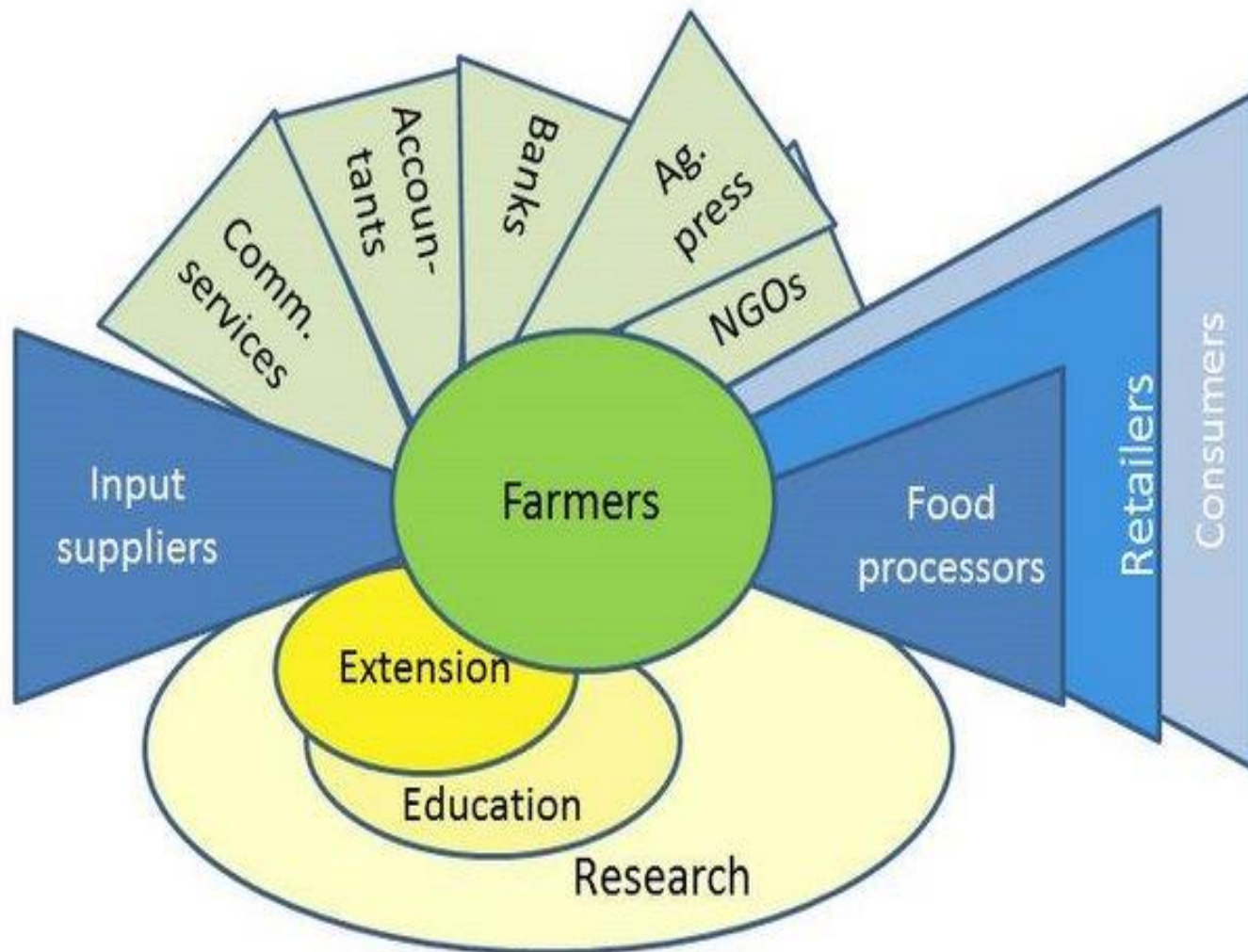
- 1920s, 1930s: economic crises, increase in farm numbers, start interventionist agricultural policy
- 1944: WW II, Hunger winter due to railway strike
- 1945: 'never hunger again', national agricultural policy to earn dollars (balance of payments). Mr. Sicco Mansholt, minister for agriculture, later EU commission.
- Modernisation of agriculture: land re-allotment, mechanisation, specialisation.
- Growth and mergers of food industry and retail
- 1963: start EU policy with higher prices ('no more war')
- 1980's: overproduction, quota, environmental problems





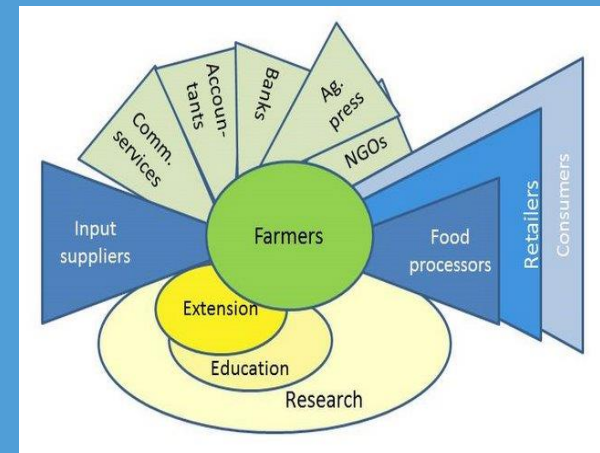
The model of value creation for Dutch agriculture

Agricultural Knowledge and Innovation Systems - AKIS

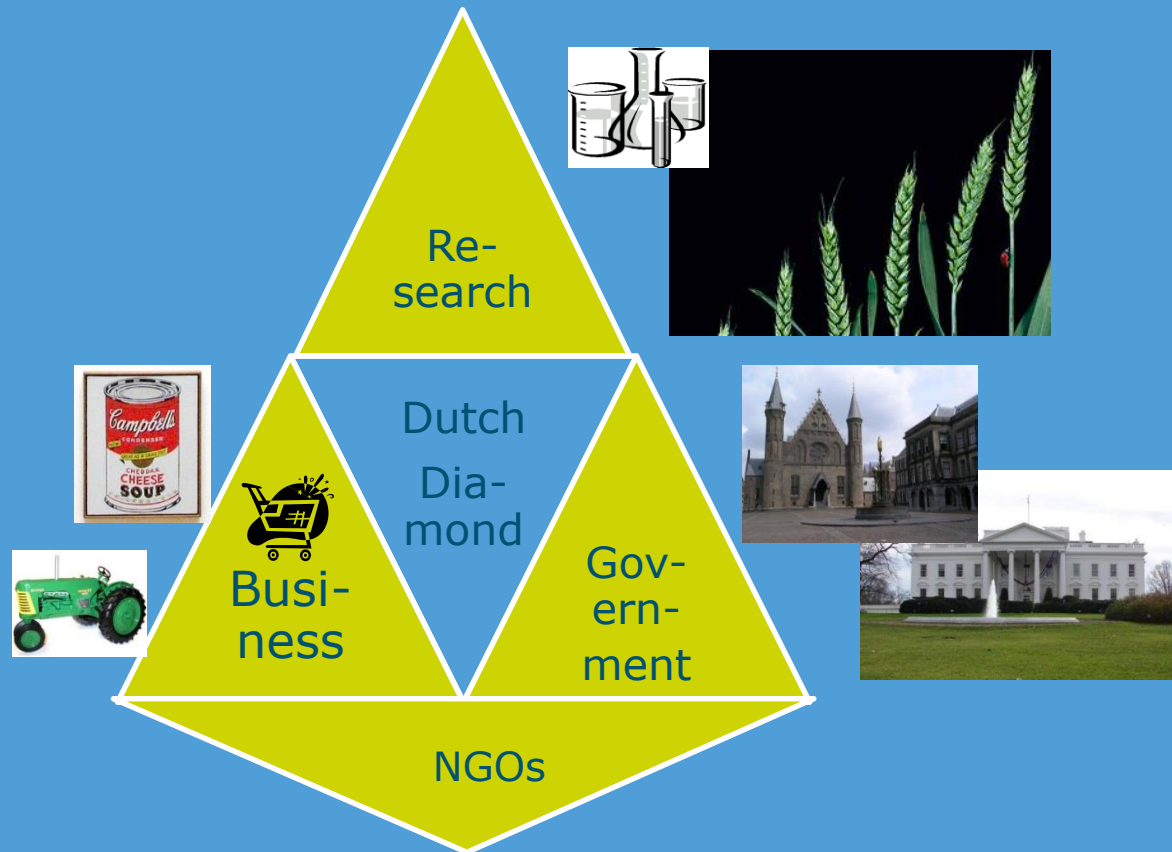


1950 – 1985 Public financed triptych EER

- 1980s: privatisation of extension
- Research at arms' length, output financed
- 2000 Merger of (DLO) research institutes with Wageningen University into WUR
- 2012 -2017 No ministry of Agriculture: Economic Affairs, introduction of 'top sector approach': PPP's
- 2017: Wageningen University under ministry of Science



Many research projects are embedded in Public-Private Research partnerships



Our agro-innovation system and theory

- Innovation happens in a social system: “an institutional clustering of practices among the participants (not necessarily implying consensus)” (Anthony Giddens)
- Long-term infrastructural investment in ‘mental capital’ and its improvement is crucial for successful economic development and for competitive trade performance (Chris Freeman for OECD, quoting List, Keynes, and investigating historical cases in Europe and Asia)
- ‘Coupling mechanisms’ between the education system, scientific institutions, R&D facilities, production and markets have been an important aspect of the institutional changes introduced in successful ‘overtaking’ countries. (Freeman)
- Dutch agro-innovation system: PPPartners, linking principles en connection mechanisms (process design)

Linking public and private interests



Linking principles:

- Openness
- Proximity
- Synergy
- Absorption capacity external info

Connection mechanisms:

- Fora like Knowledge rooms etc.
- Strategic agenda sector
- Strat. Knowledge & Innovation Agenda
- Public-private investments
- Supporting institutional changes

7 Innovation functions (Hekkert et al., 2007)

F1: Entrepreneurial activities: translation of possibilities of new knowledge, networks, and markets into specific actions to generate and benefit from new business opportunities

F2: Knowledge development: learning through research and development, including search learning and learning-by-doing

F3: Knowledge exchange and networks: between multiple actors, are required to put knowledge to practice

F4: Guidance of search: actions and interactions to manage expectations, needs and visions about the innovation

F5: Market formation: the creation of incentives or protective elements to launch innovation, e.g. niche markets, taxes

F6: Resource mobilization: financial and human capacity required to innovate

F7: Counteract resistance to change: advocacy and actions against the fear of changing regimes or disruption

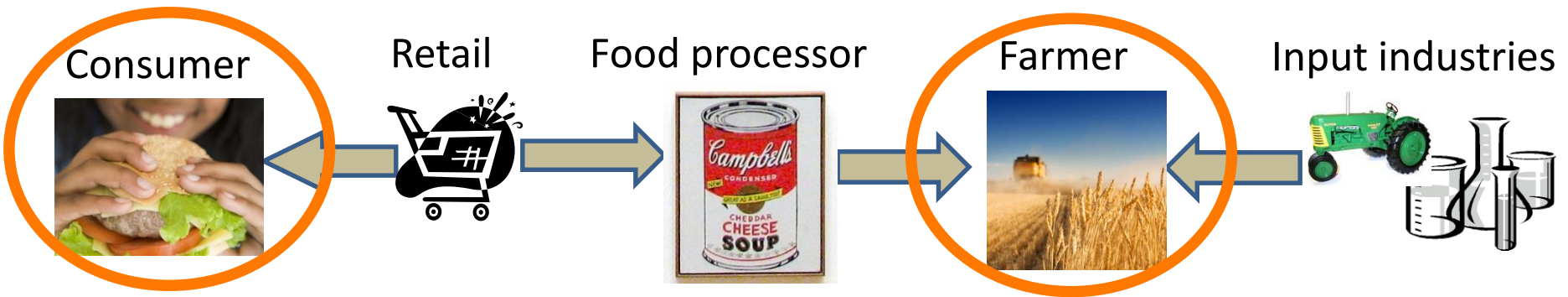
Food Systems thinking gains ground

A food system is defined as a system that:

- embraces all the elements (environment, people, inputs, processes, infrastructure, institutions, markets and trade) and
- activities that relate to the production, processing, distribution and marketing, preparation and consumption of food and
- the outputs of these activities, including socio-economic and environmental outcomes.

A sustainable food system is a food system that delivers food and nutrition security for all in such a way that the economic, social and environmental bases to generate food security and nutrition for future generations are not compromised.

Food chain: 2 weak spots – opportunity?



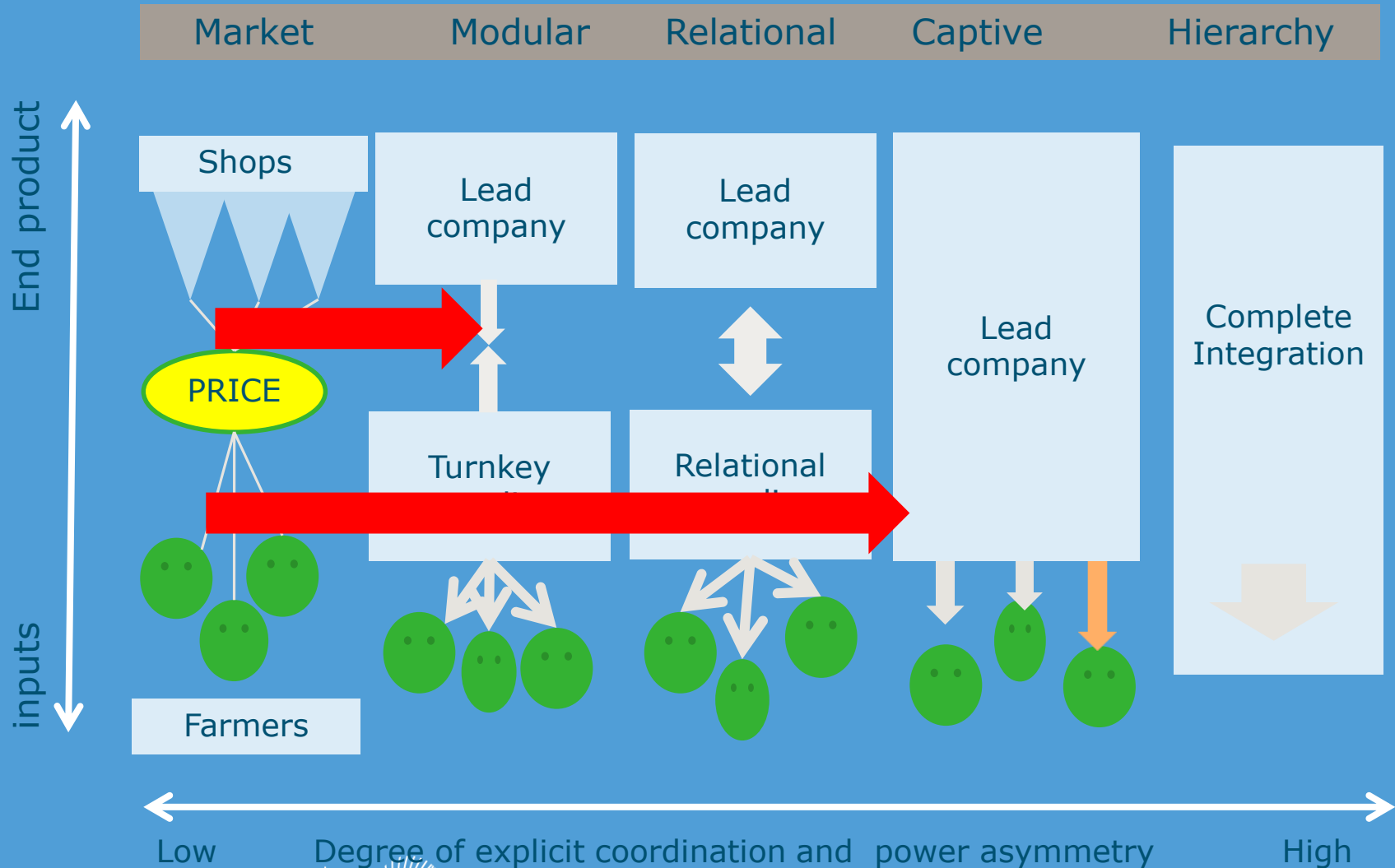
- Public health issues – obesity, Diabetes-2 etc.
- Climate change asks for changes in diet
- Strong structural change
- Environmental costs need to be internalised
- Climate change (GHG) strengthens this

Is it coincidence that these 2 are the weakest groups?
Are these issues business opportunities and does ICT help?
Or: systemic problem – lack of transformative change?

Strong ICT trends: less farm labour needed and it changes the food system?



Chain organisation changes (©Gereffi et al., 2005)



Role of agricultural policy (CAP)

- Pillar 1 per ha Direct payments to be split:
 - For income support (with conditionality)
 - Eco-schemes, voluntary environmental services
- Pillar 2 Rural Development:
 - Conservation contracts
 - Investment aid
 - EIP

Regulate

Direct income support (with conditionality)

ECO Schemes for extra eco-services. Linked to:

Market sustainable food

Provide public services

Long term Conservation Contracts

Innovation support

From agriculture policy to food policy: EU Common Agricultural Policy as example

Four options to deal with climate change objectives:

- Regulate (e.g. emission trading scheme in farming on GHG)
- Direct payments with conditionality / cross-compliance (“greening”): payment per ha if grassland has enough clover and herbs (4 ‰)
- Longer term Conservation contracts for nature management
- Eco-schemes: voluntary direct payment on conditions [NL:] that farmer joins a sustainability scheme of a food processor (“equivalence”): works with the market, marketing of ‘green’ products to consumer >> food system approach

Thanks for your attention

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