D2.3 Case Study Catalogue – Report on the development of the case study catalogue



D2.3 Case Study Catalogue

Report on the development of the

'Catalogue of European mixed and agroforestry initiatives and documentation of the two network meetings'.

A description and categorisation of European mixed and agroforestry sites, projects, networks and organisations.

30 June 2024



Deliverable D2.3	Catalogue of European mixed and agroforestry initiatives and documentation of the two network meetings - working title:
	AGROMIX Case Study Catalogue
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	Task 2.3 Mixed farming and agroforestry case study network
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¹ **R**=Document, report; **DEM**=Demonstrator, pilot, prototype; **DEC**=website, patent fillings, videos, etc.; **OTHER**=other ² **PU**=Public, **CO**=Confidential, only for members of the consortium (including the Commission Services), **CI**=Classified



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1 Executive Summary

This is a report on the catalogue of European mixed and agroforestry initiatives and documentation of the network meetings for deliverable 2.3 of the AGROMIX project. The aim of this document is to share the steps taken to develop the catalogue and the catalogue itself (see link: <u>AGROMIX case study catalogue</u>).

The core goal of this task is to increase the accessibility of numerous agroforestry and mixed farming study sites for users in the project to support the use of this data in the development, or analysis, of economic, or environmental factors for these farming systems. During this task we further recognised the value of this information to users outside the project which led to the development of the catalogue into a publicly available digital tool.

This was designed to accelerate the impact of the catalogue and allow its continuation after the end of the project, e.g. for the next projects as Horizon Europe Innovation Actions but also member state funding or networking in Europe beyond the EU borders.

In summary, the following results have been delivered:

- 1. The case study catalogue on agroforestry and mixed farming was discussed and **co-developed** during network meetings.
- 2. The current version of the case study catalogue at the time was showcased and **discussed** with potential users at two AGROMIX network meetings in Pisa, Italy, and Belgrade, Serbia, and additionally at the European Agroforestry Conference (EURAF) 2024 in Brno, Czech Republic, in a number of conference sessions.
- 3. The final version was published as a **digital tool** to improve dissemination and access by interested users.



2 Expected impact

Task 2.3 'Catalogue of European mixed and agroforestry initiatives and documentation of the two network meetings', contributes to two of the three objectives of WP2: firstly, to engage with multiple mixed-farming and agroforestry (MF/AF) initiatives in Europe as a data source for the project and secondly, to make knowledge from MF/AF initiatives in Europe accessible to the wider public.

The case study catalogue developed in task 2.3 provides an accessible overview of **77 successful examples of MF/AF initiatives throughout Europe**. This catalogue is accessible to various users including farmers, researchers and policy makers. It provides them with concrete examples of mixed and agroforestry practices to support research, design and policy making and inspire change. The **linked publications and websites** listed in the cases dataset support both novices and experts of MF/AF practices to find reliable and peer-reviewed information and study sites on this sustainable farming system.

To promote the use and accessibility of the case study catalogue within the MF/AF community it was developed into an **online digital tool** that is accessible to the public based on feedback and input from potential users.

Furthermore, we have promoted the availability of this catalogue in various ways including at 7th European Agroforestry Conference, EURAF, 27-31 May 2024 in Brno, Czech Republic, in form of a poster, workshops, oral presentation, on the AGROMIX project website and via social media. Through the activities at EURAF around **400 potential users could be reached** and through the LinkedIn activities **2,446 followers were reached**. Furthermore, the workshops enabled the interaction with colleagues from other EU-funded projects (**ReForest** and **DigitAF**) and valuable input and feedback regarding long-term maintenance and operation of digital tools were collected.

The tool and IT infrastructure around it (including the server, licences, and website) has been designed for continuation after the project ends.

ZHAW (Zürich University of Applied Life Sciences, Switzerland) will host this and support it for at least 5 years. The catalogue is available to further funding and projects and with this **impact** it can help to continue catalyse practical *on-farm* and *supply chain* innovation within Agroforestry and Mixed Farming.



3 Development of the case study catalogue

The development took place in five key steps: 1) the gathering of case studies, 2) the cataloguing of these case studies, 3) meetings to determine how to make these available and accessible to users, 4) the development of the online tool containing the case study catalogue, and, 5) the promotion of the catalogue to potential users and exploration of post project continuation of the catalogue.

3.1 Development of the Excel-based case study catalogue

The basis for this catalogue was a former Microsoft Excel sheet with 77 case studies from 12 countries. This dataset existed already before the funded start of the AGROMIX project through exchange and collaboration between the project partners during the two stages of the proposal writing phase. In May 2021, a first validation of the original database was conducted by contacting the listed contacts and asking for the validity of their case studies and to discuss inclusion or exclusion of their case study in the final catalogue. In addition to their willingness to be included, a major criterion for inclusion was the availability of useful data.

To collect suitable cases and aggregate the available data of each case study a draft questionnaire was developed. It was then sent to selected contacts in September 2021 to test its functionality, comprehensibility, and the expenditure of time to complete it.

Their feedback on the draft questionnaire was used to adapt the questionnaire and a final version was sent out to all 26 contacts in 12 countries.

The questionnaires is comprised of:

- an introduction sheet with information on its aim, background and instructions of how to fill it out;
- a general information sheet about the case studies (e.g. coordinates, contact person, size, farm/network type, organic/conventional management);
- an agricultural design sheet with the AGROMIX classification main and subtypes of MF/AF systems (according to Schnabel et al., 2021), and further details (e.g. tree species, age, livestock products, etc.) were queried;
- a data availability sheet to determine which data was available from the site ("yes", "no", "inapplicable") about predominantly quantitative data (e.g. amount of fertiliser used, soil nutrients, carbon storage, weekly workload);
- a sheet about the availability of more qualitative additional data (e.g. biodiversity promotion, climate change resilience, adaption and mitigation, added value).



In March 2022, a catalogue with the collected data was established and reviewed by WP leaders. The catalogue is comprised of 15 sheets with:

- an introduction sheet containing information about the catalogue, its background and context;
- a search sheet with instructions and a pivot table to quickly identify the searched systems as well as an illustrational figure of the AGROMIX classification which was used;
- a database sheet;
- twelve sheets with the cases of each country presented in a more user-friendly manner.

The first operational Excel-version of the case study catalogue comprises an introduction tab (see Figure 1), a search tab (see Figure 2), a tab with the complete dataset of the catalogue, and 12 tabs with a systematic ordered datasheet per each country (see Figure 3). An **important functionality is the search sheet**, where users can select one or multiple criteria of interest to filter the results list. The search output (case study name and country) is given below the search criteria list (see Figure 4). For further detail, the specific country sheet must be selected (see Figure 3). There, all case studies of that country are listed in a user-friendly way with small pictures of the site and the collected general information and information about data availability as queried in the questionnaire.



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A B C D E	F	G
1 2 3 4 5 6 7 8 9	About this catalogue Aim : provide an easily searchable catalogue of European mixed and agroforestry initiatives with information about their agricultural design and data availability as well as general information on partner institutions, location, size etc. Structure : the catalogue is comprised of 15 sheets with o an introduction sheet contributions information about the applications in background and extent 	Background : This catalogue was created within the AGROMIX Project. Coordinated by Coventry University, AGROMIX brings together researchers, farmers and policymakers to explore the transition towards resilient farming, efficient land use and sustainable agricultural value chains in Europe. Due to each region's unique environmental, social and economic conditions, no one model for implementing mixed farming and agroforestry can be replicated across all of Europe's landscapes. Workpackage 2 uses a participatory design approach to design tailor-
10 Catalogue of European mixed and agroforestry initiatives 11 April 2022 13 AGROMIX task 2.3 14 Mixed farming and agroforestry case study network 15 Deliverable: 16 Catalogue of European mixed and agroforestry initiatives 17 https://agromixproject.eu 19 Help: If you need help, contact mareike.jaeger@zhaw.ch	 containing information about the catalogue, its background and context a search sheet with instructions and a pivot table to quickly identify the searched systems as well as an illustrational figure of the AGROMIX classification which was used a database sheet with all cases listed and linked to the more user-friendly country sheets twelve sheets with the cases of each country presented in a more user-friendly manner 	made scenarios for specific contexts based on the Reflexive Interactive Design method. This WP engages with multiple initiatives across Europe to collect data, making the knowledge collected accessible for all audiences. In task 2.3, this catalogue was developed in 2021-2022 and is based on a previous collection of AGROMIX cases. In a first step, all contact persons listed there were contacted and their cases confirmed. Thereafter a questionnaire was developed with the participation of several contact persons how to best gather information about the agricultural design, management practices and data availability of various parameters of their cases. The final questionnaire was then sent to all contact persons and their answers compiled in this catalogue.
22 23	many Greece France Italy Ireland Portugal Spain Switzerland The Netherlands United Kingdom	

Figure 1: introduction tab of the Excel-based case study catalogue.

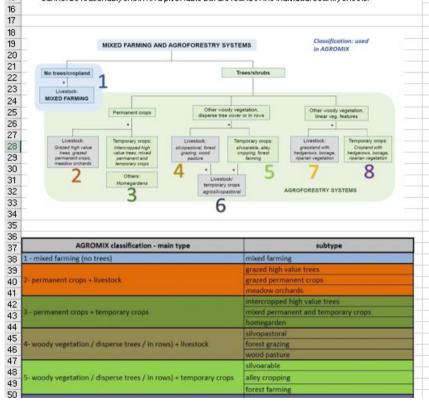


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Search Instructions

In column C, 20 search criteria are listed and can be selected by clicking on the arrow at the right end of the cell. It is possible to select multiple criteria.

The search criteria are divided in three parts: (general) case information, agricultural design and data availability. **Note [!**] that this questionnaire is about data availability: "yes" means "data is available", "no" means "data is not available" (but could theoretically be collected) and "inapplicable" means "parameter does not apply to the case" (e.g. no plant protection is being used). An illustration of the AGROMIX classification can be found below to clarify the "main types" of the agricultural design, further supported by a table with the main types as well as the subtype within the AGROMIX classification. It should be noted that in some cases more than one system type is being prestend (e.g. in networks), so that contact persons had the possibility to specify the occuring systems in a comment column. These cannot be reasonably shown in a pivot table but are found in the individual country sheets.



Search criteria			
country	(All)		
partner institution	(All)	-	
contact person	(All)	-	
scale	(All)		
field / farm size (ha)	(All)		
if network: number of farms	(All)	-	case information
experimental	(All)	-	0000 1110111000
real farm / network	(All)		
management practice	(All)	_	
weed control	(All)	-	
tillage	(All)		
cover crops	(All)		
main type	(All)	-	agricultural design
subtype	(All)	-	-g.reantina acolgri
fertilisation	(All)	-	
plant protection	(All)		
carbon measurements	(All)		data availability
soil data	(All)	-	
biodiversity data	(All)	-	
economic data	(All)		
Row Labels	T		
Belgium		-	
ILVO organic cropping site		-	
ILVO S28 agroforestry trial			
ILVO silvopoultry trial			
Ittre AF11			
Ittre AF5			
Ittre AF6			
		-	
Lochristi AF1 Lochristi AF2			
Lochristi AF1 Lochristi AF2			
Lochristi AF1			
Lochristi AF1 Lochristi AF2 Lochristi AF3			
Lochristi AF1 Lochristi AF2 Lochristi AF3 Ongenaerthoeve AF7			
Lochristi AF1 Lochristi AF2 Lochristi AF3 Ongenaerthoeve AF7 Ongenaerthoeve AF8			
Lochristi AF1 Lochristi AF2 Lochristi AF3 Ongenaerthoeve AF7 Ongenaerthoeve AF8 Ongenaerthoeve AF3			
Lochristi AF1 Lochristi AF2 Lochristi AF3 Ongenaerthoeve AF7 Ongenaerthoeve AF8 Ongenaerthoeve AF9 PHAE			
Lochristi AF1 Lochristi AF2 Lochristi AF3 Ongenaerthoeve AF7 Ongenaerthoeve AF8 Ongenaerthoeve AF9 PHAE Polderveld			
Lochristi AF1 Lochristi AF2 Lochristi AF3 Ongenaerthoeve AF7 Ongenaerthoeve AF8 Ongenaerthoeve AF9 PHAE Polderveld Pomona			
Lochristi AF1 Lochristi AF2 Lochristi AF3 Ongenaerthoeve AF7 Ongenaerthoeve AF8 Ongenaerthoeve AF9 PHAE Polderveld Pomona Rotational grazing network			
Lochristi AF1 Lochristi AF2 Lochristi AF3 Ongenaerthoeve AF7 Ongenaerthoeve AF8 Ongenaerthoeve AF9 PHAE Polderveld Pomona Rotational grazing network Vollezele AF10			
Lochristi AF1 Lochristi AF2 Lochristi AF3 Ongenaerthoeve AF7 Ongenaerthoeve AF8 Ongenaerthoeve AF8 PHAE Polderveld Pomona Rotational grazing network Vollezele AF10 Vollezele AF4			
Lochristi AF1 Lochristi AF2 Lochristi AF3 Ongenaerthoeve AF7 Ongenaerthoeve AF8 Ongenaerthoeve AF8 PHAE Polderveld Pomona Rotational grazing network Vollezele AF10 Vollezele AF4 • Estonia			

Figure 2: Screenshot of the Excel-based case study catalogue with the introduction, the classification of MF and AF used in AGROMIX with 8 main types and all subtypes, as well as the filter search criteria and the result list.



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2	picatre	country	coordinates (XX'XX'XX" N, XX'XX'XX" E)	Google Map Weblink	partner instituti on	contact person	nail	scale	field / farm size (ba)	n networ k: number of	experimental	real farm / networ k	project / farm link	publications	other weblinks
SRC Mezzi		Italy	45' 8'7,92''N, 8'30'51.04''E	https://geo.gl/m aps//IKmXQYGr PEzdeST8	CREA	Sara Bergante	sara.bergante@crea.gov.it	field	1		yes - research site	ħo		PACTOLING at PARISP. BERGANTES. (2016). Growth and yield results of timber trees. mixed with poplar SRC: 3. years of an experimental plot in the Po- valley. Proceeding of:	
Pumpkin & Poplar nurser	y	Italy	45" 818.64"N, 8"3012.25"E	https://goo.gl/m aps/4gJVxa23N uuQsgN68	CREA	Pier Mario Chiarabaglio	piermaria.chiarabaglia@crea.gov _it	field	0.12		yes - research site	no			
Sida		Italy	45" 8"8.33"N, 8"30"38.08"E	https://goo.ql/m aps/temAoSV/m SBrkwb88	CREA	Sara Bergante	sara bergante@crea.gov.it	field	0.31		yes - research site	no	https://www.sid atim.eu/en/	PARTS P.: PARTS P.: BERGANTE S. (2016). Growth and yield results of timber trees. mixed with poplar SRC: 3 years of an experimental plot in the Po	+
WoodNat		Italy	45° 8°22.82"N, 8°30'13.43"E	https://goo.gl/m aps/4g.Wxs23N uuQagN68	CREA	Pier Mario Chiarabaglio	piermario.chiarabaglio@cres.gov .it	field	2		yes - research site	no	http://woodnat. seistaglabs.com /	- barginte, s., Chiarabaglio, P., M., Giorcelli, A., Marchi, M., Manetti, M. C., Farnándes: Meya, J., & Palleri, F. (2020). The GIS database of WOODnat project for the inventory and	
Cheese Valley (Dairy Pecorino Cheese, Coop Manciano)		ltəly	42'35'13''N, 11'30'55''E	https://www.goo gle.com/mapc/pl acs/52014-Manc iano-GR/@42.5 304464.115087 488.152/data-13 mi4b14m513m41 1s0x1328/s14ata-13 2ca64.3:0x60d5 dc6excad64.018 m213d42.58832 854d115173735 2hist-	SSSA- UNIPI	Alberto Manino	Alberto.Mantino@santannapisa.i t	local value chain	72 (average)	150	no	yes	https://precisio nsheep.it	http://dx.doi.or g/10.4031/ija.20 20.1711; http://doi.org/ 10.1080//82805 1X.2021.20037 26	https://ww w.caseifici omanciano. it/stilnovo/

Figure 3: Screenshot of systematically ordered datasheet, Italy as an example.



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Search criteria			
country partner institution contact person scale field / farm size (ha) if network: number of farms experimental real farm / network management practice weed control tillage	(All) (All) (All) (All) (All) (All) (All) (All) (All) (All) (All) (All)	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	case information
cover crops main type	(All) 6- woody vegetation / disperse trees / in rows) + livestock + temporary crops	* 	agricultural design
subtype fertilisation plant protection carbon measurements soil data biodiversity data economic data	(All) (All) (All) (All) (All) (All) (All)	* + + + + *	data availability
Row Labels -			
 France Duck farms Free range pigs Free range sows Italy Azienda Al Confin 			
Azienda pilota SasseRami Cheese Valley (Dairy Pecorino Cheese, Coop Manciano) Tenuta di Paganico farm Portugal			
Herdade do Freixo do Meio			

Figure 4: Example of a search query (top) and its corresponding result in the filter list (below).



3.2 Network meetings

Following the development of the excel based catalogue, discussions took place with potential users to determine how to improve the availability and accessibility of the catalogue for users.

The first in person network meeting within the AGROMIX project took place from 14-17 September 2021 in Wädenswil, Switzerland. One of the agenda points was to discuss and decide on how to proceed with the catalogue and the general classification and categorisation into mixed farming cases and agroforestry cases. In addition, the entire procedure regarding data collection via the questionnaire was agreed.

The second network meeting took place in Pisa, Italy, from 7-9 November 2022 and the first prototype of the catalogue was presented. Additionally, an online survey exploring the acceptance, collaboration and development of the case study catalogue was queried and further debated in group sessions (see Figure 5, Figure 6 and Figure 7).

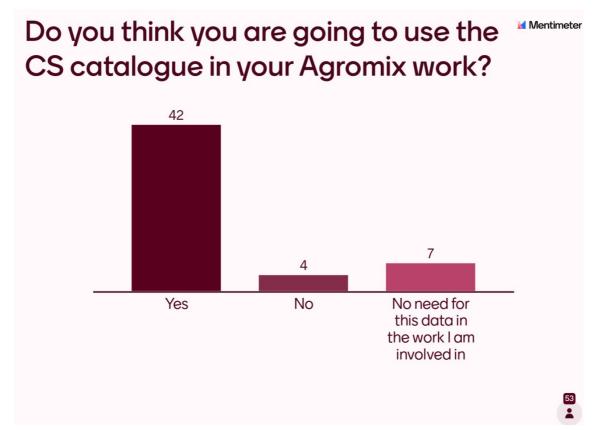


Figure 5: Screenshot of the Mentimeter survey at the network meeting in Pisa regarding the acceptance of the case study catalogue within the AGROMIX project.



Do you have any experience on making databases available and would you be open to share this with the WP2.3 team? Please leave your name/experience...

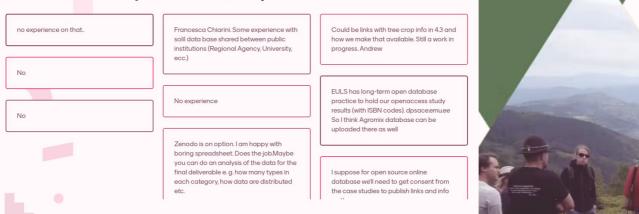


Figure 6: Screenshot of the Mentimeter survey at the network meeting in Pisa regarding the collaboration of the case study catalogue within AGROMIX project.

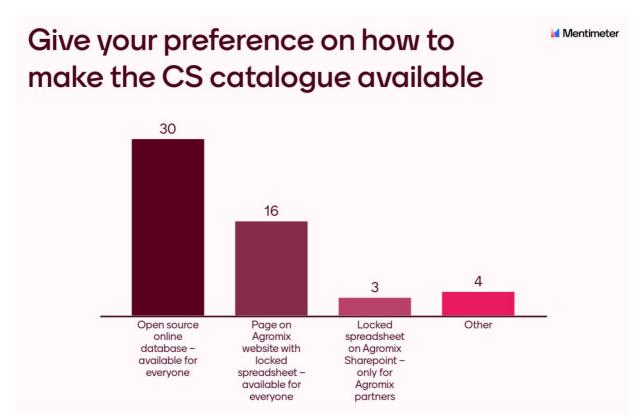


Figure 7: Screenshot of the Mentimeter survey at the network meeting in Pisa regarding the development of the case study catalogue.



🚺 Mentimeter

During each session the catalogue was discussed to determine the needs and wants of users. One of the key outcomes of these sessions was the desire for an online version of the catalogue which was seen as required. Between November 2022 and September 2023, two online meetings were organised with other partners to discuss the progress and functions of the catalogue.

During the network meeting in Belgrade, Serbia, 3-5 October 2023, the first online version of the case study catalogue was presented, discussed, and received overall a positive response. It was decided that all members of the consortium may test the case study catalogue and their feedback will be collected to further improve the tool.

Initially it was planned to have in-person network meetings in Poland and the Netherlands, however the COVID-19 pandemic effected this planning therefore we organised alternative meetings in Wädenswil, Pisa and Belgrade.

3.3 Development of the online case study catalogue

Although the existing Excel-based case study catalogue fulfils all technical requirements, it is not possible to directly publish an Excel-based catalogue on the internet to make it accessible to a broader public. Therefore, ZHAW evaluated different tools such as Google Maps, R Shiny and ESRI Dashboard to find the most suitable tool to have a user-friendly and accessible interface. **ESRI Dashboard** was evaluated to be the best solution for all the technical requirements (e.g. online accessibility, data filtering, showing all the cases on a map, etc.). This dashboard offers different options to create online websites and to present data interactively.

Before the programming of the dashboard of the case study catalogue could start, the entire dataset was reviewed, cleaned, corrected, harmonised and anonymised by ZHAW due to:

- Inconsistent spelling or typos
- Information in the wrong column
- Different formats e.g. for coordinates or age
- Number and text information were mixed, although only numbers should be given.
- Invalid values (e.g. formulas that didn't work)
- Missing data
- Inconsistent data
- Names, surnames and e-mail address were removed.
- Case names were replaced with acronyms.
- Coordinates were made imprecise to guarantee anonymity



Before the AGROMIX case study catalogue was publicly published on the internet, the national contacts were asked to review – and if necessary – to update the information of their cases. The database was updated according to the feedback ZHAW received from the contacts. Subsequently, the database was prepared for export to the ArcGIS software, where the data was geo-processed and transferred to the ZHAW online GIS portal. Once in the GIS portal, the database is accessible for the graphical interface programming tool "ESRI Dashboard" and the programming of the user interface could be started.

The final version of the dashboard gives an overview of the whole AGROMIX case study catalogue dataset and it offers the same search filter categories as the Excel-based case study catalogue. It shows all the case study sites on a map, it allows the data to be filtered by category or the entire dataset can simply be browsed. The functionalities of the individual dashboard elements are explained from left to right (see Figure 8):

- With the "Search Filter" different categories can be selected to filter for cases matching the criteria. A drop-down menu shows the filter options per category.
- An info box provides instructions on how to use the dashboard and explains how the data is categorised.
- The "Filter List Overview" gives a quick overview of all cases and shows only the acronym of the case names and the country of origin. If a filter is set, only the selected cases are shown.
- "Browse Catalogue Details" allows users to explore the whole dataset of all cases and the database can be browsed with two arrow buttons. If a filter is set, only the selected cases are shown.
- The map shows the approximate location of all the cases. The entire dataset of a specific case can be displayed by clicking on the tip of a symbol on the map, and a small window pops up with all the information. If a filter is set, only the selected cases are shown.

Once a search filter is set, the "Filter List Overview", "Browse Catalogue Details" and the map are automatically updated and show only the cases matching the search criteria. Also, the other search filter categories are updated and show only the matching categories in the drop-down menu. Additionally, by clicking on the AGROMIX logo in the top left corner, the AGROMIX project website is opened in a new browser tab.



https://gis.lsfm.zhaw.ch/por	lick to visit the Agromix project web	osite		Cl	lick left/right arrow to	browse data	i set	@ %
earch Filter	ne Agromix case-study catalogue lists all agroforestry and mixed-farming systems	Filter List Overview		st 77 •			SWIDIN	
	participating in the EU Horizon 2020 Agromix project. This catalogue offers a search filter to select categories and shows cases with matching criteria	LAF1 Belgium	Browse Ca					
ountry lo category selected	in the "Filter List Overview", in the "Browse Catalogue Details" and on the map. It is possible to select multiple criteria. Reset the filter criteria in the "Search Filter" if they are not needed	LAFI Belgium		atalogue			Galf of	, , , , , , ,
	anymore. To browse the data set use the arrows in the "Browse Catalogue Details".	LAF3 Belgium	Details			Electrological strategic in the second	Bethold	1.28
ertner institution	-	Ve AF4 Belgium	L AF1			Click on a s	vmbol t	0
o category selecte	The categories "main type" and "subtype" refer to the agricultural design (see graphs below).	I AFS Belgium	OBJECTID	1				The second
	The following categories check if data about this topic is available: - fertilisation	I AF6 Belgium	case name	LAF1		pop-up det	tailed	
ory selected	- plant protection - carbon measurement	O AF7 Belgium	country	Belgium				0
ld / fan kize (ha)	- soil data	O AF8 Belgium	y coordinates rounded	51.100000	1 - A - C	case inform	nation	
catego elected	- biodiversity data - economic data	O AF9 Belgium	x coordinates	3.800000	1867			
		VAF10 Belgium	partner institution	IVO	Scetland North S	" 🔺 🔊 🖾 🗸		
etwork: naber of farm	MIXED FARMING AND AGROFORESTRY SYSTEMS Classification: used in AGROMOX	IAF11 Belgium	scale	feld	Edinburgh	MARK	enhagen	ym
Chose		ILVO S28 agroforestry trial Belgium	field / farm size (ha)			Cope	ensagen	LITHU
liose	No treeshirubs	ILVO silvopoultry trial Belgium	if network: number		Q Belfast			
atogorios	Liverbol: MXXED FAAMING	Pol Belgium	of farms				🔍 Zoom to 🛛 🕂 Pen	
categories	Permanent orops Other voody vegetation, disperse tree sover or in trus Interar veg, features	Pom Belgium	experimental	no	Dubin Manchester			
o filter the		Rotational grazing network Belgium	real farm / network	yes Vew	IRELAND	Ansterdam	Wak Agroforestry	
o miler the	Livedock: Temporary ongo: Livestock: Livestock: Temporary ongo: Livestock:	ILVO organic cropping site Belgium	project / farm link publications		CarditO London	20 2	OBJECTID	76
ist/results	Came light naise beau, grande personer street, personer s	PHAE Belgium	publications	https://doi.org/10. 1016/j.egsy.2018.0 8.008:	Calific See	GERMANY Brussels Cologne Frankfurt	case name	Wak Agrofores
ist/results	2 Onex 4 · · 5 7 8	H Estonia		https://doi.org/10	here and the second sec	BILGIUM am Main	country y coordinates rounded	United Kingdo
drop-down	Approxy ange Approxy ange Ap	Lwooded meadow Estonia		1016/Lagee.2017. 05.018;	St Heller	Nurembe	x coordinates rounded	1,400000
urop-uown	5 6	P floodplain (alluvial) meadow Estonia		https://doi.org/10. 1016/j.agee.2018. 10.017	Par	ris Stuttgart Munici	partner institution	ORC / CAWR
menu)		O a Estonia	other weblicks	10.017	0	QO Zurich	scale	farm
nenu)	AGROM0X classification - main type subtype 3 - mixed farming (no trees) mixed farming	H forest pasture Estonia	local weather	not available	DANG		field / farm size (ha)	22.500000
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Figure 8: Dashboard of the online published AGROMIX case study catalogue with the explanation of the functionalities of every individual element.

A first version of the AGROMIX case study catalogue was presented at the AGROMIX conference in Belgrade, Serbia, on 4 October 2023. Generally, the feedback was positive, and the dashboard is seen as the right tool for the project's needs. The link to the dashboard was then sent to all the AGROMIX project members to use it, test it and to give feedback. Almost all feedback could be implemented which mainly concerned the functionality and the appearance of the GUI (graphical user interface).

The AGROMIX case study catalogue can be accessed via the following link: https://gis.lsfm.zhaw.ch/portal/apps/dashboards/88d45c05fbfe4b1496fb0fd557d2b068#locale=en

The AGROMIX case study dashboard is already published online and is also included as an embedded page on the AGROMIX project website: <u>https://agromixproject.eu/tools/catalogue-of-practices/</u>



3.4 Workshops and dissemination

The final steps in this task were to reflect on the accomplished work and to compile the lessons learned regarding the long-term operation and maintenance of digital tools and to promote the AGROMIX case study catalogue to potential users. These activities took place at the 7th European Agroforestry Conference, EURAF, from 27-31 May 2024 in Brno, Czech Republic, in the form of pre-conference workshops, a poster session (see Figure 10, workshops (see Figure 11) and an oral presentation. This provided three opportunities to discuss, highlight and showcase the case study catalogue during workshops to different audiences.

The first 2 workshops took place on the 27th of May 2024 as pre-conference workshops. They were conducted in cooperation with colleagues from two other EU-funded projects (DigitAF and ReForest), who are working on related topics. The idea of the cooperation was to join forces with colleagues from outside the AGROMIX project and learn from each other. The format of the workshops was to split the participants into two groups. The first group began the brainstorm on a topic and then the second group built up on the outcomes of the first group, thus refining and developing the ideas further.

The objective of these workshops was to explore opportunities to secure the long-term maintenance and operation of digital tools with the aim to promote agroforestry and mixed-farming systems. Project-borne digital tools might lack a long-term maintenance and operation strategy, which could lead to a fading out of the tool because it becomes outdated and flawed. Technical, organisational, motivation and financial issues were addressed and discussed to raise awareness, identify obstacles, and find solutions.

The results of the workshops can be summarised with the following solutions and approaches:

- Already when writing the proposal or during project planning think beyond the project
- Develop a strategy for long-term operation and maintenance in the early project phase
- Develop collaborations with users/stakeholders (farmers, landowners, researchers, policymakers, extensionists/farm advisors) to identify and fulfil their needs and to ensure operation, maintenance and the development of the tool
- Apply <u>FAIR principles</u> (Findability, Accessibility, Interoperability, and Reuse)
- Allocate hours for a transition phase for the handover after the project



To sustain a digital MF/AF tool, such as the case study catalogue, there are two different key strategies (see Figure 9). Either 1) open-source or community-based, thus relying on volunteering and the motivation of the community which might get some support with sponsorship (e.g. university infrastructure). Or 2) a commercial strategy has to be developed and paying users have to be identified such as advisors, or farmers.



Figure 9: Different strategies to sustain a digital MF/AF tool.

Community-based strategy approach

- Build a community around the tool for long-term operation and maintenance with like-minded, project colleagues, researchers the farming community and other stakeholders.
- Tasks such as hand-over protocol, DB access, admin rights, flow of information/data update need to be considered.
- Join EURAF on Github (<u>www.github.com/euraf</u>) to bring visibility to the project and grow an online community to help the project to be managed and maintained.
- A curator/manager is needed to moderate the online tool, data and programming code.
- Students of the IT department of universities can get involved for IT tasks.
- Involved partners need to be kept motivated. Motto: "give something, get something". For example, farmers contribute with their data and in return receive results from the tool they contribute too, such as data analysis or modelling free of charge.
- A structure needs to be set up which allows a smooth hand-over of the tool such as; documentation of the code and workflow, change protocol and meta-data.

Commercial strategy approach

- Develop a commercialisation strategy
- Identify users/clients (farmers advisors, companies, etc.)
- Contact commercial partners
- Develop the business case
- The commercial partner will develop the database, interface, do the marketing and keeps the tool running



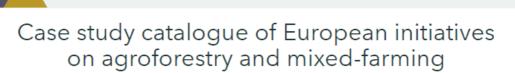
At the initiation of the project, it was not foreseen that a digital version of the catalogue would be developed. This was developed based on the wishes of the users and to improve the accessibility. Consequently, there were no funds allocated for continued updates and maintenance. Of the two routes available to support continuation the community-based strategy was chosen and is expected to support the tool in the longer-term after the project's completion. ZHAW will provide the IT infrastructure needed to ensure the operation of the online case study catalogue (server, login, website, software licences) in the foreseen future. Alternative to the utilisation of proprietary software, a publication of the dataset in CSV format on the platform www.github.com/euraf could be a future option. However, this would require a volunteering community of open-source developers.

The final workshop to promote the catalogue took place during the "models and tools" session at the EURAF 2024 conference. Several digital tool developers had the opportunity to showcase their product and interact with interested participants. The case study catalogue was demonstrated and discussed in groups with potential users who were rotating between the developers (see Figure 12). Participants were enthusiastic about the tool and saw its value in connecting users to data on MF/AF initiatives throughout Europe.

Finally, the catalogue has also been promoted online on the project website and via social media. Online posts from the account of ZHAW reach more than 2'446 followers on the platform LinkedIn. Additionally, the case study catalogue was promoted and linked with the AGROMIX project which also has a large social media audience.

The AGROMIX case study catalogue is published as an embedded page on the <u>AGROMIX project website</u> and we will continue to recommend it to students, colleagues and anyone interested in MF/AF.





agromix Transforming landscapes

Baumann Matthias¹ & Jäger Mareike¹

Introduction

Climate change and land degradation pose a threat to agricultural production. Agroforestry and mixed-farming practices try to tackle these issues. Within the HORIZON2020 AGROMIX project different stakeholders of the European agroforestry and mixed-farming community are joining forces to investigate and promote these sustainable agroecological practices. To make information and knowledge from a diverse range of agroforestry and mixed-farming initiatives in Europe accessible to a wider public, this case study catalogue was developed.

Case description

The AGROMIX case study catalogue database includes 77 cases from 12 countries all over Europe and from different climatic regions, thus including mixed-agricultural various agroforestry practices. A consortium of 28 different partner institutions participated in the data collection. A major criterion to include the farm/field in the data collection was the availability of data. This online catalogue, that works like a phonebook or an index, allows to search and filter the database and displays the matching cases for different parameters of interest or a combination of several parameters. The search filter includes categories such as country, partner institutions, scale, farm size, etc. In the detail view, the whole dataset is visible, portraying each case with relevant general information including many different numerical information and parameters such as agroforestry system type (according to Schnabel et al. 2021), field size, plant species, livestock races, etc. An integrated map offers a geographical overview and by clicking on a specific case, the whole dataset of a case is popping up.

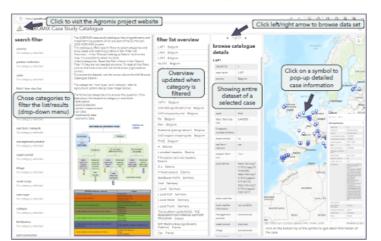


Figure: Screenshot of the AGROMIX online case study catalogue

Conclusion

This digital catalogue can help to increase the visibility of agroforestry and mixed-farming practices to a wider community of researchers, farmers, policymakers, landowner, extensionists, students, and NGOs by giving an overview of successful examples. The objective of sharing all the information is to inspire these stakeholders and ultimately to promote and facilitate the implementation of these sustainable practices.

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Reference

Schnabel S, Rubio Delgado J, Lavado Contador F, Van De Wiel M, Eden J (2021) Review of mixed farming and agroforestry systems in Europe - Analysis of MF/AF systems in Europe using the LUCAS data base. EU Horizon2020 AGROMIX project report.

Affiliation



Partners											
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Figure 10: Poster on the case study catalogue presented at the EURAF 2024.





Figure 11: Workshop at EURAF 2024 on the case study catalogue and digital tools.



Figure 12: Workshop in form of "stands" showcasing and discussing the case study catalogue with participants of the EURAF 2024 conference.



4 References

Schnabel S, Rubio Delgado J, Lavado Contador F, Van De Wiel M, Eden J (2021) Review of mixed farming and agroforestry systems in Europe – Analysis of MF/AF systems in Europe using the LUCAS data base. EU Horizon2020 AGROMIX project report.

