OK-Net Arable
Exchange knowledge, enhance organic farming

Bram Moeskops
OK-Net Arable Coordinator

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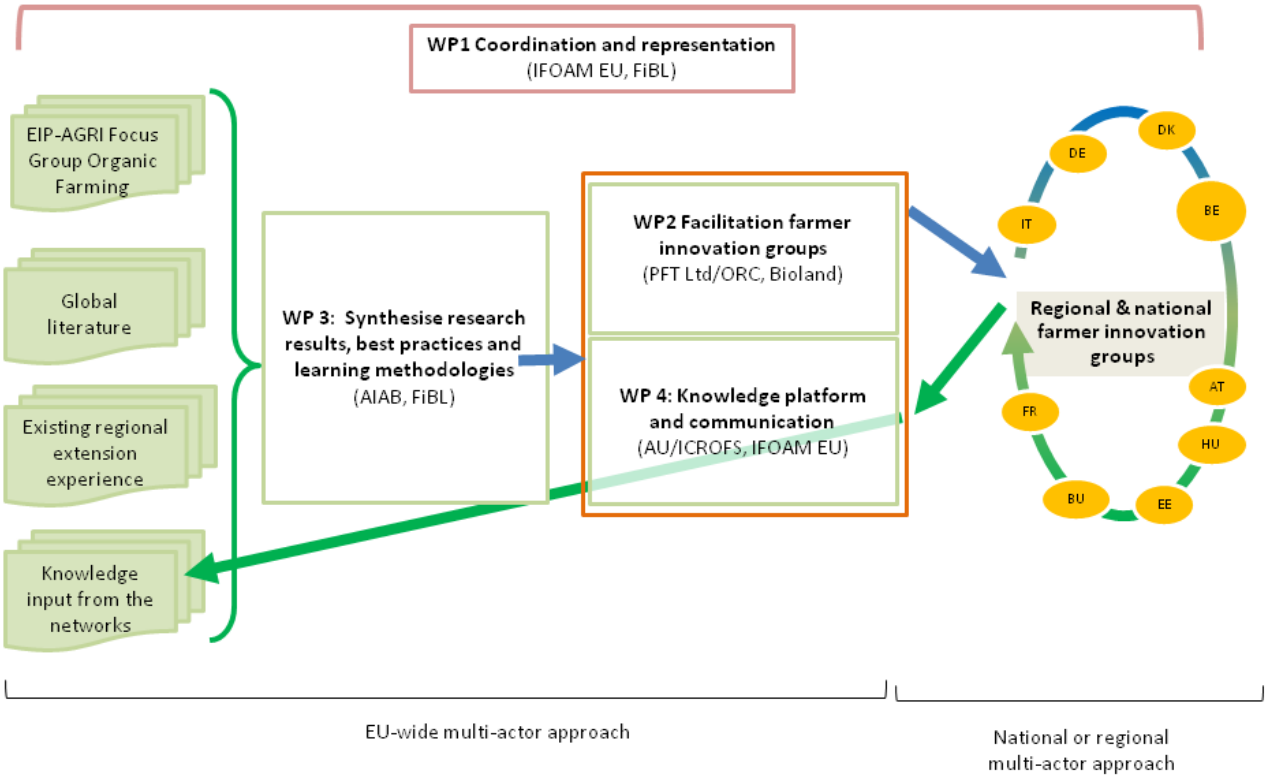
Exchange knowledge, enhance organic farming

- Productivity gap exists between conventional and organic arable farming.
- Evidence shows the more experienced an organic farmer the smaller the yield difference
- Complexity of organic farming requires very high level of knowledge & skills, but exchange on techniques remains limited
- By promoting co-creation and exchange of knowledge, there is significant potential to increase productivity and quality in organic farming

Consortium

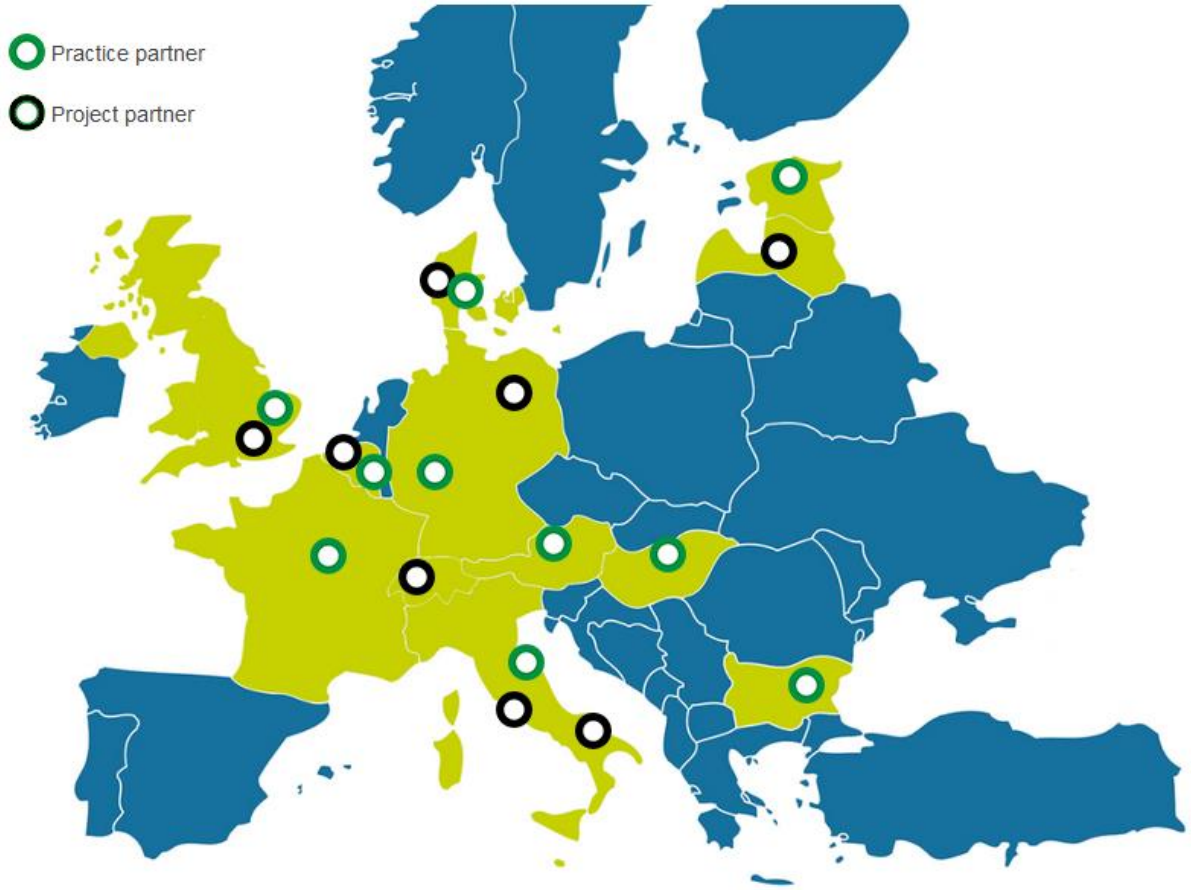
- Core group of 5 organisations experienced in research & innovation projects
  - Coordinator: IFOAM EU
  - FiBL (CH), Organic Research Centre (UK), AIAB (IT), ICROFS (DK)
- 3 organisations working in advice and research dissemination
  - EUFRAS (EU), Bioland Beratung (DE), and CIHEAM-IAMB (IT)
- 10 practice partners coordinating 14 Farmer Innovation Groups
  - Farmers actively involved
  - Mix of well established groups and starting groups
  - Regional spread in Europe

Project structure



- Full interaction between farmers and scientists
- Genuine and sufficient involvement of all actors all along the project

Farmer Innovation groups

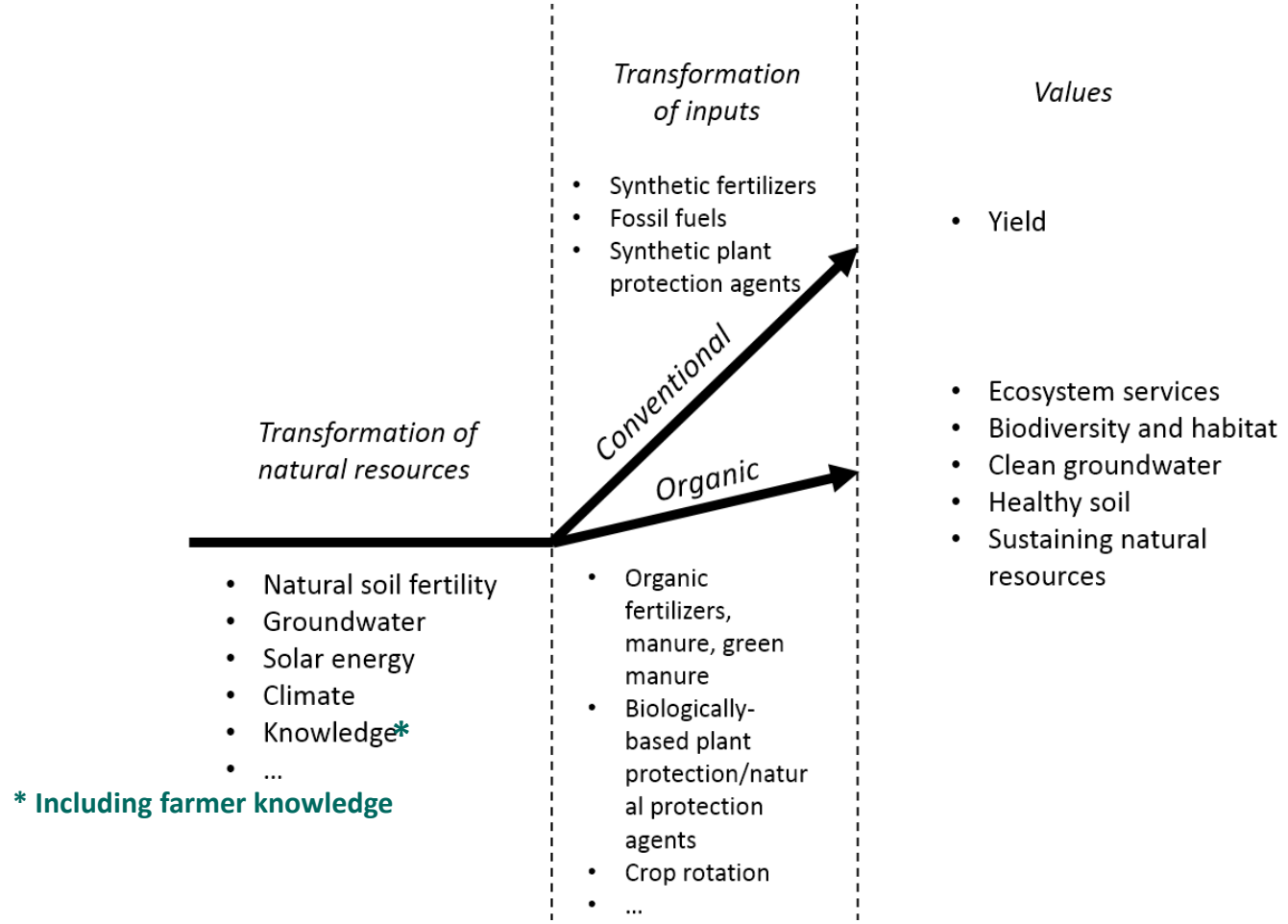


Farmers contribute to the selection and testing of advisory and end-user material related to our 5 themes to provide insight in their usefulness, potential and limits.

The organic yield gap challenge

Meta-analysis study	% yield compared to conventional
Lotter 2003	-10 to -15%
Seufert et al. 2012	-25%
Stanhill 1990	-9%
Ponisio et al. 2014	-19%
de Ponti et al. 2012	-20%
Badgley et al. 2007 (developed countries)	-9%

The concept behind productivity gap between organic and conventional



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

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

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

Soil health and fertility

	Tool	Format	No. groups tested	Relevant	Intersesting	Easy to use	Practical	Average score	Selected
2	Cover crop and living mulch tool box	Decision SupportTool	7	4.4	3.6	4.0	3.0	3.1	*
4	Tilman-org: videos on reduced tillage in organic far	Video	3	4.6	4.8	4.6	3.4	4.3	*
5	Bringing the dirt to your doorstep: organic no-till weed management	Video	4	2.0	4.0	4.0	1.0	2.8	*
6	Earthworms: architects of fertile soils	Technical guide	7	3.3	3.1	3.0	2.9	3.1	*
7	Regionally adapted humus balance in organic farming	Technical guide	3	4.2	3.8	3.2	2.8	3.4	
8	Bioaktuell: web platform for reduced tillage	Website	5	2.2	2.5	2.2	1.6	2.0	
11	Green manure and cover crops in organic agriculture: general introduction	Technical guide	2	4.0	3.0	3.0	3.0	3.3	*
12	Green manure and cover crops in organic agriculture: guide to the choice of the species	Technical guide	3	5.0	5.0	3.0	4.0	4.3	*
18	Muencheberg soil quality rating: visual method for assessment of soil properties	Technical guide	2	3.7	4.1	2.6	3.7	3.5	
20	Soil quality test kit guide: visual assessment of soil quality and soil properties	Technical guide	2	4.0	4.0	1.0	2.8	2.9	
21	Visual soil assessment: field guide	Technical guide	3	4.3	4.3	4.2	4.3	4.3	*
27	Sort out your soil: A practical guide to Green Manures	Technical guide	3	4.0	3.6	3.8	2.7	3.5	
30	Nutrient management in farms in conversion to organic	Technical guide	2	3.9	3.4	3.4	2.9	3.4	
32	*Bioland-Humusrechner*	Decision Support Tool	*1*	*5.0*	*4.0*	*4.0*	*4.0*	4.0	
37	*Simple building blocks for improved soil*	Technical guide	*1*	*4.0*	*4.0*	*4.0*	*3.0*	3.8	
38	*A guide to Nutrient budgeting on farms*	Technical guide	*1*	*3.0*	*2.0*	*3.0*	*3.0*	2.8	
43	*NDICEA*	Decision SupportTool	*1*	3.0	4.0	2.0	4.0	3.3	
44	*Spade test video*	Video	*2*						*

Like – Content

- **Real-life** practical examples (humans!)
- Basic **numbers** (costing's / yield data)
- **Simple scientific info** – e.g. pest lifecycle, worm spp. identification, weed biology
- **Preventative** as well as curative measures
- **State of the art** research
- Topics – Soil health / biology, weed ecology / mechanical control and cover crops most popular

Like – Format

- **Visual** information – photos / videos / diagrams
- **Systematic** approach
- **Decision support** - can be paper too
- Clear **recommendations**
- **Simple and quick** to use
- **Synthesized,** relevant, short (1- 8 p)
- **Interactive**

Farmers and advisers surveys

- Use of printed media is still well spread among EU
- Physical meetings are preferred to anonymous exchange: farm days and on-farm experiments.
- Social media and online tools are getting an increasing role in agricultural advice, but are changing quickly
- Videos allow to reduce language barriers

Evaluation criteria

Does the tool address at least one of the following themes?

- Soil quality and fertility
- Nutrient management
- Pest and disease control
- Weed management
- (Arable) Crop specific management

NO → Exclude tool

YES

3 minute check of first impressions

First impression of the tool:

- Structure and format
- Conciseness of processed information
- How easy to find practical recommendations
- User-friendliness
- Is the tool stimulating and appealing

Ranking from
1 (lowest/ none) to **5** (highest/ many)

Is a translation needed?
Can the tool be used without being fluent in the language?

Ranking from
1 (lowest/ difficult) to **5** (highest/ easy)

Relevance and quality of practical recommendations

A recommendation sets out clear steps for farmers on how to diagnose problems or how to change their practices.

Ranking from
1 (lowest/ none) to **5** (highest/ many)

The three rates are not cumulative. The ranking serves as a guideline to decide if a tool is part of the second offer of end-user material.

Farmknowledge.org

In multiple languages

OK-Net Arable - exchange knowledge, enhance organic farming

Search the knowledge base

Exchange with others

Find online courses

Browse the knowledge base in one of the five themes

Soil quality and fertility

Nutrient management

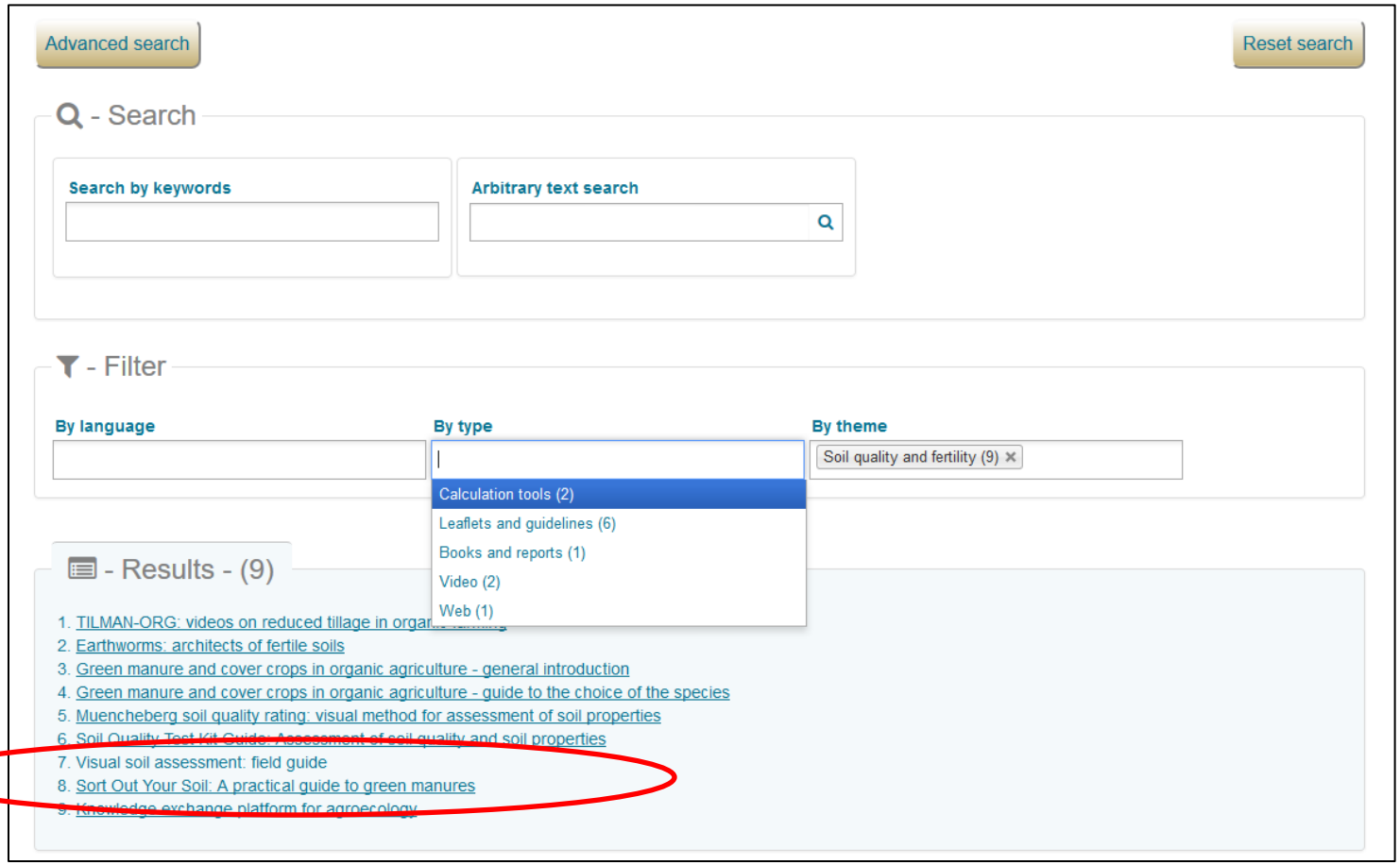
Pest and disease control

Weed management

Crop specific

Toolbox

- Easily understandable advisory materials
- No. Of tools: 89



Videos and practice abstracts

Mechanical Weed Control

These machines will eliminate your corn weed!

Give your rating to the tool:

Average rating to the tool: 0.0 Number of

No-till cultivation of maize in rolled forage peas

Problem

Tilling the maize crop leads to soil compaction and reduces soil quality, which can have a negative impact upon the growing conditions of subsequent crops. No-till processes are soil-conserving, but highly challenging in organic farming.

Solution

Applicability box

Theme
Soil quality and fertility, crop-specific measure

Geographical coverage
In European maize-cultivation areas with soils that are not too heavy

Application time

Practical testing outline

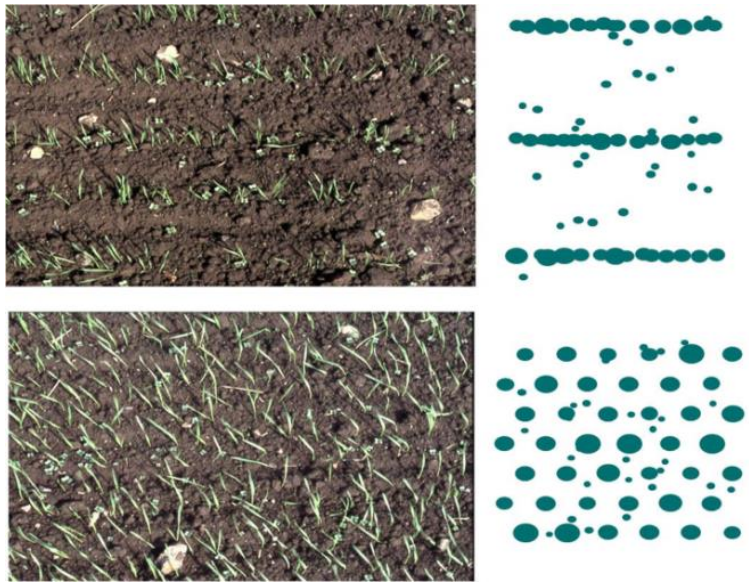
Objectives

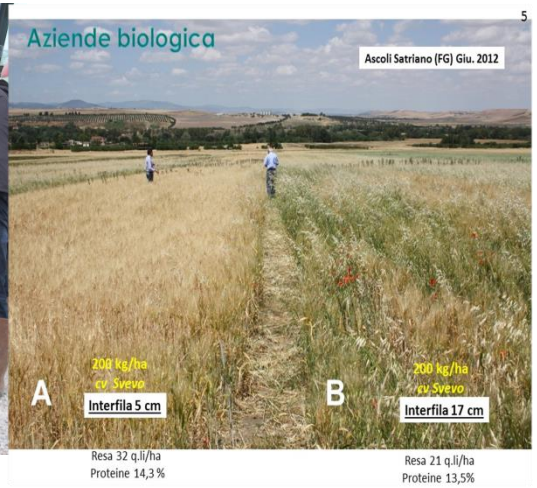
- Putting the **theory into practice**
- **Addressing challenges** identified on farm
- **Sharing experiences** within the group and with other Farmer Innovation Groups across Europe

Criteria

- Up to **€5000**
- To be completed **2017 growing season**
- Good **research design** – with controls and replicates where possible

CREA Drill, ConMarcheBio, Italy





Optimises spatial arrangement and seed depth to enhance weed competition.

Mimics the **effect of broadcasting** without compromising depth.

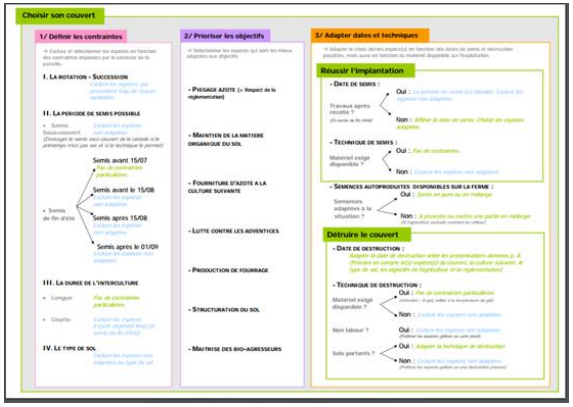
Trials in Southern Italy showed;

- Vigorous crop growth and rapid soil cover
- High competition against weeds
- Increased wheat yield

On-farm trials will compare broadcast, in-line drilling and the CREA Seminbio.

Translation Fund

- Up to €3400 available per group
- **Current plans:**
  - Hungarian: Organic Cereal Production + Weed Management
  - Italian: 2 videos + Basics of Soil Fertility + Green Manures
  - Estonian: Cover crop toolbox + Weed Control
  - Dutch: Green Manures + Earthworms
  - French: Cover crop toolbox + Crop rotation planner
  - Danish: Cover crop toolbox + Earthworms
  - OSCAR > French and Estonian
  - Bulgarian: Earthworms + Sort out your Soil
  - English: Weed management + potato production + cereal prduction



Study trips / exchange visits

- Demonstration of harrow machinery in cereals (Belgium)
- Organic No-Till, Regenerative agriculture, On-Farm Research and Innovation (Austria)
- Exchange visit at Tech & Bio (France)

More information

- Contact: Bram.Moeskops@ifoam-eu.org
- Visit: farmknowledge.org
- **Final conference: 15 November 2017, Brussels**

OK-Net Arable has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No. 652654.