Research into organic agriculture in the Czech Republic

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Content

- History and context, current state (connection to other countries)
- Czech Technology Platform for Organic Agriculture
- Significant projects – already finished
- Current projects
- Long-term experiment in OA at ÚKZÚZ
- Bionet, recommendation of varieties and model farms
- Conclusion – driving forces
History of research into OA in CR

• 2000 – 2008: transmission of research results from FiBL, Bioinstitut established in 2004
• First national research projects. International projects. Since 2000 a scientific section at Biacademy in Lednice n. Mor. (from Bioacademy originated Biosummit and ICOAS)
2009 established Czech TP Organics

- **Czech Technology Platform for Organic Agriculture** brings together farmers, consumers, research institutes, universities and advisors.

- **CTPEZ coordinator**: Bioinstitut OLOMOUC

- **CTPEZ activities**: Gathering results of ongoing projects and transferring the results to practical use and education.

- Promotion of organic research, PR and response to adverse PR attacks on OF and organic food in the media.

- Lobbying for complex large-scale national research projects.
Past projects - examples

- Project Quality Low Input Food (QLIF)
- Healthy Minor Cereals (HMC)
- Pro Pig „Improvement of health and welfare of pigs“
- Participatory breeding for organic farming
- Various projects on development of natural preparations for plant protection and biological protection (viticulture, olericulture, pomology)
- Mixtures of legumes and cereals (growing and animal nutrition in OA)
- Funding: NAZV, TAČR, EU (Framework programmes), EU – Rural development programme, Norwegian funds, foundations...
  almost 3% from total research funding does not correspond to the importance of OA in the CR.
## CZ – basic organic data and needs

<table>
<thead>
<tr>
<th>Category</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Farmers</td>
<td>4 300</td>
</tr>
<tr>
<td>Acreage (ha)</td>
<td>more than 500,000</td>
</tr>
<tr>
<td>Share of total farmland in CZ (%)</td>
<td>12%</td>
</tr>
<tr>
<td>Arable land (ha)</td>
<td>about 66,000</td>
</tr>
<tr>
<td>Permanent grassland (ha)</td>
<td>about 420,000</td>
</tr>
<tr>
<td>Ochards (ha)</td>
<td>about 4,000</td>
</tr>
<tr>
<td>Vineyards (ha)</td>
<td>about 1,000</td>
</tr>
<tr>
<td>Hop fields (ha)</td>
<td>14</td>
</tr>
<tr>
<td>Otherland (ha)</td>
<td>16,000</td>
</tr>
<tr>
<td>Processors</td>
<td>600</td>
</tr>
</tbody>
</table>
Currently running projects - examples

• Rather decreasing in number – there are less projects focused concretely on organic agriculture.

• Biofarma Sasov – the biggest bio pig breeder in CR: Project „Separation of leaves and stems of legumes“ resulted from the need of the farm in Sasov near Jihlava to maintain from own sources a sufficient amount of protein feed for organic breeding of pigs.
Currently running projects – VÚRV Praha Horizon 2020

**BRESOV** ("Breeding for Resilient, Efficient and Sustainable Organic Vegetable Production“) has set out:

to improve the competitiveness of three important vegetable crops in an organic and sustainable environment. With a strong participation of stakeholders from the breeding and farming sector, the project aims to create a pipeline for crop improvement that will accelerate the production of high-quality organic seeds for breeders and farmers around the world.
Currently running projects - VÚRV Praha Horizon 2020

- **ECOBREED** will increase the competitiveness of the organic and low-input breeding and farming sectors. The objectives are:
  - To increase the availability of seeds and varieties for the organic and low-input sector
  - To identify traits and combinations of traits suited to organic and low-input production environment including high 
  - nutrient use efficiency and weed competitiveness/allelopathy
  - To increase breeding activities for organic crop production.
Long-term experiment in organic agriculture at ÚKZÚZ

- Established by a state testing institution – for at least 3 repetitions of crop rotation = for 21 years
- 100% financed from the state budget, searching for additional research projects and partners.
- Small-plot experiment, randomized in 3 repetitions
- Cooperation of whole UKZÚZ + research organisations and universities. Meets the international research parameters for publication of results.
Location of testing stations with experiment in OA

- Experiment established in autumn 2014 at 5 testing stations in different conditions throughout the CR (duration – till 2035)
- Experimental sites have been registered in OA system (annual inspection by the control body KEZ, o.p.s.)
- Production after the transition period is „bio“ certified
Description of different experimental combinations

3 repetitions of each combination

Combination of fertilisers:
1. unfertilised (check)
2. GM (green manure)
3. GM + renewable external inputs
4. GM + renewable external inputs + intensifying inputs
5. GM + farm fertilisers
6. GM + farm fertilisers + intensifying inputs
Crop rotation
(after completing the cycle – 7 years a change in the methodics is possible + additional new testing sites also abroad)

<table>
<thead>
<tr>
<th>Year of CR</th>
<th>Combination of fertilisers</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1, 2, 3, 4 (without animals)</td>
</tr>
<tr>
<td>1. 2015</td>
<td>Winter wheat</td>
</tr>
<tr>
<td>2. 2016</td>
<td>Potatoes</td>
</tr>
<tr>
<td>3. 2017</td>
<td>Winter spelt</td>
</tr>
<tr>
<td>4. 2018</td>
<td>LOS (barley + pea)</td>
</tr>
<tr>
<td>5. 2019</td>
<td>Winter wheat</td>
</tr>
<tr>
<td>6. 2020</td>
<td>Buckwheat</td>
</tr>
<tr>
<td>7. 2021</td>
<td>Pea</td>
</tr>
</tbody>
</table>
Model ecofarms - from theory to practice and education
Bionet CZ and recommendation of varieties

- **Bioinstitut:**
  Bionet – a net of companies performing verification of varieties and agrotechnlogical procedures in field conditions. On farm research.

- **ÚKZÚZ, PRO-BIO, Bioinstitut:**
  state guaranteed recommendation of varieties for OA. Small-plot experiments, repetition, statistical evaluation. Experiments also at ecofarms.
Conclusion – driving forces

• The CR lacks a specialised research institute for OA, with regard to the scope of OA the research into OA is insufficient and underfinanced.

• Positive developments: establishment of ČTPEZ (technology platform), existence of Bioinstitut with connection to FiBL, and „introduction“ of research into OA to state administration (ÚKZÚZ).

• **Threat ?, challenge ?, trend?:**
  Calls (conditions) for research projects are more general: ecologization, regional production, integrated pest management, sustainable agricultural systems. Opportunities for finding funds for solving complex topics just in OA are decreasing.
Thank you for your attention
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