



Funded by the Horizon 2020 Framework Programme of the European Union

Farmer's Pride

Networking, partnerships and tools to enhance *in situ* conservation of European plant genetic resources

Data Management Plan Version 1

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1.0 Data summary

1.1 Purpose of the data collection and relation to the project objectives

Farmer's Pride is building a collaborative network of sites and stakeholders for the *in situ* conservation of Europe's plant genetic resources (PGR). The project involves the use of survey tools and other outreach mechanisms to gain an understanding of the roles and interests of the people and organizations involved or with an interest in the *in situ* conservation of PGR in Europe. By combining the knowledge of the identified stakeholders with the results of analyses using geographic information system (GIS) technology, the project is identifying a series of specific locations where wild and cultivated populations are managed to agreed standards and designating the first formally recognized sites of the European Network for *In Situ* Conservation and Sustainable Use of Plant Genetic Resources. The project is also creating an infrastructure to promote and facilitate access to *in situ* conserved diversity and creating and making available tools to manage the complex information associated with *in situ* conservation of PGR.

A key element is engagement with plant breeders, farmers and other users of PGR to determine which traits are likely to be most important to meet future agricultural and market needs. Using GIS technology, analyses are being undertaken to predict which *in situ* populations are most likely to contain these traits (an approach known as 'predictive characterization') to make sure they are conserved for their future potential use for crop improvement. In addition, surveys of stakeholders and the general public will be undertaken to gather information about the public and private benefits associated with PGR conservation and use, with a view to identifying cost-effective strategies and policies to improve PGR conservation and use in Europe.

1.2 The data being collected

The project involves the generation of new data and the use of existing data. The types, formats, origin, expected size and utility (during and post-project) of these data are summarized in Table 1.

Short name	Data type	Data origin	Data format	Expected size	Utility during project	Utility post-project
		(new/existing)				
In situ PGR conservation stakeholders	Identity, location, contact details, roles, interests and communication needs of individuals/organizations involved or with an interest in <i>in situ</i> PGR conservation and use in Europe	<u>New data</u> : Provided voluntarily by survey respondents ¹	 New data collected via an online survey using the EU Survey Tool¹ Results organized in database tables Existing data integrated into the same database 	>1000 records	 Analysis to understand the roles and interests of the people and organizations involved or with an interest in the <i>in situ</i> conservation of PGR in Europe Establishment of the European Network 	 The personal data required for membership of the Network will be maintained by the organization that will govern the Network (to be decided) The data may be used to inform other EU-funded projects such as GenRes Bridge² Permission will be sought from data providers before passing on any personal data and provisions will be made to ensure compliance with the GDPR³

¹ See pdf copy of the stakeholder survey in Annex 1

 ² <u>www.genresbridge.eu/</u>
 ³ General Data Protection Regulation – <u>https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=uriserv:OJ.L_.2016.119.01.0001.01.ENG</u>

Short name	Data type	Data origin	Data format	Expected size	Utility during project	Utility post-project
		(new/existing)				
In situ	Information on current	New data:	 New data collected via 	>5000 cases	To identity existing in	A database of successful CWR
conservation	or past <i>in situ</i>	Provided voluntarily	an online survey using		situ conservation actions	conservation management
actions for	conservation actions for	by survey	the EU Survey Tool⁴		for CWR as a basis for:	actions will be published in a
crop wild	CWR	respondents ⁴ and	and by email		 Developing a network 	suitable data repository as a
relatives		other contacts via	 Results organized in 		showcase that	resource for future CWR
(CWR)		email	database tables		illustrates best	conservation efforts—for
		Existing data:	 Existing data 		practices and	example, to inform the
		Information collected	integrated into the		examples of CWR	selection of locations for seed
		from websites,	same database		conservation in	collection and ex situ
		published and grey			Europe	conservation by national PGR
		literature			 Informing other 	programmes
					elements of the	
					project, such as the	
					publication of CWR	
					population	
					management	
					guidelines	
					 Potential 	
					incorporation of	
					existing sites of active	
					CWR conservation	
					actions to the	
					European Network	

⁴ See pdf copy of the CWR *in situ* conservation actions survey in Annex 2

Short name	Data type	Data origin	Data format	Expected size	Utility during project	Utility post-project
		(new/existing)				
In situ	Information on current	New data:	Organized in database	c. 2400	To identity existing in	A database of successful LR
conservation	or past <i>in situ</i>	Provided voluntarily	tables		situ conservation actions	conservation management
actions for	conservation actions for	by contacts via email			for landraces as a basis	actions will be published in a
landraces ⁵	landraces	and/or site visits			for developing a	suitable data repository as a
		Existing data:			network showcase that	resource for future national and
		Information collected			illustrates best practices	regional LR conservation efforts
		from websites,			and examples of	
		published and grey			landrace conservation in	
		literature			Europe	
Traits for	Information on the most	<u>New data</u> :	 New data collected via 	>1500 records	Identification of CWR	Analysis and publication of the
food and	needed traits for	Provided voluntarily	an online survey using		and landrace	survey results
agriculture	satisfying present and	by survey	the EU Survey Tool ⁶		populations which are	
crop	future agricultural and	respondents ⁶ and	and by email		most likely contain the	
improvement	market needs	other contacts via	 Results organized in 		desired traits for a	
		email	database tables		selection of crops, using	
		Existing data:	 Existing data are 		predictive	
		Information collected	integrated into the		characterization	
		from websites,	same database		techniques	
		published and grey				
		literature				

⁵ Diverse, locally adapted crop populations which not only contain diversity for crop enhancement, but are also important for local food and economic security ⁶ See pdf copy of the needed traits survey in Annex 3

Short name	Data type	Data origin	Data format	Expected size	Utility during project	Utility post-project
		(new/existing)				
Landrace	Information on	New data:	 New data collected via 	100 farmer	Analysis of farmer	Advocacy/informing future
farmer	landraces maintained by	Provided voluntarily	field surveys ⁷	surveys in each	landrace conservation	conservation policy
surveys	farmers, and associated	by survey	 Results organized in 	of four	practices and estimation	development through
	information (e.g.,	respondents ⁷	database tables	countries	of the costs of	demonstrating farmer
	motivations to cultivate	Existing data:	 Existing data are cited 		incorporating them into	willingness to participate in
	them, support provided	Information collected	in project		future conservation	genetic resources conservation
	by government schemes,	from websites,	reports/publications		programmes	strategies and the potential
	and willingness to	published and grey	where relevant			costs of achieving a range of
	participate in [future]	literature				conservation outcomes
	landrace conservation					
	schemes)					
General	Information to measure	New data:	 New data collected via 	200 interviews	Analysis of the	Advocacy/informing future
public	the value that people	Provided voluntarily	field surveys ⁸	with member of	market/non-market	conservation policy
surveys	associate with landraces	by survey	 Results organized in 	general public	values associated with	development through
	and their conservation,	respondents ⁸	database tables	in each of six	agrobiodiverse-related	demonstrating the importance
	such as how much they	Existing data:	 Existing data are cited 	countries	products, and	the general public places on
	would be willing to pay	Information collected	in project		willingness to pay (WTP)	genetic resources conservation
	to support landrace	from websites,	reports/publications		by members of the	and their willingness to pay for
	conservation	published and grey	where relevant		public for such	it
		literature			agrobiodiverse-related	
					goods and services	

 ⁷ The farmer survey instrument will be published later in the project
 ⁸ The general public survey instrument will be published later in the project

Short name	Data type	Data origin	Data format	Expected size	Utility during project	Utility post-project
		(new/existing)				
Landrace	Data types will include	New data:	Organized in database	c. 60 records	Creation of an online	Support in creating new
conservation	(by crop landrace):	Provided by Farmer's	tables		evidence base for best	landrace conservation and
best practice	geographical	Pride Partners, FPAs,			practices in landrace	management activities
evidence	distribution; farmers'	members of ECPGR,			conservation	
base	descriptions and uses;	and other contacts				
	management	Existing data:				
	procedures; existing and	Information collected				
	new markets; external	from websites,				
	support mechanisms;	published and grey				
	options for adding value	literature				
Access to	Information about in situ	Existing data from	Newly created content	Not applicable	Development of	Interface between potential
information	PGR available in public	The Netherlands and	for web pages, including		prototype interface	users and in situ PGR managers
on <i>in situ</i>	databases and on public	Turkey	links to public databases		between potential users	
conserved	websites		and websites		and <i>in situ</i> PGR	
PGR					managers	

Short name	Data type	Data origin	Data format	Expected size	Utility during project	Utility post-project
		(new/existing)				
European <i>in</i>	CWR scientific names	Existing data:	Organized in database	CWR Inventory:	 Creation of the CWR 	 The CWR Inventory will be
<i>situ</i> CWR	and taxonomic	Information from	tables using published	c. 2000 records	Inventory for Europe	published in an open data
conservation	authorities, relationships	existing databases	data standards and	CWR	 Diversity and 	repository within one year
network	to crops, known useful	such as Euro+Med	templates	occurrence	conservation gap	after the end of the project,
	traits, Red List status,	PlantBase, the Harlan		<u>database</u> :	analyses to identify	for use by other practitioners
	population occurrences,	and de Wet CWR		Thousands of	priority populations	 Results of the diversity and
	and other associated	Inventory, GRIN		records. Size	for conservation	conservation gap analyses will
	information	Global CWR, the		currently	actions	be published in peer-
		European Red List of		unknown as	 Design of the 	reviewed journals
		Vascular Plants, and		data are being	European Network	 The strategy and action plan
		the Global		processed.	and development of a	for CWR conservation and
		Biodiversity			strategy and action	sustainable use in Europe will
		Information Facility			plan for CWR	be published online
		(GBIF)			conservation and	 All results will feed into the
					sustainable use in	GenRes Bridge ² project and
					Europe	will form the basis of a
						permanent network for in situ
						CWR conservation in Europe

2.0 FAIR data

2.1 Making data findable, including provisions for metadata

The data collected in the context of the European *in situ* CWR conservation network (see Table 1) will be managed according to existing published standards and using published templates:

- Bioversity International and University of Birmingham (2017) Crop wild relative checklist and inventory descriptors v.1. Bioversity International, Rome, Italy. ISBN-978-92-9255-083-7.
 www.bioversityinternational.org/e-library/publications/detail/crop-wild-relative-checklist-andinventory-descriptors-v1/
- Magos Brehm, J., Kell, S., Thormann, I., Gaisberger, H., Dulloo, E. and Maxted, N. (2017) Occurrence Data Collation Template v.1, DOI: <u>10.7910/DVN/5B9IV5</u>, Harvard Dataverse, V1.
- Thormann, I., Kell, S., Magos Brehm, J., Dulloo, E. and Maxted, N. (2017) *CWR Checklist and Inventory Data Template v.1*, DOI: <u>10.7910/DVN/B8YOQL</u>, Harvard Dataverse, V4.

The CWR Inventory for Europe and the associated occurrence dataset will be published using the abovementioned templates in an appropriate open data repository. Version numbers will be used to with a view to the datasets possibly being revised in future. The metadata will include the DOI, publication date, authors, a contact person, a short description of the contents, subject area, key words, relevant references, date of production, name of the person depositing the dataset, and the deposit date.

Most of the other data collected in the project are not suitable for management using existing data standards. However, any published datasets will include DOIs, version numbers, key words, and all relevant metadata.

2.2 Making data openly accessible

The above-mentioned CWR Inventory for Europe and the associated occurrence dataset will be published in an appropriate open data repository, such as Harvard Dataverse (https://dataverse.harvard.edu/) or GBIF (https://www.gbif.org/en/dataset/search).

Other datasets collected may be published in open data repositories as appropriate. However, some of the data collected may not be suitable for publication in their raw form and only the results of the analyses and data collection methods will be published. Some datasets will be openly available by default (e.g., the landrace conservation best practice evidence base and platform for access to information on *in situ* conserved PGR – see Table 1).

Some datasets (e.g., *in situ* PGR conservation stakeholders) include personal data (names and contact details). These data will not be published without the express permission of the data providers – for example, in a membership database for the European Network for *In situ* Conservation and Sustainable Use of PGR.

There are no special methods or software tools needed to access the data.

2.3 Making data interoperable

The data collected in the context of the European *in situ* CWR conservation network (see Table 1) will be managed according to existing published standards (see section 2.1). Thus, the data can be easily exchanged and re-used by other researchers. Of particular note is the extensive use in the PGR conservation research community of the open source software, CAPFITOGEN

(www.capfitogen.net/en/). The data standards and template (Magos Brehm *et al.* 2017) used for the collation and management of the occurrence data associated with the European *in situ* CWR conservation network (Table 1) were designed to ensure interoperability with the CAPFITOGEN Tools. Thus, these data can be easily utilized by other practitioners in their analyses using that software, and if necessary combined with different datasets of other origin that have been prepared using the same standards. Other similar datasets that have not been prepared using the same standards can relatively easily be converted using the template published by Magos Brehm *et al.* (2017).

2.4 Increasing data re-use

All datasets that the project partners anticipate publishing will be published after the analysis and publication of the results based on those datasets. This implies that some datasets will not be made immediately available during the lifetime of the project, but it is anticipated that all datasets will be freely available within one year after the end of the project. There will be no time restriction on their future use.

Creative Commons licenses will be applied and the data may be made available for any use, either a) without restriction or particular requirements on the part of users; or b) provided attribution is appropriately given for the sources of data used, in the manner specified by the owner; or c) provided attribution is appropriately given and provided the use is not for commercial purposes. Decisions regarding the appropriate type of license to use will be made at the time of publication of each dataset.

Methods of data generation and data quality will be described in the metadata accompanying each dataset.

3.0 Allocation of resources

The costs of making the data FAIR only relate to staff time, since the open data repositories such as Dataverse and GBIF do not charge for publication. These personnel costs are integral to the project budget for data published during the project lifetime. The costs of making data collected during the project FAIR after the end of the project will be covered by the relevant partner's organization, since this activity is a regular part of the work of the relevant partner institutions.

It is anticipated that publication of datasets in reputable repositories such as Dataverse and GBIF will ensure their long-term availability at no cost. If new versions of the datasets are published in future, the personnel costs will be covered by the relevant future research projects.

Nearly all the partners in the project are involved in a level of data management since all partners are contributing to the collection of information. However, the task leaders are the partners who are primarily responsible for data management.

4.0 Data security and ethics

All collected data are stored securely in compliance with the national data protection legislation relevant to the Data Controller(s). In the case of EU member states, compliance is with Regulation (EU) 2016/679 (<u>https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=uriserv:OJ.L_.2016.119.01.0001.01.ENG</u>). In the case of both EU and non-EU partners, the ethical standards and guidelines of the H2020 programme are being rigorously applied, regardless of the country in which the research is carried out. Appropriate safeguards are in place to ensure the confidentiality and security of all personal data, including data collected by or shared with non-EU partners.

Questionnaire and interview responses are being stored electronically and are accessible only to the responsible staff working in the project. Interview responses recorded on paper are being transposed to an electronic database and the paper copies securely stored. Photographic, sound or video recordings of interviews are treated the same way as all other electronically stored data. Consideration is given to the security of the means of transferring and sharing data among the consortium members and all data will be destroyed after an appropriate period after the project has ended.

All ethical aspects of data management are detailed in the project's Ethical Research Plan (Annex 4).

Once published, the datasets are safely stored in and curated by the certified repositories.

Annex 1. Stakeholder survey

European Network for *In Situ* Conservation of Plant Genetic Resources

Fields marked with * are mandatory.

Welcome to this consultation on a new European network for *in situ* conservation of plant genetic resources

Funded by the European Union (EU), the Farmer's Pride project (<u>www.farmerspride.eu</u>) is working to strengthen *in situ* conservation of plant genetic resources (PGR) in Europe [1].

The focus is on conserving the diversity of both wild and cultivated populations of species that are important for food, nutrition and economic security [2].

We are establishing a new European network for *in situ* conservation of plant genetic resources that brings together stakeholders and sites across the region and coordinates actions to conserve diversity for crop enhancement and adaptation in the future.

This consultation aims to understand which stakeholders (organizations or individuals) are involved or have an interest in the conservation and sustainable use of PGR *in situ*. If you consider that you are (or may be) a custodian of wild or cultivated populations of PGR, or if conserving PGR *in situ* is important to you, we would like to hear from you.

The survey will take 10–15 minutes to complete.

Please feel free to distribute the link to this survey among potential respondents in your network.

The survey

- By completing this survey you are consenting to the Farmer's Pride project storing the information you provide, which will only be accessed by authorized personnel working in the project.
- We will not make your contact details available in the public domain or pass them on to any third parties.

In situ conservation means the management of populations in their natural habitats in the case of wild species (which may be in wild, semi-natural, managed, or abandoned habitats) and in the locations where they are cultivated in the case of crops (which may be in farms, smallholdings, home gardens, and allotments).
 Species known as crop wild relatives (CWR – wild species related to crops which contain important diversity for crop enhancement) and landraces (LR – diverse, locally adapted crop populations which not only contain diversity for crop enhancement, but are also important for local food and economic security).

- The information you contribute to this survey will not be used for any other purpose than for the establishment of the European Network for *In Situ* Conservation of Plant Genetic Resources, and for reporting on its establishment.
- A synthesis of the results will be published in a document available on the Farmer's Pride project website and may also be published in other forms, such as in a journal article.
- Any such publications arising from this survey will contain no identifying information that could associate it with you or the organization you represent.
- We will only contact you with information about the development of the European Network if you provide your email address and we will only contact you with information about the Farmer's Pride project with your consent (see question 3.2). You may opt out of receiving communications at any time.

The survey comprises three sections:

- 1. Your contact information and area of work.
- 2. Your roles and interests in the *in situ* conservation of plant genetic resources.
- 3. Communication needs.

Please note that:

- Questions flagged with asterisks are mandatory.
- At any point in the survey you may go back to the previous question if you wish to change an answer. This action will overwrite the previous answer given.

If you have any questions about this survey, please contact Dr. Lorenzo Raggi: <u>lorenzo.raggi@unipg.it</u>. For further information please visit www.farmerspride.eu.

1. Your contact information and area of work

We would like to keep you informed about the development of the European Network for *In situ* Conservation of Plant Genetic Resources. For this purpose, please provide your name and/or a means of contacting you.

Please note that no identifiable personal data will be published and your contact details will only be used as stated in the previous section, 'The survey'.

1.1 Family name:

Surname

1.3 Email address:

Preferably your work email account Please provide at least one email address or phone number

1.4 Phone number:

Country code (i.e. +39), national destination code (i.e. 075), subscriber number 123456. Format +39075123456 Please provide at least one email address or phone number

Please now provide information about your organization, or about you if you are not affiliated with an organization.

1.5 Organization name in the national language:

Name in the language of origin

1.6 Organization name in English (if applicable):

Name in English

*1.7 Country:

Country in which your organization is based, or in which you are based if you are not affiliated with an organization

🔲 Albania	Estonia	🔲 Lithuania	🔲 San Marino
Andorra	🔲 Finland	Luxembourg	🔲 Serbia
Armenia	France	Malta	Slovakia
Austria	🔲 Georgia	Moldova	Slovenia
🔲 Azerbaijan	Germany	Monaco	🔲 Spain
Belarus	Greece	Montenegro	Sweden
🔲 Belgium	🔲 Hungary	Netherlands	Switzerland
Bosnia and	Iceland	Norway	Turkey
Herzegovina			
🔲 Bulgaria	Ireland	Poland	Ukraine
🔲 Croatia	Italy	Portugal	United Kingdom of Great
			Britain and Northern Ireland
Cyprus	🔲 Kosovo	Republic of	Vatican City
		Macedonia	
Czech Republic	🔲 Latvia	🔲 Romania	Other (please specify below)
Denmark	Liechtenstei	Russian Federation	
	n		

1.8 City/town:

City in which your organization is based, or in which you are based if you are not affiliated with an organization

*1.9 The type of organization you are associated with and/or your individual area(s) of work/interest(s):

You may select more than one		
Agro-biodiversity conservation	Gene bank	Protected area
		management
Amateur gardener/gardeners'	Local community	Public body
network		
Citizen	Market gardener	Public research
Community seed bank	Non-governmental organization	Seed company
	(NGO)	
Farmer (independent)	Plant breeding/crop improvement	Other (please specify
		below)
Farmers' association	Policy	
Other type		

*1.10 Main country(ies) in which you or the organization you represent work:

Please select all that apply			
🔲 Albania	🔲 Estonia	🔲 Lithuania	🔲 San Marino
Andorra	Finland	Luxembourg	🔲 Serbia
Armenia	France	Malta	🔲 Slovakia
Austria	🔲 Georgia	Moldova	Slovenia
Azerbaijan	Germany	Monaco	🔲 Spain
Belarus	Greece	Montenegro	Sweden
Belgium	Hungary	Netherlands	Switzerland
Bosnia and	Iceland	Norway	Turkey
Herzegovina			
🔲 Bulgaria	Ireland	Poland	Ukraine
Croatia	Italy	Portugal	United Kingdom of Great
			Britain and Northern Ireland
Cyprus	🔲 Kosovo	Republic of	Vatican City
		Macedonia	
Czech Republic	Latvia	🔲 Romania	Other (please specify below)
Denmark	Liechtenstei	Russian Federation	
	n		

Other country(ies)

2. Your roles and interests in the *in situ* conservation of plant genetic resources

Please now provide some information about your activities and interests, and/or the activities and interests of the organization you represent.

2.1 The type(s) of plant genetic resources you work with:

Amateur varieties [1]	Obsolete cultivars [5]
Conservation varieties [2]	Other heterogeneous populations [6]
Crop wild relatives [3]	Mixtures of forage species for use in the preservation of the natural environment
Habitats/wild plant species in general	Populations of the crops wheat, barley, oats and maize [7]
Landraces [4]	Other (please specify below)

Definitions:

[1] vegetable varieties with no intrinsic value for commercial production.

[2] varieties which are naturally adapted to the local and regional conditions; Commission Directives 2008/62 /EC, European Commission 2008 and 2009/145/EC, European Commission 2009.

[3] wild species related to crops which contain important diversity for crop enhancement.

[4] diverse, locally adapted crop populations which not only contain diversity for crop enhancement, but are also important for local food and economic security.

[5] cultivars having no or limited intrinsic value for commercial crop production.

[6] different types of materials purposely developed by farmers, farmers' organizations and/or by breeders, including through participatory plant breeding.

[7] Commission Implementing Decision of 18 March 2014, European Commission 2014a.

2.1.1 Other heterogeneous populations:

- Mixtures of registered varieties
- Large mixtures of a wide range of germplasm [1]
- Multiline varieties [2]
- Line mixture varieties [3]
- Composite cross populations [4]
- Synthetic populations

Definitions:

[1] including wild relatives, landraces from several countries and modern breeding material, used as 'evolutionary populations' – Ceccarelli 2012.

[2] composed of up to 10 lines that are isogenic for almost all agronomic traits, but only genetically dissimilar in resistance against one particular disease; for example, the Dutch wheat variety 'Tumult' – Lammerts van Bueren 2002.

[3] *lines which are carefully selected for mixing ability on the basis of phenotypic uniformity for a number of traits but which are genetically different – Lammerts van Bueren 2002.*

[4] populations of segregating individuals derived from intercrossing a number of parents and then exposed to natural selection in each subsequent generation = evolutionary population breeding.

Other type of plant genetic resources

2.2 What is/are your main interest(s) in *in situ* conservation of plant genetic resources?

Please select all that apply

- Conservation of genetic diversity
- Demonstration
- Development of national policy
- Direct utilization (e.g. landraces cultivation)
- Educational purposes (e.g. to support PGR-related research or to teach students about the importance of PGR)
- General conservation of wild species
- Improve access to genetic diversity
- Maintenance of a broad base of crop varieties (including farmers' varieties)
- Research
- Training (e.g. to teach plant genetic resources conservation techniques)
- *Other* (please specify below)

Other interest(s)

2.3 Are you or your organization part of a conservation network/association?

e.g. a farmers' association, or a protected area or site network

Yes (please provide the name below)

No

Network/association name

*2.4 Are you or your organization interested in being part of a European *in situ* conservation network of stakeholders/sites?

As a member of this network, you or your organization will be recognized for your contribution to the conservation of plant genetic resources in Europe and will have the chance to share knowledge and develop partnerships with other members. Specific benefits for farmers include increased market opportunities for local crop products, access to a wider range of seed samples and knowledge of other farmers cultivating similar crops.

If you answer 'yes', we will contact you with more detailed information about becoming part of the Network as the project progresses.

- Yes
- No
- Olympic Unsure

If you did not provide any means of contacting you in Section 1 of the survey, please leave your email address here:

3. Communication needs

Please complete this section to help us to communicate effectively with you and other stakeholders.

3.1 Which channels of communication do you prefer to use for your plant genetic resources conservation activities?

Please select all that apply

- Electronic newsletters (e-news) direct from the Farmer's Pride project
- E-news through my existing networks
- Twitter
- Facebook
- Paper documents
- Professional and trade journals
- Other specialist publications and newsletters
- National media (newspapers, websites, radio and TV)
- In person at workshops, conferences and other events

3.2 What type of information are you interested in receiving from the Farmer's Pride project?

Please select all that apply

- Information about the establishment of the European Network for In Situ Conservation of Plant Genetic Resources
- Case studies of *in situ* plant genetic resources conservation
- Best practice management guidance and toolkits
- Academic journal papers
- Technical reports
- Inventory/map of in situ plant genetic resources conservation stakeholders/sites across Europe
- Policy briefings
- Newsletters
- Blogs
- Videos and infographics
- Leaflets for farmers
- None

3.3 What type of communications do you think should be a priority for the Farmer's Pride project to support *in situ* plant genetic resources conservation in Europe?

Please select all that apply

- Participatory workshops and conferences
- Open days and on-site or on-farm events for site managers

- Best practice management guidance and toolkits for farmers and gardeners
- Management guidance for nature conservation site managers who are not aware of plant genetic resources conservation needs
- Policy briefings and recommendations for politicians
- National media coverage to raise public awareness
- Publicly available knowledge of *in situ* populations and sites
- Coordinated networks of *in situ* plant genetic resources conservation sites and stakeholders
- Socioeconomic analysis of effective ways to support *in situ* plant genetic resources conservation

3.4 Which is your or your organization's national language?

🔲 Albanian	🔲 German	Portuguese
🔲 Belarusian	Greek	Romanian
🔲 Bosnian	🔲 Hungarian	Russian
🔲 Bulgarian	Icelandic	Serbian
Croatian	Irish	Slovak
Czech	🔲 Italian	Slovene
🔲 Danish	Latvian	Spanish
Dutch	🔲 Lithuanian	Swedish
English	Macedonian	Turkish
🔲 Estonian	Maltese	🔲 Ukrainian
Finnish	Norwegian	Other (please specify below)
French	Polish	

Other national language

3.5 Which other languages can you or your organization work with?

Please select all that apply.

🔲 German	Portuguese
🔲 Greek	Romanian
🔲 Hungarian	Russian
🔲 Icelandic	Serbian
🔲 Irish	Slovak
🔲 Italian	Slovene
🔲 Latvian	Spanish
🔲 Lithuanian	Swedish
Macedonian	Turkish
Maltese	🔲 Ukrainian
🔲 Norwegian	Other (please specify below)
Polish	
	 German Greek Hungarian Icelandic Irish Italian Latvian Lithuanian Macedonian Maltese Norwegian Polish

Other language

Thank you for completing the survey

We appreciate your participation and contributions. Your answers will be used to improve knowledge of stakeholders that are involved in *in situ* conservation in Europe to inform the development of a network of stakeholders and sites to improve the conservation of plant genetic resources for food, nutrition and economic security.

Annex 2. CWR in situ conservation actions survey

In situ conservation actions for crop wild relatives in Europe. A survey of the Farmer's Pride project.

Fields marked with * are mandatory.



Information about the Farmer's Pride project

Funded by the European Union, the Farmer's Pride project is responding to a call for action to enhance and strengthen *in situ* conservation and sustainable use of plant genetic resources (PGR) in Europe [1]. The focus of the project is on conserving the diversity that exists in both wild and cultivated populations of species important for food, nutrition and economic security in the region [2].

The European Network for *In Situ* Conservation and Sustainable Use of Plant Genetic Resources will comprise a network of both stakeholders and sites across Europe. It will establish a mechanism for coordinated action on PGR conservation *in situ* in the region, with a view to ensuring that the diversity needed for continual crop enhancement and adaptation is available for future use.

This consultation aims to gather information on current or past *in situ* conservation actions having as target crop wild relatives [3]. We are interested in active conservation (involving direct actions on the target species, such as monitoring, habitat improvement, herbivory control, etc.) as opposed to the passive conservation conferred by the mere presence of the species in a protected area. If you have any knowledge on conservation actions in your region preserving crop wild relatives, we would like to hear from you.

Please feel free to distribute the link to this survey among potential respondents in your network.

For further information on the project, please visit www.farmerspride.eu.

- [1] In wild species *in situ* conservation involves the management of populations in their natural habitats (which may be in wild, semi-natural, managed, or abandoned habitats). In the case of crops it involves their management in the locations where they are cultivated (which may be in farms, smallholdings, home gardens, and allotments).
- [2] Species known as crop wild relatives (CWR wild species related to crops which contain important diversity for crop enhancement) and landraces (LR diverse, locally adapted crop populations which not only contain diversity for crop enhancement, but are also important for local food and economic security. They are also known as "farmer varieties").

[3] A wide definition of crop wild relative includes all species that belong to a genus that contains a relevant crop. For instance, *Raphanus raphanistrum* L. is a crop wild relative of radish (*Raphanus sativus* L.).

Survey description

The aim of this survey is to **collect information on current or past** *in situ* **conservation actions in Europe related to crop wild relatives**. This information will be used to get a general perspective of existing *in situ* CWR conservation actions and to develop a CWR network showcase that illustrates best practices and examples for CWR conservation in Europe.

The survey is structured in three sections in which you will be asked about:

- 1) Your contact information and area of work.
- 2) Description of the site where the *in situ* conservation action is taking/took place.
- 3) Type of conservation action and targeted CWR species.

Completing the survey takes about 10-15 minutes.

Please note that:

- Questions flagged with asterisks (*) are mandatory.
- At any point in the survey you may go back to the previous question if you wish to change an answer. This action will overwrite the previously given answer.
- For questions or inquiries please contact José M. Iriondo jose.iriondo@urjc.es

In order to carry out the research described in this survey, we will need to collect information about you, and some of this information may be your personal data (if you voluntarily provide it). Under data protection law, we have to provide you with very specific information about what we do with your data and about your rights. We have set out below the key information you need to know about how we will use your personal data.

*By completing this survey you are consenting to the Farmer's Pride project storing the information you provide and which will only be accessed by authorized personnel working in the project. In agreement with Regulation (EU) 2016/679 we will not make your contact details available in the public domain or pass them on to any third parties. You can exercise your rights of access, rectification, cancellation, opposition, treatment limitation, portability, deletion/ forgetting and others recognized in the European Regulation 2916/679, of April 27, general Data Protection. The information you contribute to this survey will not be used for any other purpose than for the establishment if the European Network for In Situ Conservation of Plant Genetic Resources, and for reporting on its establishment. The responsible for the data processing is José María Iriondo Alegría (Universidad Rey Juan Carlos, Tulipán s/n, 28933 Móstoles, Spain). A synthesis of the results will be published in a publicly available document on the Farmer's Pride project website (www.farmerspride.eu) and may also be published in other forms, such as in a journal article. Any such publications arising from this survey will contain no identifying information that could associate it with you or the organization you represent. Your data will be retained for 10 years after the publication of the research outcomes. This privacy notice is effective from September 9th of 2018, and is reviewed when necessary. Any changes will be published here.

The web page <u>https://www.urjc.es/proteccion-de-datos</u> sets out much of this information, including how to ask any questions you may have about how your personal data is used, exercise any of your rights or complain about the way your data is being handled.

This survey is generated for the Farmer's Pride project funded by the Horizon 2020 Framework Programme of the European Union – Coordination and Support Actions (CSA). Grant Agreement: 774271. This survey has been developed in relation to task 1.2 of the project: Enhancing knowledge of LR/CWR *in situ* resources.

1) Contact data

These data will only be used for internal project records and to contact you in case any clarification is needed. Personal data will be used according to Regulation EU 2016/679.

1.1 Name

First name. Ex: María

1.2 Surname

Family name. Ex: García

1.3 Affiliation

Please give the name of the organization to which you are related.

1.4 Address

Please provide full details of the address of your organization, including city and country. Ex: Calle Tulipán, s/n. 28933 Móstoles (Madrid). Spain.

*1.5 Do you allow us to contact you in case we need any clarification?

In case you answer 'YES', please make sure you complete question 1.6. Thank you.

- Yes
- No

1.6 Contact

Please provide a means of contact (preferably your work email account). In case you prefer to provide a telephone number, please follow this format: Country code (i.e. +39), national destination code (i.e. 075), subscriber number 123456. Format +39075123456

2) Site description and governance

*2.1 Country where the conservation action is/was carried out

- Afghanistan
- Albania
- Algeria
- Andorra
- Angola
- Antigua and Barbuda
- Argentina
- Armenia
- Australia
- Austria
- Azerbaijan
- Bahamas
- Bahrain
- Bangladesh
- Barbados
- Belarus
- Belgium
- Belize
- Benin
- Bhutan
- Ø Bolivia
- Bosnia and Herzegovina
- Botswana
- Brazil
- Brunei Darussalam
- Bulgaria
- Burkina Faso
- Burundi
- Côte D'Ivoire
- Cabo Verde
- Cambodia

- Cameroon
- Canada
- Central African Republic
- Chad
- Chile
- China
- Colombia
- Comoros
- Congo
- Costa Rica
- Croatia
- Cuba
- Oprus
- Czech Republic
- Democratic Republic of the Congo
- Denmark
- Djibouti
- Dominica
- Dominican Republic
- Ecuador
- Egypt
- El Salvador
- Equatorial Guinea
- Eritrea
- Estonia
- Ethiopia
- 🔘 Fiji
- Finland
- France
- Gabon
- 🔘 Gambia
- Georgia
- Germany
- Ghana
- Greece
- Grenada
- Guatemala
- Guinea
- 🔘 Guinea Bissau
- 🔘 Guyana
- 🔘 Haiti
- Honduras
- Hungary
- Iceland
- India
- Indonesia

- 🔘 Iran
- Iraq
- Ireland
- Israel
- Italy
- 🔘 Jamaica
- 🔘 Japan
- 🔘 Jordan
- Kazakhstan
- Kenya
- Kiribati
- Kuwait
- Kyrgyzstan
- Laos
- Latvia
- Lebanon
- Lesotho
- Liberia
- Libya
- Liechtenstein
- 🔘 Lithuania
- Luxembourg
- Madagascar
- Malawi
- Malaysia
- Maldives
- 🔘 Mali
- Malta
- Marshall Islands
- Mauritania
- Mauritius
- Mexico
- Micronesia
- Monaco
- Mongolia
- Montenegro
- Morocco
- Mozambique
- Myanmar
- Namibia
- Nauru
- Nepal
- Netherlands
- New Zealand
- Nicaragua
- Niger

- Nigeria
- North Korea
- Norway
- Oman
- Pakistan
- Palau
- 🔘 Panama
- Papua New Guinea
- Paraguay
- Peru
- Philippines
- Poland
- Portugal
- Qatar
- Republic of Moldova
- Romania
- Russian Federation
- Rwanda
- Saint Kitts and Nevis
- Saint Lucia
- Saint Vincent and the Grenadines
- Samoa
- San Marino
- Sao Tome and Principe
- Saudi Arabia
- Senegal
- Serbia
- Seychelles
- Sierra Leone
- Singapore
- Slovakia
- Slovenia
- Solomon Islands
- Somalia
- South Africa
- South Korea
- South Sudan
- Spain
- 🔘 Sri Lanka
- Sudan
- Suriname
- Swaziland
- Sweden
- Switzerland
- Syrian Arab Republic
- Tajikistan

- 🔘 Tanzania
- Thailand
- The former Yugoslav Republic of Macedonia
- Timor-Leste
- Togo
- Tonga
- Trinidad and Tobago
- 🔘 Tunisia
- Turkey
- Turkmenistan
- 🔘 Tuvalu
- 🔘 Uganda
- Okraine
- United Arab Emirates
- United Kingdom
- United States of America
- Uruguay
- Uzbekistan
- Vanuatu
- Venezuela
- Viet Nam
- Yemen
- Zambia
- Zimbabwe

2.2 Subnational administrative unit

Please specify the name of the subnational area (state, lander, county, province, area, etc.) in which the conservation action is taking /took place.

Ex. Andalucía autonomous community; Huelva province.

*2.3 Locality

Municipality (nearest city, town, village). Ex. Matalascañas.

*2.4 Name of the site where the conservation action is applied

Ex. Smith's Farm, Tamar Valley.

If you don't know the name please write 'UNKNOWN'. If the site has no official name please write 'NO NAME'.

2.5 Geographical coordinates of the site

Providing this information is OPTIONAL. However, this piece of information will will enable us to precisely locate where the *in situ* conservation action occurred or is occurring.

Longitude and latitude in decimal degrees with WGS84 datum are preferred (e.g., Lat. 40.473759 Long -3.864055).

If you are giving coordinates for a polygon, please give as many corners (lat/long format) as needed to define the polygon. If you are not sure about the coordinates, you can obtain them from Google Earth or similar applications.

2.6 Type of coordinates

Please provide the type of coordinates used.

- Decimal degrees
- Degrees, minutes, seconds
- 🔘 UTM
- MGRS
- Other*

*2.6.1 Other type: please specify

2.7 Datum

Geodetic datum of reference for the coordinates. Ex. WGS1984, ED50, etc.

*2.8 The *in situ* conservation action has been implemented in the context of:

You may select more than one option.

- A national CWR conservation strategy
- Another national policy (please specify)
- A subnational policy
- A research project
- A private initiative
- Another type of initiative (please specify)
- I don't know

2.8.1 If you have answered 'Another national policy' in question 2.8, please provide details on the implementation of the conservation action.

2.8.2 If you have answered 'Another type of initiative' in question 2.8, please provide details on the implementation of the conservation action.

*2.9 Is the *in situ* conservation site formally recognized by the appropriate goverment agency?

Yes

- No
- I don't know

2.9.1 What is the name of the appropiate government agency?

*2.10 Does the *in situ* conservation site form part of a network of *in situ* conservation sites?

Yes

🔲 No

I don't know

2.10.1 What is the network's name?

*2.11 Is the conservation action implemented inside a protected area?

You can choose 'Partially' if the conservation action is taking place in a site which is not entirely covered by the protected area.

- Yes
- 🔘 No
- Partially
- I don't know

2.11.1 What kind of protected area?

You may choose more than one option.

- Natura 2000
- National designated area
- Informal protected area
- Other (please specify)
- I don't know

2.11.1.1 Other type of protected area

Ex: Emerald network.

2.11.2 Name of the protected area

2.11.3 Name of the institution responsible for managing the protected area

2.11.4. Please specify the type of site if the conservation action is outside a protected area:

You may choose more than one option.

- Farmland
- Roadside
- Natural habitat
- Corine habitat
- Other (please specify)
- Don't know

2.11.4.1 Other type of site outside a protected area

3) Type of conservation action

3.1 Name of the conservation action given by the institution or the project

Ex: "Microrreserva de los Saladares de Huerta de Valdecarábanos"

3.2 Please specify if the conservation activity is focused on a single species or follows a multi-species approach

- Single species
- Multi-species
- I don't know

*3.2.1 Name of the target CWR taxon

Scientific name is preferred, however common name is also accepted. You can provide both separated by semi-colons. Ex: *Lupinus angustifolius* L.; Narrow-leafed lupin.

3.2.2 Please list all CWR taxa covered by the in situ conservation action

Please name all CWR included in the conservation action.

Scientific name is preferred, however common name is also accepted. You can provide both separated by semi-colons. Please use one row per species.

Ex: Lupinus angustifolius L.; Narrow-leafed lupin.

*3.3 Which kind of actions are performed in this site?

You may select more than one option.

- Monitoring and census of the species
- Seed collection and storage in a gene bank
- Phytosociological monitoring [1]
- Selective winter shrub clearing
- Periodical cleaning of the area removing any waste
- Controlled grazing
- Periodical mowing
- Limited use of the territory
- Other actions (please specify)
- I don't know

[1] Phytosociological monitoring involves inventoring all plant species growing together with the target taxon.

*3.3.1 Please specify which other ongoing actions are performed in this site

*3.4 Who is responsible for the *in situ* conservation action?

Please provide the name of the institution, organization, association, private initiative (etc) in charge of implementing this conservation action.

3.5 When did the conservation action start?

Please, provide the date in the format DD/MM/YYYY.

If you are not sure or you do not know it, please write 'UNSURE'.

3.6 When does/did the conservation action finish?

Please, provide the date in the format DD/MM/YYYY.

If the conservation action is still active, write ACTIVE. If the conservation action duration is permanent, write PERMANENT. If you are not sure or you do not know it, please write 'UNSURE'

3.7 Bibliographic reference(s) or legislation related to the conservation actions

Provide any bibliographic references related to the conservation action or the name of the law or decree promoting the conservation action.

If available, please provide the url or doi directing to the reference. Thank you.

Ex: ORDRE de 30 de gener de 2007, de la Conselleria de Territori i Habitatge, per la qual es declara una microreserva vegetal a la província de València. [2007/1537] (DOGV núm. 5451 de 15.02.2007); <u>http://www.dogv.gva.es/portal/ficha_disposicion.jsp?</u> L=0&sig=2144%2F2007

*3.8 Is the target taxon protected by national legislation?

- Yes
- No
- I don't know

3.8.1 If you answered 'YES', please provide the bibliographic reference

3.9 Why is this species being conserved?

You may choose more than one option.

- Rarity
- Endemic
- Threat

Flagship status

Associated with rare or threatened habitats

I don't know

3.10 Please provide any other information or comments you think may be useful for the conservation of the species or the understanding of the conservation action Thank you for completing the survey. The information you provide will help us building a European Network for Conservation and Sustainable Use of Plant Genetic Resources.

Identify useful *in situ* traits for Food and Agriculture breeding

Fields marked with * are mandatory.



Information about the Farmer's Pride Project

Funded by the European Union, the Farmer's Pride project is responding to a call for action to enhance and strengthen in situ conservation of plant genetic resources (PGR) in Europe [1].

The focus of the project is on conserving the diversity that exists in both wild and cultivated populations of species important for food, nutrition and economic security in the region[2].

To that purpose, we aim to build The European Network for *In Situ* Conservation of Plant Genetic Resources that will comprise a network of both stakeholders and sites across Europe. It will establish a mechanism for coordinated action on PGR conservation in situ in the region, with a view to ensuring that the diversity needed for continual crop enhancement and adaptation is available for future use.

Please feel free to distribute the link to this survey among potential respondents in your network.

For further information on the project, please visit www.farmerspride.eu.

[1]In wild species *in situ* conservation involves the management of populations in their natural habitats (which may be in wild, semi-natural, managed, or abandoned habitats). In the case of crops, it involves their management in the locations where they are cultivated (which may be in farms, smallholdings, home gardens, and allotments).

[2] Species known as crop wild relatives (CWR - wild species related to crops which contain important diversity

for crop enhancement) and landraces (LR – diverse, locally adapted crop populations which not only contain diversity for crop enhancement, but are also important for local food and economic security. They are also known as "farmer varieties").

The survey

Welcome to this 'Identification of useful traits for Food and Agriculture breeding' consultation for the development of a European Network for *In Situ* Conservation of Plant Genetic Resources.

With this survey we aim at gathering information on most needed traits for satisfying present and future agricultural and market needs. If you have any knowledge on breeding needs for the future, we would like to hear from you.

Based on answers received from this survey and information from other workpackages we will identify the Landraces and Crop Wild Relatives populations which most likely contain the desired traits. This identification will be performed using predictive characterization approaches based on species distribution data and thematic maps containing environmental data (climate, soil, topography, etc.). The identification of these populations could be of a great importance when searching for the variability needed for breeding programs.

The survey will take 5-10 minutes to complete and comprises two sections:

Section 1: contact information details.

Section 2: information on your crop of interest and traits to be addressed.

Please note that:

- Questions flagged with asterisks (*) are mandatory.
- Any results or publications arising from this survey will contain no identifying information that could associate it with you or the organization you represent.
- At any point in the survey you may go back to the previous question if you wish to change an answer. This action will overwrite the previous answer given.
- Should you have any questions or inquiries please contact Lorenzo Raggi, José M. Iriondo, Clara Álvarez o María Luisa Rubio Teso: lorenzo.raggi@gmail.com; jose. iriondo@urjc.es; clara.alvarez@urjc.es; marialuisa.rubio@urjc.es

In order to carry out the research described in this survey, we will need to collect information about you, and some of this information may be your personal data (if you voluntarily provide it). Under data protection law, we have to provide you with very specific information about what we do with your data and about your rights. We have set out below the key information you need to know about how we will use your personal data.

*By completing this survey you are consenting to the Farmer's Pride project storing the information you provide and which will only be accessed by authorized personnel working in the project. In agreement with Regulation (EU) 2016/679 we will not make your contact details available in the public domain or pass them on to any third parties. You can exercise your rights of access, rectification, cancellation, opposition, treatment limitation, portability, deletion/ forgetting and others recognized in the European Regulation 2916 /679, of April 27, general Data Protection. The information you contribute to this survey will not be used for any other purpose than for the establishment if the European Network for *In Situ* Conservation of Plant Genetic Resources, and for reporting on its establishment. The responsible for the data processing is José María Iriondo Alegría (Universidad Rey Juan Carlos, Tulipán s/n, 28933 Móstoles, Spain). A synthesis of the results will be published in a publicly available document on the Farmer's Pride project website (www. farmerspride.eu) and may also be published in other forms, such as in a journal article. Any such publications arising from this survey will contain no identifying information that could associate it with you or the organization you represent. Your data will be retained for 10 years after the publication of the research outcomes. This privacy notice is effective from September 9th of 2018, and is reviewed when necessary. Any changes will be published here.

The web page <u>https://www.urjc.es/proteccion-de-datos</u> sets out much of this information, including how to ask any questions you may have about how your personal data is used, exercise any of your rights or complain about the way your data is being handled.

This survey is created under the frame of the Farmer's Pride Project funded by the European Commission under the Horizon 2020 programme – Coordination and Support Actions (CSA). Grant Agreement: 774271. This survey has been developed in relation to task 3.2 of the project: Identify useful *in situ* traits.

1. Contact data

These data will only be used for internal project records and to contact you in case any clarification is needed. Personal data will be used according to Regulation EU 2016/679.

1.1 Name

First name and Family name. Ex: John Smith.

1.2 Affiliation

Please provide the name of the organization to which you are related to. Ex: Rey Juan Carlos University.

1.3 Address

Please, provide full details of the address of your organization, including city and country. Ex: C/ Tulipán, s/n. 28933 Móstoles (Madrid) Spain.

*1.4 Do you allow us to contact you in case we need any clarification?

Yes

No

1.5 Contact

Please, provide a means of contact (preferably your work email account).

In case you prefer to provide a telephone number, please follow this format: Country code (i.e. +34), national destination code (i.e. 91), suscriber number (i.e. 4888288). Format: +34914888288

2. The crop

2.1 What is your crop of interest? between 1 and 1 choices Apple (*Malus spp.*) Grapes (Vitis vinífera) Pistacion (Pistacia vera) Artichoke (*Cynara scolymus*) Grass pea (Lathyrus sativus) Poppy seed (Papaver) somniferum) Asparagus (Asparagus Hazelnut (Corylus spp.) Potato (Solanum tuberosum) officinalis) Barley (Hordeum vulgare) Hempseed (*Cannabis sativa*) Radish (Raphanus raphanistrum) Beans (Phaseolus vulgaris) Hops (Humulus spp.) Raspberry (Rubus spp.) Beet (Beta vulgaris) Lentil (Lens culinaris) Rice (Oryza sativa) Rye *(Secale cereale)* Blueberries, cranberries Lettuce *(Lactuca sativa)* (Vaccinium) Brassica complex (Brassica Linseed (Linum Safflower seed (Carthamus usitatissimum) tinctorius) spp.) Carrot (Daucus carota) Lupin (Lupinus spp.) Spinach (Spinacia oleracea) Squash (Cucurbita spp.) Chestnut (Castanea spp.) Maize (Zea mays) Chickpea (Cicer arietinum) Melon (Cucumis melo) Stonefruits (Prunus spp.) Chicory (Cichorium intybus) Millet (Pennisetum glaucum) Strawberry (Fragaria spp.) Cowpea (*Vigna unguiculata*) Myrtle berries (Myrtus Sugarbeet (Beta vulgaris) communis) Cucumber (Cucumis sativus) Oat (Avena sativa) Sunflower (Heliantus annuus) Currant, gooseberry (Ribes Olive (Olea europea) Tomato (Solanum lycopersicum) spp.) Date (Phoenix dactylifera) Onion (Allium cepa) Triticale (*Triticum x Secale*) Eggplant (Solanum melogena) Orange, lemon (Citrus spp.) Walnut (Juglans spp.) Faba bean (Vicia faba) Other Watermelon (Citrullus lanatus) Pea (Pisum sativum) Wheat, durum (Triticum durum) Fig (Ficus carica) Forage grasses Pear (Pyrus spp.) Wheat, soft (*Triticum aestivum*) Forage legumes Pepper (Capsicum spp.) Garlic (Allium sativum) Peppermint (Mentha) balsamea)

*2.1.1 If you have answered 'Other' in question 2.1, please provide the name of your crop (if it is possible, common name and scientific name).

2.2 What is your target farming system?

- Conventional
- Low input / Organic

2.3 To breed your crop of interest, what is/are the most needed traits for which you do not already have access to sources of useful genetic variation?

Please, rank from 1 to 5 (where 1 is not relevant and 5 is extremely relevant) the following traits:

Yield	$\begin{array}{c} \uparrow \uparrow \uparrow \uparrow \uparrow \\ \uparrow \\ \uparrow \end{array}$
Tolerance/resistance to abiotic stress	$\begin{array}{c} \bigstar \bigstar \bigstar \bigstar \bigstar \\ \bigstar \end{array}$
Tolerance/resistance to biotic stress	$\begin{array}{c} \bigstar \bigstar \bigstar \bigstar \bigstar \\ \bigstar \end{array}$
Plant architecture	$\begin{array}{c} \bigstar \bigstar \bigstar \bigstar \bigstar \\ \bigstar \end{array}$
Technological quality Suitability of the product to be variously transformed. For example: suitability of barley to be used for beer production or suitability of dry beans to be cooked in a short time.	$\begin{array}{c} \bigstar \bigstar \bigstar \bigstar \bigstar \\ \bigstar \end{array}$
Nutritional quality	$\begin{array}{c} \bigstar \bigstar \bigstar \bigstar \bigstar \\ \bigstar \end{array}$
Environmental quality Suitability of the crop for contributing to a healthy environment or providing environmental services. For example: suitability of the crop for providing food/shelter/nesting to pollinators or increasing soil fertility.	$\begin{array}{c} \bigstar \bigstar \bigstar \bigstar \bigstar \\ \bigstar \end{array}$
Other	

2.4 Trait details

If you have scored 3 to 5 in any of the traits in the previous question (2.3), please complete this table below identifying main targets to be addressed when breeding your trait of interest.

Please, provide as many details as possible. For instance, in the case of **biotic** stress, please provide the scientific name of the plague, pathogen or weed. Common names can be provided separated by a comma and multiple answers separated by semicolons (e.g. *Mayetiola destructor*, Hessian fly; *Pseudaletia unipuncta*, True armyworm). You may write more than one answer in each field. In case of multiple answers, please separate them with semi-colons.

	Details
Yield	
Tolerance/resistance to abiotic stress	
Tolerance/resistance to biotic stress	
Plant architecture	
Technological quality	
Nutritional quality	
Environmental quality	
Other	



2.5 Please use this space to provide any comments you may have related to this survey

Please provide any comment helping us to better understand the interests for breeding your crop.

Do you have information about another crop of interest?

If you do, please fill the following questions.

If you don't, please press "Submit" at the bottom of the survey.

2.1 What is your crop of interest?

Apple (<i>Malus spp.)</i>	Grass pea (Lathyrus sativus)	Pistacion (Pistacia vera)
Artichoke (Cynara scolymus)	🔲 Hazelnut <i>(Corylus spp.)</i>	Poppy seed (Papaver
		somniferum)
Asparagus (<i>Asparagus</i>	Hempseed (<i>Cannabis sativa</i>)	Potato <i>(Solanum tuberosum)</i>
officinalis)		
Barley <i>(Hordeum vulgare)</i>	Hops (Humulus spp.)	Radish (Raphanus raphanistrum)
Beans (<i>Phaseolus vulgaris)</i>	Lentil (Lens culinaris)	Raspberry (Rubus spp.)
Beet <i>(Beta vulgaris)</i>	Lettuce (Lactuca sativa)	Rice <i>(Oryza sativa)</i>
Blueberries, cranberries	Linseed (Linum	Rye <i>(Secale cereale)</i>
(Vaccinium)	usitatissimum)	
Brassica complex <i>(Brassica</i>	📃 Lupin <i>(Lupinus spp.)</i>	Safflower seed (Carthamus
spp.)		tinctorius)
Carrot (Daucus carota)	🔲 Maize <i>(Zea mays)</i>	Spinach <i>(Spinacia oleracea)</i>
Chestnut <i>(Castanea spp.)</i>	Melon (Cucumis melo)	Squash <i>(Cucurbita spp.)</i>
Chickpea <i>(Cicer arietinum)</i>	Millet (Pennisetum glaucum)	Stonefruits (Prunus spp.)
Chicory (Cichorium intybus)	Mirtle berries (Myrtus	Strawberry (Fragaria spp.)
	communis)	
Cowpea <i>(Vigna unguiculata)</i>	🔲 Oat <i>(Avena sativa)</i>	Sugarbeet <i>(Beta vulgaris)</i>
Cucumber <i>(Cucumis sativus)</i>	Olive (Olea europea)	Sunflower <i>(Heliantus annuus)</i>
Currant, gooseberry (Ribes	Onion (Allium cepa)	Tomato (Solanum lycopersicum)
spp.)		
Date (Phoenix dactylifera)	🔲 Orange, lemon <i>(Citrus spp.)</i>	Triticale (Triticum x Secale)
Eggplant <i>(Solanum melogena)</i>	Other	Walnut <i>(Juglans spp.)</i>
Faba bean <i>(Vicia faba)</i>	🔲 Pea <i>(Pisum sativum)</i>	Watermelon <i>(Citrullus lanatus)</i>
Fig <i>(Ficus carica)</i>	🔲 Pear <i>(Pyrus spp.)</i>	Wheat, durum (Triticum durum)
Garlic <i>(Allium sativum)</i>	Pepper (Capsicum spp.)	Wheat, soft (Triticum aestivum)
Grapes <i>(Vitis vinífera)</i>	Peppermint (Mentha	
	balsamea)	

2.1.1 If you have answered 'Other' in question 2.1, please provide the name of your crop (if it is possible, common name and scientific name).

2.2 What is your target farming system?

- Conventional
- Low input / Organic

2.3 To breed your crop of interest, what is/are the most needed traits for which you do not already have access to sources of useful genetic variation?

Please, rank from 1 to 5 (where 1 is not relevant and 5 is extremely relevant) the following traits:

Yield	$\begin{array}{c} \bigstar \bigstar \bigstar \bigstar \end{array}$
Tolerance/resistance to abiotic stress	$\begin{array}{c} \bigstar \bigstar \bigstar \bigstar \bigstar \\ \bigstar \end{array}$
Tolerance/resistance to biotic stress	$\begin{array}{c} \bigstar \bigstar \bigstar \bigstar \\ \bigstar \end{array}$
Plant architecture	$\begin{array}{c} \bigstar \bigstar \bigstar \bigstar \\ \bigstar \end{array}$
Technological quality Suitability of the product to be variously transformed. For example: suitability of barley to be used for beer production or suitability of dry beans to be cooked in a short time.	$\begin{array}{c} \bigstar \bigstar \bigstar \bigstar \bigstar \\ \bigstar \end{array}$
Nutritional quality	$\begin{array}{c} \bigstar \bigstar \bigstar \bigstar \bigstar \\ \bigstar \end{array}$
Environmental quality Suitability of the crop for contributing to a healthy environment or providing environmental services. For example: suitability of the crop for providing food/shelter/nesting to pollinators or increasing soil fertility.	$\begin{array}{c} \bigstar \bigstar \bigstar \bigstar \bigstar \\ \bigstar \end{array}$
Other	$\begin{array}{c} \bigstar \bigstar \bigstar \bigstar \bigstar \\ \bigstar \end{array}$

2.4 Trait details

If you have scored 3 to 5 in any of the traits in the previous question (2.3), please complete this table below identifying main targets to be addressed when breeding your trait of interest.

Please, provide as many details as possible. For instance, in the case of **biotic** stress, please provide the scientific name of the plague, pathogen or weed. Common names can be provided separated by a comma and multiple answers separated by semicolons (e.g. *Mayetiola destructor*, Hessian fly; *Pseudaletia unipuncta*, True armyworm). You may write more than one answer in each field. In case of multiple answers, please separate them with semi-colons.

	Details
Yield	
Tolerance/resistance to abiotic stress	
Tolerance/resistance to biotic stress	
Plant architecture	
Technological quality	
Nutritional quality	
Environmental quality	
Other	



2.5 Please use this space to provide any comments you may have related to this survey

Please provide any comment helping us to better understand the interests for breeding your crop.

Thank you for completing the survey

We appreciate your participation and contributions.

Your answers will be used to improve knowledge about farmers' and breeders' needs for the improvement of valuable crops for Europe.

With the information you have provided we will be able to perform predictive characterization analyses in a selected group of relevant crops for food security and economic estability in Europe.

In addition, we will be able to gain knowledge for the construction of a European network for the *in situ* conservation of plant genetic resources for food, nutrition and economic security.

Annex 4. Ethical research plan

Project Number: [774271]

Project Acronym: [Farmer's Pride]

Project title: [Networking, partnerships and tools to enhance *in situ* conservation of European plant genetic resources]

ETHICAL RESEARCH PLAN

1.0 Outline of the research

The Farmer's Pride project is bringing together key actors from across Europe to create a selfsustaining network for *in situ* conservation of plant genetic resources (PGR)¹ throughout the region, as well as to establish a stakeholder communication and collaboration platform to engender cross-sector partnerships. To achieve this, the project is building on existing mechanisms, such as Europe's protected area system, seed banks and numerous stakeholder organizations, to establish networks of sites and custodians of PGR, as well as the governance structures needed to ensure their effective functioning and longevity.

As a first step, we are gathering general information from stakeholders to improve knowledge about the roles and interests of the people and organizations involved or with an interest in the *in situ* conservation and sustainable use of PGR in Europe. This may include farmers, gardeners, researchers, plant breeders, PGR conservationists, environmentalists, policy-makers and citizens, as well as associated organizations and companies such as agro-NGOs, farmers' associations, public research institutes and seed companies. The action involves the collection and analysis of data provided by these stakeholders through a questionnaire.

To establish the site and stakeholder network, more detailed information will be sought from stakeholders as the project progresses—for example, site-related data (e.g., locations of managed PGR populations and site characteristics), species-related data (e.g., scientific and crop variety names), population-related data (e.g., size, demography, seed source, traits) and data associated with site and population management. This information will be gathered via questionnaires and possibly also through other means of contact, such as by email, telephone, or Skype. Personal interviews may be conducted on site in some circumstances. This information will also be used to inform the development of showcases of different PGR management scenarios, best practices, and network functioning.

A questionnaire will also be developed to engage with plant breeders and farmers to ascertain which traits are most needed for satisfying future agricultural and market needs. The results of this survey will inform research to identify the required traits in *in situ* PGR populations using existing geographic data.

In another research thread, a stated preference Total Economic Value (TEV) choice experiment survey instrument will be implemented in a number of partner countries to explore the market and non-market values associated with agrobiodiverse-related products, and willingness to pay (WTP) by members of the public for such agrobiodiverse-related goods and services. This will involve interviews with selected stakeholders (farmers and other custodians of PGR diversity, and members of the general public) to obtain production system information (e.g., areas cultivated by variety and their dynamics over time) and crop variety preferences (in terms of familiarity and willingness to support conservation), along with general attitudes towards environmental/development trade-offs.

In addition to the above methods of collating information from stakeholders, a number will be invited to attend the project meetings and workshops at which they may participate in working group and

¹ Crop plants and their related wild species, and the genetic diversity they contain.

plenary discussions and thus contribute knowledge to help the consortium achieve its objectives. Stakeholders in these workshops will include Farmer's Pride Ambassadors (FPAs) who have signed a Memorandum of Understanding with the Project Coordinator. Other invited stakeholders will include members of the project's External Advisory Board (EAB) who have already agreed to support the project with their expertise and knowledge, and other actors in the PGR conservation and use community that members of the consortium regularly collaborate and/or communicate with.

To ensure the quality, integrity and impartiality of the research, this ethical research plan sets out the steps that are being taken to ensure that participants are afforded adequate safeguards. The plan takes account of relevant international, national and EU legislation—in particular, Regulation (EU) 2016/679², which also recognizes the Charter of Fundamental Rights of the European Union and the European Convention on Human Rights and its Supplementary Protocols.

2.0 **Protection of participants**

2.1 Voluntary participation

Participation in the questionnaires, interviews and meeting/workshop discussions is entirely voluntary. In the case of questionnaires and interviews, potential interviewees and respondents will be provided with a clear summary of the research aims, research project contact details, a description of the use that will be made of the data, who the Data Controller(s) is(are), and their rights under applicable law, as required by Article 13 of EU Regulation 2016/679². It will be made clear to interviewees and respondents that participation is voluntary.

All knowledge contributed in the project meetings and workshops will be done so in the usual spirit of collaboration towards a common goal and all project meeting and workshop participants, including FPAs, members of the project's EAB and other invited stakeholders, will be made aware that their contributions will be duly acknowledged in meeting and workshop reports, and other publications, as applicable. All participants in such meetings and workshops will be given the opportunity to review and contribute to such reports and publications.

2.2 Confidentiality and anonymity of research respondents

In the case of interviews, interviewees will be informed that neither their participation in the research nor the contents of the interviews will be disclosed to anyone outside the research team—who are all bound by the same duty of confidentiality—unless they agree to such information being published. If the interviewee wishes to reserve confidentiality of personal opinions, or of views which may be considered controversial, this will be agreed between the interviewee and the researcher conducting the interview. To facilitate such agreements of disclosure or non-disclosure of interview content, interviewees will sign a consent form prior to the interview taking place. In the case of questionnaires, participants will be provided with a Privacy Notice explaining how the data they provide will be used and about their rights under applicable law.

To guarantee anonymity of interviewees and questionnaire respondents, the provision of names and contact details will not be mandatory. Interviewees and respondents will be informed that if they

² <u>https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=uriserv:OJ.L</u>.2016.119.01.0001.01.ENG

choose to provide their names and contact details, these data will not be made available in the public domain, will not be passed on to any parties outside the project consortium, and that the consortium has appropriate agreements in place to protect and safeguard their data. Interviewees and respondents will also be informed that any publications arising from the results of the research will contain no identifying information that could associate it with the interviewee/respondent or with the organization they represent, unless they give their explicit consent to do so.

If photographs are taken, or sound or video recordings made during interviews, meetings, workshops or other events involving stakeholders, permission will be sought from the involved subjects to publish such materials (e.g., on the project website or in newsletters and other dissemination materials).

2.3 Participant and researcher safety

Although there are no perceived risks to participants or researchers in the process of collecting data in this project, the safety and security of both the interviewers and interviewees will be considered and any required precautions taken. Care will be taken to conduct interviews in a responsible, sensitive and professional manner.

3.0 Data processing

3.1 Personal data collection

To establish the European Network for *In Situ* Conservation of Plant Genetic Resources, the collection and storage of personal data is required. For participants wishing to become a member of the European Network, the minimum data required are a name, contact details and location. Locations of participants in the European Network are required to assign a geographic identity to the sites/PGR populations that they are responsible for managing—or for those participants who wish only to be members of the stakeholder network and do not manage PGR populations *in situ* or on-farm, to evaluate the geographic representation of members of the Network.

At minimum, the location will be defined at a level equivalent to Local Administrative Units (LAU) (municipalities and communes) as defined by Eurostat³, or as the nearest town or village. For Network members managing *in situ* and on-farm populations of PGR, the precise location (geographic coordinates) will be required. However, detailed locations of sites will not be published without the agreement of the site/population manager, or in cases where the disclosure of the location might jeopardize the plant population or put the site/population manager at risk.

Interviewees and respondents wishing to become members of the European Network will be informed that these data (name, contact details and location) will not be used for any other purpose than for the establishment of the Network and for making contact with them in this context. Names, contact details and locations will not be made available in the public domain or passed on to any parties outside the consortium without the prior agreement of the participants. Likewise, any publications arising from the collection of data associated with participants' names or locations will contain no identifying information that could associate it with them or their location unless explicit consent is given to do so.

³ <u>http://ec.europa.eu/eurostat/web/nuts/local-administrative-units</u>

3.2 Sensitive personal data

The collection of sensitive personal data is not central to the objectives of the project. However, one aspect of the research (namely, the stated preference TEV choice experiment survey instrument) may involve asking respondents questions about their age, gender, educational status, income or other sensitive issues. Personal opinions may also be expressed during the course of any aspects of the research involving the collection of data from human participants, as outlined in section 1.0. Participants will be informed that any publications arising from the collection of sensitive personal data will contain no identifying information that could associate it with them or the organization they represent, and that they may opt out of answering any questions that they do not feel comfortable about answering.

3.3 Data storage and disposal

All data collected via questionnaires and interviews will be stored securely in compliance with the national data protection legislation relevant to the Data Controller(s). In the case of EU member states, compliance will be with Regulation (EU) 2016/679 (<u>https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=uriserv:OJ.L_.2016.119.01.0001.01.ENG</u>). In the case of both EU and non-EU partners, the ethical standards and guidelines of the H2020 programme will be rigorously applied, regardless of the country in which the research is carried out. The consortium will ensure that appropriate safeguards are in place to ensure the confidentiality and security of all personal data, including data collected by or shared with non-EU partners.

Questionnaire and interview responses will be stored electronically and will be accessible only to the responsible staff working on the project. Interview responses recorded on paper will be transposed to an electronic database and the paper copies will be stored securely. Photographic, sound or video recordings of interviews will be treated the same way as all other electronically stored data. Consideration will be given to the security of the means of transferring and sharing data among the consortium members and all data will be destroyed after an appropriate period after the project has ended.

3.4 Data management plan

Further details regarding the collection and management of data in the project are provided in Deliverable 6.3, 'Data management plan'.

4.0 Access and benefit-sharing

There will be no collection or handling of plant genetic material in the Farmer's Pride project. However, knowledge of those who manage populations of plant genetic resources for food and agriculture (PGRFA) *in situ*/on-farm will be collected and used during the course of the project. This constitutes the acquisition of traditional knowledge (TK) associated with genetic resources and thus requires compliance with relevant access and benefit-sharing (ABS) regulations.

Since most data collection will be from within the European region, it is anticipated that the acquisition of TK associated with genetic resources will be from countries that are Contracting Parties to the International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA). If the acquisition concerns TK associated with genetic resources that belong to species that are listed in Annex I of the ITPGRFA, the consortium will not be required to comply with Regulation (EU) No.

511/2014⁴, since the Regulation does not apply to genetic resources for which ABS is governed by the ITPGRFA. However, if TK associated with genetic resources that (i) belongs to a species which is not listed in Annex I of the ITPGRFA, or (ii) is acquired from countries in the European region that are not Contracting Parties to the ITPGRFA (e.g., Bosnia and Herzegovina, Russian Federation and Ukraine), the Project Coordinator (University of Birmingham, United Kingdom) will ascertain that the project complies with the applicable national ABS legislation and will submit a due diligence declaration on behalf of the consortium to the relevant national authority in accordance with Regulation (EU) No. 511/2014, if applicable.

⁴ <u>https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex%3A32014R0511</u>