WP2 so far

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Objectives

• Co-ordinate the interaction and exchange between the national /regional farmer innovation groups to ensure good and constructive communication (Task 2.1)

• Develop a framework that facilitates structured exchange of experiences in the area of arable crop production; developing conclusions for a general application in Europe based on regional results (Task 2.2)

• Test innovative end-user and educational material, (e.g. manuals, web-based tools, interactive workshops etc.) and understand reasons for acceptance and successful implementation (Task 2.3 - ongoing)

• Develop recommendations on the experiences (Task 2.4 – not started)
Setting up a network of practise partners/ farmer groups for knowledge exchange (T 2.1 & 2.2)

• Getting to know each other
  – Description of 10 practice partners in 10 countries
  – Structure of the 14 farmer groups

• Agronomic and climatic context

• Main challenges faced and solutions currently used

• Testing of other tools and solutions to key problems
Farmer groups

Other project partners

- ORC
- SEGES
- BioForum Flanders
- ITAB
- ConMarcheBio
- EOFF
- VÖP, Bioland
- Bionet Austria (FIBL AT)
- ÖMKi
- Bioselena
The 9 practice partners co-ordinated by ORC running

**Bionet Austria** collaborative KE project represented by FIBL Austria (2 groups)

**BioForum Flanders** non-profit sector organisation for organic farming and food, Belgium

**Bioselena** Foundation for Organic Agriculture, Bulgaria

**ConMarcheBio** Consortium of 5 co-operatives, Italy

**ITAB** Technical institute for organic farming, France (2 groups)

**EOFF** Estonian Organic Farming Federation (EOFF), Estonia

**ÖMKi** Research Institute of Organic Agriculture, Hungary

**SEGES** Knowledge Centre, Denmark (3 groups)

**VÖP** Network of organic farming organisations, Germany (represented by BIOLAND & FIBL-DE)

**ORC - Co-ordination** Organic arable group (1 group in collaboration with Organic Arable & OF&G)
Laying the foundation for a structured knowledge exchange

Getting to know more about:

– The groups & their members
– The soil, climatic and local context
– Crops grown and rotations
– Main challenges faced (as experienced by the farmers)
– Solutions tried
– How they communicate with each other
## Structure of the 14 farmer groups

<table>
<thead>
<tr>
<th><strong>Group establishment</strong></th>
<th>between 2010 and 2015</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Frequency of meetings</strong></td>
<td>2 to 3 times per year</td>
</tr>
<tr>
<td><strong>Group size</strong></td>
<td>6 to 49 members (average 20)</td>
</tr>
<tr>
<td><strong>Members</strong></td>
<td>mix of new entrants and experienced organic farmers</td>
</tr>
<tr>
<td><strong>Age of farmers</strong></td>
<td>most over 30 (ranges from 20 to 70 years old)</td>
</tr>
<tr>
<td><strong>Gender</strong></td>
<td>predominantly male</td>
</tr>
<tr>
<td><strong>Communication</strong></td>
<td>E-mail, Telephone, SMS</td>
</tr>
<tr>
<td></td>
<td>Limited use of social media</td>
</tr>
</tbody>
</table>
206 farms are group members

Highly variable soil and climatic conditions

Range of farm types

– Specialised cereal producers (stockless) most frequently mentioned
– Mixed (cereals, livestock and field vegetables)
– Horticulture

Farm sizes are also variable

– Group averages range from 10 ha (BE) to > 200 ha (EE)
– From 0.5 ha in Hungary and 1,110 ha in Estonia
– Generally appear larger than national averages

There is no one typical organic arable farm
Soils and climate

| Soils                        | Highly variable  
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Soil organic matter values range from 0.5% to 20%</td>
</tr>
<tr>
<td>Climatic zones</td>
<td>9 groups in northern temperate zone,</td>
</tr>
<tr>
<td></td>
<td>4 continental, 1 alpine</td>
</tr>
<tr>
<td>Altitude (m above sea)</td>
<td>7 below 300, 6 between 300 and 600</td>
</tr>
<tr>
<td></td>
<td>2 above 600, some cover all three zones</td>
</tr>
<tr>
<td>Rainfall (mm)</td>
<td>Most groups between 300 to 900mm,</td>
</tr>
<tr>
<td></td>
<td>only one group reported higher</td>
</tr>
</tbody>
</table>
Crops grown are diverse

Cereals: less dominated by wheat and barely, also rye, triticale, spelt, oats, millet, durum wheat are grown

Grain legumes: all groups grow at least one type, peas and field beans most common

Grass-clover: mixes are part of typical rotations

Root crops: grown by some groups with potato most common
Wide range of crop yields reported

Yields vary within and between groups
  – BG & EE lowest yielding
  – DK & BE highest yielding

Variability in soils and climate

Yield limiting factors reported
  – too much rain (spring & summer),
  – unpredictable rainfall and extreme weather events

Data suggest there is a need but also a clear possibility to improve yields on farms

<table>
<thead>
<tr>
<th>Crops</th>
<th>Farm group range (t/ha)</th>
<th>Compared with wider literature</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wheat</td>
<td>0.3-8</td>
<td>Cereals: 7-26 % lower than conventional</td>
</tr>
<tr>
<td>Barley</td>
<td>1-7</td>
<td></td>
</tr>
<tr>
<td>Triticale</td>
<td>1-9</td>
<td></td>
</tr>
<tr>
<td>Rye</td>
<td>1.2-6.5</td>
<td></td>
</tr>
<tr>
<td>Spelt</td>
<td>0.8-5.5</td>
<td>Gap is bigger for wheat &amp; barley, lower for maize</td>
</tr>
<tr>
<td>Oats</td>
<td>1.6-6.5</td>
<td></td>
</tr>
<tr>
<td>Maize</td>
<td>3-15</td>
<td></td>
</tr>
<tr>
<td>Peas</td>
<td>1-4.5</td>
<td>Legumes: 5-18% lower Higher for pulses than mixture</td>
</tr>
<tr>
<td>Faba Beans</td>
<td>0.5-5</td>
<td></td>
</tr>
<tr>
<td>Grass/clover</td>
<td>5-12</td>
<td></td>
</tr>
</tbody>
</table>
Examples of typical rotations

- 3 to 9 years long
- Include grass/clover ley
- Some with pulse crop or forage legume
- Variability within groups
- May not describe what group members implement in practice

Typical proportions (%)

- Cereals
- Grass/clover
- Grain legumes
- Root crops

Detailed analysis of rotations and implications for yields is only possible with individual farm data
Overview of 3 main challenges of each group

<table>
<thead>
<tr>
<th>GROUP</th>
<th>CHALLENGE 1</th>
<th>CHALLENGE 2</th>
<th>CHALLENGE 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>AT1</td>
<td>Soil fertility</td>
<td>Nutrient cycle</td>
<td>Climate change</td>
</tr>
<tr>
<td>AT2</td>
<td>Nutrient cycle</td>
<td>Weed management</td>
<td>Climate change</td>
</tr>
<tr>
<td>BE</td>
<td>Soil (fertilisation)</td>
<td>Diseases &amp; pests</td>
<td>Weeds</td>
</tr>
<tr>
<td>BG</td>
<td>Pests &amp; disease</td>
<td>Lack of knowledge</td>
<td>Weed control</td>
</tr>
<tr>
<td>DK1</td>
<td>Fertiliser</td>
<td>Rotation with clover grass</td>
<td>Economics</td>
</tr>
<tr>
<td>DK2</td>
<td>Weeds</td>
<td>Minerals &amp; fertiliser</td>
<td>Management for weeding</td>
</tr>
<tr>
<td>DK3</td>
<td>Management</td>
<td>Minerals &amp; fertiliser</td>
<td>Weeds</td>
</tr>
<tr>
<td>EE</td>
<td>Soil fertility</td>
<td>Weed control</td>
<td>Pests &amp; disease</td>
</tr>
<tr>
<td>FR1</td>
<td>Nitrogen management</td>
<td>Weed management</td>
<td>Organic breeding/varieties</td>
</tr>
<tr>
<td>FR2</td>
<td>Weed management</td>
<td>Nitrogen management</td>
<td>Biodiversity</td>
</tr>
<tr>
<td>DE</td>
<td>Nutrient supply</td>
<td>Crop rotation</td>
<td>Disease &amp; weed management</td>
</tr>
<tr>
<td>HU</td>
<td>Weed management</td>
<td>Pest management</td>
<td>Soil &amp; Water management</td>
</tr>
<tr>
<td>IT</td>
<td>Mechanisation (Weed control/ploughing)</td>
<td>Seed availability</td>
<td>Soil fertility and fertilisation</td>
</tr>
<tr>
<td>UK</td>
<td>Weeds</td>
<td>Soil fertility</td>
<td>Yield, tillage, lack of knowledge/research</td>
</tr>
</tbody>
</table>
Weeds: top issue for 12 groups

Commonly occurring problem weeds
  Thistle (Cirsium)
  Fat hen (Chenopodium album)
  Docks (Rumex L.)
  Couch grass (Elymus repens)

Examples of specific weed problems
  Blackgrass (Alopecurus myosuroides) in UK
  Quickweed (Galinsoga) in Belgium

Solutions used: Crop rotation & crop management, mechanical weeding and min-till
Strong interest in weed suppressing rotations
Soil fertility: top issue for 8 groups

The groups use rotations for fertility building

Key questions and knowledge gaps

• How to effectively design rotations and manage system for maximum fertility? Particularly for stockless systems?
• What off-farm inputs to include, when to apply them and how to get hold of them?
• How to cultivate soils to maintain fertility (tillage)?
• How to measure soil fertility? (Soil testing is done on average only once every 5 years)

Solutions used: working with reduced tillage (3 groups)

Interest in catch crops and intercropping, mycorrhizae and use of compost
Pests & disease control: top issue for 5 groups

Ranked high where more horticultural and field crops (BU, EE) Diseases thriving in temperate, cool, wet and humid conditions.

Most commonly reported problems include:

- rusts (particularly yellow rust; *Puccinia striiformis*),
- late blight (*Phytophthora infestans*),
- mildew (powdery: *Blumeria graminis* and downy: *Peronospora farinose*).

Commonly reported pests include pollen beetles (*Meligethes spp*), wireworm (*Agriotes spp.*) and aphids (*Aphidoidea spp.*).

**Knowledge gap**: Lack of resistant crop varieties and certified plant protection products

**Solutions used**: Rotations, drilling date, tillage and variety selection.
Conclusions so far

If we compare results with research experts and EIP-AGRI focus group

– Main challenges identified are similar
– Key issues are likely to affect the wider organic arable community

However, site and system specific solutions are required

– Generic approaches will not necessarily address problems of individual farmers.
– Inherent complexity conflicting goals in management approaches – no silver bullets!
Access to information

**Face-to-face** meetings are important

**Advisors** play a key role in information provision, but varies

**Demand for practical information**
- research outputs often fail to meet farmer needs (not practical, too generic).
- demand for decision support systems/tools
- farmer knowledge (likely to be context specific).
- Practical demonstration

**Format**
- Printed materials still important source of information.
- So far limited use of online tools and social media channels, but growing interest
- Video is a popular medium
- Interest in interactive tools

**Time**
- Information that can be consumed quickly and easily.
- Searching is time consuming

Clear demand for information that is independent, trustworthy and reliable
Ongoing task on testing education material (T 2.3)

• Difficult to just focus on testing of education material
• Three steps proposed
  – Groups workshop 1 to narrow down tool choice (over the summer)
    • 6 groups have reported so far
  – Group workshop 2 to evaluate 2-3 tools in more depth and identify theme for practical testing next year (before Christmas)
  – Practical testing
    • 2 groups have developed their testing plans
  – Seeder for equal spacing to suppress weeds (Italy)
  – Tool for dock control (Denmark)
First feedback on tools

• Coordinators were presented with 30 tools in April this year and ask to choose 10

• Most chosen were
  – Cover crop tool box
  – Organic crop rotation planner
  – Videos and web-platform on organic reduced tillage
  – Earthworm guide
  – Management recommendations for organic cereals
Feedback on small number of workshop reports for choosing tools

• Visuals rather than words
  – Videos being preferred
  – Layout using pictures

• Clear and practical recommendations

• Language matters (farmers want access in their own language)

• Tools that are more interactive,
  – But important to remain relevant and sound
Next steps

• Monthly newsletter for practice partners to keep involved
• Synthesise workshop results on tool choices, preferences and gaps (MS 10 – Dec 2016)
• Support groups to share the outcomes of their testing (e.g. through short videos, practice abstracts etc).
• Full report on usefulness of tools (Nov 2017) and scientific paper
• Develop small programme of themed practical workshops
• Develop recommendations for research agenda in organic farming (Task 2.4- Bioland)