SCAR
Standing Committee
on Agricultural Research

SWG AKIS

Strategic Working Group on Agricultural Knowledge and Innovation Systems

Budapest Meeting
05 to 07th of OCTOBER 2016

Netherlands

MARTIJN PLANTINGA, MINISTRY OF ECONOMIC AFFAIRS

DG AGRI & NATURE – RESEARCH, INNOVATION AND STRATEGY UNIT

Main literature (sources)

- OECD (2015), Innovation, Agricultural Productivity and Sustainability in the Netherlands, OECD Food and Agricultural Reviews, OECD Publishing, Paris

http://dx.doi.org/10.1787/9789264238473-en

- Caggiano, M. (2014): AKIS and advisory services in The Netherlands. Report for the AKIS inventory (WP3) of the PRO AKIS project.

http://www.proakis.eu/publicationsandevents/pubs

- Internal policy evaluation data,

  DG AN – Ministry of Economic Affairs

1.A) The Dutch AKIS I

- Main characteristics

  - System is a **high performer** at the national and international level > strong supply of innovation despite decreasing funding

  - **Demand driven** agenda and good collaboration between research, education and industry within all sub-sectors (adoptation of innovation)

  - High participation in **international collaborative** efforts, particular at the EU level

  - Agri-food innovation benefits from high **quality education** and **research institutions** and competitive **agri-food industries**

1.A) The Dutch AKIS II

- The system is characterised by its complexity – large number of institutions and numerous interrelated and cross sectional connections
  - **Knowledge institutes** (education and research)
    - Central actor is Wageningen University and Research (education, fundamental and applied research)
    - Universities of applied sciences HBO (10.000 students), also at lower level: specialised schools (VMBO/MBO)
    - A large number of other research institutes: IVR, TNO, RIVM, NIZO, IRS, DLVs, Private research and consultancy firms, R&D facilties from 12 of the global top 40 food and beverage companies
  - **Government** (plays a role in the governance of the AKIS) – Ministries EA, HWS, IA
    - Correction of market failures (organise the AKIS / pools the capacity/fund public good research)
    - EA: Direct budgetary responsibility WU and Public inspectorate (NVWA) –supervision EA, links with HWS
    - Growing role EU – but EU-agenda is not always aligned with national and regional agenda's
  - **The food and agricultural sector** > primary actors in innovation (farmers, food industry, supplying industries)
    - LTO Nederland (federation of the sector, consultants advising entrepreneurs in the sector)
  - **Intermediates**
    - Farm Advisory System (FAS) : 41 private advisory firms
    - Elaborate network of (informal) farmer study groups (farmer driven)

1.A) The Dutch AKIS III

- Main changes from 2012 (including interactive innovation model promoted by the EIP)
  - The whole AKIS has become **increasingly complex**: changes in roles and in themes
  - From a linear to a more dynamic, interactive and diversified **innovation network system** approach (changing role government / topsector policy / golden triangle)
  - **Sectoral changes** (large scale firms, intensification) allow for more ability for private R&D investments (less market failure on that aspect) – SME's are the losers
  - Transition of knowledge as a public good to **knowledge as a marketable product** on a a wordwide market (free and open acces under pressure)
  - **The Dutch AKIS is under pressure** by cuts in public funding and earlier, abolishment of statutory product boards and the privatisaton of extension services
  - Need for linkage of variety of scientific *and t*echnological disciplines – **real challenge** of innovation itself
  - **Continuing internalisation** of the AKIS (EU and global) – actors and knowledge flows

1.A) The Dutch AKIS IV

- Main barriers and bottlenecks hindering knowledge flows and adoptation of innovation
  - Knowledge paradox: knowledge to earning power *(e.g. SMEs)*
  - Adoptation of innovation by SME's is arduous (for several reasons)
    - Privatisation of the extension services is difficult for SME's
    - Abolishment of statutory product boards (cofinancing R&D)
    - Matching education to labor market – development of a strategic agenda
    - The overall economic climate and the labor market
    - Uncertainty in governmental policy and administrative burdens
    - Solvency and cash flow of farms, familiy-firm life cycle (successor), credit policy of banks, the extent to which innovators can benefit before imitation takes place
  - Collaboration and knowledge flows on cross-cutting issues (e.g. health and nutrition, ICT and agriculture) is even more difficult
  - Centres of expertise are under pressure (e.g. food valley)

1.B) What are the themes of interest nowadays and for the next 10 years in your country?

Different kind of themes: Examples from the Netherlands

- **Sectors:** We work with the "Agrocomplex" or "Food Net" definition, including all stakeholders and subsectors (national and international); from farm to fork (consumer, civilian)

- **Cross-cutting/systemic themes:** Economically healthy resilient systems and chains; healthy & safe food; (global) food security; circular economy (resource management, biobased economy); ecologically sustainable (soil, water, air); nature inclusive agriculture; climate smart (robust); nature & biodiversity; animal friendly; public acceptance; new technologies.

- **Technological themes:** Digital economy and new technology (public support), e.g.: drones, genetic engineering, cultured meat,s mart materials, big data/datafigation, robotics and autonomous micro-robots, 3d/4d-printing, sensor technology, bioinformatics, synthetic biology, protein transition (animal to vegetable), food design, vertical agriculture, etcetera

- **AKIS themes:** Global challenges are put central, new connections and innovatory food net (resilient). Thereby ensuring a strong and future proof knowledge base

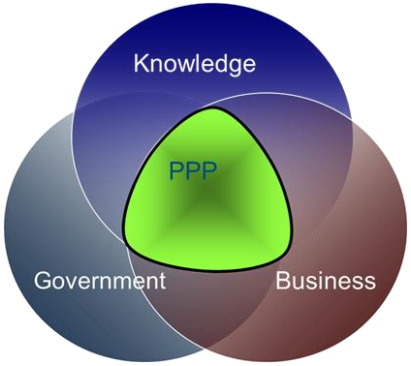
2) Dutch Infrastructures generating knowledge flows I

Kind of Infrastructure	Names	Places	Sector	Holder	Users	Funders
Research (offices and laboratories)	Geolab, NL environmental lab (NEL), Castel, Hydro lab, High containment unit (HCU), Dairy campus, VIC Sterksel, PRI/PPO, Algae PARC Facilities, RIKILT/NRL, IMARES, WURGLAS, WUR CAT	Different locations in the country	Different	RIVM, TNO, WUR, UU, Marin, Deltares, ECN, others	Governments, Enterprises, NGO's, others	Government
Public-private partnerships (PPP's)	Topsector A&F Topsector T&U	All around the country and international	Agrocomplex (FoodNet)	MEA, Sector, Research (WR)	Government, Research, companies	Public, private
Knowledge net's (online databases)	Groen Kennisnet Kennis online	Wageningen	Green Domain	WUR	Students, Researchers, Governments, enterprises	Public, Privat
Centres of expertise	Food Valley NL	Wageningen	Food	Society of companies	All	Public, private
Provinces	Financial schemes	Netherlands	Agrifood	Provinces	SME's	EU/Provinces

2) Dutch Infrastructures generating knowledge flows II

Kind of Infrastructure	Names	Places	Sector	Holder	Users	Funders
Private extension services	Several (41 within FAS): DLV VAB LTO	All over NL	Agrocomplex	Several	SME's, bigger companies	Private (consultancy)
Farmer study groups (local networks – peer to peer)	Several (many) informal	All over NL	Agrocomplex	Farmers	Farmers	Farmers
Education (green and other)	WUR HBO MBO VMBO	All over NL and abroad	Agrofood Animals	Several	Students	Government

3.A) Dutch Interactive Innovation schemes/networks



- Topsector policy: Agri & Food, and Horticulture and propagation materials
  - Numerous public private partnerships (ppp) and projects
  - Cross-overs with TS Life sciences, Water, Energy, High tech systems and Materials, Chemistry
  - Demand driven, integrated approach, cross-sectral
- Several schemes to promote interactive research, mostly targeted at SME's:
  - MIT, TKI allowance, SME+ innovation fund, SBIR, others
- EIP-agri: carried out by the provinces

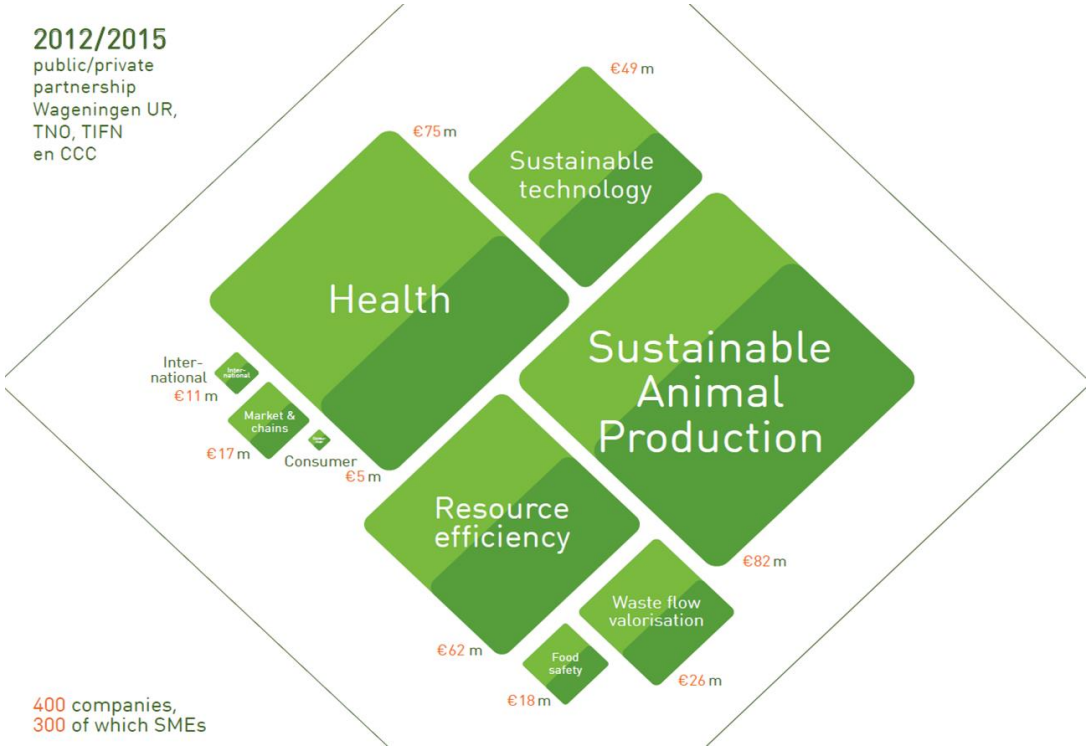
3.B) Dutch Interactive Innovation projects

- Significant number of public-private partnerships and projects under the topsectors Agri & Food and Horticulture and propagation materials

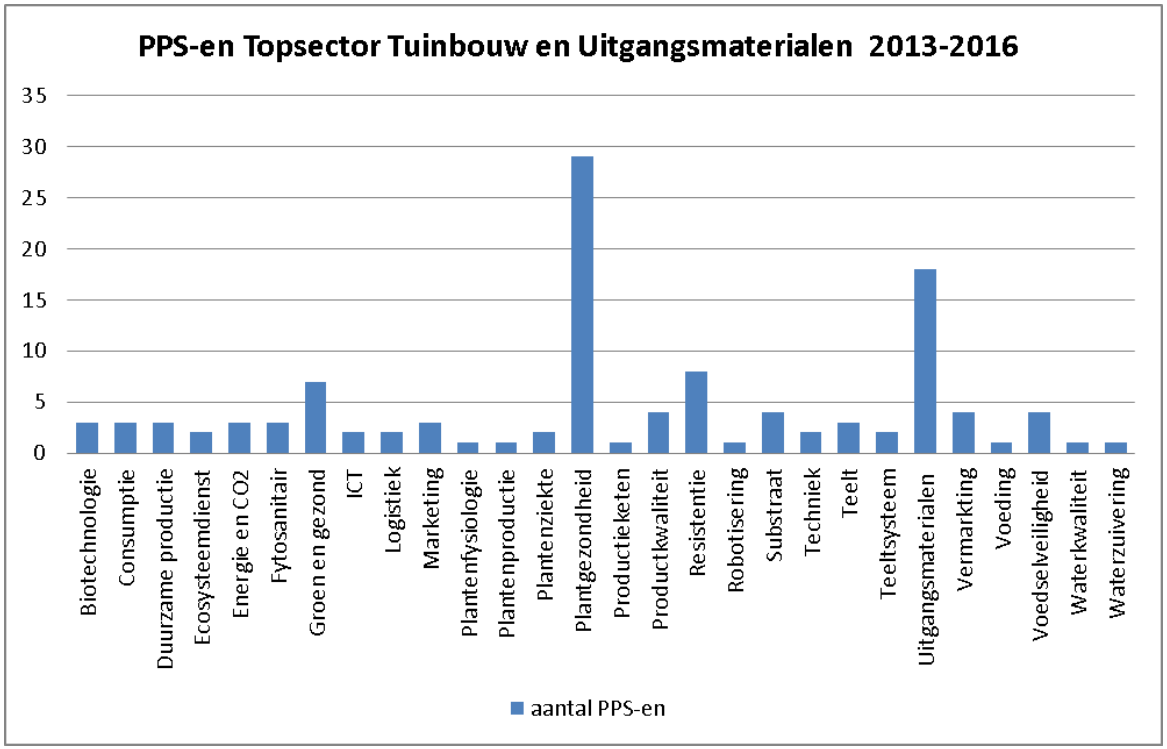
- EIP-Agri projects: PM

Topsector Agri & Food 2012-2015

- Effective support of SMEs in applying knowledge into new products, processes and services. € 55 million in 2016 in collaboration with provinces



Topsector H & P 2012-2015



THANK YOU FOR YOUR ATTENTION!