Developments and trends in farming systems in Russia, Canada and Brazil

Findings of DLG-Agrifuture Insights international survey

Dr. Achim Schaffner, Department Manager Agricultural Economics, DLG (German Agricultural Society), Frankfurt am Main
1. How plan farmers to develop their enterprises?

2. What are the challenges in arable farming, and how plan the farmers to manage the challenges?

3. What kind of innovations are in focus of arable farmers?
Business expectations: Arable farmers in USA and Brazil more optimistic.
Increasing investment plans in arable farming

Are you planning to make any investments on your farm in the next 12 months?

Share of “yes” answers

<table>
<thead>
<tr>
<th>Year</th>
<th>Germany</th>
<th>United Kingdom</th>
<th>Russia</th>
<th>USA</th>
<th>Brazil</th>
</tr>
</thead>
<tbody>
<tr>
<td>Autumn 2015</td>
<td></td>
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<tr>
<td>Autumn 2016</td>
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<td>Spring 2017</td>
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<td>Autumn 2017</td>
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<tr>
<td>2018</td>
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<tr>
<td>2019</td>
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</tbody>
</table>

DLG-Trendmonitor Autumn 2010 – Autumn 2016, DLG-Agrifuture Insights autumn 2010 to autumn 2019, data in %; supported
Investment areas of arable farmers

Tractors and tillage equipment is focus of farmers investments

[Bar chart showing investment percentages for different equipment categories for Germany, Russia, and USA.]

DLG-Agrifuture Insights autumn 2019, data in %; supported; several answers possible
Investment plans of arable farmers in Brazil: Direct seed technology and tractors in focus

- Tractors up to 100 HP
- Tractors over 100 HP
- Combine harvesters
- Direct sowing machinery
- Crop protection machinery
- Fertilisation machinery / mineral fertilisers
- Fertilisation machinery / manure
- Machinery for mechanical weed control
- Irrigation machinery
- Ploughs
- Self-propelling sprayer

DLG-Agrifuture Insights spring 2019, data in %; supported; several answers possible
Purchasing criteria of farm machinery

<table>
<thead>
<tr>
<th>Important</th>
<th>Unimportant</th>
<th>Important</th>
<th>Unimportant</th>
<th>Important</th>
<th>Unimportant</th>
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</thead>
<tbody>
<tr>
<td>Germany</td>
<td>Russia</td>
<td>USA</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Manufacturer / brand</td>
<td>Dealers proximity to farm</td>
<td>Purchasing price</td>
<td>Quality tests machinery</td>
<td>Telemetry services machine control</td>
<td>Service intensity</td>
</tr>
<tr>
<td>Stability of machines</td>
<td>Digital integration machine to machine</td>
<td></td>
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</tbody>
</table>

DLG-Agrifuture Insights autumn 2019, data in %; supported; several answers possible
Purchasing criteria of farm machinery – Brazil arable farmer

- Manufacturer/brand
- Dealer's proximity to farm
- Waiting time for services
- Waiting time for delivery spare parts
- Purchasing cost
- Spare parts prices
- Robustness of the machines
- Easy handling of the machine
- Area performance of the machines
- Electronic equipment
- Quality tests
- Electronic equipment
- After-Sale Service
- Leasing offers of manufacturers
- Financing offers of manufacturers

Less important | Important | Very important

DLG-Agrifuture Insights spring 2019, data in %; supported; several answers possible
Challenges in arable farming and approaches to address them
Challenges in arable farming

Increasing challenges with herbicide-resistant weeds

Change of climate conditions head to new conditions for arable farming: weed control, efficient use of timetables with favourable conditions

Increase nutrient efficiency in fertilizing

Rethinking and optimizing arable production systems to meet the different challenges
Concepts of arable farmers to address challenges

- Increase power of impact of mechanization
- Mechanical weed control
- Under feed manuring
- Improve field hygiene to reduce disease occurrence
- Seed at later time
- Increasing organic soil components
- Expansion crop rotation
- Change to organic farming

Germany
Russia
USA
United Kingdom

DLG-Agrifuture Insights autumn 2019, data in %; supported; several answers possible
Challenges and concepts to address them in arable farm management in Brazil.

### Challenges in arable farming
- Services ag machinery
- Infrastructure for transports
- Volatile market prices
- Climate change
- Soil erosion
- Reduced availability plant protection
- Manage resistances of weeds
- Secure profitability

### Concepts to meet challenges
- Producing non-GMO soybeans
- No changes – grew GMO soybeans, corn etc.
- Make use of more consultation / advice
- Use robust agricultural machinery
- Take out a harvest failure insurances
- Use mechanical weed control
- Enhance crop rotation
Importance of technology trends

High demand on innovations in technology to meet farmers’ needs

- Automatic guide systems
- Boost efficiency in fertilizing
- Telemetric services for machine control
- Drones for crop management
- Equipment mechanical weed control
- Sensors for measuring nutrients in manure
- Mobile data access for in-time crop management

DLG-Agrifuture Insights autumn 2019, data in %; supported; several answers possible
Digitization: What kind of tools arable farmers are using already and what kind of tool they plan to use

In use
Use scheduled

Germany
Russia
USA

- Platform for data transfer
- Cloud software
- Telemetric services machine control
- Electronic field book

DLG-Agrifuture Insights autumn 2019, data in %; supported; several answers possible
Business climate and investment intentions

- Expectations on business development: Russian arable farmers less optimistic, US and Brazilian farmers more optimistic compared to 2018 survey
- Despite low price level and unsecure market conditions due to trade conflicts, arable farmers plan to expand farm investments

Concepts of arable farmers that address challenges

- Russia: Increase power of impact and under feet manuring
- Brazil: Mechanical weed control, expand of crop rotation and advice services

Importance of technology trends

- Russia: automatic guided systems, mechanical weed control and telemetric services in focus

To address challenges, arable farmers need to develop solutions suited to their location. Manufacturers need to better understand the needs of farmers in order to offer the right approach to develop farming systems.
Methodology of survey and farm structure of surveyed farmer
### Methodology of survey

<table>
<thead>
<tr>
<th>Countries</th>
<th>Germany, United Kingdom, Russia, Brazil, USA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time of questioning</td>
<td>March 2019 (Brazil) July + August 2019</td>
</tr>
<tr>
<td>Methodology of questioning</td>
<td>CATI (computer aided telephone interviews)</td>
</tr>
<tr>
<td></td>
<td>Trendmonitor: survey twice/year autumn 2003 – spring 2017</td>
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<tr>
<td></td>
<td>DLG-Agrifuture Insights: survey once/year since autumn 2017</td>
</tr>
<tr>
<td>Sample</td>
<td>Total N = 750 Interviews (150 each country, 50 each arable, dairy and pig farming)</td>
</tr>
</tbody>
</table>

**Realization of questioning:**

[Image of Kleffmann Group logo]
## Farm structure of interviewed farmers

<table>
<thead>
<tr>
<th>Country</th>
<th>Ø utilisable agricultural area (ha)</th>
<th>Ø share of leased land (Percentage of farmed land)</th>
<th>Ø number of dairy cows/farm</th>
<th>Ø number of finishing pigs/farm</th>
</tr>
</thead>
<tbody>
<tr>
<td>Germany</td>
<td>307</td>
<td>49</td>
<td>155</td>
<td>1.149</td>
</tr>
<tr>
<td>France</td>
<td>201</td>
<td>70</td>
<td>135</td>
<td>1.378</td>
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<tr>
<td>United Kingdom</td>
<td>353</td>
<td>34</td>
<td></td>
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<tr>
<td>Poland</td>
<td>442</td>
<td>34</td>
<td>84</td>
<td>1.165</td>
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<tr>
<td>Netherlands</td>
<td>142</td>
<td>30</td>
<td>238</td>
<td>4.146</td>
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<tr>
<td>Russia</td>
<td>21.532</td>
<td>47</td>
<td>789</td>
<td>61.495</td>
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</table>
Website: DLG e.V. - DLG-Agrifuture Insights