



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)





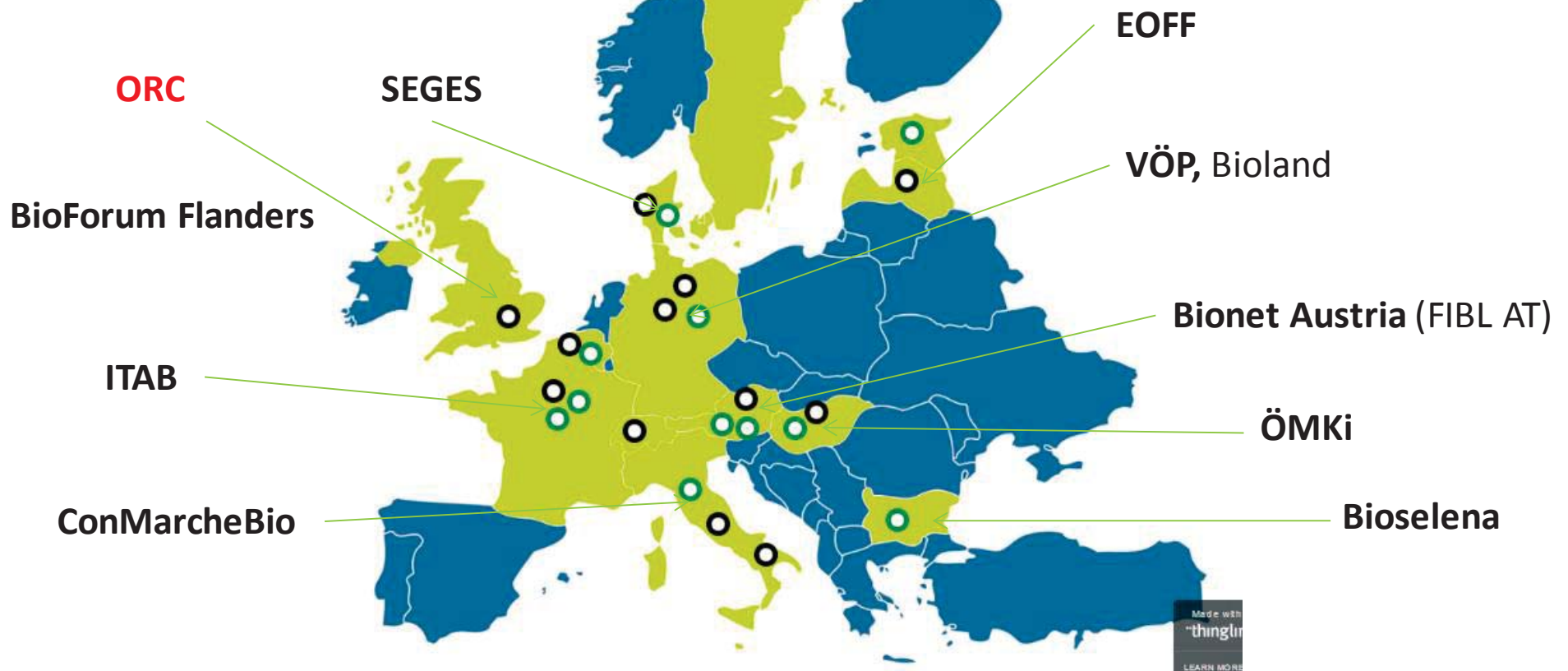
Setting up a network of practise partners/ farmer groups for knowledge exchange (T 2.1 & 2.2)



- 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



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

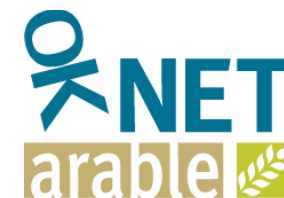


Getting to know more about:

- 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



Group establishment	between 2010 and 2015
Frequency of meetings	2 to 3 times per year
Group size	6 to 49 members (average 20)
Members	mix of new entrants and experienced organic farmers
Age of farmers	most over 30 (ranges from 20 to 70 years old)
Gender	predominantly male
Communication	E-mail, Telephone, SMS Limited use of social media



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 Soil organic matter values range from 0.5% to 20%
Climatic zones	9 groups in northern temperate zone, 4 continental, 1 alpine
Altitude (m above sea)	7 below 300, 6 between 300 and 600 2 above 600, some cover all three zones
Rainfall (mm)	Most groups between 300 to 900mm, only one group reported higher



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

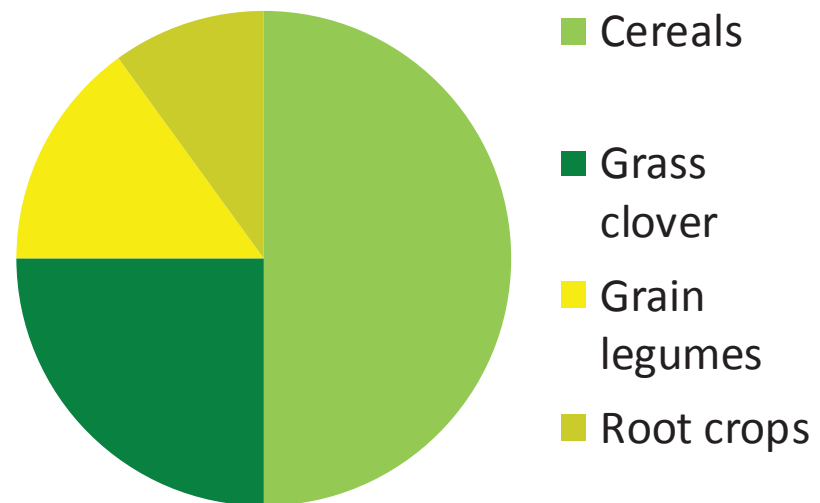
Data suggest there is a need but also a clear possibility to improve yields on farms

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

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 (%)



Detailed analysis of rotations and implications for yields is only possible with individual farm data

Overview of 3 main challenges of each group

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

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 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

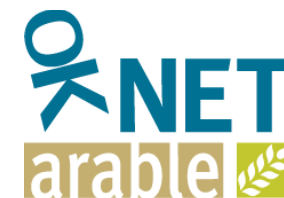
Time

- 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 asked 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)

