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Agro Innovation System: Collaboration between Academia, Farmers and Government

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LIB = Public Private-Partnership since 1995:
(Province North-Brabant and Farmers Organisation ZLTO, goal: contribute to sustainable development)
The Southern Agriculture and Horticulture Organization (ZLTO) represents the interests of entrepreneurs working in green areas. Around 16,000 farmers and growers in the South-Netherlands are members of our association. Together with them, we work to produce healthy food innovatively and sustainably.

Brabant:
- 2,500,000 inhabitants
- 600,000 cows
- 6,000,000 pigs
- 26,000,000 chickens
- 2,000 ha. strawberries
- 10,000 farms

Key Facts:
- Brabant: 2,500,000 inhabitants
- Europe: 2.000 ha. strawberries
- ZLTO: 13,500 members
- The Netherlands

- World class agriculture
- World smartest high tech region Brainport
Development in the Dutch ‘innovation system’ in Agrifood

Agricultural Innovation Systems

- From technology-oriented to systems approaches to innovation – a journey through time...

<table>
<thead>
<tr>
<th>Era</th>
<th>Technology Transfer (TT)</th>
<th>Farming Systems Analysis (FSR)</th>
<th>Agricultural Knowledge and Information Systems (AKIS)</th>
<th>Agricultural Innovation Systems (AIS)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>From 1960’s</td>
<td>From 1970’s/1980’s</td>
<td>From 1990’s</td>
<td>From 2000’s</td>
</tr>
<tr>
<td>Approach</td>
<td>Research develops technologies that are transferred to farmers</td>
<td>Research identifies and tackles constraints (land, labour) of farmers</td>
<td>Research collaborates with extension officers and farmers in developing solutions</td>
<td>Create an enabling environment for innovation</td>
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Started as a Linear model, with little interaction between science and practise

- Technology transfer approach
  - The traditional approach of agricultural research and extension follows a linear approach where experts produce new knowledge and technology and transfer it to the end users.
  - The linear approach assumes that agricultural research, through technology transfer, leads to technology adoption and increased productivity. (Source: ILRI, 2008)

Organization of Actors in a linear configuration

Linear approach for ARD
Development in the Dutch ‘innovation system’ in Agrifood

Agricultural Innovation Systems

<table>
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<tr>
<th>Roles of farmers</th>
<th>Technology Transfer (TT)</th>
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<tbody>
<tr>
<td></td>
<td>▪ Adopters of technologies</td>
<td>▪ Adopters of knowledge and technologies Source of information</td>
<td>▪ Experimenters Experts</td>
<td>▪ Partners ▪ Entrepreneurs ▪ Part of innovation network</td>
</tr>
<tr>
<td>Roles of research and researchers</td>
<td>▪ Developers of knowledge and technologies</td>
<td>▪ Experts</td>
<td>▪ Capacity builders ▪ Facilitators of learning</td>
<td>▪ Enhance innovation capacity in the system ▪ Members innovation network</td>
</tr>
</tbody>
</table>
From TT to AIS: Farmers & Farms in the lead

From Technology transfer to Agricultural Innovation systems

- The innovation systems framework sees innovation in a more systematic, interactive and evolutionary way.
- More emphasis is placed on fostering active interaction among diverse stakeholders and enhancing human capacity to continuously innovate to be able to adapt to changing social economic and environmental conditions.

(Source: Hall 2005)

From Technology transfer to Agricultural Innovation systems

- The salient feature of the new approach is the reversal of learning, where researcher and extension workers are learning from farmers.
- The key elements of the new paradigm are to put emphasis on people rather than ‘things’, to decentralize, empower the participants, to value and work on what matters to participants (subjective perspective), and to learn from the beneficiaries rather than to teach them.
- Location and roles are also reversed, with farms and farmers seen as central instead of research stations, laboratories and scientists.

(Source: World Bank, 2013)
Golden Triangle / Triple Helix with based on collaboration, interaction and equivalency between actors
Triple Helix Model: Collaboration and win-win situation

Figure 3
The Triple Helix Model of University-Industry-Government relations

Tri-lateral networks and hybrid organizations

Academia

State

Industry
Precision Agriculture Practice Center, arable farming

‘Smart Farming Van den Borne potatoes’ is developed in collaboration with: Technical University Eindhoven (High Tech and Software), Wageningen University and Research (Growth Models, Software and High Tech), ZLTO (Farmers Association) and HAS University of Applied Sciences (Tomorrows data driven farmers, starters and employees of suppliers), and facilitated by governmental funding.
Farmers & Climate neutral agriculture

Collaboration of 16 pilot farmers, Ministry of Agriculture and WUR and LIB
DESIGN & Farmers: developing new products
Agriculture Innovation Brabant (LIB), Netherlands

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