BIOGEA

Testing BIOdiversity Gain of European
Agriculture with CAP greening

Data Management Plan

	Data Management Plan
Related Work Package (WP):	1
Deliverable lead:	adelphi
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Abstract	The Data Management Plan (DMP) describes how data will be handled (including, but not limited to data collection, data analysis, process and/or generation, data protection and data privacy measures, access rules); when and if open access is provided as well as the reasons for it during the project BIOGEA life cycle. It is an evolving document and some of the aspects will be described later and the final DMP will describe all aspects of how the data generated within the project were managed.

Dissemination level of this document

X	PU	Public: This document reflects only the author's view.
	RE	Restricted to a group specified by the consortium (including the BiodivERsA Secretariat and Partners)
	CO	Confidential, only for members of the consortium (including the BiodivERsA Secretariat and Partners)

Versioning and Contribution History

Version	Date	Modified by	Modification reasons
v.01	25.07.17	Mariya Peneva	First draft sent to all partners
v.02	23.10.17	Katrina Marsden	Plan finalised
v.03			
v.04			

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1   Introduction

1.1   The BIOGEA Project

The intensification of agriculture and the conversion of semi-natural areas to cropland are considered as serious threats to biodiversity in Europe. They have led to a loss of Green and Blue Infrastructure (GBI) in agricultural landscapes. GBI includes landscape structures and habitats such as hedges, water meadows, field margins and woodland, essential for ensuring connectivity between habitats, allowing the migration of species and delivering ecosystem services.

The "Greening" of the Common Agricultural Policy (CAP) - the introduction of compulsory agri-environment requirements in the 2014-20 CAP - should help support GBI by encouraging the introduction of supportive measures across the wider countryside. Farming systems across Europe are however highly variable and the impacts on different types of system have yet to be evaluated.

The project BIOGEA focuses on addressing this gap by examining the impacts of greening on GBI and of GBI on biodiversity and ecosystem services (ES) in different types of farming systems. This is carried out through a top-down analysis, from an EU wide scale to a local scale complemented by a more regional approach through comparative analysis in German, Spanish and Bulgarian case studies.

BIOGEA has the following main objectives:

- Understanding the effects of greening on GBI presence or absence in the agricultural landscape;
- Understanding the short-, medium- and long-term effects of GBIs on biodiversity and ecosystem services at different spatial scales and under different land uses;
- Examining the use of indicators to measure GBI and the linked biodiversity and ecosystem services;
- Exploring ways in which this knowledge can be used to design, develop and manage more resilient GBIs.

1.2   The Data Management Plan (DMP)

Over the course of the BIOGEA project, the collection of new data and assessment of existing data will play a significant role.

Data for a range of agricultural systems in the case study regions shall be collected to assess policy implementation and its influences on GBI for both intensive and extensive farming landscapes. A set of biodiversity and ES indicators (set of species–based indicators) will be built at different spatial scales to assess the importance of GBI and model biodiversity responses at farm and landscape scales and its support to ES provision (key species / species groups). Model testing and validation will be supported by using data from former case studies in which the partners have been involved and other available data sources (e.g. BioBio, EASY, GANGA, LISA projects' databases and/or FSS, FADN, LUCAS, Eurostat AEIs, CMEF etc. databases(to be specified later during the project progress). Data for the assessment of the cost effectiveness (ecological measures costs) of the CAP instruments will be collected also for the case study countries which shall be verified by expert estimation at national and regional level through stakeholders' interviews (survey data collection). Additionally, opinions and ideas from the stakeholders (including farmers, farm managers and advisors) will be collected to formulate policy recommendation and practical guidance for

farmers/advisors to facilitate the delivery of GBI at farm level via the CAP greening mechanism.

The BIOGEA DMP consists of the following sections: description of the data to be collected/created; methodologies for data collection and management; plans for data sharing and access; strategy for long-term data management; ethics and other considerations. Therefore, the BIOGEA DMP document is organized as follows:

- The general principles applied in the DMP;
- A description of the methodology used in the plan;
- The data management requirements for the different work packages;
- The challenges in the DMP implementation and monitoring rules.

The current document presents the initial DMP for BIOGEA project. The DMP is a working document, which may need to evolve and to be updated during the project implementation in order to reflect the progress and when the important changes occur.

2 General principles of the DMP

The BIOGEA Consortium agreed that a specific data management plan (DMP) will be created and in the project proposal description, in section D. Description of project management, it is indicated: "A Data management plan for secure and consistent storage of data will be established including a central project database where all relevant documents will be collected and categorised so that they can be easily found and shared. Special storage for sensitive information will be created. Particular care will be taken with the handling of contact details which will not be provided to outside sources without permission. The project coordinator will be specifically responsible for organising data collection in order to efficiently organise the processes of gathering best practices and case histories. The task leaders will provide a strong lead to the rest of the team, giving guidance and setting up templates for the collection of data." (BIOGEA project proposal)

DMPs are encouraged by the European Commission (EC) and are a key element of good data management and meeting legal requirements. Therefore, the BIOGEA DMP has been developed and elaborated based upon the requirements for all Horizon 2020 projects which participate in the extended ORD pilot (EC flexible pilot called Open Research Data Pilot) aimed at the improvement and better access to and re-use of research data generated by Horizon 2020 projects. This takes into account the need to balance openness and protection of scientific information, commercialization and Intellectual Property Rights (IPR), privacy concerns, security, as well as data management and preservation questions. The DMP also follows the principles that research data should be findable, accessible, interoperable and reusable (EC, DG for Research & Innovation, 2016).

Overall, the DMP provides a description of the data management that will be applied in the BIOGEA project including: 1) the standards for data collection, processing and evaluation as well as for the additional sources (EU/national databases, literature review, interviews, case studies, etc.) which contribute to the project; 2) the description of the data ownership and storage, who and how is able to access the data in all WPs; 3) the time span for data storage and possibilities of and conditions for data sharing; 3) the implementation of data protection requirements during the project implementation and afterwards.

All research data collected as part of this project is owned by the partner/s who take the responsibility for the collection, management, and sharing of the research data: *adelphi research gGmbH*, Germany (coordinator), *Institutfür Agraökologie und Biodiversität* (IFAB), Germany, *National Museum of Natural Sciences* (MNCN-CSIC), Spain, *Universidad de Extremadura* (UNEX), Spain, *University of National and World Economy* (UNWE), Bulgaria. The data and results are owned by the partner/s that generate them and each of the partners shall be entitled to use them for project purposes or for non-commercial research activities with requiring the prior consent of the owner/s and proper reference during the project implementation and for a period of 2 years after the end of the project.

For each planned publication which includes data and results owned by other partner/s prior notice shall be given to them and Coordinator at least 45 calendar days before the publication. Any objection to it shall be made in writing to the partner/s and the Coordinator within 30 calendar days after receipt of the notice and requesting the necessary amendments. If no objection is made within the time limit stated above, the publication is permitted. The objection/justification is according Consortium Agreement and discussion within the consortium and the coordination unit.

Each partner may use its own data and results following the procedures of the Project Proposal and Consortium Agreement and the requirements of the respective national funding organisation, partner in BiodivERsA network during the project and for a period of 2 years after the end of the project.

It is expected that the BIOGEA project will result in a number of publications in scientific, peer-reviewed journals (including open access as one if the requirements of the EC), etc. (see Outreach Plan for all the activities). Hence, partners are encouraged to collaborate with each other and jointly prepare publications relevant to the project, in a manner that allow and ensure timely submission, examination and publication as well as thesis defence (if applicable) when that include data and results from the project.

The partner/s may identify specific third parties to use the data and results on a royalty-free basis and in respect to the intellectual property and citation rules (under applicable EU and national laws) only when the other partner/s are informed and shall ensure that the rights of the Consortium are not affected. The requesting shall be made in writing.

Each partner may add further requirements during the project implementation by written notice to the consortium partners and Coordinator and after the approval of the coordination unit set up according to the project proposal.

3 Methodology

The DMP methodology is based on the updated version of the "Guidelines on FAIR Data Management in Horizon 2020"released on 26 July 2016 by the European Commission Directorate – General for Research & Innovation (see above citation) and addresses the following issues:
1) Data summary;
2) FAIR data (making data findable, openly accessible, interoperable and increase data re-use);
3) Allocation of resources and data security;
4) Ethical aspects and other issues.

Since the DMP describes the data management life cycle, it needs to be updated over the course of the project, at a minimum in time with the periodic evaluation/assessment of the project and for the final review at the latest, if significant developments within the project do not require earlier review.

3.1 Data Summary

The data generated within the BIOGEA project include 1) primary data (original research) produced by observations, field monitoring, case studies and different stakeholder interviews and 2) secondary data (reuse of existing data) such as statistical and other studies databases and literature reviews. Privacy security shall be taken into consideration as the primary data are the more likely to contain personal data compared to the secondary data sets.

One of the main concepts of the project is to involve stakeholders (especially farmers) in the data collection and contribution process which will allow us to collect and expand the information and data related to the farmer's activities related to greening measures compliance and GBI status. This is the main part of the project for which personal, potentially sensitive information shall be collected. It is not however expected that sensitive data will be collected (information on political opinions, ethnic background, health or sexuality).At this stage the privacy issues will be taken into account in order to ensure that personal or sensitive data of any stakeholder/farmer are secured.

Data which is not of a personal nature will be shared and made accessible through the BIOGEA project webpage which will also facilitate its presentation GIS means.

3.2 FAIR data

Making data findable
The accessibility of BIOGEA datasets shall be ensured by the following means: relevant metadata provision including their description and location; an overview of data owners (data owner shall be identifiable and available for contact); data repository available on project webpage; adherence to a system of the data annotation and exchange; compliance with the requirements of the applied software (e.g. ArcGIS, IACS etc.).Data findability is important because increases the transparency and accountability of the project activities and could benefit to the impact and visibility of the research.

Making data openly accessible
Data will where possible be made openly available (in order to promote the research through which the data are created and its outcomes/results). In the case that data is not published, this will be for reasons of private information protection and if not, the data owner/s will provide it under particular conditions relevant to this particular dataset. If specific instructions on methods or software tools are needed to access the data, the owner shall provide the relevant documentation or refer to it.

Making data interoperable

The assessment of the data interoperability (the interoperability requires adherence to the current standards for data formats and compliance with available software systems in order to allow data exchange, re-use and transformation)will be specified in the course of their collection and management and common standards will be followed in order to facilitate the interoperability.

Increase date re-use

Specific attention will be given to the permissions for the possible reuse of dataset/s also including by third parties in order to add value and reuse results especially, after the end of the project (to be fully described in the final DMP and to respect privacy of the respondents). The timespan, for which the data will be kept, will be discussed and agreed between the data owner/s and project partners. It is imperative to follow the collaborative approach within the BIOGEA consortium to achieve the objectives of the project. Promoting the principle of open science and stakeholder engagement and sharing of research data prevents duplicate research and increases the synergy effects of project implementation.

3.3 Allocation of resources and data security

The following repositories / platforms are used in the BIOGEA project.

1) The project website http://www.biogea-project.eu/ (internal page and/or forum) is used as an interaction platform for BIOGEA members to store and exchange information, reports and data as well as for long-term storage of them after the end of the project. The use of project internal web page is also preferred for the storage of interviews and academic reference studies. All the non-public and public datasets not containing personal data will be stored for at least 5 years from the end of the BIOGEA project in the webpage repository, to ensure their long-term availability to future researches. Personal data which has not been anonymised will be deleted at the latest 6 months after the end of the project.

EU and national laws and requirements need to be applied and can results in deviations in terms of privacy policy of the project webpage in the three national languages.

The project website is going to be used as a platform by BIOGEA to facilitate collaboration between partners and members of the Participatory Research and Development Network (PRDN), to track plans, discussions, to store data, meeting minutes and reports. All BIOGEA partners' team members shall have an account so they can access the internal page.

2) The data repository at adelphi consult GmbH (shared drive - https://filecloud.adelphi.de) is used to store and exchange sensitive personal data including the administrative records and project documents in a secure and protected environment during the conduct of BIOGEA project. Data sets containing personal data can also be stored by the data owners in their own repository for a fixed period of time (for nor more of 6 months after the end of the project if data has not been anonymised), as defined in the applicable laws or regulations, but this should be a secure repository. Copies of datasets containing personal data in the possession of partners other than the data owner must be destroyed at the end of the BIOGEA project.

The responsible contacts are listed below:
adelphi consult GmbH shared drive contact: Katrina Marsden - marsden@adelphi.de
Data Management compliance contact: Mariya Peneva – peneva_mm@unwe.bg
Project website contact: Maria Topchieva – m.topchieva@unwe.bg
The WP1 management team will update the names related to the responsibilities, if there are any changes within the team.
All questions related to data management such as rules for uploading data sets, request for access rights should be sent to the Coordinator and the Data Management Compliance contact. The data

and other files to be uploaded to the internal project webpage shall be sent to Maria Topchieva and for the data repository at adelphi consult GmbH to Katrina Marsden.

A back-up (as well as disaster recovery) of the stored data and files in the shared repositories shall be ensured by the Data Management compliance contact through the web developer company on a monthly basis.

Appropriate measures will be put in place to ensure that the data repositories are physically and technically secure following the requirements of the EU Regulation2016/679 on the protection of natural persons with regard to the processing of personal data and on the free movement of such data(European Union). These include the following aspects which will be proofed by the project partners and the website developer.

Table 1.Control on access to data and data collection systems

Part of the system	Checklist
Premises and facilities	Secure premises keys, door locking, contacts in case of break in, surveillance
Control systems	Technical (password) and organisation (user master data) measures for user identification and authentication; password procedures (length, changes, etc.); automatic blocking; encryption of data media
Data and information	Differentiated access rights based on role in team and necessity; checks of access rights and access reporting; set time to delete personal data
Segregation	Data collected for different purposes will be stored appropriately in separate folders so that there is no danger of sending personal data accidentally.
Pseudonomisation	Measures to ensure that data collected about individuals cannot be connected to this individual in published materials.
Disclosure	Encryption of e-mails when transporting sensitive data; electronic signature; logging of data transfer; transport security; anonymisation or pseudonomisation of personal data before it is transported
Input	Logging and reporting systems established with clear rights allocated within the project team; recording systems for data input
Availability	Back up procedures; remote storage; anti-virus / firewall; disaster recovery.

3.4 Ethical aspects and other issues

The BIOGEA partners are requested to adhere all the relevant EU and national legislation and guidelines relating to the conduct of prospective case studies, interviews etc. All project activities will be undertaken within the clear boundaries of the relevant legal frameworks.

At this stage of the project, there are no special ethical issues associated with. The step of research activity that potentially has data protection and privacy issues connected with it is related to data collected through a questionnaire survey (personal data shall always be collected, stored, and exchanged in a secure manner). Therefore, we will ensure data pseudonymisation is enforced (substituting the identity of the data subject in a way that additional information is recognising the data subject).

The data owner of the respective dataset must ensure and is responsible to comply with all legal and ethical requirements for data collection, handling, protection and storage.

4 DMP Components in BIOGEA WPs

Data will be generated and processed during the activities planned in WP 2, WP 3, WP 4, WP 5 and WP 6.

WP1 shall set up the management rules and practices of data management and storing. It will ensure that data and the management requirements attached are updated as required over the project.

Table 2. WP 1 Project Management and Dissemination

DMP Component	Action/Issues to be addressed
Data Summary	Contact details of project partners and members of the PRDN and all the necessary information regarding them, stored in a simple table The project partners data: Name, Email, Phone, Skype id The PRDN members data: Name, Description, Affiliation, Organisation, Country Administrative and reporting documents, external strategy, internal meetings minutes etc. shall be stored in a way allowing access to all project partners. Additional fields will be added as the project progresses.
Making data findable	N/A
Making data openly accessible	The databases will not be publicly available. The databases will only be accessible through the adelphi consult GmbH shared drive or the BIOGEA website shared drive and only the members of the consortium will have access to that information.
Making data interoperable	N/A
Increase data re-use	N/A
Allocation of resources	Preserving contact details of the project partners and PRDN for the entire time of the project
Data security	The data will be preserved and shared with the members of the consortium through the adelphi consult GmbH shared drive or the BIOGEA shared drive. The data is collected for internal use in the project, and not intended for long-term preservation. The WP leader is will keep a backup on a separate secure drive.
Ethical aspects and other issues	Privacy policy rules shall be met by the whole consortium and each of the research team members.
Deletion of Data	The personal data will be deleted (including the backup) at the latest 6 months after the end of the project, if not has been anonymised.

Table 3. WP 2 Analysis of opportunities provided by CAP greening

DMP Component	*Action/Issues to be addressed*
Data Summary	Data collection is necessary for the analysis of the CAP measures included in the most recent round of CAP reform with the potential to drive land use change and contribute to or be detrimental to GBI Lists of communication recipients containing organisations/bodies and their contacts (e-mail address) shall be provided for the interviews The rest of the data will be developed through desk research (literature review and document analysis) of the existing examination of the influence, including costs data for the ecological efficient measures of CAP at national and regional level
Making data findable	The WP 2 deliverables will be publically available which will facilitate discoverability of data contained in them
Making data openly accessible	Deliverables publically posted on the website of BIOGEA will make available all relative data Data concerning e-mail addresses will not be openly available, as being personal data No particular methods or software tools are needed to access the data
Making data interoperable	N/A
Increase data re-use	Data quality shall be assured by the partners responsible for filling out the questionnaire and translating and storing in files/spreadsheets Following dissemination strategy shall increase data/results/findings re-use
Allocation of resources	Data is stored on project webpage
Data security	Monthly backup of files
Ethical aspects and other issues	N/A
Deletion of Data	The personal data will be deleted (including the backup) at the latest 6 months after the end of the project, if not has been anonymised.

Table 4. WP3 Implementation in the case study regions

DMP Component	*Action/Issues to be addressed*
Data Summary	The collection of data from the ground end users is an integral part of the BIOGEA project. Survey/Questionnaire data (including written responses (.docx and/or .xslx) and recordings (.mp3)) compromise the majority of this data. The data will be useful to the WP 3 leader for the production of the BIOGEA description of the implementation of measures on the ground and evaluation of the effects on biodiversity and ES; other partner teams throughout the project, as well as the wider research community when results are published As part of the field-survey, BIOGEA partners will be able to upload photos (timestamped and geolocated) from the field to examine how field activities are implemented. These photos will be saved in the

	BIOGEA webpage storage area. The most common file type expected is jpg. Biodiversity and habitat data (plants, animal species, and habitat/GBI features) will also be recorded and geolocated.
Making data findable	The raw data will not be made available if it contains confidential and sensitive information. Data published in papers will be pseudonomysed (anonymised for external users) and summarised by region or other suitable grouping criteria and will be available to any who wish to use it in accordance to the publishers' and journals' standards BUT bearing in mind that some journals/publishers may have requirements with regard to making data available, or require reference to data storage possibilities. Data stored on the project webpage shall be labelled with the type, WP and country of origin; for the photo taken the name (photographer), location and time will be saved. Use of the website shall produce useful metadata without compromising the rights of web users.
Making data openly accessible	Data containing sensitive personal information (mainly collected through interviews and potentially in some cases field surveys) will not be made public Anonymised and summarised data will be available in the project publications. A consent form will be established for farmers taking part in the interviews in which their consent for use of the data collected will be requested. Registered users and administrators from the project team will have access to the data.
Making data interoperable	For raw data see above. Photos will be saved in jpeg format.
Increase data re-use	Data quality (including data for biodiversity and habitat monitoring) shall be assured by the partners responsible for filling out the questionnaire and translating and storing in files/spreadsheets Stakeholders/farmers will be able to download photos which are added to the website and use them.

DMP Component	Action/Issues to be addressed
Allocation of resources	Raw data shall be stored on the BIOGEA webpage (the closed data sharing system for the BIOGEA partners). The costs of webpage and for publishing data in papers etc. shall be ensured by the relevant partners' budget.
Data security	Regular back up and security is provided by the webpage administrator and respective partner. IP restriction will enforce the secure storage of data In case of updates, old data will be stored in an older version until it is deleted after partners' decision ensuring their non-usability
Ethical aspects and other issues	All stakeholder/farmer data will be protected and will not be shared without the farmer's consent.
Deletion of Data	The personal data will be deleted (including the backup) at the latest 6 months after the end of the project, if not has been anonymised.

Table 5.WP 4 Modelling impacts of GBI on biodiversity

DMP Component	Action/Issues to be addressed
Data Summary	Available databases (EU, international, interregional), with special focus on the case study systems and available information for habitat requirements at both local and landscape scales shall be used for modelling purposes. Various data origin from the previous partners researches and projects, stakeholders and farmers and/or consultants' bodies information in the partner countries shall be used for model development and testing. Database on biodiversity indicators that perceive landscapes at different spatial scales shall be developed. Data records on the cross-validations with data from both WP3 field monitoring and other available data sources will be available.
Making data findable	Data published in papers will be anonymised and summarised by region or other suitable grouping criteria and will be available to any who wish to use it in accordance to the publishers' and journals' standards.
Making data openly accessible	Anonymised and summarised data will be available in the project publications.
Making data interoperable	N/A
Increase data re-use	N/A
Allocation of resources	Model data and specification shall be stored on the BIOGEA website shared drive and only the members of the consortium will have access to the model related information
Data security	Regular back up and security is provided by the webpage administrator and respective partner. IP restriction will enforce the secure storage of data In case of updates, the old data will be stored in an older version until it is deleted after partners' decision ensuring their non-usability

DMP Component	Action/Issues to be addressed
Ethical aspects and other issues	N/A
Deletion of Data	The personal data will be deleted (including the backup) at the latest 6 months after the end of the project, if not has been anonymised.

Table 6. WP 5 Recommendations: How to improve agricultural management of GBI

DMP Component	Action/Issues to be addressed
Data Summary	Reports synthesizing the evidence-based findings (from WP 2-4) and producing recommendations for improving agricultural management of GBI at national and European levels will be produced. The relevant ideas and approaches proposed by stakeholders in different countries will be integrated. The information will be published in different formats specified in the outreach plan. A policy recommendation tool will be developed allowing electronic access to the data.
Making data findable	Deliverables (including newsletters and online tool) publically posted on the website of BIOGEA will make available all relative data in a summarised format. Metadata will help the easy discoverability of the most up to date content.
Making data openly accessible	N/A
Making data interoperable	N/A
Increase data re-use	Online access tool usage will increase attractiveness of the results and their practical use.
Allocation of resources	Data used for policy recommendation tool shall be stored on the BIOGEA webpage.
Data security	Regular back up and secure is provided by the webpage administrator and respective partner.
Ethical aspects and other issues	N/A
Deletion of Data	The personal data will be deleted (including the backup) at the latest 6 months after the end of the project, if not has been anonymised.

Table 7.WP 6 Development of guidance and tools for farmers and advisors

DMP Component	Action/Issues to be addressed
Data Summary	Dataset containing initial assessment of farmers' and advisors' overall understanding, knowledge and needs in terms of GBI and the CAP-greening in the case study areas will be created. As part of BIOGEA guidance and tools, presentations etc.to facilitate the delivery of GBI at farm level via the CAP greening

	mechanism, will be created in order to train both farmers and advisors and to present the current best practices in the field.
	Initial contacts and information gathered through WP 2-5 as well as the PRDN contributions will be incorporated into the WP 6 deliverables.
	The online materials will be mainly created by the partners targeting case study areas.
	The consortium will have to settle and to define which of the tools/materials will be available for the users to view whenever they want and if any admission will be applied.
	On-line "local learning labs" may be available only via live participation (to be decided).
	Summaries of the pilot test of the tools and online materials in different case study areas shall be provided for further improvements to the task leader.
	Practical briefs for advisors on the results and findings from WP2-5 at national level shall be developed.
	Good practices and/or practical examples from the Member States on managing GBI via CAP greening instruments in the different farming systems will be collected and presented in electronic format.
Making data findable	All registered users will be able to discover the tools and online materials (openly available)
	For some of the data (the database and the storage area) according to the consortium decision will be available only for users with access (partners and in some cases PRDN)
	Metadata will be saved to enhance the potential to reuse the results.
Making data openly accessible	The tools and online material will be accessible through the BIOGEA webpage.
	All BIOGEA partners/stakeholders/users will have access to those materials.
Making data interoperable	N/A
Increase data re-use	N/A
Allocation of resources	Data and materials shall be stored on the BIOGEA webpage.
Data security	Regular back up and secure is provided by the webpage administrator and respective partner.
Ethical aspects and other issues	N/A
Deletion of Data	The personal data will be deleted (including the backup) at the latest 6 months after the end of the project, if not has been anonymised.

5   Challenges and monitoring

The DMP lays out the plans of the BIOGEA team to ensure that data are useful to the project specific tasks but are also available for further use and processing (so long as this does not conflict with personal privacy requirements). In addition, the data will be processed and presented in a way to be most accessible to end users including stakeholders and farmers targeted by the project (see D1c Outreach Plan for more details on presentation. The table below lays out the particular challenges faced by the project team in implementing the DMP.

Table 8. DMP challenges and actions

Challenge	Response
Allocation of resources (availability of person/months, budget costs)	Each partner must specifically allocate resources to meet the requirements of the DMP.
Ensure data protection and security	Digital data are vulnerable. Measures to keep online data secure will be taken. Data will be stored in online and offline back-ups.
Not complying with FAIR data	Each partner must use the data for publications and linking them with other/previous research information.
Differences in the hardwareand software preferences of the project partners	To agree on the software which in the long term shall allow conversion into a still usable file format by a data archive or repository.
Respect of copyrights	Each partner must be aware of copyrights requirements and respect the rules of citation etc.
Specific partner is not able or unwilling to share the datasets	Consortium coordination unit shall take the responsibility to solve the problem as the Coordinator has the leading role.
Unknown size of data to be collected.	Flexible arrangements with the size of the storage space.

The WP1 leader and Data Management Compliance Contact together with the WP leaders will establish a process to ensure that all generated data sets, will follow the principles in this DMP. Regular updates shall be made, at least in conformity with the reporting/assessment schedule.

6   Publication bibliography

European Commission (2016): Roadmap: Evaluation of the payment for agricultural practices beneficial for the climate and the environment under the CAP ("greening" of direct payments), checked on 4/1/2017.

European Commission, DG for Research & Innovation (2016): H2020 Programme - Guidelines on FAIR Data Management in Horizon 2020. http://ec.europa.eu/research/participants/data/ref/h2020/grants_manual/hi/oa_pilot/h2020-hi-oa-data-mgt_en.pdf

European Union: Regulation (EU) 2016/ 679 of the European Parliament and of the Council on the protection of natural persons with regard to the processing of personal data and on the free movement of such data, and repealing Directive 95/ 46/ EC (General Data Protection Regulation), checked on 8/10/2017.