Agricultural Research in Germany and German Agricultural Research Alliance (DAFA)

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Potsdam, 12.11.2017
Agriculture in Germany
International trade, German food sector, 2011/2012

Dairy
Meat, meat products, animals
Cereals, cereal products
Sugar, cocoa
Potatoes, potato products
Coffee
Wine and spirits
Fish and fish products
Feed, oil, oil seeds, oils and fats
Fruits, legumes, horticulture

1) difference of gross export and gross import.
Source: BMEL, own calculations

<table>
<thead>
<tr>
<th>Product</th>
<th>DE %</th>
<th>FR %</th>
<th>UK %</th>
<th>IT %</th>
<th>ES %</th>
<th>PL %</th>
<th>RO %</th>
<th>NL %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cereals</td>
<td>+3</td>
<td>15/15</td>
<td>-11</td>
<td>-6</td>
<td>+11</td>
<td>+6</td>
<td>-10</td>
<td>+11</td>
</tr>
<tr>
<td>Oil seeds</td>
<td>+72</td>
<td>12/14</td>
<td>+34</td>
<td>134</td>
<td>-17</td>
<td>+29</td>
<td>-15</td>
<td>+144</td>
</tr>
<tr>
<td>Potatoes</td>
<td>-11</td>
<td>14/19</td>
<td>-9</td>
<td>-19</td>
<td>-24</td>
<td>-37</td>
<td>-64</td>
<td>+79</td>
</tr>
<tr>
<td>Sugar beets</td>
<td>+4</td>
<td>18/23</td>
<td>-3</td>
<td>-25</td>
<td>-75</td>
<td>-54</td>
<td>-28</td>
<td>+11</td>
</tr>
<tr>
<td>Fruits</td>
<td>-2</td>
<td>4/4</td>
<td>-24</td>
<td>-16</td>
<td>-2</td>
<td>+14</td>
<td>-18</td>
<td>-7</td>
</tr>
<tr>
<td>Legumes</td>
<td>+12</td>
<td>5/6</td>
<td>-9</td>
<td>-17</td>
<td>-6</td>
<td>+15</td>
<td>-2</td>
<td>+16</td>
</tr>
<tr>
<td>Dairy</td>
<td>+4</td>
<td>19/20</td>
<td>-5</td>
<td>-6</td>
<td>-11</td>
<td>+9</td>
<td>+4</td>
<td>0</td>
</tr>
<tr>
<td>Eggs</td>
<td>-10</td>
<td>13/11</td>
<td>-14</td>
<td>+4</td>
<td>+2</td>
<td>+33</td>
<td>+50</td>
<td>+13</td>
</tr>
<tr>
<td>Beef</td>
<td>-19</td>
<td>16/15</td>
<td>-11</td>
<td>+14</td>
<td>-13</td>
<td>+8</td>
<td>-4</td>
<td>-27</td>
</tr>
<tr>
<td>Pork</td>
<td>+53</td>
<td>17/24</td>
<td>+2</td>
<td>-23</td>
<td>+19</td>
<td>+49</td>
<td>-4</td>
<td>-33</td>
</tr>
<tr>
<td>Poultry (chicken)</td>
<td>+106</td>
<td>6/9</td>
<td>-20</td>
<td>+21</td>
<td>+11</td>
<td>+30</td>
<td>+285</td>
<td>+23</td>
</tr>
<tr>
<td>Poultry (turkey)</td>
<td>+112</td>
<td>12/27</td>
<td>-42</td>
<td>-38</td>
<td>-2</td>
<td>+26</td>
<td>+241</td>
<td>+63</td>
</tr>
</tbody>
</table>

Source: FAOSTAT, own calculations.
Main crops in Germany, 2005-2013
Production of meat, dairy, eggs
Germany, 1000 t, 1990–2012

Components of poultry (2012): chicken 63%, turkey 33%, duck 4%
Components of beef and mutton (2012): beef 97%, sheep 3%
Dairy: milk converted to t dry mass assuming a dry mass content of 12.5%
Source: FAOSTAT
Spatial concentration of livestock husbandry
Germany 2010

Lifestock units (LU) total 2010
- Area representing 12,000 LU
- No data

∑ Germany
1999: 14,798,540 LU
2010: 12,988,170 LU

Methods: Gocht & Röder (2014) [doi 10.1080/13658816.2014.897348]
Graph: Official livestock enumeration 2010 according to VG250, BKG
Agricultural Research in Germany
Agricultural Research in Germany: Structure and Funding
(only public institutions; running costs and infrastructure)

### 100% State (Länder)
- **10 Universities with agricultural faculties**
  - Kiel
  - Göttingen
  - Bonn
  - Kassel
  - Gießen
  - Halle
  - Weihenstephan
  - Rostock
  - Berlin
  - Hohenheim
  + universities with agricultural departments
  + universities with agricultural chairs

### Mixed (50/50)
- **6 Leibniz research centres**
  - ZALF Ag. Landscape
  - IAMO East EU Transf.
  - FBN Livestock
  - ATB Ag. Engineering
  - IGZ Horticulture
  - DFA Food Chemistry
  - IPK Plant Genetics
  - IBG Inland Fisheries

### 100% Federal
- **5 Federal institutes**
  - TI Rural Areas, Forestry, Fisheries
  - JKI Cultivated Plants
  - FLI Animal Health
  - MRI Nutrition and Food
  - BfR Consumer Protection
  - DBFZ Biomass, Biofuel

### Other institutions
- KTBL Technology
- FiBL Organics
- IfLS Rural structure
- Veterinary U/Fac/Dept.
  ... more

### Colleges & Universities of applied sciences
- Kiel
- Bernburg
- Osnabrück
- Weihenstephan
- Soest
- Nürtingen
- Bingen
- Eberswalde
- Dresden
- Neubrandenburg

### Agric. research institutes and extension services of the Länder
in almost all of the 16 Länder
Locations of agricultural research institutions
Scientific staff in agricultural research\(^1\)

Destasis, 2015

- Universities and colleges: 4995
- Research centres: 1820
- Federal research: 1902
- State research: 2590

Total: 11307

Sources: Statistisches Bundesamt, 2017: Fachserie 14, Reihe 3.6 Tab. 5.2 2015.
Statistisches Bundesamt, 2016: Fachserie 11, Reihe 4.4 Tab. 10 2016:
universities & colleges incl. externally funded staff

\(^1\)Agricultural research in a broad sense, including horticulture, nutrition, forestry and veterinary medicine.
Staff numbers in full-time equivalents, excluding administration (DESTASIS)
Funds for research and research topics

- Federal ministries, avg 2011–2013: **77 M€** (food, agric., consumer prot.)
- Federal Ministry of Science, 2010:
  - e.g. Plant Research/World Food Affairs: **16 M€**
  - e.g. Climate Protection: **86 M€**
  - e.g. Nutrition and Agricultural Research/Networks of Competence: **14 M€**
- Federal Ministry of Agriculture, 2010
  - e.g. Innovations: **27 M€**
  - e.g. Renewable Resources: **39 M€**
  - e.g. Federal Organic Farming Scheme: **9 M€**
- German research fund (DFG), 2011–2013: **44 M€**
- EU, DG Research: food/agric/fish/biotech, FP7: **25 M€**
- EU, DG Agri (research, innovation, transfer), 2011: **1000 M€**

Sources: BMBF, Bundeshaushaltsplan 2010 and DFG Förderatlas 2015, EIP Agri & own calculations
DAFA — why and how?
Why a **German Agricultural Research Alliance**?

- Join forces to maintain the functioning of a systemic science in a heterogeneous landscape
  - Funding, infrastructure, staff, goals
- Make agriculture a proactive player in solving societal and environmental challenges
  - Biodiversity, climate, food security, sustainability, clean water, rural livelihood
- Respond to consumer demands and expectations
  - Cheap food, high quality, animal welfare, organic produce, no-GMO
- Respond to technological and societal developments
  - Digitalization, new molecular technologies, robotics
- Provide information about agricultural research
  - Access to experts, sources of information
Members

[Image of various logos and institutions]
Working together in order to increase the capacity of German ag research for effective practical application and increased international visibility

1. Thematic Forums
2. Strategy Forums
3. ExpertAtlas
Thematic Forum – work-flow

- Strategy update
- Next steps: Agenda-setting, Coordination, ...
- Results: strategy and research tasks
- Core group: state main goal and approach to research
- DAFA-directors: consider basic concerns of DAFA
- Feedback by DAFA-members (scientists)
- Core group: prepare feedbacks and write a draft
- DAFA-meeting with all other stakeholders: discussion of the draft
Overview: current thematic forums

- Livestock Forum
- Legumes Forum
- Grassland Forum
- Aquaculture Forum
- Organic farming and food Forum
- Strategic Forum
Experiences gained in the first six years

- New spirit in collaboration, across disciplines and ag actors

- Participatory processes need time
  - initially unclear roles
  - different terminologies
  - scientists must accept priority of relevance

- Science-policy-research processes require
  - clear communication, mutual trust, and understanding of processes relevant for each actor
  - a lot of patience when ag policy affects other areas of policy (always)

- Implementation research and evaluation of projects are necessary for adjusting goals, resources or conditions in order obtain lasting practical impacts

- Swiss Agricultural Research Alliance *in preparation*
Thank you!

to be continued…

► The four dimensions of science in the G20 countries

► Coffee break

► The DAFA livestock strategy
► DAFA’s strategy for organic farming and food
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