Organic Knowledge Network Arable

OK-Net Arable

Final report on evaluation of end-user material

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Executive summary

The overall aim of 'OK-Net Arable' is to increase productivity and quality in organic arable cropping by improving the knowledge exchange of knowledge among farmers, farm advisers and scientists.

To achieve this, the project has three objectives:

1. The project will synthesize existing knowledge about organic arable farming and identify the best ways for exchanging this knowledge. Based on this easily understandable advisory material will be selected.

2. It will create a European network of farmers to exchange experiences and discuss the selected advisory material.

3. It will create an online platform that will make the advisory material available for a wide audience of farmers and advisers and will facilitate farmer-to-farmer learning across Europe.

This deliverable D4.3 is the final report on the evaluation of the usability, innovation, implementation and transfer potential across Europe of the online platform, where the end-user material of the project can be found.

This report is based on D2.2: Evaluation of the usefulness of tools and end-user materials to farmers (Bliss et al., 2018) and D3.3: Collection of end-user material (Micheloni et al., 2018) as well as D4.1: Online knowledge platform (Rasmussen et al., 2016).

In D4.1, the development of the knowledge platform and its features was described.

In D3.3, the collection, selection and development of the end-user material and the different themes, types and languages were described, and some recommendations for improving user friendliness of the materials were made.

In D2.2, feedback from farmers and advisors on knowledge exchange tools was presented and key findings were listed that can help to inform the creation of knowledge exchange tools.

In order to avoid overlap with other deliverables, this report will mainly describe the use of the knowledge platform and the usability, innovation, implementation and transfer potential of that, including the experiences made with the end-user material presented on the platform, whereas the compilation of all the end-user material collected and developed during the project has been done in D3.3.

The knowledge platform has been developed and maintained as planned in collaboration with the project partners, taking into account input from the farmer innovation groups. It has been stocked with "tools", knowledge ready for use formatted to be used by farmers and advisers. The knowledge platform has a translation facility that translates the information about the tools, but not the tools themselves, into the 10 languages of the project partners. It has a discussion forum connected to each tool and theme. All the "tools" on the platform are stored in Organic Eprints. Once the tool is online in Organic Eprints, the knowledge platform collects the information automatically (every 15 minutes) and the tool is then available on the platform.

As the knowledge platform has around 700 users per month, and they view around 4800 pages, it is a success. The tools have been evaluated by the farmer innovation groups; see Bliss et al. D2.2 (2018). The translation facility is appreciated, but the fact that google translate is less than perfect, especially for minor languages, makes it not always a satisfactory solution. The fact that the tools themselves are not translated, only the information about them, is also a problem. The discussion forum has hardly been used at all and cannot be considered a success.

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1 Introduction

The aim of the OK-Net Arable project is to improve the exchange of innovative and traditional knowledge among farmers, farm advisers and scientists to increase productivity and quality in organic arable cropping throughout Europe, and to improve their environmental performance, in order to satisfy citizen and consumer demands.

The project has three specific objectives: 1) to create a European network of well-functioning organic arable farmer innovation groups representing the best examples of co-innovation by farmers and researchers; 2) to digest and synthesize scientific and practical knowledge about organic arable farming to identify best practices (the project will develop and test innovative practical and educational material based on this information); 3) to create a European platform for knowledge exchange focusing specifically on organic arable farming drawing on experiences from diverse contexts. The project consists of four work packages.

As part of work package 4, "Knowledge platform and communication", one of the main objectives was to produce an online knowledge platform, where organic farmers and advisors can find information about relevant practices and solutions can comment and discuss these practices and even suggest new practices to be included on the platform.

General objectives of WP4:

To establish a permanent online platform for knowledge exchange among organic and low-input farmers and their advisory services, and to disseminate the project outcomes.

Specific objectives related to the online platform and end-user material:

1. To develop an easy-to-use online open-access knowledge platform with a tool box, a discussion forum and a project website. This has been reported in D4.1: Online knowledge platform (Rasmussen et al., 2016).

2. To select the most promising end-user and education materials to be tested in the project, described in D3.3: Collection of end-user material (Micheloni et al., 2018) and make it available in the toolbox, described in D4.1: Online knowledge platform (Rasmussen et al., 2016).

3. To maintain the online knowledge platform and moderate the discussion forum to collect experiences with the end-user material as well as getting ideas for further implementation of the material across Europe, described in this deliverable (D4.3) and D4.4 (Plan for continuation of the knowledge platform) (Gócs et al., 2018).

The selection of materials and tools took place in three steps, based on the practitioners' needs and the knowledge already available to the partners:

1. Out of a pool of nearly 200 suggested materials, 30 tools were selected for the first offer of end-user material using a set of seven selection criteria decided by the Steering Committee. The offer was presented and discussed with all project partners at the project meeting on 18-19/04/2016 in Newbury (UK).
2. Based on the feedback from the farmer innovation groups in Newbury, the selection criteria were simplified. The new selection criteria were used to re-evaluate the tools from the first pool that did not make it into the first offer. In addition, a number of new tools were selected. This was the second offer of tools.

3. The third offer of tools consists of the tools generated by OK-Net Arable. These are existing materials that were translated and adapted into other languages, as well as newly created tools. In addition, farmer innovation groups and Steering Committee members identified several other existing tools worthwhile to include in the third offer.

This deliverable D4.3 is the final report on the evaluation of the usability, innovation, implementation and transfer potential across Europe of the online platform (www.farmknowledge.org), where the full listing of end-user material of the project can be found.

This report is based on D2.2: Evaluation of the usefulness of tools and end-user materials to farmers (Bliss et al., 2018) and D3.3: Collection of end-user material (Micheloni et al., 2018) as well as D4.1: Online knowledge platform (Rasmussen et al., 2016).

In D4.1, the development of the knowledge platform and the facilities on it was described.

In D3.3, the collection, selection and development of the end-user material and the different themes, types and languages were described, and some recommendations for improving user friendliness of the materials were made.

In D2.2, feedback from farmers and advisors on knowledge exchange tools was presented and key findings were listed that can help to inform the creation of knowledge exchange tools.

In order to avoid overlap with the other deliverables, this report will mainly describe the use of the knowledge platform and the usability, innovation, implementation and transfer potential of that, including the experiences made with the end-user material presented on the platform, whereas the compilation of all the end-user material collected and developed during the project has been done in D3.3.

Connection of the knowledge platform to Organic Eprints

Organic Eprints (www.orgprints.org) is the world's largest online archive with publications based on research in organic food and farming. It contains more than 20,000 publications.

Organic Eprints was originally created as a document archive related to research in organic food and farming. While this included documents and other types of information intended also for dissemination to the end-users, the definition was that the documents should be based directly on research, so mainly researchers have deposited their publications. It has become evident that Organic Eprints would also be relevant as an archive for publications about organic agriculture, which were intended for dissemination to the end-users, and/or thus maybe not directly based on specific research. Organic Eprints already contains more than 2000 documents, which could be relevant for end-users such as farmers and advisors.

As a part of the OK-Net Arable project, the metadata of the tools presented in the platform have been entered into Organic Eprints, and if applicable, the document or other information about the tool has been entered as well. In order to do this, it was necessary to adapt Organic Eprints to be able to store the required information. Each tool was specified in Organic Eprints and only the metadata of the tools are mirrored to the farmknowledge platform. This made it possible to link to related material in Organic Eprints. While the metadata are mirrored, additional material is not always. Documents are stored in Organic Eprints, but in case of web-based tools, only the link is stored, and video material is stored on YouTube or similar services.

For end-user material developed by third parties, the rights holders of the material have been contacted in order to obtain permission for making it available. In case the copyright holders did not grant permission only the description and evaluation of the material was presented together with a link to where the material can be obtained.

2 Development and use of the OK-Net Knowledge Platform

2.1 Development of the knowledge platform since launch

The knowledge platform farmknowledge.org was launched on 3 October 2016. At that time, it contained 31 tools. During the following month of the project, many more tools were identified and added. At the end of the project, it contained 133 tools.

Since the launch of the platform, it has been developed further according to suggestions from project partners and other users. The developments are described below

2.1.1 Front page

At the launch of the project, the front page looked as shown in fig. 1. Since then it has been developed so that it now looks as shown in fig. 2.

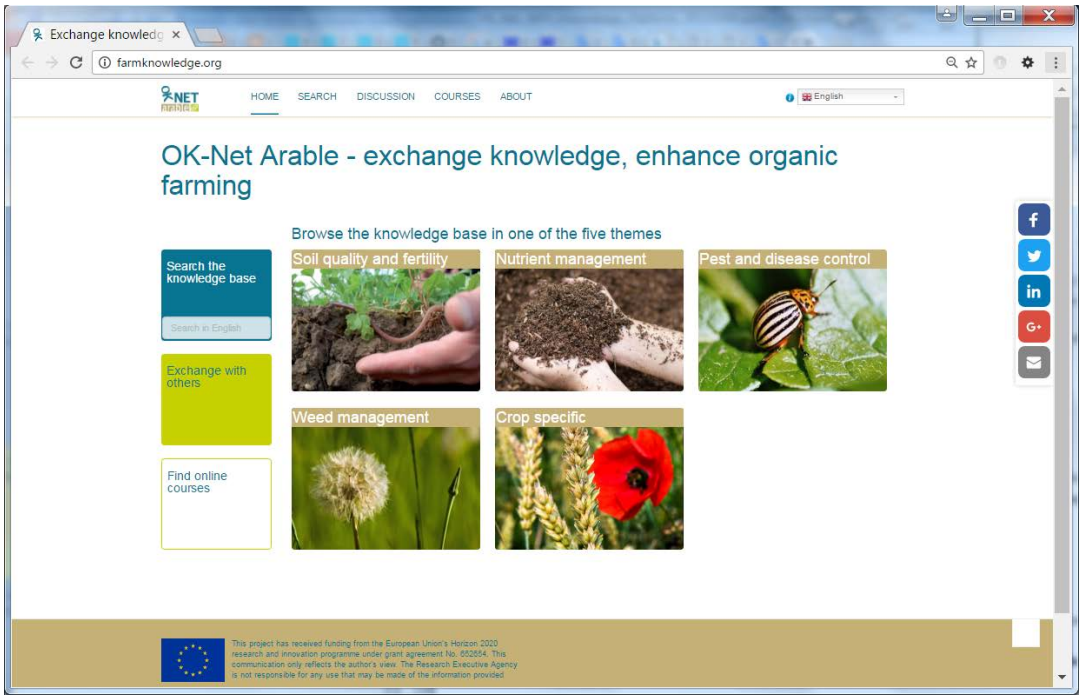

Figure 1. The entrance/front page of the farmknowledge.org platform at launch in October 2016

Specific changes/improvements:

- The top menu line now includes "**Farm news**"
- In the "Search the knowledge base"-box in the left menu, the users can now see the total **number of tools** in the toolbox. The term "knowledge base" has been replaced by "knowledge platform".
- The "**Exchange with others" box in the left menu has been replaced** with three new boxes: "Recommended tool", "Latest tool" and "Latest comment".

- **Link to "Online courses" has been removed** from the left menu, but can still be found in the top menu line.
- A "**Suggest a tool" button has been added** under the left menu boxes.
- The "Crop specific" theme has been re-named "**Cropping systems and crop specific**".
- Under the "**About**" page, in addition to information about the project partners, there are now two new menu items:
    - User manuals
    - Administration services

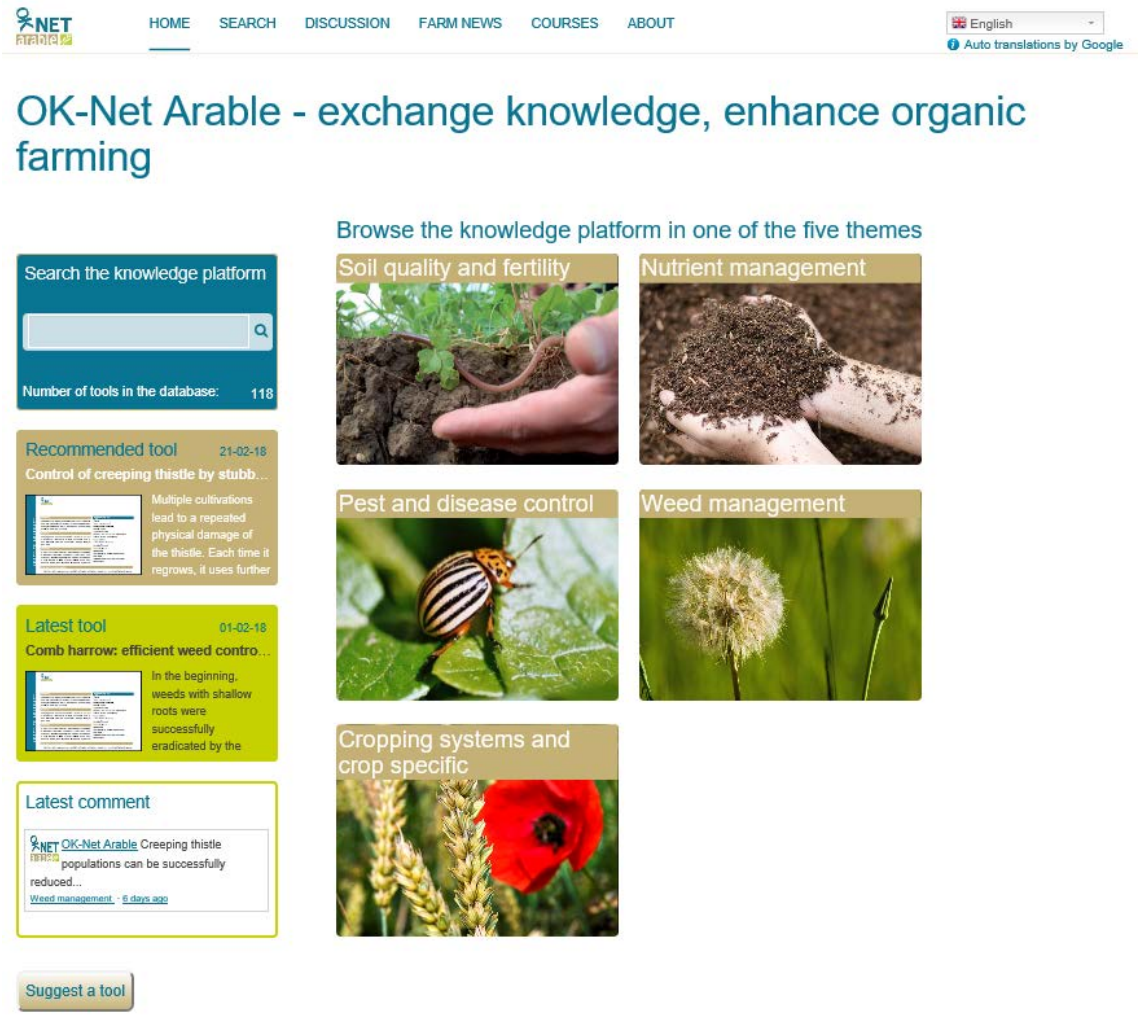

Figure 2. The entrance/front page of the farmknowledge.org platform at the end of the project (Feb. 2018)

Comments on these changes:

Farm news

The menu item "Farm news" contains two sub-items: "Farm knowledge sharings" and "Video gallery".

The farm knowledge sharings includes presentations of the activities by the farmer innovation groups, e.g. the trials, they have carried out and links to videos and practice abstracts about these trials.

The video gallery was included because there were some videos developed within the project either as a result of farmer groups visiting each other or within a farmer group. These could not be considered as tools (in the sense of end-user material) but would still be relevant to present on the knowledge platform.

Number of tools

Number of tools in the toolbox is shown so that users can see at first glance how many tools they can find, but also for returning users, whether any new tools have been entered since they were there last.

Exchange-with-others box replaced

The "Exchange with others"-box was removed because it was actually the same as the heading "Discussion" in the top menu. The new boxes are meant as an appetizer, so that users can see that some activity is taking place on the platform. This is underlined by the dates in the boxes.

The recommended tool is a new tool each week. In addition to being presented here, it is announced by partners on their websites, in their newsletters and/or on their social media platforms in their own languages so that in this way the knowledge of the tools on the platform is spread widely across the partner countries.

The "Latest tool" is the last one added to the platform and the "Latest comment" is the newest comment added in any discussion thread on the platform. Since a new comment is always made for a recommended tool, it will often be associated with that tool.

Link to Online courses removed

The box with a link to the online courses was removed from the left menu in order to avoid redundancy between the box menu and the top line menu.

"**Suggest a tool" button added**

The "Suggest a tool" button was added to the front page in order to make it as easy and obvious as possible for users to recognize that they are encouraged to suggest new tools. At the launch of the platform, the name of this button was "Tip a tool", but we were made aware that this was incorrect English and we changed the name accordingly.

Cropping systems and crop specific

The name of the theme "Crop specific" was changed because it turned out that we had several tools that were related to cropping systems, e.g. planning of crop rotation, and they did not have any theme, so it seemed natural to include them here.

About

Under "User manuals", users can find manuals for translation of documents and a manual for the discussions forum. Administrators (from the project) can find manuals for moderating the Disqus forum, the translation facility, cover image management and video type registration. Under "Administration services", project partners can find a list of keywords to describe the tools, software to code to make a component ("i-frame") that can search for tools from an external website, QR-codes for tools, a list of tools by rating and (under password protection) the translation facility and a possibility to set the recommended tool.

2.1.2 Search page

The search page now only shows 25 tools at a time, with a possibility to move between pages of 25 tools, see fig. 3. In addition, the users can choose in which order they want to see the tools: latest uploaded tools first, ordered by English title of the tool (a-z) or by users' ratings – highest rated tools first.

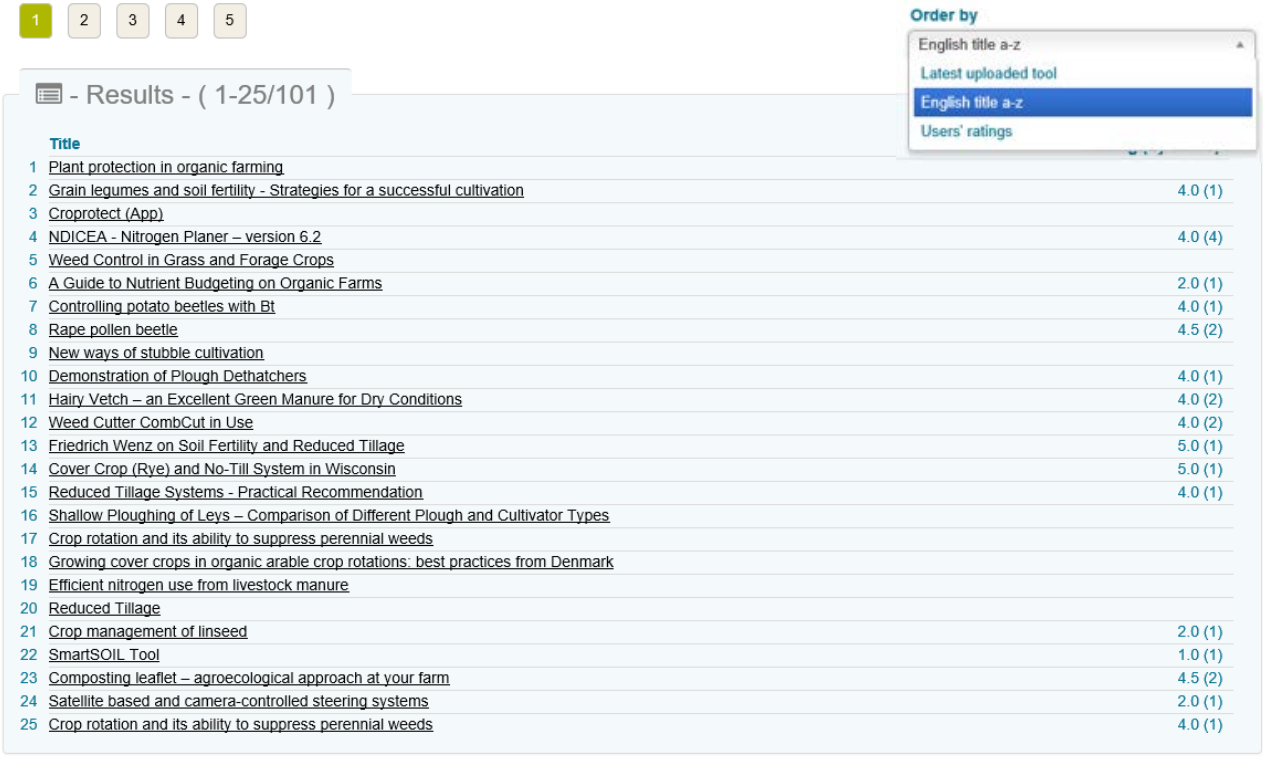

Figure 3. First page of search (no search terms = all tools shown).

The simple search page has not been changed, but the advanced search has fewer options, as some of the fields at first included are no longer described for the tools, so they are not searchable. This goes for "Specific for organic farming" and "By experience". It was judged that since the platform is aimed at organic farming, all tools will be relevant for organic farming, even though some have been developed for conventional or integrated agriculture, and it was very difficult to decide which tools were for new organic farmers, since some farmers found a tool very relevant also for experienced farmers while others thought the same tool was only for beginners.

2.1.3 Tool description pages

The tool description pages have been augmented with a "teaser" line on top, which indicates what is really interesting about this specific tool, see fig. 4. Links to "Related content from Organic Eprints" and "More about the tool on Organic Eprints" have been moved next to the picture of the tool (the picture itself is also a link directly to the tool). In addition, links to the tool in different languages are shown. In this case, the tool has been translated to four new languages during the project.

A new icon has been developed for practice abstracts, see fig. 5.

Finally, the "Suggest a tool" has been moved to the top of the page.

Figure 4. Example of tool description page.

Figure 5. New icon for Practice abstracts.

2.1.4 Tool collection and description

As described in D3.3 (Micheloni et al., 2018, section 5.1), all partners have collected suggestions for relevant tools since the start of the project. All suggestions were collected in a spreadsheet on the project internal website, and it was attempted to collect as much of the metadata of the tools as possible from the start. All new tools suggested were added to this database. At the end there were around 250 tools in the excel sheet with 22 columns with different types of information, and as a result it has become rather difficult to maintain the overview.

2.1.4.1 Tool description

In order to align the descriptions of the tools, a tool description template was developed. At first, it was based on the EIP-AGRI practice abstract template and gave an overview of what information would be relevant to have in the platform for each tool. For each tool, the partner that had originally suggested the tool entered this information in English (regardless of the language of the tool itself) and one of the

partners with experience in using Organic Eprints (FiBL, ORC, ICROFS) entered the tools into Organic Eprints. As mentioned in 2.1.2, the project steering committee decided that some of the information was not relevant after all, so this was removed. On the other hand, some information that was crucial for entering in Organic Eprints was missing. Finally, a tool description template was made that includes all relevant information and in the same order as it is to be entered in Organic Eprints. An overview of the information required for the EIP-AGRI common format (which we used as a template for our practice abstract) as well as for our tool description is shown in table 1. The tool description template can be found in appendix 6.2.

2.1.4.2 Practice abstracts

The development of practice abstracts is described in D3.3 (Micheloni et al., 2018, section 4.3.2). A template for practise abstracts was developed to be used for all practise abstracts. Since the information for entering the practise abstract as a tool in Organic Eprints was all included in this template, practise abstracts were not described in the tool description template, but uploaded directly to Organic Eprints by experienced partners. The information in the practise abstracts is shown in table 1 and a template is shown in appendix 6.3.

Table 1. Comparison of the information required for the EIP-AGRI common format template, the tool description template and the practise abstract template of OK-Net Arable.

Information required	EIP-AGRI common format	OK-Net Arable tool description template (x = used, * = previously used)	OK-Net Arable practice abstract template
Name of tool: Title in English (max 150 characters)	x	X	X
Title in native language	x	x	X
Date of publication		X	X
Publication information (Series name & number, pages etc.)		X	X
Type of tool		X	x
Language		X	X
link to tool in Organic Eprints		X	x
Link to tool	x	x	X
Accessed on (date)		X	
Short description	x	X	X
Short description (original language)		X	
Name (person making description)	X	X	
Institution (person making description)		X	
Email (person making description)		X	
Supplementary material about tool (audio-visual etc.)	X		X

Related links with relevant information about the tool		X	X
Tool creator/author		X	X
Contact email address		X	
Tool owner/project partner (Institution) (name & address)	x	X	X
Tool owner (website)		X	X
Tool owner (email)		X	X
Open Access / Copyright		X	
Keywords (link to EIP-AGRI list)	x	X	x
Output from H2020 project		X	
Has permission been achieved from the tool owner		X	
What problem/ opportunity will the knowledge (of the tool) generate for the practitioner/end user? [what problem does the tool address][1]	x	X	X
problem/ opportunity (Native language)	X		
What are the main benefits/ opportunities to the end user if the knowledge/tool is implemented/used? [what solution does the tool offer] [1]	x	X	X
benefits/ opportunities (Native language)	x		
Main outcome/ recommendation: from farmer innovation groups that have actually used the tool or from discussion on knowledge platform or from previous use of the tool	x		X
Main outcome/ recommendation (native language)	X		
Practical recommendations			X
Further information			x
Geographical location - climatic/regional relevance	X	*	
Teaser		X	
Theme		X	x

[1] Different text for OK-Net Arable

2.1.5 Tool uploading process

All chosen tools were each described by one partner in the tool description template. An experienced user of Organic Eprints from FiBL, ORC or ICROFS uploaded the tool description, the actual document (if relevant) and link(s) to Organic Eprints, and one of the other partners checked that it was correctly done. Once the eprint with the information for a tool was online in Organic Eprints, the knowledge platform collected the information automatically (every 15 minutes) and the tool was then available on the platform. Should any corrections later be needed – e.g., a link was broken – updating the tool in Organic Eprints would immediately take effect also on the knowledge platform.

2.1.6 Discussion forum

Originally, the discussion forum was connected to each theme, but the project partners decided it would be relevant also to be able to discuss each tool, so now there is in addition a possibility to enter comments for each tool.

2.2 Use of the knowledge platform

2.2.1 Statistics of visitors and use

For evaluating the use of the knowledge platform, Google Analytics is used. Google Analytics is a free web analytics service offered by Google that tracks and reports website traffic on websites. Google Analytics tracks page views, visitor information and conversion rates, allowing you to keep an eye on what is working best and what needs to be improved. Additionally, being aware of how website visitors found the website or where they are clicking on the page facilitates a process of duplicating successful actions and expanding upon them. Google Analytics is currently the world's most widely used service for analysis of web site traffic. It was selected for this project, because it is free of charge and easy to implement and it offers regular reports about the use of the farmknowledge platform. The content of the reports can be specified by the platform administrator. It is possible to upgrade to a subscription version where more detailed user statistics are available, but this has not been considered necessary so far.

The first month of measurement was November 2016, after launching the platform in October 2016. In that first month, the number of visitors was 717. The average number of users/month between November 2016 and January 2018 was 739.

A detailed description of statistics will be delivered in D4.4.

2.2.2 Use by farmer innovation groups

The tool evaluation workshops carried out by the farmer innovation groups took place in 2016, most of them before the launch of the knowledge platform (Bliss et al., 2018) but the groups were given short descriptions of the tools. The knowledge platform was presented to the farmer groups at the project meeting in Udine, Italy, January 2017 and they were asked to use it, to make comments in the discussion forum and suggest new tools. This resulted in very little activity, possibly due to the fact that farmers spend time in the field in the growing season, not in front of the computer. Therefore, a workshop session was planned at the day before the Tech'n'Bio event in France, where members of all farmer innovation groups attended. A questionnaire was prepared for the farmer groups, the results of which are presented in deliverable 4.4 (Plan for continuation of the knowledge platform) (Gócs et al., 2018).

An evaluation session on the Practice Abstracts were held in Udine. Groups had to choose one concrete Practise Abstract on which they give their feedback.

Overall, the farmer innovation groups liked the practice abstracts. They appreciated that the recommendations in the practice abstracts were concise and based on practical experiences. They also found that the use of photos and figures made the practice abstracts easier to understand. Nevertheless, the farmer innovation groups also expressed some recommendations to improve the practice abstracts (also described in Bliss et al. 2018: D2.2.

- All project partners can and should contribute to Practice Abstracts
- Even if written from practical perspective, PAs need to be illustrated with pictures and graphs
- Don't be general, provide data and detailed information on expected impact
- One practice can be covered by several PAs covering different conditions/contexts
- Prove it is working in real life. Describe practical experience of farmers or provide links to videos with farmer testimonies.
- Add scientific names of the weed/plants/animals.
- Add a glossary for technical terms.

The recommendations provided by the farmer groups indicate that the experience of different partners can be very useful in developing practice abstracts.

2.2.3 Use of end-user material by online courses

Taking the end-user material collected by the project as a basis, CIHEAM-IAMB facilitated two online courses for farmers, advisers and students in organic agriculture, see also D4.2: Mohamad et al. (2017): Facilitated and self-learning courses. The course material was converted into a self-learning course, which is now available on the knowledge platform (see http://farmknowledge.org/index.php/courses). The course is structured into six modules. Each module is explained through a PowerPoint presentation supported by different tools (practice abstracts, leaflets, guidelines, data calculation, videos, books, reports, web pages etc.).

The modules are:

- Strategies to enhance soil fertility and assessment of soil fertility and quality
- Fertilization strategies to enhance nutrient availability in organic arable crops
- Monitoring, preventive and curative measures for pest and disease management
- Technical tools, strategies and machineries to control weeds in organic arable farming
- Crop-specific problems and potential solutions in cereals, legumes, fruit and vegetables
- Recovery and final synthesis

2.2.4 Use of the discussion forum

At the second project meeting in Copenhagen October 2015, the project partners discussed which type of discussion forum should be used based on the milestone report MS5: Evaluation of existing discussion forums. While the report – as well as the SCAR-AKIS report (Jespersen et al., 2013) pointed to the fact that most use would be made of an existing discussion forum such as Facebook, it was decided to give priority to keeping the traffic on the knowledge platform instead of having people move “away” from the platform once they join a discussion. This has resulted in a very low use of the discussion forum. In total, the five themes have less than 100 comments – and most of those are tool recommendations made by project partners. The tools themselves have between zero and four comments, but only 12 tools have any comments at all. Again, many comments have been made by project partners and/or replied to by project partners. A Facebook group has been started in October 2017, but since it has not been used for posting information about tools, and has only been active a short time, it is not possible to see whether that would have resulted in more comments.

However, two months after launching the platform, IFOAM EU started to choose a recommended tool of the week, and sent out a post about that to all partners with suggested text/picture to share on their own websites and social media. It has not generated as much reaction in the discussion forum as it was foreseen, but it did attract people to the platform to study the tools. Between December 2016 until the end of 2017, IFOAM EU has published 44 Facebook posts and 44 tweets, using hashtag #OKNETArable or #organic. The Facebook posts were usually liked on average by 1-8 people and the tweets were retweeted 2-6 times. Experience shows that posts/tweets should be short (max 200-280 character) but informative. A shortened link to the tool and a well selected picture should be attached to the post.

Project partners made their own post and tweets, translating them into their own language, making it more popular among their national members. Table 2 shows the number of Facebook and Twitter posts made by each project partner and the total number of people this has reached. As can be seen, many more people were reached by the use of the partners social media accounts than by the discussion forum on the knowledge platform Fig. 6 shows the reach of such a post by the Danish partner SEGES. Some users on Facebook seem to have found the knowledge platform and liked it, see fig. 7.

Table 2. Overview over number of Facebook and Twitter posts made by the project partners and the total number of people the posts have reached. Several partners (FiBL DE & AT, EOFF, BioForum and EUFRAS) did not make any Facebook or Twitter posts but used newsletters or other channels to promote the tools.

Partner	Number of Facebook posts	Reached number of people	Number of twitter posts	Reached number of people
IFOAM-EU	23	16103	44	44040
FiBL, CH	19	21143	3	3684
ORC, UK	33	14350	44	56202
Bioland, DE			15	22500
ICROFS, DK	4	770		
AIAB, IT	23	13042		
ÖMKI, HU	36	3093		
ConMarcheBio, IT	17	3325		
ITAB, F			10	4976
SEGES, DK	3	3606		
BioSelena, BG	10	6274		
IAMB, IT	6	1476		967
Total	174	83182	116	132369

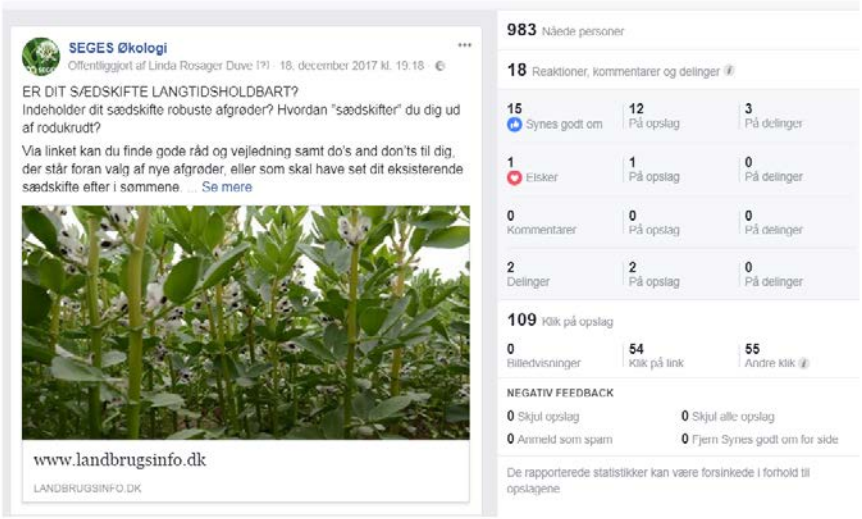

Figure 6. Reach of post from OK-Net Arable on the Facebook page of the Danish partner SEGES. It shows that it has reached 983 persons, it has had 18 reactions, including 15 likes (+ 1 loves), 2 shares and 109 clicks, of which half were on the link.

Figure 7. Screenshot from Facebook with comments about farmknowledge.org.

2.2.5 Rating by users

Users can rate each tool by indicating one to five starts, see fig. 8. The tools, which have been rated, can be found by searching all tools and sorting them by users' ratings. In total, 66 tools have received ratings by users. The five most rated tools have been rated by 8 – 11 people, while most have only been rated by 1-5 people. The highest rated tool with more than five ratings (9) has the average rating 4.6 and it is about Mechanical weeding in arable crops (in French!). The second highest rated tool with more than five ratings (7) has the average rating 4.4 and is about ROTOR: organic crop rotation planner

Figure 8. Example of tool rating.

2.3 Comments on the platform in the discussion forum

As mentioned in section 2.2.4, only few comments have been made on the tools. The comments are usually practical comments about the tool – has it worked or not for the user making the comments, or more theoretical considerations about whether it would work, or practical questions e.g. about whether it would work in a certain area. Most questions and comments have been replied to by OK-Net Arable partners, when considered relevant. No comments have been made about the knowledge platform itself.

2.4 Usability, innovation, implementation and transfer potential

Based on the comments in the discussion forum combined with the opinion of the project partners, our evaluation is that the usability of the knowledge platform is good, but could be improved by some of the above shown suggestions. The largest problem seems to be the language barrier, which consists of two parts: 1) even though the text on the platform itself e.g. titles of tools and text about the tools (teaser, problem, solution, description) is translated into the 10 languages of the project partners, the translation carried out by google translate is far from satisfactory. Minor languages such as Estonian do not get results that are even understandable, and even bigger languages like French and German get many mistakes and misleading text. 2) the tools and materials themselves are not translated, and are only available in the original language. It is possible to download the tool document to your computer and make a google translation, but even then, same problems as mentioned above occur.

The project partners are confident that the knowledge platform farmknowledge.org is a very innovative platform, as it is made up as a toolbox containing help to the farmer on a system/process level. Divided into the most relevant themes for organic arable farming, it contains a multiplicity of different types of tools: calculation tools/decision support systems, leaflets & guidelines, practice abstracts, books & reports, videos, web tools/platforms and other types of tools and is also prepared for online courses and audio tools such as podcasts. The platform gives farmers and advisors a possibility to share with others their experiences through practice abstracts, videos and descriptions of their testing, and gives all users a chance to see what tools exist that are relevant for organic arable farming in Europe. The language has made it possible to do cross-language search in one's native language (of the 10 partners), with fixed keywords as well as with an arbitrary text search.

The implementation of the platform and the user material it contains has been carried out through the utilization of it by the farmer innovation groups involved in the project as well as by all partners doing a lot of advertising via their own regular channels: websites, newsletters, Facebook etc. (see section 2.2.4)

The transfer potential of the knowledge platform and the tools therein can be seen in two ways:

1) the potential of transfer of knowledge between countries/languages and

2) the potential of transfer of the platform setup to further subject areas.

As for 1), as has been mentioned already, even though the knowledge platform is translated into the 10 languages of the project partners and search is possible across languages so that someone searching for "thistles" in Danish ("tidsler") will also get results where thistles occur in German or French, the fact that google translate is not accurate and the fact that the tools themselves are not translated is limiting the usefulness of this. However, to the extent that it is useful, the translation system has been made in a generic way, so that it is fairly easy to include new languages.

As for 2) we see great potential for extending the use of the knowledge platform with other subject areas such as organic animals husbandry, farm economics etc. D4.4 provides more details on the plans for achieving this.

3 Evaluation of knowledge platform from simulation of practitioners point of view: using a combination of tools

Here below some examples of use of the tools on the OK-net knowledge hub by practitioners to address specific outcomes. The examples simulate the use from different practitioners' points of view, with different languages skills and different knowledge needs. This exercise serves as example of use but also to highlights some weaknesses and further work to be done (i.e. translations) in order to increase the usefulness of the knowledge platform. The simulation was carried out on February – April 2017 by AIAB.

3.1 Skilled organic farmer in Hungary, who wants to implement reduced tillage

1. Set the farmknowledge.org in Hungarian in the "search by keywords"
2. Choose "reduced tillage" in the keywords, in Hungarian "csökkentett müvelés"
3. The outcome is 13 tools: 6 specific videos + a set of videos (outcome of a research project), 2 leaflets, 1 web portal, 1 book, 1technical article and one Practice Abstract. No document in Hungarian but majority in English (7 tools), 5 in German, 1 in French and subtitles or translations of several tools are available in Italian, French and Spanish.
4. Considering the potential language barrier, videos are preferred; on this topic there is quite a choice.
5. If he/she wants to combine "reduce tillage" with "wheat" or "potato" in the text search (all can be done in Hungarian), no outcomes. If he/she crosses "reduced tillage" with "corn", 1 video from USA the outcome is the same for "soybean".
6. Probably the user will start from one or more videos and then read the PA by using google translate, because the abstract is short and schematic.
7. Articles and book chapters are only in German and French, so depending on the language skills, the user may or may not end up reading them.

Overall, the topic is well covered by the tools available, including several videos in different languages. An advanced search is possible only for few crops. Experiences reported in the tools are relevant for Central Europe. Considering that the videos are quite short they can be seen on the smartphone during work breaks, while the longer text are easier to read on the PC, so at a different moment during the day.

3.2 Newcomer in organic farming from Italy, who wants to design a crop rotation

1. The user types "rotazione delle colture" (crop rotation in Italian) in the "search by keywords"
2. The outcome is 18 tools: one video, 7 leaflets, 4 Practice Abstracts, 3 Decision Support Systems, 1book chapter and 1 web portal. None is in Italian, but 6 tools are in English, 2 in German, 2 in French, and 1 in Danish. Several tools have translations into French, English, and German, one in Polish, Hungarian and Swedish.
3. If the user tries to use the advanced search for corn, the outcome is 1 tool, the same for pea 2 tools, for soybean 1 tool and for sugar beet 3 tools.

Considering that the majority of the tools needs to be read (only 1 video), language appears to be a potential barrier, but PAs are short and easy to read and could potentially be easy to translate automatically. However, the experiences reported in the PAs mainly relates to Central European conditions. This implies that an adaptation to different climatic conditions would need to be implemented. DSS are easier to use and require only basic language, but also here the question of adaptation to different conditions should be considered.

Few tools can be used on a smartphone (video and PAs) while the others, especially the DSS require a PC.

3.3 Skilled organic farmer from France, who wants to increase the use of cover crops

1. The user types “couvert végétal” (cover cops in French) in the “search by keywords”
2. The outcome is 11 tools: 3 videos, a set of videos (research project outcome), 2 leaflets, 1 Practice Abstract, 1 Decision Support System, 2 guidelines and 1 web portal. 3 tools are in French, 6 in English, 1 in Danish and several have translations/subtitles in other languages.
3. An advanced search per soil type does not give results. Advanced searches for “cold climate” results in a reduction to 2 tools, 1 guideline in English and 1 PA in Swedish. The outcome is the same if searched for “Mediterranean Climate”, so probably the advanced search is not so useful.

Overall the topic is well covered and the tools are manageable from the language point of view, both as there is availability in French and also because several videos and one PA are available. The general information is available, but it is more difficult to go into specific situations and the example requires the direct reading of some tools (i.e. the guidelines).

The majority of tools can be used on the smartphone; only DSS, the guidelines and the web portal are better used on a PC.

3.4 Conventional Advisor, who has customers converting to organic and needs basic information on soil fertility

1. the user types directly in English “conversion to organic farming” in the “search by keywords”
2. The outcome is 3 tools: 1 leaflet in German, 1 report in German and 1 guideline in Polish. If the user does not manage German and Polish, the outcome is not helpful.
3. The user may change the entry and choose “soil fertility” in the “search by keywords”, getting 18 tools as result. Combining this outcome with “conversion to organic farming” in the advanced search gives no result.
4. The user goes back to the general “soil fertility” search outcome, where videos, Practice Abstracts, leaflets etc. are available in English and also in French and German and the specific topic of soil fertility management during the conversion phase is covered but he/she has to go through tool by tool and read/watch the whole tool in order to find the specific information required.

Some topics probably need refining in searching and also the possibility to use keywords within the texts.

The German material is better used on a PC; several of the more general tools can be used on a smartphone.

3.5 Skilled organic farmer from Germany, who wants to increase intercropping

1. The user types "Zwischenfruchtbau" ("intercropping" in German) in the "search by keywords"
2. The outcome is 2 tools, both in German: 1 practice abstract and 1 video (with French subtitles)
3. Both tools deal with intercropping pea with barley and are related to the same experience.

On this specific topic, the tools are not enough to fulfil the user needs; this is an indication for a need for further development of tools.

Both tools can be used on a smartphone.

4 Conclusions

4.1 Conclusion

The knowledge platform has been developed as planned in collaboration with the project partners, including input for the farmer innovation groups. It has been stocked with "tools", knowledge formatted in such a way that it can be used by farmers and advisers. The knowledge platform has a translation facility that translates the information about the tools into the 10 languages of the project partners, but this does not cover tools themselves. It has a discussion forum connected to each tool and theme.

The knowledge platform can be described as successful: it has around 700 users per month, and they view around 3000 pages, spending a total of 325 hours per month on the platform. The tools have been evaluated by the farmer innovation groups (see Bliss et al. (D2.2) 2018 and Bliss et al (D2.3) 2018). The translation facility is appreciated, but the fact that google translate is less than perfect, especially for minor languages, makes it not always a perfect solution. The fact that the tools themselves are not translated, only the information about them, is also a problem. The discussion forum has hardly been used at all and cannot be considered a success.

An important feature of the knowledge platform is its connection to the long existing and well-established online archive Organic Eprints. This has existed since 2002 and has thus proven its longevity. By using this archive as a base, it is simple to upload material to the knowledge platform even after the end of the project, and it is possible to utilize the knowledge platform by other projects with a reduced effort, compared to making a whole new platform including underlying database, by programming and modifying the platform and Organic Eprints.

4.2 Recommendations for future work

The work with collection of tools could be improved by making a kind of database where the tool information could be better sorted and only relevant information shown. This database should probably be administered by only one partner, so that not all partners could edit in the database, as has been the case with the table of tools on the project internal website in this project.

Recommendations about the Practice Abstracts

- All project partners can and should contribute to Practice Abstracts
- Even if written from practical perspective, PAs need to be illustrated with pictures and graphs
- Don't be general, provide data and detailed information on expected impact
- One practice can be covered by several PAs covering different conditions/contexts
- Prove it is working in real life. Describe practical experience of farmers or provide links to videos with farmer testimonies.
- Add scientific names of the weed/plants/animals.
- Add a glossary for technical terms.

Recommendations about using a common template for tool description and practice abstract

It has been paramount that a common template for tool description and practice abstracts have been developed, so that the information shown on the knowledge platform contains all the relevant information

in a uniform way. The existing templates could be utilized by other projects for similar purposes with relevant modifications.

Recommendations about promoting the tools on social media

Our experience has been that farmers, advisers and other potential users are more likely to encounter information about tools and knowledge when presented in their own language, e.g. on social media, in newsletters etc., than to go directly to the knowledge platform. The users have not been very keen on using the discussion forum on the knowledge platform, probably due to it not being easy to reach and also due to language barriers.

5 References

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Rasmussen IA, Jensen AL 2016: Online knowledge platform. Organic Knowledge Network Arable D 4.1. 23 p.

6 Appendix

6.1 Tool description template

Title of the tool in English (insert title)

Make separate descriptions for each tool. In case you want to describe a series of videos, or series of leaflets, you should describe each video/leaflet separately. Only when videos/leaflets/… are translations of each other, one description is sufficient. (e.g. same video in English, French and German).

Please only write in the 3rd column of the table ("Your information about the tool").

Fields shown in blue are only relevant for the person uploading to Organic Eprints and should not be completed by you.

Fields marked with # are optional or only to be filled in if relevant (see explanation)

Heading/Field	**Explanation – what needs to be filled in**	**Your information about the tool**	**Instructions for uploading to Organic Eprints**
Title	Title of tool in English		Copy and paste
#Title in original language	Title of tool in original language, if not English		Copy and paste
Document language (s)	Language of the document(s)		Choose the relevant language(s). If more than one, hold "ctrl" while clicking on each language. They should then both/all have blue background.
Status			"Published" if publicly available, "Unpublished" if not (e.g. if only available on Organic Eprints and farmknowledge.org such as Practice Abstracts)
Date	Enter year of release or "Information not available".		Enter year of release (if available). You do not need to enter month and day.
Date type			"Publication" if published, "Completion" if unpublished
Creator(s)	Enter first and last names of authors, editors or other type of responsible persons		Copy and paste
Issuing organisation (s)			Copy and paste from "Issuing organisation details"

Contact email address	Enter the email address for contact about the tool. It should be for a person directly responsible for the tool or a specific email for the tool, or if this is not possible, for the issuing organisation.		Copy and paste
#Series name	*If practice abstract, put "OK-Net Arable Practice abstract".* If otherwise a series product, put relevant name. do not "invent" series names, e.g. "OK-Net Arable Tool Description"		Copy and paste
#Series number	*Enter Practice Abstract number* or other series number		Copy and paste
#Page range	For all relevant tools, not just PA's and other series! Enter first and last page (with a hyphen in between) or "Not applicable" (for websites, videos etc.)		Copy and paste or if "Not applicable", do not enter anything.
Online at	Enter link to tool. *If practice abstract, do not enter link.*		Enter link to tool (copy and paste). If practice abstract, enter "http://orgprints.org/xxxxx" , where "xxxxx" is the eprint id (can be seen at top as [#xxxxx]) If video, a link to the YouTube video must be entered, see more HERE
#Accessed on date	If web product, enter date it was accessed. If not, leave empty		Copy if relevant
Issuing organisation details	Name(s) of issuing organisation(s) & Website (be sure to start with www. or http:// otherwise it will not be shown as a link on the platform). Do not enter country of issuing organisation		Copy and paste
Country	Enter country of issuing organisation		Click relevant country

What problem does the tool address	1-2 sentences		Copy and paste
What solution does the tool offer?	1-2 sentences		Copy and paste
Description (Summary)	Max. 1000 characters, describing briefly: - the purpose of the tool and which solutions it provides, giving 1-2 key recommendations - the type of tool and how it works - the target group of the tool (new/converted farmers, experienced farmers, advisors etc.) - if the tool is specific for organic farming or not only - relevant/ specific location where the tools can be used - other specificities of the tool		Copy and paste
#Description in another language	If original language is not English		Copy and paste
Teaser	attractive sentence about what you can achieve with the tool, max. 10 words		Copy and paste
Theme	Preferably, choose only one or at most two themes. Choose only the most relevant. E.g., if weeds are mentioned, but not the main subject, do not choose "Weed management".	☐Soil quality and fertility ☐Nutrient management ☐Pest and disease control ☐Weed management ☐Crop specific	Tick relevant box
Tool type	Choose only ONE type! Only choose the type of the tool itself. E.g. a website containing	☐Calculation tools ☐Leaflets &	Tick relevant box • If "other type" Write type in free-text box

	several videos and leaflets, is of type "web", not video or leaflet.	guidelines ☐Practice abstracts ☐Books & reports ☐Video ☐Audio ☐Web ☐Online courses ☐Other type of tool - Write type: - _____	
ID for OK-Net selection			oknet **it is very important to enter this exactly as shown (no capital letters, no spaces); otherwise, the tool will not appear on the knowledge platform!**
Agrovoc keywords			Skip or choose the same or similar keywords as below in "Keywords"
#Related links = URL for more information	If relevant, you may add a link to e.g. a relevant website other than the link to the tool or the issuing organisation.		Put the link to the tool in farmknowledge.org (http://farmknowledge.org/index.php/search-for-ok-tools?v=xxxxx where "xxxxx" is the eprint id). Copy and paste the link for the issuing organisation (from "Issuing organisation details). If relevant, add link to e.g. a relevant website other than the link to the tool or the issuing organisation.
Additional publication information			If relevant, add text
Comments and suggestions			Usually not relevant to add text
Keywords	**Default keyword: Arable farming** Select 3-5 other keywords from this list		Tick relevant boxes for chosen keywords. Remember to tick "Arable farming".

Subjects			Choose according to the themes as shown here: *Theme -> Subject* Soil quality and fertility –> Soil Nutrient management –> Farm nutrient management (under Farming systems) Pest and disease control –> Crop health, quality, protection (under Crop husbandry) Weed management –> Weed management (under Crop husbandry) Crop specific/Miscellaneous –> Production systems (under Crop husbandry) (if possible, choose crop) **If relevant, add a few (2-3) other subjects, but only if they constitute an important part of the tool – do not try to add everything that is mentioned in the tool**
Affiliation			Choose **OK-Net Arable** under European Union **Further affiliations, such as issuing organisation, should be added after the eprint is online, in order to avoid other national editors uploading tools without our check**
Upload – add document			If file: click "Browse", choose your file, click "Open" If website: click the tab "From URL". Paste URL and click "Upload". If video: add URL from redirect-program, see how to do it HERE. Add the text "YouTube-video" in the field "Other content or format information".
Access rights	Indicate whether there is open access to the tool. Normally, we do not include tools that do not have Open Access; however, access may be restricted in Organic Eprints as long as there is a link with open access. Add explanation of conditions in case of restricted access e.g. if temporary for how long?	☐"Open access" ☐"Restricted access" If restricted, conditions: _____ _____ ____	If access is not restricted, you do not need to do anything. If access is restricted: Click "show options" in upload sheet. For "Visible to", choose [Depositor and staff only] in case of restricted access. If restriction is temporary, enter "Embargo expiry date".

Cover image			Practice tools of the types "Calculation tools", "Leaflets & guidelines", "Books & reports" and "Web" are required to have a cover image connected to it. See how to do it HERE
#FP7 projects	If the tool is an output from an FP7 or H2020 project, enter Grant Agreement Number.		If the tool is an output from an FP7 or H2020 project, click "Yes" and enter Grant Agreement Number. Choose access (only if restrictions apply). If the tool is NOT an output form an FP7 project, skip to the next page. This will NOT affect access defined in previous tab.
Deposit permission	Declare whether you have obtained the permission of the tool owner to deposit in Organic Eprints, see "Tool deposit agreement" next page.		Click "Deposit Item now" ONLY if you are sure, OK-Net Arable has the right to put the tool online. If not, click "save for later" and clarify rights.

Tool deposit agreement

date

To whom it may concern [*if possible, direct it to a person*]

The OK-Net Arable (Organic Knowledge Network Arable) project under Horizon 2020 has created a knowledge platform: farmknowledge.org. On the platform are collected "tools" –formatted knowledge in a form available to farmers and advisors – relevant for organic arable farming. The tools are searchable, users can rate them and there is a discussion forum for the users.

We have found your "tool" [*insert name of tool*] publicly available on the internet [*insert link to tool*]

and would like to include it in our collection. In order to make it available on the knowledge platform, we need to deposit the tool in Organic Eprints.

The tool itself is not stored on the knowledge platform, there is only a link to where the tool can be found, see e.g. http://farmknowledge.org/index.php/search-for-ok-tools?v=30563 . However, since Organic Eprints is an archive, the tool should be store there and we would like your permission to do this.

This is the "Deposit agreement" from Organic Eprints:

Deposit Agreement

In depositing this eprint (a collection of files and associated metadata), I grant Organic Eprints the right to make it permanently available on-line, with open access to all or in accordance with any access restrictions that I have specified.

I understand that Organic Eprints does not assume any responsibility if there is any breach of copyright in distributing these files or metadata.

For work being deposited by its own first author: I declare that this eprint is my own intellectual property and that I have the right to make it available in Organic Eprints in the manner chosen.

For work being deposited by someone other than its first author: I declare that I have gained the proper permissions from someone with the right to make this eprint available in Organic Eprints in the manner chosen - or that the material is in the public domain.

Clicking on the deposit button indicates your agreement to these terms.

Please let us know whether you accept that we deposit your tool [*insert tool name*] in Organic Eprints and make it available on the farmknowledge.org platform.

We hope you have become interested in our knowledge platform, and that you will try it and tell others about it.

Kind regards,

[*your name*]

6.2 Practice abstract template

TEMPLATE FOR PRACTICE ABSTRACTS

((Title of the method/approach (max. 150 characters)))

Problem (approx. 150 characters)

((Describe the problem in organic arable farming in 1-2 sentences. Include a reference to economic and/or ecological impact.)).

Solution (approx. 150 characters)

((Describe the presented approach to the solution in 1-2 sentences. Mention under what conditions the method was developed and tested)).

Outcome (approx. 150 characters)

((Describe in 1-2 sentences the main added agronomic, economic and/or ecological value for the farmer applying the method)).

Practical recommendation (approx. 900 characters)

- ((Describe the step-by-step procedure for proper implementation of the method. Include photos or graphs, if possible and useful.)).

Applicability box (max. 500 characters)

Theme

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

Geographical coverage

((e.g. Global, limited to specific soils or climate))

Application time

((time of the year or related to crop development for application of the method; if applicable))

Required time

((time required for application of the method; if applicable))

Period of impact

((e.g. Actual crop, Succeeding crop, if applicable))

Equipment

((required machinery; if applicable))

Best in

((e.g. specific crops, situations; if applicable))

Picture 1: Wide row, here in barley (Photo: Hansueli Dierauer, FiBL). **Picture 2: Combination of a 6 m hoe (front) with a harrow (back), here in soya** (Photo: Ueli Weidmann, FiBL).

Figure 1: ((title)) ((Photographer/Institution)

((Name of editing institution)). ((Title of the practice abstract)).
OK-Net Arable Practice Abstract.

PRACTICE ABSTRACT

Further information (approx 150 characters)

Video

- Check the following video for further instructions ((indicate language)). ((add weblink))

Further readings

- ((refer to existing technical guides, handbooks etc.))

Weblinks

- Check the OK-Net Arable Tool Database [link] for more practical recommendations.
- ((refer to other websites))

About this practice abstract and OK-Net Arable

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OK-Net Arable: This practice abstract was elaborated in the Organic Knowledge Network Arable project. The project is running from March 2015 to February 2018. OK-Net Arable promotes exchange of knowledge among farmers, farm advisers and scientists with the aim to increase productivity and quality in organic arable cropping all over Europe.

Project website: www.ok-net-arable.eu

Project partners: IFOAM EU Group (project coordinator), BE; Organic Research Centre, UK; Bioland Beratung GmbH, DE; Aarhus University (ICROFS), DK; Associazione Italiana, per l'Agricoltura Biologica (AIAB), IT; European Forum for Agricultural and Rural Advisory Services (EUFRAS); Centro Internazionale di Alti Studi Agronomici Mediterranei - Istituto Agronomico Mediterraneo Di Bari (IAMB), IT; FiBL Projekte GmbH, DE; FiBL Österreich, AT; FiBL Schweiz, CH; Ökológiai Mezőgazdasági Kutatóintézet (ÖMKI), HU; Con Marche Bio, IT; Estonian Organic Farming Foundation, EE; BioForum Vlaanderen, BE; Institut Technique de l'Agriculture Biologique, FR; SEGES, DK : Bioselena, Bulgaria

Further guidelines

Mandatory information

For a practice abstract please provide the following **mandatory** information. The following six sections **should not exceed 1650** characters.

- Title (max 150 characters – excluding spaces)
- Problem (approx 150 characters – excluding spaces)
- Solution (approx 150 characters – excluding spaces)
- Outcome (approx 150 characters – excluding spaces)
- Practical recommendations (approx 900 characters – excluding spaces)
- Further information (approx 150 characters – excluding spaces)

Applicability box

It would be good if you could supply information for the applicability box (top right). (Excluded from the limit of 1650 characters).

Section "About this practice abstract and OK-Net Arable"

Please do not change this, but add the name and address of your institution as well as the authors (names, institution, city, country).

Questions?

If you have any questions related to this template please contact gilles.weidmann@fibl.org

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