

DiverIMPACTS - Deliverable 6.1

DiverIMPACTS
Diversification through Rotation, Intercropping, Multiple cropping, Promoted with Actors and value-Chains Towards Sustainability

Deliverable 6.1

Inventory of tools for crop diversification available for farmers and advisors

Planned delivery date (as in DoA): Month M17, October 2018

Actual submission date: 22/10/2018, M17, revised February 2019

Work package: WP6

Work package leader: Anja Vieweger, ORC

Deliverable leader: Aline VANDEWALLE, APCA

Author: Aline VANDEWALLE, APCA

Version: 1.0

This deliverable is part of a project that has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 727482.

Dissemination Level

PU Public

PU

CI Classified, as referred to Commission Decision 2001/844/EC

CO Confidential, only for members of the consortium (including the Commission Services)

Research and Innovation action: GA no. 727482

Start date of the project: June 1st, 2017

Contents

- 1. Summary..... 3
- 2. Introduction 3
- 3. Methodology..... 3
- 4. Short description of the database 4
 - 4.1 50 tools / methods..... 4
 - 4.2 Types of tools and methods and diversification strategies 4
 - 4.3 Validity spectrum..... 5
 - 4.4 Technical data..... 6
- 5. Conclusions..... 6
- 6. Partners involved in the work..... 7
- 7. Annexe..... 7

1. Summary

The purpose of this inventory was to identify existing tools and methods designed to support farmers and advisors in their crop diversification activities.

This inventory includes the characterisation of 50 tools and methods (42 and 8, respectively) from eight European countries.

The database is publicly available at <https://doi.org/10.5281/zenodo.2575578>

2. Introduction

The inventory was produced in Task 6.2 of the H2020 project DiverIMPACTS (<http://www.diverimpacts.net/>). The aim of the database is to give an overview of existing tools and methods to promote crop diversification strategies (rotation, multiple cropping, intercropping) at different levels (including the value chain and territory levels). Tools and methods were described in terms of purpose, type, users, and technical characteristics.

This inventory includes tools and methods developed to promote one or more crop diversification strategies as well as tools and methods developed to achieve an expected impact (and crop diversification may be a way of achieving this impact).

By tool, we mean anything used as a means to support the user in decision or a choice-making. By method, we mean a particular procedure for supporting the user in decision or a choice-making. Tools and methods can be used in the form of software, online tools, paper sheets, mobile applications, etc.

3. Methodology

This inventory was made using an online survey as well as interviews.

The online survey was developed by APCA together with Task 6.2 partners (ACTA, AgroSolutions, CRA-W, DLO, FiBL, INRA, ORC, SLU). It included 32 questions and was divided into five parts:

- An “Introduction” part, which introduced DiverIMPACTS project and the objective of the survey, and provided some definitions;
- An “Aim of the tool or method” part, which included seven questions and six sub-questions. This part aimed to understand the objective(s) of the tool or method and the strategies of diversification promoted;
- A “Scope of the tool or method” part, which included seven questions and three sub-questions. This part aimed to understand the context of use of the tool or method;
- An “Additional information on the tool or method” part, which included 12 questions. This part aimed to gather technical information on the tool or method (language, time required to record input data, information about the designer, etc.);
- A part that included five questions and aimed to gather information on the respondent.

The survey included both multiple choice and open-ended questions (e.g., expected impacts).

The online survey was developed and published online with Framiforms (Annexe 1). It was available between the 9th of March and the 5th of July 2018.

The survey was disseminated by Task 6.2 partners to their network, to all project partners, to European networks such as EUFRAS and to the H2020 European crop diversification projects cluster. The survey was presented at DiverIMPACTS annual meeting and was made available on DiverIMPACTS website and social networks.

We recorded 58 responses from 38 respondents (30 respondents to the online survey and 8 respondents to direct interviews). The inventory database was made publicly available online (<https://doi.org/10.5281/zenodo.2575578>).

4. Short description of the inventory database

4.1 50 tools and methods

To date, the inventory database contains 42 tools and 8 methods, which were already disseminated. Eight more tools from the H2020 European crop diversification projects cluster will be added to this database when they will be made available to end-users.

Tools and methods were developed in eight different countries (Figure 1).

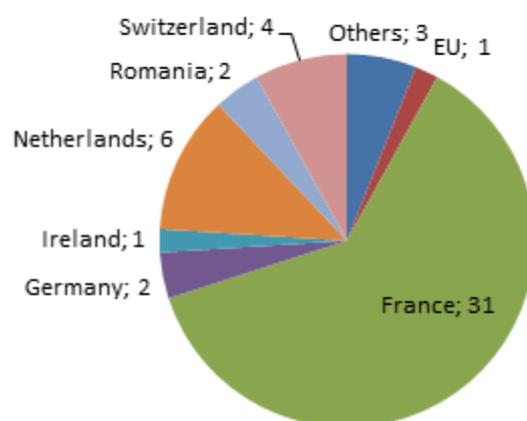


Figure 1: Country of origin of tools and methods

Most identified tools were developed in France (62%). The involvement of French partners in Task 6.2 and in several French networks of advisors and researchers may explain this pattern. Disseminating the survey through these networks allowed to identify local tools (decision grids for example) and tools developed to answer specific questions from farmers.

Among the 58 responses to the survey, eight tools were identified twice by two different respondents. Responses from the different respondents were then compiled and included in the database.

4.2 Types of tools and methods and diversification strategies

Tools and methods support the user in decision or choice-making in different ways (Figure 2) and on one or more diversification strategies and/or levers to diversification (Table 1).

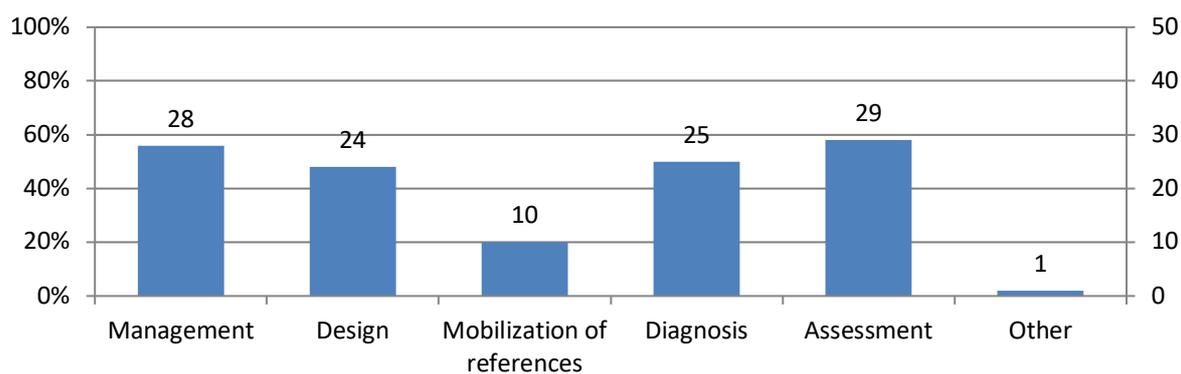


Figure 2: Types of tools and methods

Table 1: Types of tools and methods, diversification strategies and levers to diversification accounted for by the tool or method

	Rotation	Multiple Cropping	Intercropping	Local market	Other
Management	23	14	13	3	4
Design	18	14	17	2	1
Assessment	28	15	15	2	3
Diagnosis	23	12	11	3	7
Mobilisation of references	7	4	4	2	3
Dissemination	1	1	1	1	1

4.3 Validity spectrum

Identified tools or methods can be applied at the field or cropping system levels (46 out of 50), at the farm level (23 out of 50) and, although less frequently, at the territory or value chain levels (8 out of 50).

Most tools can be used in both conventional and organic systems (34 out of 50) (Figure 3).

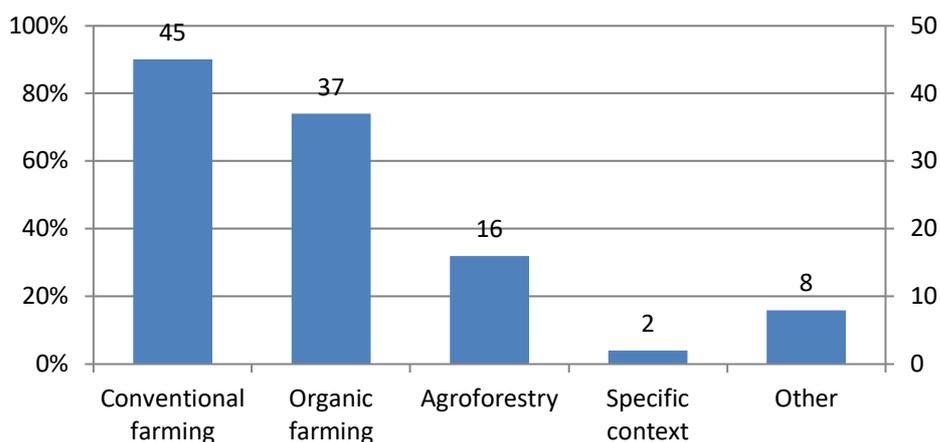


Figure 3: Agricultural context of use of the tools and methods

4.4 Technical data

Technical data on tools or methods were recorded, including technical format (Figure 4), language, training time, costs, developers, etc.

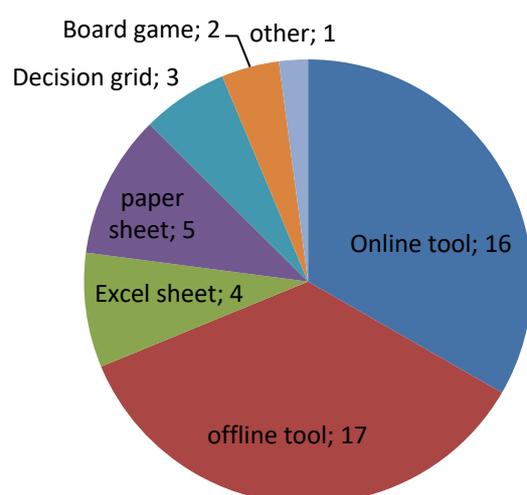


Figure 4: Technical format of the tools

5. Conclusions

Fifty tools and methods were identified across Europe and described in the inventory database (<https://doi.org/10.5281/zenodo.2575578>). Eight more tools from the H2020 European crop diversification projects cluster will be added to this database when they will be made available to end-users.

In a next step, stakeholders' needs for tools to promote crop diversification will be identified. A gap analysis will be performed, comparing these needs and existing identified tools.

In a final step, a decision tree will be developed to support farmers, advisors and other actors along the value chain to identify the most suitable tool to their situation and needs.

6. Partners involved in the work

APCA, leader of Task 6.2, was in charge of this deliverable. Paul Cappe de Baillon, intern in APCA (CRA Pays de la Loire), was also strongly involved in making this inventory. Task 6.2 partners (CRA-W, DLO, INRA, ORC, SLU, ACTA and FiBL) were involved both in developing the survey methodology and in carrying out the survey.

7. Annexe

Annexe 1. Tools and methods inventory (Task 6.2)

Introduction to the survey:

This questionnaire aims to inventory and describe tools and methods developed to promote crop diversification strategies in Europe. It is part of the European project DiverIMPACTS, i.e., Diversification through rotation, intercropping, multiple cropping, promoted with actors and value-chains towards sustainability (More information on the project is available at <http://www.diverimpacts.net/>).

Anybody who uses or knows a tool or a method that can support crop diversification is invited to fill in this questionnaire.

By crop diversification strategies, we mean both temporal and spatial diversification strategies, i.e., rotation, multiple cropping and intercropping strategies. Rotation refers to growing different crop species on the same field in successive growing seasons. Multiple cropping refers to growing different crop species on the same field within a growing season. Intercropping refers to growing different species or cultivars in proximity in the same field (mixed, row, and strip intercropping).

By tool to promote crop diversification strategies, we mean anything used as a means to support the user in decision or choice-making on one or more diversification strategies. By method to promote crop diversification, we mean a particular procedure for supporting the user in decision or choice-making on one or more diversification strategies. Tools and methods can be used in the form of software, online tools, paper sheets, mobile applications, etc.

For each question, please fill in the blank or select one or several answers. The asterisk (*) indicates that a field is compulsory.

Please, fill in one questionnaire for each tool or method you know. Each questionnaire takes about 10-20 minutes to fill in.

If you face any problem or if you have any comment on the questionnaire, please send an email to: Paul.CAPPEDEBAILLON@pl.chambagri.fr

A- Aim of the tool or method

1- What is the name of the tool or method? *

2- Is it a tool or a method? *

Tool

Method

3- Can you describe the context of use of the tool or method? *

4- Which type of tool or method is used? (multiple answers are possible) *

- Management
- Design
- Assessment
- Diagnosis
- Mobilisation of references
- Other

4.1- If Management, please specify which type of decision is supported (multiple answers are possible) *

- Technical
- Economic
- Strategic
- Other

4.1- If Other, please specify *

4.2- If Design, please specify the object of design (multiple answers are possible) *

- Cropping system
- Crop mixture
- Species mixture
- Other

4.2- If Other, please specify *

4.3- If Assessment, please specify the type of assessment (multiple answers are possible) *

- Feasibility study
- Market study
- Comparison to another situation
- Comparison to a reference
- Other

4.3- If Other, please specify *

4.4- If Diagnosis, please specify the type of diagnosis (multiple answers are possible) *

- Feasibility
- Performance
- Initial situation before change
- Other

4.4- If Other, please specify *

4.5- If Mobilisation of references, please specify the type of references (multiple answers are possible) *

- From bibliography
- From experiments
- From expert knowledge
- From exchanges between experts
- Other

4.5- If Other, please specify *

4.6- If Other, please specify *

5- Which diversification strategy(ies) and/or lever(s) to diversification is (are) accounted for? (multiple answers are possible) *

- Rotation
- Multiple cropping
- Intercropping
- Creation of a local sector/market
- Other

5.1- If Other, please specify *

6- What are the expected impacts on your system? *

7- Please specify any additional information useful to understand the aim of the tool or method

--- Part 2/4 ---

B- Scope of the tool or method

8- At which level can the tool or the method be applied? (multiple answers are possible) *

- Field/Cropping system
- Farm
- Territory/Value chain
- Other

8.1- If Other, please specify *

9- Who are the users of the tool or method? (multiple answers are possible) *

- Farmers
- Advisors
- Experts
- Public agency
- Consumers
- Other

9.1- If Other, please specify *

10- Who are the recipients of the tool or method outcomes? (multiple answers are possible) *

- Farmers
- Consumers
- Local authorities
- Economic organisations
- Other

10.1- If Local authorities, please specify *

10.2- If Economic organisation, please specify *

10.3- If Other, please specify *

11- Under which agricultural system did you use the tool or method? (multiple answers are possible) *

- Conventional farming
- Organic farming
- Agroforestry
- Specific context
- Other

11.1- If Specific context, please specify *

11.2- If Other, please specify *

12- Did you develop the tool or method? *

- Yes
- No

13- Is it possible to use the tool or method under a different agricultural system(s) than the one(s) you mentioned in question 11? *

- Yes, without adaptation
- Yes, with adaptation(s)
- No
- Unknown

13.1- If Yes, please specify under which system(s) *

13.2- If Yes, with adaptation, please specify briefly which adaptations *

14- In which geographical area did you use the tool or method? Please, indicate soil types and climate. *

15- Is it possible to use the tool or method in a different geographical area? *

- Yes, without adaptation
- Yes, with adaptation
- No
- Unknown
- Not relevant in this case

15.1- If Yes, please specify in which geographical area(s) *

15.2- If Yes, with adaptation, please specify briefly which adaptations *

--- Part 3/4 ---

C- Additional information on the tool or method

16- How much training time is needed before being able to use the tool or method? *

- None
- Less than one hour
- Less than one day
- More than one day

Unknown

17- How much time is needed to collect and record input data? *

- None
- Less than one hour
- Less than one day
- More than one day
- Unknown

18- What is the technical format of the tool or method? *

- Paper questionnaire
- Online tool
- Offline tool
- Decision grid
- Excel sheet
- Other

18.1- If Other, please specify *

19- What is the country of origin? *

20- Which language(s) is used in the tool or method? *

21- Who is (are) the contact person(s)?

22- Please indicate the email of this (these) person(s) (if available)

23- Which organisation(s) developed the tool or method?

23.1- Type of organisation(s) *

- Group of farmers
- Research centre
- University
- Technical institute
- Company
- Government/Official
- Unknown

Other

23.1.1- If Other, please specify *

24- Which organisation(s) currently owns the tool or method (if different from the original designer)?

24.1- Type of organisation(s)

Group of farmers

Research centre

University

Technical institute

Company

Government/Official

Unknown

Other

24.1.1- If Other, please specify *

25- Is there any cost associated to the use of the tool or method? *

No, it's free

Yes

Unknown

25.1- If Yes, please specify the estimate price of use

26- How many people are already using the tool or method? *

Less than 10

Between 10 and 100

Between 100 and 1000

More than 1000

Unknown

27- Where can we learn more about it (website, publication, etc.)?

--- Part 4/4 ---

D- Information on the respondent

28- To which category of respondent do you belong? *

- Farmer
- Advisor
- Experts
- Public agency
- Consumer
- Other

28.1- If Other, please specify *

29- What is your country? *

30- Please indicate your name and email (this field is not compulsory)

31- Can we contact you for additional information? *

- Yes
- No

32- Would you like to be informed about the results of this survey? *

- Yes (don't forget to specify your name and email)
- No

Thank you for taking the time to complete this survey.