# Plan Overview

*A Data Management Plan created using DMPonline*

**Title:** FARSYD - FArming SYstems as tool to support policies for effective conservation and management of high nature value farmlanDs

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**Template:** DCC Template

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**Project abstract:**

FARSYD (2016-2019) aims to tackle the relation between farming systems and biodiversity and ecosystem services (BES) in High Nature Value farmlands (HNVf), whilst assessing trade-offs between driving forces behind land-use change, and the safeguard of the natural ad social capital underlying such farmlands.

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# FARSYD - FArming SYstems as tool to support policies for effective conservation and management of high nature value farmlanDs

## Data Collection

#### What data will you collect or create?

**Data** used during FARSYD include: (i) data from previous projects developed in the training (PT) and test sites (SP; DE; UK); and, (ii) data to be acquired and/or produced during the project.

(i) Data from previous projects (namely environmental and biological data) will be mobilized and harmonized. It will include: previously published habitat maps; land-cover data; high nature value farmlands (HNVf) mapping; farming systems typologies (and respective indicators) and spatially-explicit quantification of ecosystem services. Socio-economic data related to agricultural production will also be targeted. Environmental data include data reflecting the topography of the targeted areas, climate conditions, land cover,  soil, among others.

(ii) Infield surveys will contribute to update and validate habitat mapping and to gather new data for birds and vegetation / plant species, for the two training sites (Peneda-Gerês National Park and Castro Verde Special protection Area). Farming systems typologies and HNVf mapping will be developed using IACS (Integrated Administration and Control Systems) and respectice LPIS (Land Parcel INformation System) data, available for both the training areas. Data for the spanish test area (Galicia) will also be available, and will the support the mapping of HNVf. All datasets from CAP payments provided by national funding agencies will be provided following the mandatory anonimity standards, and therefore no information regarding the beneficiaries is to ba available.

Other intermediate products include: farming systems typologies for the Alentejo region; HNVf assessment for Lower Saxony; determination of the UAA area for the Entre-Douro-e-Minho, NW Portugal (EDM); mapping of natural contraints to agriculture for EDM; mapping of HNVf for the EDM; and, quantification of ecosystem services and identification of blundles for EDM.

During the project, several **formats of the data** will be managed such as .txt, .jpeg, .pdf, .shp, .tiff, .xlsx, etc. Data formats mainly depend on the type of data (spatially-explicity or not), and the source of data (if not produced by FARSYD team). Distinct data formats link to the diversity of software to be used for specific analysis e.g. Excel, R, SPSS, Arcgis, Quantum GIS. Data formats to be used are standard in the field, so they allow sharing, re-use and long-term access to data. File size can range between 10Kb and 1Tb. All data is storage in the FARSYD NAS, acquired in the context of the project, with backups storaged weekly. Access to NAS is restricted to team members, as part of the data is under privacy and sharing restrictions.

There are not many datasets similar to those gathered and analysed during FARSYD, so they are important for other researchers in several domains, such as Biodiversity, Agriculture and Environmental Sustainability. Data gathered and harmonized within FARSYD is likely to contribute to identify HNVf; to analyse environmental impacts under policy changes at several scales of analysis. Thus, the data has high potential for reuse for other domains such as conservation, monitoring, among others.

#### How will the data be collected or created?

Several approaches will be used to obtain data, depending on the specific target (e.g. taxonomic group; data providers and/or availability). Regarding habitat mapping, validation will be performed according standard procedures (at least 1% of polygons to be validated). Data reflecting plant diversity will follow an approach devised with the specific objective of identifying indicator species (occurrence and abundance) in each habitat which persistence is linked to agricultural management. Identification of species will be supportted by specific keys and/or field guides whenever needed. Regarding bird data, to be collected in Castro Verde SPA, it will follow the census guidelines that have been implemented since 2005 to assure comparability of data (and thus a temporal series of data).

As for other data, collection will be define according to data providers and/or availability against the data needs of the project. Data from CAP payments will be accessed through national funding agencies (e.g. IFAP, Portugal), and thus use and share of such data will be unde legal restrictions. Overall, collection will be guided by online searches, and be refined after metadata analysis.

Collected data will be organized in folders per case study defined in the FARSYD NAS, according to a previously defined internal folder structure, and metadata described on a file created for the purpose.

## Documentation and Metadata

#### What documentation and metadata will accompany the data?

The data will be described according to a personalized metadata model, build on the INSPIRE metadata guidelines, assuring compatibility with the research management plan existent. To improve the fit for re-use, detailed metadata, e.g. on the temporal and spatial resolutions, spatial projection used, and the method used in the collection and analysis of the data will be described.

## Ethics and Legal Compliance

**How will you manage any ethical issues?**

FARSYD project manages several types of data, most of which is under no specific legal requirements. Data available from previous research projects will be gathered and harmonized, and respective metadata described. In the case data is public, data and metadata will be shared with other researchers. In the case of specific datasets, namely: i) biological data collected by individual researchers within their individual projects; and, ii) data provided by the Institute of Financing Agriculture and Fisheries of Portugal (IFAP), the Integrated Administrative and Control System, IACS, and the Land Parcel Information Systems, LPIS, data is semi-public or private, respectively. Speficially in the case of IACS and LPIS, data cannot be shared even if they are anonymized. Therefore, FARSYD team cannot provide direct access to data  due to legal commitments, but may provide access to metadata.

**How will you manage copyright and Intellectual Property Rights (IPR) issues?**

Part of the data used by the FARSYD team is not a direct result of the project and thus IPR issues may apply. In the case of data produced during FARSYD, IPR ownership is from the core team (IR and task leaders), and data should be requested to the IR. Data sharing will be restricted during project development and for 6 months after project end to pursue scientific publications.

## Storage and Backup

**How will the data be stored and backed up during the research?**

The data will be stored and backed-up on the project-specific NAS (Networked Attached Storage). Some data can be temporarily stored in an external disk before the PI is transfer the data to the FARSYD NAS. Backups are set automatically to occur each Friday at 23:59. Data will be stored and backed up during 5 years after FARSYD completion (until 11/2018).

Moreover, metadata may be deposited and preserved on Research Data Repository of the University of Porto (https://ckan-rdm.up.pt/) and will be backed up, according to the configuration of UP.

**How will you manage access and security?**

The RAW data collected during FARSYD will be available to download by FARSYD team members and editing limitations apply. Specifically, in the case of data acquired during FARSYD under legal restrictions to use and sharing (CAP payment data from national payment agencies), limitations to access, edit and download will apply to assure that all requirements for data use are met. In such specific cases, the PI will assure that team members analysing the data comply with all requirements. Secutiry will be granted by: limiting the access to FARSYD NAS; and, by implementing complex passwords (12 digits, containing symbols) that will expire each 3 months.

Security procedure will apply to all laptops and computers used for analysing and/or temporarily deposit FARSYD data. All equipment will be password secure, all software is licensed and will be updated frequently to assure up to date security. In the case of temporary staff, hired to assure specific FARSYD tasks, all analysis will be developed using institutional equipment prepared for the project, and confidentiality and limitations for data sharing and use are foreseen within work contracts. After their participation in FARSYD, profiles will be erased to assure access limiations and data security.

## Selection and Preservation

**Which data are of long-term value and should be retained, shared, and/or preserved?**

Most data processed and deposited (FARSYD NAS) is to be retained and preserved after the duration of the project (data will be stored and backed up during 5 years after FARSYD completion). Data such as the farming systems typologies for the training and test sites, as well as the biological data acquired has an added value to be retained for future analysis and publications. Also data from CAP payments has an added valued from a reseaerch viewpoint, and will be preserved during 3 years after the completion of FARSYD, period after which data will be erased permanently. During the preservation of such data, due to legal commitments,

specific procedures will be implemented to assure that data is not accessed/stolen, illegally shared or used. Only the PI will have access to such data after FARSYD completion.

**What is the long-term preservation plan for the dataset?**

All data processed and deposited should be preserved during 5 years after the completion of the project (except data under legal restrictions to use, that will be preserved during 3 years). The PI will be responsible for any action related to the long-time preservation, which will be assured by maintaining the FARSYD NAS available, and by updating FARSYD DMP. FARSYD DMP will be updated each 6 months or whenever the PI finds necessary.

Moreover, the data is likely to be preserved on Research Data Repository of the University of Porto (https://ckan-rdm.up.pt/) and stored on FARSYD NAS.

## Data Sharing

**How will you share the data?**

The metadata will be open on the Research Data Repository of the University of Porto (https://ckan-rdm.up.pt/). Data resulting from FARSYD will be available upon request after project publications.

**Are any restrictions on data sharing required?**

Metadata will be public. Part of the data (IACS and LPIS) is protected under legal commitments and will not be shared. Other data, produced within FARSYD, will be shared upon request and after consortium agreement.

## Responsibilities and Resources

**Who will be responsible for data management?**

FARSYD PI (Ângela Lomba) is the main responsible for the management of all data. Long-term preservation is required to ensure re-use of the data in the context of multi-disciplinary research across domains.

**What resources will you require to deliver your plan?**

It is necessary to have options for partial data deposit within the Research Data Repository of the University of Porto (https://ckan-rdm.up.pt/) and have access to DENDRO platform.