D7.3
Data Management Plan (DMP), 2nd version

UNIBO

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PROJECT INFORMATION

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DISSEMINATION LEVEL

PU	Public, fully open	x
SEN	Sensitive, limited under the conditions of the Grant Agreement	
Classified R-UE/EU-R	EU RESTRICTED under the Commission Decision No2015/444	

Classified C-UE/EU-C	EU CONFIDENTIAL under the Commission Decision No2015/444	
Classified S-UE/EU-S	EU SECRET under the Commission Decision No2015/444	

DOCUMENT HISTORY

VERSION	DATE	CHANGES	RESPONSIBLE PARTNER
0.1	15/09/2025	FIRST DRAFT	UNIBO
0.2	30/09/2025	REVISED DRAFT BY COORDINATOR TEAM	UNIBO
0.2	15/11/2025	FINAL VERSION	UNIBO

Scheduled Data Management Plan (DMP) Updates

The DMP is a document that evolves during the lifespan of the project and registers all relevant changes in the life cycle of all the research data sets. After the first version of the DMP submitted at M6, this updated version is an intermediate one, while the final version will be submitted by the end of the project. Moreover, this document will be updated whenever important changes in the data or the data management policy occur.

NOTICE

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Partner Acronyms

Partner extended name (country)	**Acronym**
ALMA MATER STUDIORUM - UNIVERSITA DI BOLOGNA (IT)	**UNIBO**
ARVALIS INSTITUT DU VEGETAL (FR)	**ARVALIS**
AGRAREN UNIVERSITET – PLOVDIV (BG)	**AUP**
CAMELINA COMPANY ESPANA SL (ES)	**CCE**
CENTRE FOR RENEWABLE ENERGY SOURCES AND SAVING FONDATION (EL)	**CRES**
DBFZ DEUTSCHES BIOMASSEFORSCHUNGSZENTRUM GEMEINNUTZIGE GMBH (DE)	**DBFZ**
FLANAT RESEARCH ITALIA SRL (IT)	**FLANAT**
INTERNATIONAL CENTRE FOR AGRICULTURAL RESEARCH IN THE DRY AREAS (LB)	**ICARDA**
INSTITUT ZA RATARSTVO I POVRTARSTVO INSTITUT OD NACIONALNOG ZNACAJA ZA REPUBLIKU SRBIJU (RS)	**IFVNCS**
INSTITUT NATIONAL DE LA RECHERCHE AGRONOMIQUE DE TUNISIE (TN)	**INRAT**
NOVAMONT SPA (IT)	**NVMT**
PEDAL CONSULTING SRO (SK)	**PEDAL**
UNIWERSYTET PRZYRODNICZY W POZNANIU (PL)	**PULS**
SAIPOL (FR)	**SAIPOL**
COOPERATIVAS AGRO-ALIMENTARIAS DE ESPANA U DE COOP SOCIEDAD COOPERATIVA (ES)	**SPANISH CO-OPS**
COOPERATIVAS AGRO-ALIMENTARIAS DE ANDALUCIA (ES)	**FAECA**
FEDERACIÓN ARAGONESA DE COOPERATIVAS AGRARIAS (ES)	**FACA**
UNION REGIONAL DE COOPERATIVAS AGRARIAS DE CASTILLA Y LEON (ES)	**URCACYL**
COOPERATIVAS AGROALIMENTARIAS CASTILLA LA MANCHA UNION DE COOPERATIVAS (ES)	**CACLM**
FEDERACIO DE COOPERATIVES AGRARIES DE CATALUNYA (ES)	**FCAC**
TERRES INOVIA (FR)	**TI**
KIMITEC BIOGROUP SL (ES)	**KIMITEC**
RSB ROUNDTABLE ON SUSTAINABLE BIOMATERIALS ASSOCIATION (CH)	**RSB**
NUSEED EUROPE LTD (UK)	**NUSEED**

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Content

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The Data Management Plan (DMP)

Data Management (WP 7, Task 7.5. Leader: UNIBO. Participants: All. M 1-48). A DMP will be established to support the data management life cycle for all data which will be collected, processed, or generated by the project.

The DMP provides the identification elements and the descriptions of the data sets, and it includes details regarding how the research all the research data collected and generated within the “CARINA” project and how they will be preserved after it is completed. It explains the way research data are handled, organized, licensed, and made openly available to the public, and how they will be preserved after the project is completed. It will specify which methodologies and standards will be used in the data creation and management and how and when the data will be shared and made open for re-use.

The DMP will be a dynamic document in which all partners will actively participate throughout all the project duration. The current DMP represents the first 36 months of the project (D7.3) and updated and more detailed DMP versions will be delivered when necessary. The DMP also provides motivations when versions or parts of the project research data cannot be openly shared on account of third-party copyright issues, confidentiality, or personal data protection requirements or when open dissemination could jeopardize the project achievements.

The initial DMP was composed in M6 (UNIBO, WP7) explaining in detail how the data generated in the project will be collected, processed, shared, and made accessible by project partners. The present DMP was updated (M36) with changes in the consortium policies (e.g., new innovation potential, decision to file for a patent, new consortium members joining or old members leaving). A final DMP will be submitted in M48. The data will be deposited in a trusted repository within the deadlines set out on this DMP. This DMP reflects the current state of the art of the “CARINA” project. However, the details and the final number of the project data sets may vary during the research. The variations will be recorded in final version of the DMP.

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1. Data Summary

CARINA is an innovation action project to help foster the European bioeconomy at local level, unlocking the full potential and benefits of the circular economy in term of farm and industry competitiveness, and healthy soil and water. The results of CARINA will contribute to each of the expected outcomes of the topic "HORIZON-CL6-2022-CIRCBIO-01-04". The CARINA project will achieve its ultimate objective through the following specific objectives:

- to design and implement new site-specific primary production systems on farm-scale. The new systems will be thoroughly analysed within the lighthouses to co-create and develop innovative and sustainable technical solutions (**WP1**).

- to valorise the co-products of carinata and camelina through the extraction of molecules having different applications in the field of bioplastics, biochemicals, animal nutrition, biofuels, biostimulants and/or biopesticides (**WP2**).

- to carry out an integrated sustainability assessment of CARINA bio-based production systems, including the identification of sustainability indicators for the assessment of the economic, social, and environmental impacts (**WP3**).

- to co-create a set of policy recommendations that can maximise economic, environmental, and social synergies in the provision of certified low iLUC feedstock for bio-based value chains (**WP4**).

- To improve understanding of the co-benefits and potential risks, and to deliver solutions for upscaling potential bio-based agricultural production systems through a social innovation process. To achieve this objective, CARINA will establish national living labs (LLs) and organise 'co-define challenge' workshops within technical field visits, with the aim to co-create solutions from lessons learned, and to implement them locally to deliver tailored roadmaps and business plans (**WP5**).

- To ensure wide visibility of CARINA by setting up an effective communication dissemination strategy and, at the same time, pave the way for the exploitation of CARINA results. CARINA will achieve this objective posing attention to cluster and create synergies with other EU initiatives with strong links with CARINA (**WP6**).

- To coordinate and supervise the project activities, ensuring quality and timing of project deliverables; (2) to carry out administrative and financial management, and reporting;

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- (3) to manage contacts with the EU Commission (EC); (4) to resolve possible conflicts; (5) to oversee the knowledge and innovation management activities; (6) to manage the data generated by the project (Data Management Plan – DMP, **WP7**).

In CARINA, the research data and output generated in the project will be managed responsibly, in line with the **FAIR** (Findable, Accessible, Interoperable, Reusable) principles. Data will be collected, processed, shared and made accessible by project partners. The IPR policy (i.e., IP, confidentiality, and publication provisions) will be considered as defined in the Consortium Agreement. The data will be deposited in a trusted repository within the deadlines set out on the current DMP.

All formats of digital files stand the risk of becoming obsolete in the future. As a general guideline, CARINA considers that the file formats best suited for long-term preservation and accessibility:

- are commonly used;
- have open specifications;
- are independent of specific software, developers, or suppliers.

Research teams have agreed to convert research data from proprietary formats to well-known and documented open formats to facilitate accessibility and reusability (Table1). CARINA will produce different types of data by using different methodologies. Research teams have agreed to convert research data from proprietary formats to well-known and documented open formats in order to facilitate accessibility and reusability (Table 1).

Table 1 - Summary of data formats

Type of data	Formats used during data processing	Formats for sharing, reuse and preservation
Numerical, quantitative, and graphical data (Data will be processed statistically)	Microsoft Excel (.xls/.xlsx) Comma Separated Values (.csv) Data collection/generation (raw data) in Excel format. Data processing in Phenome networks	Comma-separated values (.csv) MS Excel (.xls, .xlsx, .csv) PDF/A (.pdf) OOXML (.docx, .doc)
Statistical data	STATA format (.dta)	Comma-separated values (.csv) STATA format (.dta) MS Excel (.xls, .csv)
Quantitative	Raw data, MS Excel (.xls/.xlsx)	Comma-separated values(.csv) MS Excel (.xls, .xlsx, .csv)

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Type of data	Formats used during data processing	Formats for sharing, reuse and preservation
Qualitative	Microsoft Word (.doc/.docx) Portable Document Format (.pdf) Raw data	Rich Tech File (.rtf) Non-Unicode TXT (.txt) OpenDocument Text (.odt) PDF/A (.pdf). Data processed, aggregated, and evaluated by using qualitative data analysis software NVivo.
Qualitative and quantitative experimental data (in vivo and in vitro) Simulation data Numerical, textual, tabular, digitized, primary, secondary, and raw data (spreadsheets)	MS Word (.doc/.docx) MS Excel (.xls/.xlsx) JPEG (.jpeg, .jpg)	(.xlsx) format converted into (.csv) before sharing. SPSS Portable format (.por) Textual data will be collected and processed in (.doc) format and converted into (.txt). Digital images will be converted in (.tiff)
Numerical, born digital, quantitative, and raw data	Excel File MS Excel Word file MS Word PDF Adobe Portable Doc Format	(.xls/.xlsx, .csv), (.doc/.docx), (.pdf)
Numerical, textual, graphical, visual, or tactile, raw data, secondary, derived, cleaned, processed	Data collection/generation (Raw data); data processing	MS Excel (.xls/.xlsx, .csv) data processing, MS Word (.doc/.docx, .rtf); data preservation and sharing: PDF (.pdf), readme files (es.txt, .doc)
Numerical, graphical, visual, digital images	JPEG (.jpg, .jpeg) TIFF (.tiff, .tiff) PNG (.png)	JPEG (.jpg, .jpeg) TIFF (.tiff, .tiff - uncompressed)
Audio data	mp3 format (.mp3)	mp3 format (.mp3) Interview audio records are transcribed and, where necessary, anonymized.
Qualitative and quantitative experimental data (in vivo and in vitro) Simulation data	MS Excel (.xls/.xlsx) data processing: MS Excel (.xls/.xlsx), MS Word (.doc/.docx) and MS PowerPoint (.ppt/.pptx) data	PDF (.pdf)

Documentation files explaining all relevant details regarding data collection, processing methodologies and quality assurance are deposited along with the data sets in .odt, .rtf or .pdf format. The existing data reused during the project are from several sources (i.e., scientific literature, etc.).

The data produced can be of interest to different potential users inside and outside the project. Basically, they include:

- oil crop producers, agronomists, farmers, farmers cooperatives and unions, scientific community working on oilseed crops, scientific community working on pest management, researchers, students, policy makers, stakeholders;

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- biobased industry who will get to know how the feedstocks used in their processes related to benefits and potential risks for the environment.

- EU policy makers, interested in understanding the best way to diversify primary production whilst promoting and sustaining biodiversity.

Furthermore, abstracted and summarized data will be interesting to “prosumers” and the public interested in camelina and carinata breeding, cropping systems, new applications and usages. Hence, CARINA also strives to collect the data that has been disseminated and potentially advertise it. The data could also be used as a source for topic-related studies, comparisons and for different analyses, for example for simulating and exploring the scenario that follows alternative specific communication policies.

Considering the current stage of the project, the expected size of the data is still uncertain, but it is difficult to estimate. If data produced will be excessive, it will be possible to incur in extra costs not currently foreseeable. The effective size may vary with respect to what is declared in the present document. Potential variations will be addressed in final version of this document.

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2. FAIR Data

This DMP follows the EU guidelines[1] and describes the data management procedures according to the FAIR principles[2]. The acronym FAIR identifies the main features that the project research data must have in order be findable, accessible, interoperable, and re-useable, allowing thus for maximum knowledge circulation and return of investment. In CARINA, the research data and output generated in the project will be managed responsibly, in line with the FAIR (Findable, Accessible, Interoperable, Reusable) principles and by taking all actions established in Article 17 of the Annotated Model Grant Agreement.

2.1. Making data findable, including provisions for metadata

To improve findability of research data produced during CARINA project, datasets will be deposited in trusted[3] data repositories. During the project and at least at the moment of publication of project results, each research team will deposit and describe the relative underlying data sets. Trusted data repositories can attribute persistent unique identifiers (PIDs) to the deposited items. Partners are strongly recommended to use the persistent unique identifiers (DOI, Handle, etc) to cite the datasets as underlying data within their research publications.

The repositories identified by the consortium are summarized in Table 2. Moreover, the chosen data repositories support standard descriptive metadata to ensure data sets indexing and discoverability.

At the moment of publication of project results, each research teams will deposit and describe the relative underlying data sets in institutional or public data repositories that can attribute persistent unique identifiers to the deposited items. Partners are strongly recommended to use the persistent unique identifiers (such as DOI or Handle etc) to cite the data sets as underlying data within their research publications. The chosen data repositories support standard descriptive metadata to ensure data sets indexing and

[1] Guidelines on FAIR Data Management in Horizon Europe (Version 2.0, 01 April 2022), https://ec.europa.eu/info/funding-tenders/opportunities/docs/2021-2027/horizon/guidance/programme-guide_horizon_en.pdf

[2] The FAIR data principles (GO FAIR), https://www.go-fair.org/fair-principles/

[3] Search your field repository in https://www.re3data.org/

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discoverability. They all support **Dublin Core and DataCite Metadata Schema**. Moreover, they comply with the OpenAIRE requirements for data archives. Consequently, the project data sets will be visible via the OpenAIRE portal, facilitating project reporting procedures.

The metadata standard in the repository consists of the following information: Title, Author, Contact person, Description, Subject area, Key words, Associated publication, Grant information, Author Identifier (e.g., ORCID, if applicable). Such metadata will facilitate access to the data. Specific keywords derived, when possible, from thesauri and controlled vocabularies will be associated to each data set to enhance semantic discoverability.

CARINA research data are organized in data sets, which are named collections of data units with the same focus and scope. In this DMP are suggested the following common rules for data set naming in order to improve data visibility, discoverability, citation and permanent online tracking.

The recommended data set title structure consists of:

> *PROJECT ACRONYM. WPnumber. WP title or description specifying WP aims. Tasknumber. Task title or description specifying Task aims. additional information specifying coverage and nature of data (if necessary). version number (optional, in case of revisions to help identifying the updates especially in repositories that do not track versioning automatically)*

Example:

> ***CARINA. WP7. Task7.5 Data Management Plan (DMP). v0.2***

The version number of the data set will be added at the end of the title in case of data revisions to help identifying the data set updates especially in repositories that do not track versioning automatically (see *Annex I* for data set names, unique identifiers and descriptions).

The DMP recommends also the following rules for file naming:

- for data set file(s):
  [PROJECT ACRONYM] WPnumber_Tnumber_coverage or other content specifications_date (YYYYMMDD)_vn.file extension

  Example:

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CARINA_WP2_Task 2.1_oil-valorisation_20200828_v03.csv

- for readme file(s)[4] :
  [PROJECT ACRONYM] _WPnumber_Tnumber_coverage or other content specifications_date (YYYYMMDD)_vn_README.file extension

  Example:
  CARINA_WP2_T2.1_oil-valorisation_20200828_v03_README.rtf

WPnumber means “work package number”; *Tnumber* is “task number”, and *vn* is the “version number” (in case of data revisions or updates).

2.2. Making data openly accessible

As a guiding principle, CARINA seeks to ensure open access to research data, via the repository, as soon as possible and within the limits and deadlines set out in the DMP, in order to allow dissemination, validation and re-use of research results. To this purpose, all the files will be converted to standard and well-documented open formats and the data sets will be deposited with all relevant documentation and explanation.

The data repositories chosen by partners are both institutional, disciplinary and general repositories. They guarantee long term preservation and attribute persistent unique identifiers to the archived data sets (such as DOI or Handle). They support open licenses and different access levels. Finally, they adopt descriptive metadata standards as required by the OpenAIRE Guidelines and allow cross-linking between publications and the relevant data sets.

Moreover, they comply with the OpenAIRE requirements for data archives. Data deposition in repositories will guarantee long time preservation and accessibility to datasets. Consequently, the project data sets will be visible via the OpenAIRE portal, facilitating project reporting procedures. Data deposition in repositories will guarantee long time preservation and accessibility to datasets.

Restrictions to access are applied only in the following cases:

[4] A “README” file is a document containing relevant information about data set authorship, terms of reuse and responsibilities, explaining data set content and structure, collection procedures and analysis (such as file specifics, methodologies, codebooks of variables, data sources, and further necessary notes). (See Annex III to visualize the suggested README file template).

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- when collected data belongs to third party which have denied permission for sharing them;
- on account of confidentiality and proprietary issues;
- protection of personal data of subjects involved in the research.
- when availability of the data would mean that the project's main aim might not be achieved.

Consequently, all possible and legitimate actions and strategies are adopted to allow data sharing including:

- obtaining copyright permissions from third party data owners to be allowed to re-use, reproduce and distribute the collected data;
- converting the files to standard open formats;

- providing all relevant documentation and explanation for the data and the data sets;
- obtaining the consent of stakeholders involved in focus groups and anonymizing and aggregating the data of interviews;
- in case of copyright on raw data derived, collected, or elaborated from pre-existing databases or from other original sources (i.e., papers, journal articles, book chapters, reports, video, and audio sources), collected data will be made available if the reproduction and sharing are allowed by expressed permission of the right holders or by applicable copyright exceptions and exemptions. Specifically, reproductions and communication of brief excerpts of texts and of other protected works are permitted for illustration purposes for scientific research, provided that the source, including the author's name, is acknowledged and provided that the use does not conflict with the exploitation of the original source and does not unreasonably prejudice the legitimate interests of right holders. Otherwise, only aggregate data resulting from the analysis will be openly published. Anyway, when the sources are freely available on-line in their original repositories, but direct reproduction is not allowed, a detailed account on how the data set was created from the original data will be provided, together with the specification of open repositories from where the original data sets are available. Raw data consisting in full texts will not be made available without copyright holders' permission.

For data that fall under some of the restrictions described above and for which it is not possible to take any action to make them shareable, EU allows complete closure or restricted access to them. CARINA DMP indicates the versions or parts of the data sets that cannot be freely shared providing the specific motivations in *Annex I*. At the time of publication of results, researchers deposit the project data that can be shared in a data repository in order to guarantee their discoverability, access and preservation beyond

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the project end. Each different data set is deposited by the team that is responsible for the data collection and management in the repository of their choice.

Table 2 – Summary of repositories. The following table shows the repositories for data sets publication and preservation chosen by CARINA partners

Partner	Repository name	Type	URL	PID	OpenAIRE compliant ?
UNIBO	**Zenodo**	Multi-disciplinary	https://zenodo.org/	DOI	YES
ARVALIS	**Zenodo**	Multi-disciplinary	https://zenodo.org/	DOI	YES
AUP	**Zenodo (recommended), Bulgarian Portal for Open Science**	Multi-Disciplinary	https://zenodo.org/ http://lib.au-plovdiv.bg:8081/aupsp/ http://lib.au-plovdiv.bg:8081/abweb/public/	DOI NYA	YES NYA
CCE	**Zenodo**	Multi-disciplinary	https://zenodo.org/	DOI	YES
CRES	**Zenodo**	Multi-Disciplinary	https://zenodo.org/	DOI	YES
DBFZ	**OpenAgrar and Zenodo**	Multi-Disciplinary	www.openagrar.de/content/index.xml https://zenodo.org/	DOI	YES
FLANAT	**Zenodo**	Multi-disciplinary	https://zenodo.org/	DOI	YES
ICARDA	**Zenodo**	Multi-Disciplinary	https://zenodo.org/	DOI	YES
IFVNCS	**FiVeR**[5]	Institutional	https://fiver.IFVNCS.rs	NYA	YES
INRAT	**Zenodo**	Multi-Disciplinary	https://zenodo.org/	DOI	YES

[5] FiVeR is a trusted institutional repository of the Institute of Field and Vegetable Crops, Novi Sad (IFVNCS). The repository is OpenAIRE validated (information visible on website), registered in OpenDOAR, and harvested by CORE and BASE. The repository uses a DSpace-based software platform developed and maintained by the University of Belgrade Computer Centre (RCUB). The software platform is compliant with the OpenAIRE Guidelines for Literature Repositories v3. Explicit information about the repository policies and services is available online at http://fiver.IFVNCS.rs/Files/policy-fiver-en.html.

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Partner	Repository name	Type	URL	PID	OpenAIRE compliant ?
NVMT	**Zenodo**	Multi-Disciplinary	https://zenodo.org/	DOI	YES
PEDAL	**Zenodo**	Multi-Disciplinary	https://zenodo.org/	DOI	YES
PULS	**RepOD**	General purpose	https://repod.icm.edu.pl/dataverse/UPP	DOI	YES
SAIPOL	**Zenodo**	Multi-Disciplinary	https://zenodo.org/	DOI	YES
SPANISH CO-OPS	**Zenodo**	Multi-Disciplinary	https://zenodo.org/	DOI	YES
TI	**Zenodo**	Multi-Disciplinary	https://zenodo.org/	DOI	YES
KIMITEC	**Zenodo**	Multi-Disciplinary	https://zenodo.org/	DOI	YES
RSB	**Zenodo**	Multi-Disciplinary	https://zenodo.org/	DOI	YES
NUSEED	**Zenodo**	Multi-Disciplinary	https://zenodo.org/	DOI	YES
FAECA*	**Zenodo**	Multi-Disciplinary	https://zenodo.org/	DOI	YES
FACA*	**Zenodo**	Multi-Disciplinary	https://zenodo.org/	DOI	YES
URCACYL*	**Zenodo**	Multi-Disciplinary	https://zenodo.org/	DOI	YES
CACLM*	**Zenodo**	Multi-Disciplinary	https://zenodo.org/	DOI	YES
FCAC*	**Zenodo**	Multi-Disciplinary	https://zenodo.org/	DOI	YES

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* SPANISH CO-OPS will take care of the data collected by its affiliated entities. All the data will be collected and shared together.

For each deposited data set, all relevant documentation explaining data collection procedures and analysis (such as codebooks, methodologies, etc.) will be made available along with the data to guarantee intelligibility, reproducibility and the validation of the project findings. Moreover, the deposited documentation specifies the tools and software recommended to reproduce and reuse the data, when necessary. (See Table3 for examples of tools and software enabling reuse of the dataset). Open-data repository for long-term preservation data, such as Zenodo, will be used for open dissemination and preservation of research data by all research teams that do not have suitable institutional, national, or disciplinary data repositories.

2.3 Making data interoperable

All data sets will be described using standard descriptive metadata such as Dublin Core and DataCite Metadata Schema in order to ensure metadata interoperability for indexing and discoverability. All relevant documentation explaining codebooks, users' manuals, data collection procedures and analysis will be made available along with the data in order to guarantee intelligibility, reproducibility and the validation of the project findings.

To allow data exchange and re-use among researchers, institutions, organisations, countries, etc., partners will convert all shareable data from proprietary formats and will made them available in well-known and documented open formats (see Table 1 for details), as much as possible compliant with available (open) software applications.

In particular case[6], software is used in data processing, full explanation and instructions will be included in the deposited documentation (a summary of the tools and software necessary to reuse of data sets is described in Table 3). Sometimes, the fact sheets will

[6] SYSTERRE® (ARVALIS) is a tool used to describe practices and calculate a set of indicators designed to assess the technical, economic and environmental performance of cropping systems. Based on the description of agricultural practices and strategy, SYSTERRE calculates and generates a set of indicators to assess the technical, economic and environmental performance of productions and then, to build innovative alternatives in terms of sustainability. SYSTERRE® uses scientifically recognized standardized methods to calculate a panel of 20 indicators. These indicators can be classified in 3 categories: technical indicators such as working time and number of tool passes, fuel consumption, etc., economic indicators such as economic efficiency of inputs, mechanization costs, margins, production costs, etc., and input use and environmental indicators such as overall nitrogen balance and mineral balance, TFI (treatment frequency index), energy production and consumption, greenhouse gas emissions, etc. This strategic decision support tool can be used for farm advisory services, student training, as well as experimenting with cropping systems.

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be created based on available recent literature selected by a key-word search in web of science as well as relevant policy documents.

Table 3 – Summary of tools and software for enabling re-use of the data sets

Tools/software
Open spreadsheet and document editors, such as OpenOffice or LibreOffice
free CSV file viewers, such as CSV viewer
MS Excel (.xls/.xlsx .csv)
Excel and MATLAB to manage and perform statistics
SYSTERRE® (online tool to describe diversified cropping systems, to calculate their performances, and assess their sustainability)
PESTEL data base, SWOT/TOWS matrix analysis
CAQDAS, NVivo, Alfasoft
Life cycle assessment Cost benefit Focus group Delphi consultation
Chromatographic analysis
Survey123 & RnDexp
SOP for experimental designs and data collection.

Data produced are related to:

- Field trials, laboratory analyses, living lab activities, biopesticide (bioherbicides and bioinsecticides) tests; biostimulator germination tests, biochemical analyses, soil analyses, (WP1&WP2);
- WP3 outputs, WP1 co-design workshops, WP4 and WP5 for living labs and policy innovation labs;
- WP3 multi criteria assessment, WP4 and WP5 for living labs and policy innovation labs;
- D6.1 Dissemination, communication and exploitation plan, 1st version;
- Data collected in WP5 data (Task 5.3) can be used for WP3 and WP4 and WP5 (task 5.4);
- Results will be used directly in 3.1.2 for bottom-up review.

2.4 Increase data re-use

CARINA distributes the shareable data by adopting licenses that allow re-use of the data and of the data sets in their entirety by other scholars and stakeholders. The data sets will be made available under CC BY licenses, a Public Domain Dedication (CC 0) Creative Commons Attribution 4.0 International (CC BY 4.0[4]) license or equivalent. The

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CC BY 4.0 license permits users to freely share, modify, and use the data, subject only to full credit to the author(s).

As an exception, if the access would be against the beneficiaries' legitimate interests, the beneficiaries must grant nonexclusive licenses — under fair and reasonable conditions — to legal entities that need the research output to address the public emergency and commit to exploit the resulting products and services rapidly and broadly at fair and reasonable conditions. This provision applies up to four years after the end of the action.

However, the DMP will specify if different re-use licenses need to be applied to specific data/research outputs upon motivations. The deposited data/research outputs will be made available along with relevant documentation explaining data collection/generation procedures and analysis (e.g., codebooks, methodologies, etc.) and instructions about any tool/software/model that may be necessary for data/research outputs validation, interpretation, and re-use. Moreover, shareable data will be converted from proprietary formats and will made them available in standard documented, and possibly open, formats. The quality of the data will be carefully assured through:

- Double-checking by the members of research teams.
- Quality reviewers checking.
- Regular check for errors, duplicates, or inconsistencies by creating a filter in (.xls) file.
- Applying rules of good scientific practice.
- Excel data cleaning from duplication and empty values.
- Planned system of review procedures by personnel not directly involved in the dataset development process.
- Statistical Analysis.
- Internal and external quality review, assessment, and supervision, also by company legal affairs.

Metadata of deposited data will be open available under a Creative Common Public Domain Dedication (CC 0) or equivalent. Metadata will remain available and findable indefinitely. Metadata will be published and shared among parties on the official repository of Carina projects, on Deliverables and on the official webpage. As far as possible, during the lifespan of the project data will be available on public domain as non-restricted data.

Besides their deposition in trusted repositories, which will grant their re-usability by third parties after the end of the project, data are given full citation from official project publications and web sites.

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3. Other research outputs

Some research outputs have been produced so far as conference abstracts.

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4. Allocation of resources

Making data FAIR requires an investment of money and researchers' time. In the CARINA case, each partner generating or reusing research data is responsible for their quality, organization, management, and secure storage during the research and for their deposit for publication and preservation according, to the instructions provided in the project. The costs of data collection, quality check, cleaning and conversion to open formats, anonymization, pseudo-anonymization, description and documentation (codebooks, instructions, tools) are included in estimated costs of each partner and UNIBO as coordinator and responsible for the DMP (6 PM) for the whole duration of the project.

During the project, a cloud storage solution (such as OneDrive/Sharepoint) will be adopted to share data among partners. The cost to activate and maintain it for the duration of the project will be covered by the project budget. Responsible for data management are the data set creators (see Table 4). Researchers are encouraged to identify themselves with the unique persistent identifier ORCID[7]. Registration is free of charge for researchers and allows for automated linkages between the researched identity and his research activities and outputs.

Table 4 - Summary and contacts team leader

WP no	WP Name	Team	Contact	ORCID ID (if available)	Mail
WP1	Designing and implementing innovative and sustainable farming systems	**ARVALIS**	**Marsac, Sylvain**	**NYA**	s.marsac@arvalis.fr
WP2	Full biomass valorisation with a circular economy approach	**KIMITEC**	**Herrero, Joaquin**	**NYA**	joaquinherrero@kimitec.com
WP3	Integrated sustainability assessment of the new bio-based CARINA systems	**DBFZ**	**Riedel, Fabian**	**NYA**	fabian.riedel@dbfz.de
WP4	Co-creation of policy interventions for feedstock provision and certification in	**UNIBO**	**Vittuari, Matteo**	https://orcid.org/0000-0003-4327-1575	matteo.vittuari@unibo.it

[7] Registration is free of charge for researchers and allows for automated linkages between the researched identity and his research activities and outputs. https://orcid.org/

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	CARINA bio-based value chains				
WP5	Social Innovation to scale-up CARINA solutions for bio-based agricultural production systems	**SPANISH CO-OPS**	**Sagarna, Juan**	**NYA**	sagarna@agroalimentarias.coop
WP6	Dissemination, Communication and Exploitation	**PEDAL**	**Mester, Gabor**	**NYA**	g.mester@pedal-consulting.eu
WP7	Coordination & Management	**UNIBO**	**Monti**, **Andrea** (Project Coordinator)	https://orcid.org/0000-0003-3480-726X	a.monti@unibo.it

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Table 4.1 – Summary and contacts team leader of the Data Set Creators

Team	Data Set Creator	ORCID ID (if available)	Mail
UNIBO	Monti Andrea	https://orcid.org/0000-0003-3480-726X	a.monti@unibo.it
	Zanetti Federica	https://orcid.org/0000-0003-4729-2082	federica.zanetti5@unibo.it
	Matteo Vittuari	https://orcid.org/0000-0003-4327-1575	matteo.vittuari@unibo.it
ARVALIS	Marsac, Sylvain	NYA	s.marsac@arvalis.fr
AUP	Marcheva, Marina	https://orcid.org/0000-0002-7568-7025	marina.marcheva@gmail.com
CCE	Prieto, Javier	https://orcid.org/0000-0002-7825-9042	javier.prieto@camelinacompany.es
CRES	Alexopoulou, Efthymia	https://orcid.org/0000-0001-6494-0462	ealex@cres.gr
DBFZ	Riedel, Fabian	NYA	fabian.riedel@dbfz.de
	Siegfried, Konrad	https://orcid.org/0000-0003-3773-2187	konrad.siegfried@dbfz.de
	Schindler, Harry	https://orcid.org/0000-0002-8890-6418	harry.schindler@dbfz.de
	Garcia Laverde, Laura		Laura.Garcia@dbfz.de
FLANAT	Vallelonga, Daniela	https://orcid.org/0009-0003-4588-6968	rd@flanat.com
ICARDA	Sripada, Udupa	https://orcid.org/0000-0003-3846-7039	s.udupa@cgiar.org
IFVNCS	Jovičić, Dušica	https://orcid.org/0000-0002-7373-5249	dusica.jovicic@IFVNCS.ns.ac.rs
	Gvozdenac, Sonja	https://orcid.org/0000-0001-9366-5172	sonja.gvozdenac@IFVNCS.ns.ac.rs
	Malidža, Goran	https://orcid.org/0000-0003-0540-842X	goran.malidza@IFVNCS.ns.ac.rs
	Vasin, Jovica	https://orcid.org/0000-0002-9407-5470	jovica.vasin@IFVNCS.ns.ac.rs
	Marjanović-Jeromela, Ana	https://orcid.org/0000-0002-7663-0696	ana.jeromela@IFVNCS.ns.ac.rs

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Team	Data Set Creator	ORCID ID (if available)	Mail
	Kiprovski, Biljana	https://orcid.org/0000-0002-0327-1768	biljana.kiprovski@IFVNCS.ns.ac.rs
INRAT	Trabelsi, Imen	https://orcid.org/0000-0002-5781-8730	Trabelsiimen11@yahoo.fr
NVMT	Capuzzi, Luigi	NYA	strategic.projects@novamont.com
PEDAL	Mester, Gabor	NYA	g.mester@pedal-consulting.eu
PULS	Stuper-Szablewska, Kinga	https://orcid.org/0000-0002-9011-8592	kinga.stuper@up.poznan.pl
SAIPOL	Tonin, Perrine	NYA	perrine.tonin@groupeavril.com
SPANISH CO-OPS	Sagarna, Juan	https://orcid.org/0000-0003-4779-5878	sagarna@agro-alimentarias.coop
	Fernandez, Pablo	NYA	fernandez@agro-alimentarias.coop
TI	Allard, Louis-Marie	NYA	lm.allard@terresinovia.fr
	Jamet, Domitille	NYA	d.jamet@terresinovia.fr
KIMITEC	Herrero, Joaquin	NYA	joaquinherrero@kimitec.com
RSB	De Ulibarri, Blanca	NYA	blanca.deulibarri@rsb.org
KIMITEC	Henriques, André	NYA	andrehenriques@kimitec.com
	Rodriguez, Julia	NYA	julia.rodriguez@kimitec.com
NUSEED	Rehman, Aziz	https://orcid.org/0000-0003-3846-7039	aziz.rehman@nuseed.com

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Table 5 – Summary of team members involved in the data sets collection and management

Team	Member	ORCID ID (if available)	Role
UNIBO	Zanetti, Federica	https://orcid.org/0000-0003-4729-2082	**Data collector/Researcher**
	Martelli, Luca	NYA	**Data collector/Researcher**
	Vittuari, Matteo	https://orcid.org/0000-0003-4327-1575	**Data collector/Researcher**
	Vicinanza, Andrea	https://orcid.org/0009-0005-0318-3206	**Data collector/Researcher**
	Mancini, Lucia	https://orcid.org/0000-0002-1153-795X	**Data collector/Researcher**
	Amadori, Simone	https://orcid.org/0009-0005-6179-6991	**Data collector/Researcher**
	Nozzoli, Andrea	https://orcid.org/0009-0000-8439-0138	**Data collector/Researcher**
	Stanzani, Giulia	https://orcid.org/0009-0002-0101-3172	**Data collector/Researcher**
	Guerrieri, Valentina	https://orcid.org/0000-0002-4508-8355	**Data collector/Researcher**
	Niero, Anna	https://orcid.org/0009-0002-0101-3172	**Data collector/Researcher**
IFVNCS	Rajković, Dragana	https://orcid.org/0000-0002-0115-7312	**Project member/Researcher**
	Mihić, Ružica	NYA	**Project member/Technical staff member**
	Kantardžić, Milica	NYA	**Other – Laboratory associate**
	Milovac, Zeljko	https://orcid.org/0000-0002-6152-6538	**Project member / Researcher**
	Franeta, Filip	https://orcid.org/0000-0002-4391-0915	**Project member / Researcher**
	Milić, Stanko	https://orcid.org/0000-0001-7673-9969	**Project member / Researcher**
FLANAT	Vallelonga, Daniela	https://orcid.org/0009-0003-4588-6968	**Project member / Researcher**
	Ardemani, Elisa	NYA	**Project member / Researcher**
	Scorza, Virginia	NYA	**Project member / Researcher**
	Longhi, Giulia	NYA	**Project member / Researcher**
	Fatone, Tiziana	NYA	**Project member / Researcher**
ARVALIS	Rouillon, Clotilde	NYA	**Project member**
	Viguier, Loïc	NYA	**Project member**
	Estienne, Marie	NYA	**Project member**
CCE	García, Lucas	NYA	**Data Collector**
	Gil Fernando	NYA	**Data Collector & Project Member**
	León, Paloma	NYA	**Data Collector & Project Member**
	Capuano, Aníbal	NYA	**Data Collector & Project Member**
SAIPOL	Dufour, Cedric	NYA	**Data Collector & Project Member**

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Team	Member	ORCID ID (if available)	Role
UNIBO	Zanetti, Federica	https://orcid.org/0000-0003-4729-2082	**Data collector/Researcher**
	Martelli, Luca	NYA	**Data collector/Researcher**
	Vittuari, Matteo	https://orcid.org/0000-0003-4327-1575	**Data collector/Researcher**
	Vicinanza, Andrea	https://orcid.org/0009-0005-0318-3206	**Data collector/Researcher**
	Mancini, Lucia	https://orcid.org/0000-0002-1153-795X	**Data collector/Researcher**
	Amadori, Simone	https://orcid.org/0009-0005-6179-6991	**Data collector/Researcher**
	Nozzoli, Andrea	https://orcid.org/0009-0000-8439-0138	**Data collector/Researcher**
	Stanzani, Giulia	https://orcid.org/0009-0002-0101-3172	**Data collector/Researcher**
	Guerrieri, Valentina	https://orcid.org/0000-0002-4508-8355	**Data collector/Researcher**
	Niero, Anna	https://orcid.org/0009-0002-0101-3172	**Data collector/Researcher**
IFVNCS	Rajković, Dragana	https://orcid.org/0000-0002-0115-7312	**Project member/Researcher**
	Mihić, Ružica	NYA	**Project member/Technical staff member**
	Kantardžić, Milica	NYA	**Other – Laboratory associate**
	Milovac, Zeljko	https://orcid.org/0000-0002-6152-6538	**Project member / Researcher**
	Franeta, Filip	https://orcid.org/0000-0002-4391-0915	**Project member / Researcher**
	Milić, Stanko	https://orcid.org/0000-0001-7673-9969	**Project member / Researcher**
INRAT	Annabi, Mohamed	https://orcid.org/0000-0001-6305-5824	**Project member**
TI	Auque, Julie,	NYA	**Project member**
	Jamet, Domitille	NYA	**Data Collector & Project Member**
AUP	Marcheva, Marina	https://orcid.org/0000-0002-7568-7025	**Project manager/Researcher**
RSB	De Ulibarri, Blanca	NYA	**Project manager/Researcher**
	Hegel, Esther	NYA	**Project manager/Researcher**
	Entrena, Eduardo	NYA	**Project manager/Researcher**
NUSEED	Eren, Dincer	NYA	**Data collector**

Keys for "Role" column: Data Collector (such as survey conductors, interviewers…), Producer (person responsible for the form of a media product), Project Member (a researcher indicated in the GA), Researcher (an assistant to one of the authors who helped with research, data collection, processing and analysis but is not part of team indicated in the GA), Research Group (the name of a research institution or group that contributed to the data set).

(See *Annex I* for details about data management responsibilities related to each project data set).

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5. Data security

At each institution, research data will be stored in computers, laptops, intranets or hard-drives accessible through institutional password periodically modified according to national law provisions for data security and protected by regularly updated antiviruses. None of the project data will be left inadvertently available. All the research materials stored in computers are subject to regular backup in order to safeguard them from accidental losses.

Table 5.1 - Data security measures

Partner	Data security
IFVNCS	Three back-ups (researcher`s computer, USB drive or hard drive, and remote in-house approved space)
CCE	Two back-ups: researcher`s computer, and remote in-house approved space protected by passwords
UNIBO	Encrypted servers of UNIBO
PEDAL	Storage on cloud service (e.g., GDPR); data security controls.
NVMT	Data accessible only with restricted company VPN access.
DBFZ	Data are archived for at least 10 years. Storage and backup of electronic data during the project in cooperation with the IT service unit. SharePoint project folder including raw data. DBFZ's "Rules of Good Scientific Practice" (DA 3-03, DA=service instruction of DBFZ).
RSB	Internal repository for backup
SAIPOL	Data will be secured and backed-up on Saipol's IT infrastructure
FLANAT	Data will be backed-up on internal server and protected by passwords
ICARDA	Data recovery
INRAT	Storage in back up storage spaces
TI	The tools are linked (Survey & RnDExp) several back-ups are stored on our computer server
AUP	Digital science repository (http://lib.au-plovdiv.bg:8081/aupsp/) for long term safe storage of the data
NUSEED	Storage in a secured database with regular backups
ARVALIS	Storage in internal institutional servers with back up storage spaces and historical versions registration
PULS	In accordance with the 3-2-1 principle and the safe data storage guidelines backup copies of research data are made in the OneDrive cloud service in the work Office 365 account

All data will be password protected. If mobile devices are used to store data files (e.g., backup files), they will be kept in a safe place accessible only to the researchers involved

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or will be encrypted with ad-hoc software. A cloud storage solution (such as One Drive) adopted for data sharing among research teams. In this case, as well, regular backup of the data will be performed to ensure data recovery.

In addition, all Partners are asked to keep local updated copies of all their files. *Long term digital preservation* of public data is ensured by the chosen data repositories that have specific preservation policies. All personal data collected within the project from questionnaires, interviewers, surveys, will be carefully protected in compliance with Regulation (UE) 2016/679 - General Data Protection Regulation (GDPR), and following the European Code of Conduct for Research Integrity and the project Ethics Requirements Document. Data and information collected from questionnaires and interviews will be disseminated and published only in an aggregate and/or anonymous form. Publications report aggregate data or excerpts and will not contain information that may permit the identification of individual participants. Qualitative data files will be published as long as any information that can lead to identification of an individual participant could be deleted.

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6. Ethics

CARINA project aims to foster the transition towards higher diversified farming systems through a participatory approach engaging farmers and other stakeholders in jointly developing agricultural solutions under specific environmental, technical, and social conditions. The CARINA proposal has been designed to better meet these requirements paying great attention to a participant approach and the active role of lighthouses and living labs in all its work packages and in the collective decision-making processes along the project. The action must be carried out in line with the highest ethical standards and the applicable EU, international and national law on ethical principles. Regarding the research activities in non-European countries, the ethics standards and guidelines of Horizon Europe will be rigorously applied, regardless of the country in which the research takes place. The Consortium confirms that compliance with ethical principles and applicable international, EU and national law in the implementation of research activities not originally envisaged (or not described in detail) in the DoA will be ensured. The Consortium also confirms that any ethical concerns raised by those activities will be handled following rigorously the recommendations provided in the European Commission Ethics Self-Assessment Guidelines. The transfer of data on human subjects to the CARINA repository is only considered upon informed consent. All data shall be anonymized. In specific cases and if needed, the affiliation of the participants might be shown to the local multi stakeholder platform, after signing an informed consent of all participants. The Data Owner/Data Provider is responsible for the anonymization or pseudonymization process and for ensuring that identifiable variables are not transferred. Directly identifiable variables include - but are not limited to - name, gender, affiliation, phone number, ZIP-code, e-mail address, gender, address. In this context, the Data Owner/Data Provider shall only provide such variables at the lowest possible resolution that is necessary to for analysis, e.g., region instead of address.

Ethics clearance

Regarding the use of bio-pesticides within the research activities, reference is made to the ethic clearance validated by the European Commission on 2022.05.31.

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7. Other issues

None at the moment.

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8. Data set overview

The following table (Table 6) offers an overview of the data sets expected from the project which are described in more detail in *Annex I*. It will be updated according to DMP changes and variations.

Table 6 – Data sets list

Table acronyms and abbreviations: n°= data set progressive number, LB = WP lead beneficiary, PP = project phase (starting month-ending month), CT = creator team in charge of curating the data set, C=collected, G=generated, A=available, IP=in progress, NYA=not yet available.

n°	WP	LB	TASK	PP	CT	DATA SET Title	STATUS
1	1	ARVALIS	Task 1.1	1-48	ARVALIS	*CARINA.WP1.T1.1. Lighthouses*	IP
2	1	ARVALIS	Task 1.2	1-48	UNIBO	*CARINA.WP1.T1.2. Cash cover cropping*	IP
3	1	ARVALIS	Task 1.3	1-48	PULS	*CARINA. WP1.T1.3. Intercropping systems*	IP
4	1	ARVALIS	Task 1.2/1.3	1-48	IFVNCS	*CARINA.WP1.T1.2_T1.3. Field Trials Serbia.V1*	A
5	1	ARVALIS	Task 1.2/1.3	1-48	IFVNCS	*CARINA.WP1.T1.2_T1.3. Biochemical Analyses Serbia.V1*	A
6	1	ARVALIS	Task 1.4	1-48	CRES	*CARINA.WP1.T1.4. Marginal land*	IP
1	2	KIMITEC	Task 2.2	4-42	NVMT	*CARINA.WP2.T2.2.CarinataOilValorisation_NOVAMONT_Italy*	IP
2	2	KIMITEC	Task 2.2	4-42	PULS	*CARINA.WP2.T2.2. Seed quality. V1*	IP
3	2	KIMITEC	Task 2.3	6-30	SAIPOL	*CARINA.WP2.T2.3. Animal feed. v1*	IP
4	2	KIMITEC	Task 2.4.2	3-42	FLANAT	*CARINA.WP2.T2.4.2. products valorization polysaccharides. V1*	IP
5	2	KIMITEC	Task 2.5	6-36	KIMITEC	*CARINA.WP2.T2.5.Physical-chemical characterization. v1*	IP
6	2	KIMITEC	Task 2.5	6-36	KIMITEC	*CARINA.WP2.T2.5.Bioherbicide.V1*	IP
7	2	KIMITEC	Task 2.5	6-36	KIMITEC	*CARINA.WP2.T2.5. Bioinsecticide.V1*	IP
8	2	KIMITEC	Task 2.5.2	12-36	KIMITEC	*CARINA.WP2.T2.5. Bioherbicide.V1*	IP
9	2	KIMITEC	Task 2.5.2	12-36	IFVNCS	*CARINA.WP2.T2.5.2. Biostimulator Germination Tests Serbia.V1*	A
10	2	KIMITEC	Task 2.5.4	6-18	KIMITEC	*CARINA.WP2.T2.5.4. Deep phenotyping. V1*	IP
11	2	KIMITEC	Task 2.5.5	6-36	IFVNCS	*CARINA.WP2.T2.5.5. Bioinsecticide Tests Serbia.V1*	A
12	2	KIMITEC	Task 2.5.5	6-36	IFVNCS	*CARINA.WP2.T2.5.5. Bioherbicide Tests Serbia.V1*	A
1	3	DBFZ	Task 3.1.1	1-6	DBFZ	*CARINA.WP3.T3.1.1. Sustainability indicators long list. V1*	IP
2	3	DBFZ	Task 3.1.2	8-12	UNIBO	*CARINA.WP3.T3.1.2. Final sustainability indicators. V1*	IP
3	3	DBFZ	Tasks 3.1.4 – 3.2-3.3-3.4-3.5	1-48	ARVALIS	*CARINA. WP3.1.4. Indicator database*	IP
4	3	DBFZ	Task 3.2	13-36	UNIBO	*CARINA.WP3.T3.2. Economic impact assessment*	IP
5	3	DBFZ	Task 3.3	13-36	UNIBO	*CARINA.WP3.T3.3. Social impact assessment*	IP
6	3	DBFZ	Task 3.4	13-36	RSB	*CARINA.WP3.T3.4. GHG assessment_environmental_assessment. V1*	IP
7	3	DBFZ	Task 3.5.1	34-46	DBFZ	*CARINA.WP3.T3.5.1. Quantification of synergic_integration indicators. V1*	IP
1	4	UNIBO	Task 4.1	36-40	DBFZ	*CARINA.WP4.T4.1. Policy landscape. V1*	IP

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2	**4**	**UNIBO**	**Task 4.3**	12-24	UNIBO	*CARINA.WP4.T4.3. Policy instruments. V1*	**IP**
3	**4**	**UNIBO**	**Task 4.4**	24-46	UNIBO	*CARINA.WP4.T4.4. Policy interventions. V1*	**IP**
1	**5**	**SPANISH CO-OPS**	**Tasks 5.1-5.2-5.3**	1-46	SPANISH CO-OPS	*CARINA.WP5. Stakeholder's feedback. V1*	**IP**
1	**6**	**PEDAL**	**Task 6.1**	1-48	PEDAL	*CARINA.WP6.T6.1. Website & social media analytics. V1*	**IP**
2	**6**	**PEDAL**	**Task 6.1**	1-48	PEDAL	*CARINA.WP6.T6.1. Dissemination and communication activities.V1*	**IP**
3	**6**	**PEDAL**	**Task 6.1**	1-48	PEDAL	*CARINA.WP6.T6.1. Newsletter subscription.V1*	**IP**
4	**6**	**PEDAL**	**Task 6.2**	1-48	PEDAL	*CARINA.WP6.T6.2. project events stakeholder engagement.V1*	**IP**

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Annex I: Data set tables

The analytic descriptions of the expected data sets of CARINA project are reported in this Annex organized by work-packages. For each data set the following elements will be defined:

- dataset name and description - including origin (if collected), scale and possible use and impact of the data;
- metadata and standards;
- details on data sharing, open access dissemination and licensing.

In case parts of the data cannot be openly shared, each partner responsible of the dataset generation will provide motivations.

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WP1 – Designing and Implementing Innovative and Sustainable Farming Systems

In WP1 the CARINA farming systems will be implemented in demo fields in 9 EU and associated countries. The new systems will be benchmarked to conventional farming systems as identified by the lighthouses. The likely most suitable carinata genotypes will be supplied by NUSEED to all the partners, depending on growing conditions and cropping scheme, whereas camelina cultivars will be provided by CCE (spring and winter types) and PULS (winter types). The innovative cropping systems co-designed in the local Lighthouses will be evaluated in comparison with conventional local systems (reference) in 9 countries addressing carinata and camelina in 3 cropping systems (i.e., double cropping, intercropping and marginal land). In the intercropping systems (co-growth of two or more species together in time and space) the companion food species of carinata and camelina will be identified within the Lighthouses. Food species will be the main crop. When the food crops have not completely synchronized cycle lengths with carinata or camelina, a relay-cropping system (defined as partial intercropping where the seeding of one crop occurs into another standing crop) will be adopted.

Objective: the specific objective is to design and implement new site-specific primary production systems on farm-scale. The new systems will be thoroughly analysed within the lighthouses to co-create and develop innovative and sustainable technical solutions.

Lead: **ARVALIS**

Participants: **UNIBO, ARVALIS, AUP, CCE, CRES, ICARDA, IFVNCS, INRAT, NMNT, PULS, SPANISH CO-OPS, TI, NUSEED, FLANAT**

Months: **1-48**

1	IP	*CARINA.WP1.T1.1. Lighthouses*
ID [ID type]		NYA
Chosen repository		ZENODO - https://zenodo.org/[8]
Version		V1
Team in charge		**ARVALIS**
Creator/s		Marsac, Sylvain (ARVALIS)

[8] Repositories agreed upon in the CARINA Grant Agreement and Systerre online platform with specific user accounts (use agreement CG177500178). Data and publications validated and authorized by CARINA project will be accessible through validated repositories agreed upon in the CARINA Grant Agreement.

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Contributor/s	Marsac, Sylvain; Rouillon Clotilde, Viguier Loïc, Estienne Marie, Louise Hermet (ARVALIS) UNIBO, CCE, TI, CRES, INRAT, ICARDA, IFVNCS, NUSEED, PULS, AUP, NUSEED, NVMT, FACA, FAECA, URCACYL, UCAMAN, FCAC
Contact Person/s	Marsac, Sylvain (ARVALIS - s.marsac@arvalis.fr)
Contents	This dataset refers also to CARINA task 1.1. Innovative farming systems will be co-designed with different stakeholders (entrepreneurs, practitioners, academia, decision makers, NGOs, etc.) to build-up ideas and co-design innovative, diversified and sustainable farming systems including camelina and carinata as cash-cover, inter- or relay cropping in different lands. Specific tools could be used to formalize/analyse the innovative cropping systems (e.g., Systerre). Data will be generated collected through workshops, cross-visits, demonstrations, trials and centralised in an Excel spreadsheet to facilitate data transfer and analysis among partners. Several lighthouses will be organized as a "container" for a systematic user cocreation approach in France, Italy, Spain, Greece, Serbia, Morocco, Poland, Bulgaria and Tunisia including farmers, entrepreneurs, practitioners, academia, decision makers, NGOs, and other stakeholders, to build up ideas and co-design innovative, diversified and sustainable farming systems including camelina and carinata as cash-cover, inter- or relay cropping in fertile or marginal land. Threats, risks, and opportunities from the introduction of these farming systems will be thoroughly analysed using different meeting tools (e.g., quarterly online meetings, mobile apps, dedicated forum on the website (WP6). One workshop (and field visits) a year will be also organised at each experimental site to share results, success factors and technical constraints with local stakeholders. Feedbacks from T1.2 to T1.4 will also help improving the CARINA farming systems.
Data format	Numerical, digitized, quantitative, derived, excel (.xls, xlsx, .csv), photos (jpg)
Data volume	Final volume of data to be determined
Accessibility	Where possible data will be shared with a CC BY license.
Related publication/s	IP

2	**IP**	***CARINA.WP1.T1.2. Cash cover cropping***
ID [ID type]		NYA
Chosen repository		ZENODO - https://zenodo.org/[9]
Version		V1
Team in charge		**UNIBO**
Creator/s		Federica Zanetti (UNIBO)
Contributor/s		ARVALIS, AUP, IFVNCS, FLANAT, TI, CRES, NUSEED, CCE, INRAT, ICARDA
Contact Person/s		Federica Zanetti (UNIBO, federica.zanetti5@unibo.it)

[9] Repositories agreed upon in the CARINA Grant Agreement and Systerre online platform with specific user accounts (use agreement CG177500178). Data and publications validated and authorized by CARINA project will be accessible through validated repositories agreed upon in the CARINA Grant Agreement.

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Contents	This dataset will include data collected within Task 1.2. Double cropping [cash-cover crops (camelina or carinata) + food crops] allows, on one hand to planting two crops per year in the same land (> LER - land equivalent ratio), on the other to produce low-iLUC feedstock. Up to five farm-scale experimental fields (> 0.5 ha each field) will be sown for at least three consecutive growing seasons in each country. Moreover, bio-herbicides formulated in the WP2 (T2.2) will be tested on camelina and carinata aimed at anticipating the harvest time and seeding of the following food crop. In details, demo trials on both carinata and camelina will be established by UNIBO, ARVALIS, TI, IFVNCS, CRES, AUP, FLANAT, ICARDA and INRAT, while CCE will carry out demos only on camelina. The trials will be established for at least three growing seasons. The success stories will become at each demonstration site the lighthouse to be showcased to farmers and discussed with them to improve further the system. Results from T1.2 will be included in D1.3 and 1.4.
Data format	Numerical, graphical, visual, qualitative, raw, secondary, processed (.xls, .xlsx, .csv, .jpg)
Data volume	To be determined
Accessibility	Metadata will be made available under a CC0 license, while data acquired in the project will be made available under a CC BY license to allow access to the data in accordance with FAIR principles.
Related publication/s	IP

3	**IP**	***CARINA. WP1.T1.3. Intercropping systems***
ID [ID type]		NYA
Chosen repository		RepOD[10] - https://repod.icm.edu.pl/
Version		V1
Team in charge		**PULS**
Creator/s		Stuper-Szablewska Kinga (PULS),
Contributor/s		Stuper-Szablewska Kinga (PULS), (INRAT), AUP, IFVNCS, INRAT, ICARDA, CCE, NUSEED, PULS, CRES, ARVALIS, NVMT
Contact Person/s		Stuper-Szablewska Kinga (PULS, kinga.stuper@up.poznan.pl)
Contents		This dataset will concern camelina on-farm trial data from T1.3 on intercropping systems. Camelina or carinata will be sown simultaneously in the same field with food crops in autumn and/or spring. Food crops will be row-seeded, while camelina and carinata will be broadcasted or row-seeded. The two species (food crop + camelina or carinata) will be harvested at the same time, while seed separation will at processing plant. If concomitant food crops and camelina/carinata harvests will be not feasible, a relay-cropping (i.e., when a crop is seeded into a standing crop) will be implemented. Food crops (i.e., pulses, cereals, etc.) will be chosen locally, as identified in the co-

[10] RepOD is the institutional repository of the Poznań University of Life Sciences (PULS). The RepOD repository is labelled with metadata, presented in the deposited dataset. The metadata standard in the repository consists of the following information: Title, Author, Contact person, Description, Subject area, Key words, Associated publication, Grant information, Author Identifier (e.g. ORCID, if applicable). Such metadata will facilitate access to the data.

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	design workshops carried out in T1.1. Where possible in each trial site also the respective mono-cropping of the two crops will established to evaluate the LER of the intercropping systems. In details: intercropping trials including both carinata and camelina will be established by UNIBO, ARVALIS, IFVNCS, AUP, CRES, PULS, ICARDA and INRAT, while NVMT and CCE will work only on carinata and camelina respectively. The trials will be established for at least three growing seasons. Results from T1.3 will be included in D1.3 and 1.4.
Data format	Numerical, graphical, visual, qualitative, raw, secondary, processed (.xls, .xlsx, .csv, .jpg)
Data volume	To be determined
Accessibility	Metadata will be made available under a CC0 license, while data acquired in the project will be made available under a CC BY license to allow access to the data in accordance with FAIR principles.
Related publication/s	IP

4	**A**	***CARINA.WP1.T1.2_T1.3. Field Trials Serbia.V1***
ID [ID type]		https://hdl.handle.net/21.15107/rcub_fiver_5700 [HANDLE]
Chosen repository		FiVeR[11] (https://fiver.IFVNCS.rs)
Version		V1
Team in charge		**IFVNCS**
Creator/s		Marjanović-Jeromela, Ana (IFVNCS)
Contributor/s		Marjanović-Jeromela, Ana, Rajković, Dragana, Mihić, Ružica (IFVNCS)
Contact Person/s		Marjanović-Jeromela, Ana (IFVNCS - ana.jeromela@IFVNCS.ns.ac.rs)
Contents		This data set will contain information on field trials (crop species, genotype, field design, sowing and harvest time, applied agronomic practices and treatments with herbicides or fertilizers), yield data and the most important yield-related traits, images of the field trial and crops, and weather data (precipitation and temperature). The generated data will support conclusions on crop performance and may be useful to farmers. Weather data and data on cultivation practices will be used to support data on crop performance. Crop yield data will be used for analyses of crop performance and recommendation of best performing genotype/crop/cultivation practice. Photos from experimental fields will be used to support data on crop performance, and additionally used for project promotion on different means of communication channels. This data set is related to the following data sets produced

[11] FiVeR (https://fiver.IFVNCS.rs) is the trusted institutional repository of the Institute of Field and Vegetable Crops, Novi Sad (IFVNCS). The repository is OpenAIRE validated (information visible on website), is registered in OpenDOAR, and is harvested by CORE and BASE. The repository uses a DSpace-based software platform developed and maintained by the University of Belgrade Computer Centre (RCUB). The software platform is compliant with the OpenAIRE Guidelines for Literature Repositories v3. Explicit information about the repository policies and services is available online at http://fiver.IFVNCS.rs/Files/policy-fiver-en.html. The repository will assign handles (implementation pending). Its registration in https://www.re3data.org/ is pending. Although not yet certified, the repository follows best practice in terms of long-term preservation, as explained in the repository policy.

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	from field trials and laboratory analyses in Serbia: Carina.WP2.Biopesticide Tests Serbia.V1, Carina.WP2.Biostimulator Germination Tests Serbia.V1, Carina.WP1.Biochemical Analyses Serbia.V1, Carina.WP1.Soil Analyses Serbia.VI, Carina.WP2.Bioherbicide Tests SerbiaV1. In the repository, the links between related datasets will be established in the metadata of each dataset (field dc. Relation). This dataset will be related to publications which are not yet available.
Data format	Numerical (.xlsx .csv), textual (.doc, .txt), images (.tiff).
Data volume	Final volume: 67MB
Accessibility	Metadata will be made available under a CC0 license, while data acquired in the project will be made available under a CC BY license to allow access to the data in accordance with FAIR principles.
Related publication/s	IP

5	**A**	***CARINA.WP1.T1.2_T1.3. Biochemical Analyses Serbia.V1***
ID [ID type]		https://hdl.handle.net/21.15107/rcub_fiver_5702 [HANDLE]
Chosen repository		FiVeR (https://fiver.IFVNCS.rs)
Version		V1
Team in charge		**IFVNCS**
Creator/s		Kiprovski, Biljana (IFVNCS)
Contributor/s		Kiprovski, Biljana, Kantardžić, Milica (IFVNCS),
Contact Person/s		Kiprovski, Biljana (IFVNCS - biljana.kiprovski@IFVNCS.ns.ac.rs)
Contents		This data set will contain information on biochemical analyses of up to 1000 samples of plant material carried out in a laboratory. The analyses include contents of total oil, total proteins, pigments, starch and antioxidant tests. The results of these analyses include gravimetric (mass is measured on a scale), volumetric (volume is measured using volumetric vessels), spectrophotometric (absorbance of the solution is measured) and polarimetric (optical rotation of the solution is measured) measurements. The generated data will support conclusions on crop performance and quality of plant material aiming at improved primary production and may be useful to farmers. Biljana Kiprovski and Milica Kantardžić will generate and collect data from measurements. Both are responsible for calculations and processing of data. Data will be entered manually into Sample Receipt Book (F05.10.02) and Workbook (F05.10.03) and then digitized into tabular or textual files. PerkinElmer LAMBDA™ UV/Vis will generate data on spectrophotometry for the determination of pigment content and antioxidant tests. A wider research community can benefit from the data on biochemical analyses of the crops. Data could be used by farmers to adopt the best cultivation practices for crops used in the project. This dataset refers also to CARINA Task 1.3 and 2.5 (Demonstration of circularity).
Data format		Numerical (.xlsx, .csv), textual (.doc) converted into .txt before sharing.
Data volume		Final volume of data: 9MB
Accessibility		Metadata will be made available under a CC0 license, while data acquired in the project will be made available under a CC BY license to allow access to the data in accordance with FAIR principles.
Related publication/s		IP

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6	IP	*CARINA.WP1.T1.4. Marginal land*
ID [ID type]		NYA
Chosen repository		ZENODO - https://zenodo.org/
Version		V1
Team in charge		**CRES**
Creator/s		Alexopoulou, Efthymia (CRES) - ealex@cres.gr
Contributor/s		CCE, INRAT, ICARDA, NUSEED, AUP, PULS, NVMT, Spanish Co-ops, FACA
Contact Person/s		Alexopoulou, Efthymia (CRES - ealex@cres.gr)
Contents		This dataset will include data on the demo-trials established on marginal land. Abandoned land has been alarmingly increasing across Europe over the last decades mainly due to changing climatic conditions and commodities price. Camelina and carinata are broadly recognized as very resilient crops, requiring limited agronomic inputs for their cultivation, thus making them sound candidates for marginal/abandoned land. Both are investigated under marginal conditions (e.g., water scarcity and low fertility) in demo fields (> 0.5 ha) in 6 EU (Italy, Greece, Spain, Serbia, Poland and Bulgaria) and 2 Africa (Tunisia and Morocco) countries. The trials will be established for at least three growing seasons. Camelina and carinata will be grown as alternative to fallow land. Results from T1.4 will be included in D1.3 and 1.4.
Data format		Numerical, graphical, visual, qualitative, raw, secondary, processed (.xls, .xlsx, .csv, .jpg)
Data volume		Final volume of data to be determined
Accessibility		Metadata will be made available under a CC0 license, while data acquired in the project will be made available under a CC BY license to allow access to the data in accordance with FAIR principles.
Related publication/s		IP

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WP2 – Full Biomass Valorisation with a Circular Economy Approach

The full valorisation of the carinata and camelina feedstocks sourced from WP1, (i.e., oil, meal and coproducts derived from camelina and carinata), will be the focus of WP2. The oxidative cleavage of the oil will be applied and optimized by NVMT to convert erucic acid of carinata into brassilic and pelargonic acid from which obtaining several biodegradable products (brassilic acid) such as mulch films, pots, clips, and pheromone supports. Brassilic acid will be also tested for the synthesis of new biopolymers. Pelargonic acid will be evaluated for the formulation of biodegradable bioherbicides to be applied in WP1 on camelina and carinata fields thus ensuring the circularity of the process. Different compounds (glucosinolates (GLS) in carinata seeds and polysaccharides (mucilage/gum) in camelinaones reduce the possible palatability and inclusion rate of the two crops in different livestock meals, which wil be tested by SAIPOL. Additionally, active compounds from different residual parts of camelina and carinata seeds and plants will be recovered and formulated by KIMITEC and then tested for their activity as biopesticides and/or biostimulants.

Objective: the specific objective of this WP is to valorise the co-products of carinata and camelina through the extraction of molecules having different applications in the field of bioplastics, biochemicals, animal nutrition, biofuels, biostimulants and/or biopesticides.

Lead: **KIMITEC**

Participants: **PULS, SAIPOL, TI, CCE, NUSEED, NVMT, FLANAT, TI, IFVNCS**

Months: **3-48**

Potential users for the data sets of this WP include:

1	IP	*CARINA.WP2.T2.2.CarinataOilValorisation_NOVAMONT_Italy*
ID [ID type]		NYA
Chosen repository		ZENODO - https://zenodo.org/
Version		V1
Team in charge		**NVMT**
Creator/s		Capuzzi, Luigi (NVMT)
Contributor/s		SAIPOL, NVMT
Contact Person/s		Capuzzi, Luigi (NVMT - strategic.projects@novamont.com)

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Contents	The full valorisation of the carinata and camelina feedstocks sourced from WP1, i.e., oil, meal and coproducts derived from camelina and carinata, will be the focus of WP2. The oxidative cleavage of the oil will be applied and optimized by NVMT to convert erucic acid of carinata into brassilic and pelargonic acid from which obtaining several biodegradable products (brassilic acid) such as mulch films, pots, clips, and pheromone supports. Carinata oil will be processed to obtain dicarboxylic acids through chemical and biotechnological conversion of erucic acid into brassilic and pelargonic acid. More information will be made available in the next versions of this document because data will be used to patent.
Data format	Textual (.doc, .txt, .pdf), graphical, digitalized, qualitative and quantitative, raw, secondary, derived, cleaned, processed (.xls, xlsx, .csv)
Data volume	Final volume of data is expected to be 10 GB
Accessibility	Data will be kept closed because they are used to patent, therefore a Creative Commons license will not apply.
Related publication/s	IP

2	**IP**	***CARINA.WP2.T2.2. Seed quality. V1***
ID [ID type]		NYA
Chosen repository		Open Data Repository RepOD - https://repod.icm.edu.pl/dataverse/UPP
Version		V1
Team in charge		**PULS**
Creator/s		Stuper-Szablewska Kinga (PULS)
Contributor/s		NVMT, SAIPOL, PULS
Contact Person/s		Stuper-Szablewska Kinga (PULS - kinga.stuper@up.poznan.pl)
Contents		The full valorisation of the carinata and camelina feedstocks sourced from WP1, i.e., oil, meal and coproducts derived from camelina and carinata, will be the focus of WP2. The oxidative cleavage of the oil will be applied and optimized by NVMT to convert erucic acid of carinata into brassilic and pelargonic acid from which obtaining several biodegradable products (brassilic acid) such as mulch films, pots, clips, and pheromone supports. Carinata oil will be processed to obtain dicarboxylic acids through chemical and biotechnological conversion of erucic acid into brassilic and pelargonic acid. More information will be made available in the next versions of this document because data will be used to patent.
Data format		numerical, graphical, visual, qualitative, raw, secondary, processed (.xls, .xlsx, .jpg)
Data volume		To be determined
Accessibility		Metadata will be made available under a CC0 license, while data acquired in the project will be made available under a CC BY license to allow access to the data in accordance with FAIR principles.
Related publication/s		IP

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3	IP	*CARINA.WP2.T2.3. Animal feed. v1*
ID [ID type]		NYA
Chosen repository		ZENODO (recommended) - https://zenodo.org/
Version		V1
Team in charge		**SAIPOL**
Creator/s		PERRINE, Tonin (SAIPOL)
Contributor/s		Dufour, Cedric (SAIPOL), FLANAT, TI, SAIPOL
Contact Person/s		TONIN, Perrine (SAIPOL - perrine.tonin@groupeavril.com)
Contents		The goal of this Task is to find the optimal incorporation rate of camelina and carinata cake in meals. Moreover, meals will be evaluated in term of responses of livestock species. In collaboration with Mix-science (Avril group formulator), SAIPOL will carry out palatability tests of camelina- and carinata-based meals on cattle, poultry, pork (in vivo). Mix-science will perform in-vitro test and analyse dry matter and protein degradability and digestibility. Carinata and camelina cakes are interesting animal feeds due to their high protein content. Glucosinolates and other antinutritional compounds (e.g., polysaccharides) can however negatively impact the digestibility and palatability of the meal. The goal of this task is to find the optimal incorporation rate of camelina and carinata cake (2% to 20%) in meals.
Data format		raw data (.xls/.xlsx), textual (.doc/.docx) and PowerPoint (.ppt/.pptx, .pdf)
Data volume		Final volume of data is expected to be 10 MB
Accessibility		Metadata will be made available under a CC0 license, where possible, data will be made available under a CC BY license to allow access to the data in accordance with FAIR principles.
Related publication/s		NYA

4	IP	*CARINA.WP2.T2.4.2. products valorization polysaccharides. V1*
ID [ID type]		NYA
Chosen repository		ZENODO - https://zenodo.org/
Version		V1
Team in charge		**FLANAT**
Creator/s		Vallelonga, Daniela
Contributor/s		Ardemani, Elisa (FLANAT), CCE, TI, NUSEED (Task 2.4)
Contact Person/s		Vallelonga, Daniela (FLANAT - rd@flanat.com)
Contents		Camelina cake polysaccharide extraction (Leader: FLANAT, Participants: CCE) M3-42. The evaluation of camelina cake polysaccharide as a stabilizer agent for food-supplement, pharmaceutical and cosmetic formulations is the objective of this sub-task. Pressurized hot water (PHW), that works at lower temperature and three times

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	lower energy demand to heat pressurized water than in ambient conditions, will be investigated as extractant with the aim at recovering camelina cake polysaccharides. A static PHW autoclave-type extractor will be appropriately equipped, and all parameters and clarification steps will be tuned to attain the highest yield. This technology will be scaled-up to convert a classical plant into a PHW-extractor. Finally, this fraction will be introduced as stabilizer into a new food supplements line characterized by more stable and bioavailable nutrients, according to the need of innovative and more sustainable food stuffs. Results from this sub-task will be included in D2.5 and D 2.8.
Data format	Quantitative, Qualitative, Raw data (.xls/.xlsx)
Data volume	To be determined
Accessibility	Metadata will be made available under a CC0 license, while data acquired in the project will be made available under a CC BY license to allow access to the data in accordance with FAIR principles. Some data could not possible be shared openly due to confidentiality and IPR (Intellectual Property Right).
Related publication/s	IP

5	**IP**	***CARINA.WP2.T2.5.Physical-chemical characterization. v1***
ID [ID type]		NYA
Chosen repository		ZENODO (recommended) - https://zenodo.org/
Version		V1
Team in charge		**KIMITEC**
Creator/s		**Herrero, Joaquin** (KIMITEC)
Contributor/s		NVMT, CCE, IFVNCS, NUSEED, KIMITEC
Contact Person/s		**Herrero, Joaquin** (KIMITEC - joaquinherrero@kimitec.com))
Contents		This dataset refers also to CARINA *Subtask 2.5.1* (Research, development, and formulation of biostimulants). More information will be made available in the next versions of this document because data will be used to patent.
Data format		Quantitative (.xls/.xlsx) - textual (.doc/.docx)
Data volume		To be determined
Accessibility		Where possible data will be shared with a CC BY license. Some data could not possible be shared openly due to confidentiality and IPR.
Related publication/s		IP

6	**IP**	***CARINA.WP2.T2.5.Bioherbicide.V1***
ID [ID type]		NYA
Chosen repository		ZENODO (recommended) - https://zenodo.org/
Version		V1
Team in charge		**KIMITEC**
Creator/s		**Herrero, Joaquin** (KIMITEC)

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Contributor/s	NVMT, CCE, IFVNCS, NUSEED, KIMITEC
Contact Person/s	**Herrero, Joaquin** (KIMITEC - joaquinherrero@kimitec.com)
Contents	This dataset is also referred to CARINA *Subtask 2.5.3* (Research, development, and formulation of bio-pesticides). This subtask will regard Camelina and carinata de-oiled cakes will be studied and processed to maximize bioactive molecule extraction for the formulation of bio-pesticides. Special focus will be given to stability efficacy and shelf life of formulations under field conditions. More information will be made available in the next versions of this document because data will be used to patent.
Data format	JPEG (.jpeg, .jpg), MS Word (.doc/.docx), MS Excel (.xls/.xlsx).
Data volume	To be determined
Accessibility	Where possible data will be shared with a CC BY license. Some data could not possible be shared openly due to confidentiality and IPR.
Related publication/s	IP

7	**IP**	***CARINA.WP2.T2.5. Bioinsecticide.V1***
ID [ID type]		NYA
Chosen repository		ZENODO (recommended) - https://zenodo.org/
Version		V1
Team in charge		**KIMITEC**
Creator/s		Herrero, Joaquin (KIMITEC)
Contributor/s		NVMT, CCE, IFVNCS, NUSEED, KIMITEC
Contact Person/s		Herrero, Joaquin (KIMITEC - joaquinherrero@kimitec.com)
Contents		This dataset is also referred to CARINA *Subtask 2.5.3* (Research, development, and formulation of bio-pesticides) and CARINA Subtask 2.5.5 (Bioassays with pests and weeds). This subtask will regard Camelina and carinata de-oiled cakes will be studied and processed to maximize bioactive molecule extraction for the formulation of bio-pesticides. Special focus will be given to stability efficacy and shelf life of formulations under field conditions. More information will be made available in the next versions of this document because data will be used to patent.
Data format		JPEG (.jpeg, .jpg), MS Word (.doc/.docx), MS Excel (.xls/.xlsx).
Data volume		To be determined
Accessibility		Where possible data will be shared with a CC BY license. Some data could not possible be shared openly due to confidentiality and IPR.
Related publication/s		IP

8	**IP**	***CARINA.WP2.T2.5. Bioherbicide.V1***
ID [ID type]		NYA
Chosen repository		ZENODO (recommended) - https://zenodo.org/
Version		V1

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Team in charge	**KIMITEC**
Creator/s	Herrero, Joaquin (KIMITEC)
Contributor/s	KIMITEC - NVMT, CCE, IFVNCS, NUSEED (Task 2.5)
Contact Person/s	Herrero, Joaquin (KIMITEC - joaquinherrero@kimitec.com)
Contents	Small lab bio-tests will be performed in the laboratory phenotyping system. More information will be made available in the next versions of this document because data will be used to patent.
Data format	Qualitative, Quantitative, Numerical (.xls/.xlsx)
Data volume	To be determined
Accessibility	Where possible data will be shared with a CC BY license. Some data could not possible be shared openly due to confidentiality and IPR.
Related publication/s	IP

9 A	***CARINA.WP2.T2.5.2. Biostimulator Germination Tests Serbia.V1***
ID [ID type]	https://hdl.handle.net/21.15107/rcub_fiver_5701 [HANDLE]
Chosen repository	FiVeR (https://fiver.IFVNCS.rs)
Version	V1
Team in charge	**IFVNCS**
Creator/s	Jovičić, Dušica (IFVNCS)
Contributor/s	KIMITEC, IFVNCS, NVMT, CCE, NUSEED (Task 2.5)
Contact Person/s	Jovičić, Dušica (IFVNCS - dusica.jovicic@IFVNCS.ns.ac.rs)
Contents	This data set will contain information on laboratory trials (germination biotest in controlled conditions under optimal and stress conditions, germination energy, germination, shoot and root length, mean germination time, germination rate, germination potential, germination index, seedling speed index, antioxidative activity, vigour tests). The generated data will support conclusions on efficiency of the biostimulator preparations and may be useful to farmers. The researcher will generate, collect and process all the data from the data set. Data will be entered manually into workbooks and then digitized into tabular or textual files. Data generated in this dataset are directly relates to the objectives of the project regarding the efficiency of biostimulators. A wider research community can benefit from the data. Data could be used by farmers to adopt best cultivation practices regarding biostimulator use. More information will be made available in the next versions of this document because data might/will be used to patent.
Data format	.csv and .txt
Data volume	The final volume of data is 7 MB
Accessibility	Metadata will be openly available under CC0 licence. Metadata will remain available and findable indefinitely. The data will be openly accessible during and after the end of the project by converting the files to standard open formats. Data will be made available in a repository for dissemination, reports and publications, and they will be accessible through the standardized access protocol.
Related publication/s	IP

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10	IP	*CARINA.WP2.T2.5.4. Deep phenotyping. V1*
ID [ID type]		NYA
Chosen repository		ZENODO (recommended) - https://zenodo.org/
Version		V1
Team in charge		**KIMITEC**
Creator/s		Herrero, Joaquin (KIMITEC)
Contributor/s		KIMITEC - NVMT, CCE, IFVNCS, NUSEED (Task 2.5)
Contact Person/s		Herrero, Joaquin (KIMITEC - joaquinherrero@kimitec.com)
Contents		Small lab bio-tests will be performed by KIMITEC prior to formulation: phenotypic pot experiments (plant model); plant transcriptomic (focusing on gene related plant defence). Formulated candidates will be transferred to IFVNCS for biotests. Results from this sub-task will be included in D2.7. More information will be made available in the next versions of this document because data will be used to patent.
Data format		Numerical, Graphical, Quantitative, Qualitative, Textual (.doc/.docx), (.xls/.xlsx), Graphical and visual (.jpeg, .jpg)
Data volume		To be determined
Accessibility		Where possible data will be shared with a CC BY license. Some data could not possible be shared openly due to confidentiality and IPR.
Related publication/s		IP

11	A	*CARINA.WP2.T2.5.5. Bioinsecticide Tests Serbia.V1*
ID [ID type]		https://hdl.handle.net/21.15107/rcub_fiver_5703 [HANDLE]
Chosen repository		FiVeR (https://fiver.IFVNCS.rs)
Version		V1
Team in charge		**IFVNCS**
Creator/s		Gvozdenac, Sonja (IFVNCS)
Contributor/s		Milovac, Željko, Franeta, Filip (IFVNCS), KIMITEC, IFVNCS
Contact Person/s		Gvozdenac, Sonja (IFVNCS - sonja.gvozdenac@IFVNCS.ns.ac.rs)
Contents		This data set will contain information on: i) field trials (up to five crop species on three locations in four repetitions, application of up to 20 different formulations and concentrations) testing the biological activity against, polyphagous insects pests especially invasive species, monitoring pest occurrence and abundance using pheromone traps, over 1000 physical specimens of different insect species will be collected and preserved from traps. Efficacy of formulations will be estimated based on pest mortality, efficacy assessment will be performed in a period 24 hours to 7 days with four observations (24h, 48 h, 72 h and 7 days); ii) laboratory trials (insect rearing in controlled conditions, at least four different stored product pest species, efficacy of up to 20 different formulations and concentrations, pest mortality data, repellence, feeding indices, anti-feeding potential, growth dynamics and indices, progeny production, quantity and percentage of consumed seeds, percentage of damaged seeds). The

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	generated data will support conclusions on the efficacy of the bioinsecticidal preparations and may be useful to farmers and chemical companies. The researchers will generate, collect and process data from the field and laboratory trials in on-site observations. Digital images and video files will also be created. Data will be entered manually into workbooks and then digitized into tabular or textual files. The data generated in this data set directly relates to the objectives of the project regarding the efficacy of bioinsecticides. Outside, data could be used by farmers to adopt best pest management and cultivation practices regarding biopesticide use. This data set is related to the following data sets produced from the field trials and laboratory analyses in Serbia (WP1 and WP2, Task 2.5, Subtask 2.5.1). In the repository, the links between related datasets will be established in the metadata of each dataset (field dc. Relation). More information will be made available in the next versions of this document because data might/will be used to patent.
Data format	.csv and .jpg (7zip) and .txt
Data volume	The final volume of data is 23 MB
Accessibility	Metadata will be openly available under CC0 licence. Metadata will remain available and findable indefinitely. The data will be openly accessible during and after the end of the project by converting the files to standard open formats. Data will be made available in a repository for dissemination, reports and publications, and they will be accessible through the standardized access protocol.
Related publication/s	IP

12 A	***CARINA.WP2.T2.5.5. Bioherbicide Tests Serbia.V1***
ID [ID type]	https://fiver.ifvcns.rs/handle/123456789/5704 [HANDLE]
Chosen repository	FiVeR (https://fiver.IFVNCS.rs)
Version	V1
Team in charge	**IFVNCS**
Creator/s	Malidža, Goran (IFVNCS)
Contributor/s	KIMITEC, IFVNCS
Contact Person/s	Malidža, Goran (IFVNCS - goran.malidza@IFVNCS.ns.ac.rs)
Contents	This data set will contain information on: i) field trials (evaluation of desiccant efficacy of up to 20 different formulations and concentrations tested on Camelina sativa and Brassica carinata, a randomized complete block design with four replications, moisture content in seeds will be evaluated 0, 7 and 14 days after treatment and ii) laboratory and/or glasshouse trials (allelopathic activity of up to 20 different formulations and concentrations, tested on up to 5 weed species, emphasis on invasive weed species, allelopathic and herbicidal activity will encompass germination tests in controlled conditions, weed seed germination energy, germination, shoot and root length and biomass. The generated data will support conclusions on efficacy of the bioherbicide preparations. The researcher will generate, collect and process data from the field and laboratory trials and digital images. Data will be entered manually into workbooks and then digitized into tabular or textual files. More information will be made available in the next versions of this document because data might/will be used to patent.
Data format	.csv (7zip) and .txt
Data volume	The final volume of data is 9 MB

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Accessibility	Metadata will be openly available under CC0 licence. Metadata will remain available and findable indefinitely. The data will be openly accessible during and after the end of the project by converting the files to standard open formats. Data will be made available in a repository for dissemination, reports and publications, and they will be accessible through the standardized access protocol.
Related publication/s	IP

Funded by the European Union

WP3 – Integrated Sustainability Assessment of the new Bio-Based Carina Systems

To consider the complexity of modern agri-food systems and the possible impacts on the society, the social performances and risks of the novel CARINA systems will be measured and quantified in WP3. To this purpose, a life cycle approach will be adopted to evaluate social impacts by adopting a systematic framework that complements the environmental Life Cycle Assessment and allows to identify hotspots and trade-offs11,12. Social Life Cycle Assessment (SLCA) is a methodology to assess social impacts of a product or a service over its entire life cycle (from raw material extraction to the disposal phase) considering up to five main categories of stakeholders (workers, local community, society, consumers, value chain actors), as stated by the UNEP-SETAC Guidelines 2020. According to this methodology social performances and risks can be assessed using a reference scale approach (UNEP, 2020) allowing to evaluate impact categories through reference points to be scored and aggerated for each assessed stakeholder13. Part of the economic and environmental assessment will be run using SYSTERRE®, which is a multi-criteria assessment tool accessible on a webserver with secure access.

Objective: the specific objective is to carry out an integrated sustainability assessment of CARINA bio-based production systems, including the identification of sustainability indicators for the assessment of the economic, social and environmental impacts.

Lead: **DBFZ**

Participants: **UNIBO, ARVALIS, TI, RSB, KIMITEC, NVMT, FLANAT, NUSEED, AUP, CCE, CRES, DBFZ, ICARDA, IFVNCS, INRAT, PULS, SAIPOL**

Months: **1- 48**

Potential users for the data sets of this WP include:

1	IP	*CARINA.WP3.T3.1.1. Sustainability indicators long list. V1*
ID [ID type]		NYA
Chosen repository		OpenAgrar - https://www.openagrar.de/content/index.xml ZENODO - https://zenodo.org/
Version		V1
Team in charge		**DBFZ**

Funded by the European Union

Creator/s	RIEDEL, Fabian (DBFZ)
Contributor/s	UNIBO, ARVALIS, TI, RSB, KIMITEC, NVMT, DBFZ
Contact Person/s	RIEDEL, Fabian (DBFZ - fabian.riedel@dbfz.de)
Contents	A long list of possible sustainability indicators in the context of economic, social, environment and integration. The long list of indicators will be tested bottom up (3.1.2) and final sustainability indicators will be selected, and later on applied to the selected CARIAN concepts. Expert discussion and brainstorming of relevant parameters for literature review. For this step a basic recommendation was provided by DBFZ. This was discussed and completed with further WP partners. Identification of main parameters. The main parameters identified year range, relevance of the document, language, includes sustainability, includes bioeconomy, contains indicators. Literature review: DBFZ provided a first core collection of possibly relevant documents and made available for all WP partners. The list was completed via WP partners and other project partners, based on their own expertise. Results will be used directly in 3.1.2 for bottom-up review.
Data format	Quantitative (.xls), Textual (.doc, docs, .pdf)
Data volume	Final volume of data is expected to be 10 GB
Accessibility	Data will be released and shared under CC BY 4.0. At the OpenAgrar will be downloadable. Accessibility is ensured for OpenAgrar with GovData.
Related publication/s	IP

2	**IP**	***CARINA.WP3.T3.1.2. Final sustainability indicators. V1***
ID [ID type]		NYA
Chosen repository		ZENODO - https://zenodo.org/
Version		V1
Team in charge		**UNIBO**
Creator/s		Vittuari, Matteo (UNIBO)
Contributor/s		Vittuari, Matteo; Amadori, Simone; Guerrieri, Valentina; Niero, Anna (UNIBO), ARVALIS, TI, RSB, KIMITEC, NVMT, UNIBO
Contact Person/s		Vittuari, Matteo (UNIBO - matteo.vittuari@unibo.it)
Contents		This dataset will provide a final list of indicators developed in T3.1, to analyse how the sustainability advantages of the developed alternatives can be validated through those indicators. These indicators will be discussed and prioritized within a Workshop on living labs (WP5). The 3.1.2 Sub-Task will test with partners of WP1 the set of indicators developed in T3.1, to analyse how the sustainability advantages of the developed alternatives can be validated through those indicators (e.g., high environmental suitability, use unproductive land, promote biodiversity, diversify farm income, valorise co-products; or synergy indicators, e.g., production of multiple feedstocks, suitability to existing farm facilities). These indicators will be discussed and prioritized within a Workshop of living labs (WP5). Results from this sub-task will be included in D3.1

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Data format	numerical, textual, graphical, born digital, quantitative o qualitative, raw, secondary, derived, cleaned, processed - Excel File MS Excel (.xls/.xlsx), Word file MS Word (.doc/.docx), PDF Adobe Portable Document Format (PDF/A, PDF) (.pdf)
Data volume	To be determined
Accessibility	Shareable data will be deposited and made accessible under a CC BY license
Related publication/s	IP

3	**IP**	***CARINA. WP3.1.4. Indicator database***
ID [ID type]		NYA
Chosen repository		ZENODO - https://zenodo.org/[12]
Version		
Team in charge		**ARVALIS**
Creator/s		Marsac, Sylvain (ARVALIS)
Contributor/s		Marsac, Sylvain, Rouillon, Clotilde; Viguier, Loïc; Estienne, Marie (ARVALIS), UNIBO, DBFZ, TI, RSB, KIMITEC, NVMT, FLANAT, NUSEED, ARVALIS
Contact Person/s		Marsac, Sylvain (ARVALIS - s.marsac@arvalis.fr)
Contents		This dataset refers to CARINA Task 3.2, 3.3, 3.4, 3.5 and to the Sub-Task 3.1.4. Based on the description of agricultural practices and strategy, SYSTERRE calculates and generates a set of indicators to assess the technical, economic and environmental performance of productions and then, to build innovative alternatives in terms of sustainability. SYSTERRE® uses scientifically recognised standardised methods to calculate a panel of 20 indicators. These indicators can be classified in 3 categories: technical indicators such as working time and number of tool passes, fuel consumption, etc., economic indicators such as economic efficiency of inputs, mechanisation costs, margins, production costs, etc., and input use and environmental indicators such as overall nitrogen balance and mineral balance, TFI (treatment frequency index), energy production and consumption, greenhouse gas emissions, etc. This strategic decision support tool can be used for farm advisory services, student training, as well as experimenting with cropping systems. SYSTERRE® is a tool used to describe practices and calculate a set of indicators designed to assess the technical, economic and environmental performance of cropping systems. The crop management of the different CARINA concepts and the reference one identified in T1.1 will be registered with Systerre tool. The crop management will be described for all crop rotations to consider the impact of opportunities on the previous or the following crop. Data will be extracted and linked to the tools used in T3.2, T3.3 and T3.4. Systerre tool, its database and calculation program could be improved depending on the indicators identified in T3.1.
Data format		Numerical, digitized, quantitative, derived (.xls, .csv). A matrix of quantitative data with column headings or variable names

[12] Repositories agreed upon in the CARINA Grant Agreement and Systerre online platform with specific user accounts (use agreement CG177500178). Data and publications validated and authorized by CARINA project will be accessible through validated repositories agreed upon in the CARINA Grant Agreement.

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Data volume	Final volume of data is expected to be 100 MB
Accessibility	Where possible data will be shared with a CC BY license.
Related publication/s	IP

4	**IP**	***CARINA.WP3.T3.2. Economic impact assessment***
ID [ID type]		NYA
Chosen repository		ZENODO - https://zenodo.org/
Version		V1
Team in charge		**UNIBO**
Creator/s		Vittuari, Matteo (UNIBO)
Contributor/s		Vittuari, Matteo; Amadori, Simone; Guerrieri, Valentina; Niero, Anna (UNIBO), ARVALIS, TI, FLANAT, KIMITEC, NVMT, UNIBO
Contact Person/s		Vittuari, Matteo (UNIBO - matteo.vittuari@unibo.it)
Contents		The economic sustainability assessment of selected CARINA concepts will be carried out adopting a cost benefit analysis (CBA) comparing ex-ante and ex- post benefits of CARINA systems. The CBA will allow to identify possible hotspots for intervention. The reference cases, as defined in WP1 and WP2, will be used for a comparative analysis. In addition, the economic indicators identified in T3.1 will be quantified and provided to the database (T3.1.4) to carry the integrated assessment (T3.5.2). Results from this task will be included in D3.2. This dataset will provide the results of the economic assessment for the carina concepts produced through the output of WP1 and WP2.
Data format		numerical, textual, graphical, born digital, quantitative o qualitative, raw, secondary, derived, cleaned, processed - Excel File MS Excel (.xls/.xlsx), Word file MS Word (.doc/.docx), PDF Adobe Portable Document Format (PDF/A, PDF) (.pdf)
Data volume		To be determined
Accessibility		Shareable data will be deposited and made accessible under a CC BY license - CC BY 4.0
Related publication/s		IP

5	**IP**	***CARINA.WP3.T3.3. Social impact assessment***
ID [ID type]		NYA
Chosen repository		ZENODO - https://zenodo.org/
Version		V1
Team in charge		**UNIBO**
Creator/s		Vittuari, Matteo (UNIBO)
Contributor/s		Vittuari, Matteo; Amadori, Simone; Guerrieri, Valentina; Niero, Anna (UNIBO), ARVALIS, TI, FLANAT, KIMITEC, NVMT, UNIBO
Contact Person/s		Vittuari, Matteo (UNIBO - matteo.vittuari@unibo.it)

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Contents	This dataset will provide the results of the social assessment for the carina concepts produced through the output of WP1 and WP2. The Social performance analysis will be addressed for selected areas (e.g., France, Italy and Spain), drawing on the teachings of social sustainability assessment methodologies such as Social Life Cycle Assessment (UNEP 2020), Sustainability Assessment of Food and Agriculture guidelines (FAO 2014). To understand the added social value and possible interventions hotspots regarding the utilization of carinata and camelina, focus groups with involved stakeholders, such as farmers, will be periodically organized in the framework of the lighthouses of T1.1. An exchange with T3.5.2 will be carried out to ensure data will be available for the integrated assessment. Furthermore, the reference cases - defined and described in WP1 and WP2- will be used for a comparative analysis of the additional advantages of the concepts. In addition, the economic indicators identified in Task 3.1 will be quantified and provided to the database (3.1.4), which will be used in 3.5.2 for the integrated assessment. Results from this task will be included in D3.3.
Data format	Numerical, textual, graphical, born digital, quantitative o qualitative, raw, secondary, derived, cleaned, processed - Excel File MS Excel (.xls/.xlsx), Word file MS Word (.doc/.docx), PDF Adobe Portable Document Format (PDF/A, PDF) (.pdf)
Data volume	To be determined
Accessibility	Shareable data will be deposited and made accessible under a CC BY license - CC BY 4.0
Related publication/s	IP

6	**IP**	***CARINA.WP3.T3.4. GHG assessment_environmental_assessment. V1***
ID [ID type]		NYA
Chosen repository		ZENODO - https://zenodo.org/
Version		V1
Team in charge		**RSB**
Creator/s		DE ULIBARI, Blanca (RSB)
Contributor/s		ARVALIS, TI, NVMT, NUSEED, RSB, SPANISH CO-OPS
Contact Person/s		DE ULIBARRI, Blanca (RSB - blanca.deulibarri@rsb.org)
Contents		The environmental sustainability assessment will be based on the indicators developed in T3.1, including GHG LCA, impact on soil, water and biodiversity. Reference cases (as in WP1 and WP2) will be used for a comparative analysis. The environmental indicators (T3.1) will be quantified and provided to the database (3.1.4) to be used in T3.5.2 for the integrated assessment. Results from this task will be included in D3.4. Data produced in this task will be used for the environmental assessment, GHG assessment and carbon and water assessment. This dataset is also referred to CARINA Task 1.2, 1.3, 1.4, Task 2.2, 2.3, 2.4 and Task 4.2. (Data generated in the trials performed in WP1 and Wp2).
Data format		Qualitative, quantitative (.xls/.xlsx)
Data volume		To be determined
Accessibility		Metadata will be made available under a CC0 license, while data acquired in the project will be made available under a CC BY license to allow access to the data in accordance with FAIR principles.

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Related publication/s	IP

7	NYA	*CARINA.WP3.T3.5.1. Quantification of synergic_integration indicators. V1*
ID [ID type]		NYA
Chosen repository		OpenAgrar - https://www.openagrar.de/content/index.xml ZENODO - https://zenodo.org/
Version		V1
Team in charge		**DBFZ**
Creator/s		RIEDEL, Fabian (DBFZ)
Contributor/s		UNIBO, DBFZ, TI, RSB, NVMT
Contact Person/s		RIEDEL, Fabian (DBFZ - fabian.riedel@dbfz.de)
Contents		This dataset will include a list of about 10 synergic/integration indicators, which will be quantified for the selected CARINA concepts. To quantify synergic indicators identified in 3.1, which cannot be quantified from T3.2-3.4, a questionnaire will be prepared and provided to WP1 and WP2 leaders, to be estimated/calculated for each CARINA concepts. Results from this task will be included in D3.5. Data will come from WP1 (for the biomass/production/farm level) and from WP2 (for the use of the biomass). Besides, a Workshop is planned. Indicators will be relevant, when presenting the overall results of the selected concepts. This information belongs to the full information about the concepts. It will be presented in D 3.5. For synergic/Integration Indicators which cannot be quantified within WP2-WP4, a questionnaire will be prepared for all concepts, and will be provided to WP1 and WP2 leads, to respond them and quantify the indicators. If a quantification is not possible, and estimation or qualitative description will be provided.
Data format		Quantitative (.xls), Textual (.txt, .pdf)
Data volume		Final volume of data is expected to be 10 GB
Accessibility		https://www.dcat-ap.de - Data will be released under CC BY 4.0
Related publication/s		IP

Funded by the European Union

WP4 – Co-creation of policy interventions for feedstock provision and certification in carina bio-based value chains

In WP4, the **quintuple** innovation helix framework, the collaboration with the Lighthouses in WP1 (farmers and farmers' cooperatives, etc.), and all stakeholders from the national Living labs in WP5 (including government, industry, NGOs, certification schemes and academia) will take place. The work will cover all related policy sectors (agriculture, environment, energy, circular bioeconomy, rural development, etc.) but will have specific focus on how the primary production systems in WP1 can be supported within the carbon farming initiatives and what tailored interventions (regulations, financing, etc.) can facilitate this. The specific objective is the following: to design and implement new site-specific primary production systems on farm-scale. The new systems will be thoroughly analysed within the lighthouses to co-create and develop innovative and sustainable technical solutions. CARINA will apply the quintuple innovation helix framework16 to understand the policy interventions needed to support at EU/national and regional level the new diversified farming systems, and also to identity the gaps present in the actual certification schemes. The stakeholder categories forming the 5 main components of the quintuple helix will be tailored to also relate to advisory services in European Agricultural Knowledge and Innovation Systems17 (AKIS) within the participating countries and Europe.

Objective: the specific objective is to co-create a set of policy recommendations that can maximise economic, environmental and social synergies in the provision of certified low iLUC feedstock for bio-based value chains.

Lead: **UNIBO**
Participants: **UNIBO, SPANISH CO-OPS DBFZ, RSB, TI, ARVALIS, AUP, CCE, ICARDA, CRES, IFVNCS, INRAT, NVMT, PULS, SAIPOL, KIMITEC, NUSEED.**

Affiliated Partner: **FAECA, FACA, URACYL, CACLM, FCAC**

Months: **1-48**

Potential users for the data sets of this WP include:

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1 IP	*CARINA.WP4.T4.1. Policy landscape. V1*
ID [ID type]	NYA
Chosen repository	OpenAgrar - https://www.openagrar.de/
Version	V1
Team in charge	**DBFZ**
Creator/s	Schindler, Harry (DBFZ)
Contributor/s	Schindler, Harry (DBFZ), UNIBO, Spanish Coops, FAECA, FACA, URACYL, CACLM, FCAC
Contact Person/s	Schindler, Harry (DBFZ - harry.schindler@dbfz.de)
Contents	This task will outline and analyse the existing policy and governance structure relevant for supporting and shaping innovative agricultural production systems and the use of their products in a circular biobased economy at EU, national and regional level (in the nine countries with Lighthouses in WP1). Synthesis of scientific and policy documents regarding the policy landscape for innovative feedstocks. The data is generated by the task 4.1 members by reviewing scientific project reports and articles. The fact sheets will be created based on available recent literature selected by a key-word search in web of science as well as relevant policy documents. The fact sheets will be used as information input for deliverable D4.3 (living labs). Information input for subsequent policy innovation labs in Task 4.3.
Data format	Textual (.docx), qualitative (.xls)
Data volume	Final volume of data is expected to be 10MB
Accessibility	Accessibility is ensured for OpenAgrar with GovData. Data will be accessible as long as GovData is existent (OpenAgrar). Data will be released under CC BY 4.0, may differ depending on the publisher
Related publication/s	IP

2 IP	*CARINA.WP4.T4.3. Policy instruments. V1*
ID [ID type]	NYA
Chosen repository	ZENODO - https://zenodo.org/
Version	V1
Team in charge	**UNIBO**
Creator/s	Vittuari, Matteo (UNIBO)
Contributor/s	Vittuari, Matteo; Amadori, Simone; Guerrieri, Valentina; Niero, Anna (UNIBO), UNIBO & RSB, DBFZ, Spanish Co-ops, TI, ARVALIS, FAECA, FACA, URACYL, CACLM, FCAC-
Contact Person/s	Vittuari, Matteo (UNIBO - matteo.vittuari@unibo.it)
Contents	This dataset will provide a final list of the ex-ante assessment of suggested future policy interventions optimized in terms of performance of the supply chain. The work in this task will perform supply chain optimization and model the future impact of the policy interventions recommended in T4.3 in terms of additional biomass production, farmer's income, carbon sequestration, etc. and assess their potential to improve: i)

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	the optimization of primary production with minimal land conflicts; ii) the adoption of agro-ecological practices, and iii) the accountability of sustainable biomass origin and production systems as well as human capital and welfare. Results from this task will be included in D4.4.
Data format	numerical, textual, graphical, born digital, quantitative o qualitative, raw, secondary, derived, cleaned, processed - Excel File MS Excel (.xls/.xlsx), Word file MS Word (.doc/.docx), PDF Adobe Portable Document Format (PDF/A, PDF) (.pdf)
Data volume	To be determined
Accessibility	Shareable data will be deposited and made accessible under a CC BY license - CC BY 4.0
Related publication/s	IP

3	**IP**	***CARINA.WP4.T4.4. Policy interventions. V1***
ID [ID type]		NYA
Chosen repository		ZENODO - https://zenodo.org/
Version		V1
Team in charge		**UNIBO**
Creator/s		Vittuari, Matteo (UNIBO)
Contributor/s		Vittuari, Matteo; Amadori, Simone; Guerrieri, Valentina; Niero, Anna (UNIBO), DBFZ, RSB, Spanish Co-ops, UNIBO, WP1 PARTNER
Contact Person/s		Vittuari, Matteo (UNIBO - matteo.vittuari@unibo.it)
Contents		This dataset will provide a final list of policy instruments cocreated through policy innovation labs carried out in LLs of WP5 with relevant stakeholders. The work in this task will build on Task 4.1 results and the farming systems in WP1, discuss stakeholders' needs and challenges they face with current policy approaches and their implementation (incl. administrational burdens, etc.). and propose tailored interventions promoting sustainable agricultural production systems in full respect of biodiversity protection and enhancement objectives. The work will consider the diversity and diversification of farming systems in the countries involved in WP1 activities and at EU level and co-define, jointly with stakeholders in the policy innovation labs the policy relevant challenges and gaps that restrict supplying sustainable biomass, securing stable revenues for farmers, lowering environmental negative impacts, and increasing resilience to climatic, economic and biological risks. The policy innovation lab is a bottom-up approach that aims to create a reflexive space where stakeholder contributions and co-creation activities are the most important stages of the policy development. Depending on stakeholder availability and Covid restrictions the interactions will take place both as a real physical space and/or a series of online meetings with stakeholders involved that can create a continuity in time to foster project's activities. The multi-stakeholder approach (policy-makers, scientists, local community representatives, farmers, farmer cooperatives, supply chain actors and NGOs) envisages that the policy and innovation needs and requirements are formatted and refined into policy and innovation recommendations or implemented by policy and decision- makers, taking into account the social preferences and the different views about sustainable primary production systems, bio-based economy, green growth, biodiversity, ecosystem services and SDGs. In the first six months, a policy innovation lab will be created in each participating country (Italy, France, Spain, Germany, Bulgaria, Serbia, Poland, Tunisia, Greece and Morocco). Results from this task will be included in D4.3.

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Data format	numerical, textual, graphical, born digital, quantitative o qualitative, raw, secondary, derived, cleaned, processed - Excel File MS Excel (.xls/.xlsx), Word file MS Word (.doc/.docx), PDF Adobe Portable Document Format (PDF/A, PDF) (.pdf)
Data volume	To be determined
Accessibility	Shareable data will be deposited and made accessible under a CC BY license - CC BY 4.0
Related publication/s	IP

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WP5 – Social Innovation to Scale-Up Carina Solutions for Bio-Based Agricultural Production Systems

Social innovation is increasingly attracting scholarly attention and is one of the European Union's innovation policies initiatives and it will be the focus of WP5. It is distinct from other innovation strategies because it moves beyond the focus on enterprise-driven technical innovation to include other sectors, such as health, social services, and education. It adds a social dimension to innovation by including social-ecological innovation and economic revival for remote rural areas. Moving to circular, low carbon bioeconomy requires a systemic shift in the way raw materials are sourced, and the way businesses and industries interact with their suppliers and customers and convey clear messages about the circularity and biobased origin of their products. CARINA will improve understanding of the co-benefits and potential risks and deliver solutions for upscaling potential bio-based agricultural production systems through a social innovation process: i) to work with national teams in the LLs including national networks of primary producers and boards of market agents; ii) to 'co-define challenges' and co-create future solutions and learn from innovators, and iii) to implement the solutions locally and deliver tailored roadmaps and business plans.

Objective: the specific objective is to improve understanding of the co-benefits and potential risks, and to deliver solutions for upscaling potential bio-based agricultural production systems through a social innovation process. To achieve this objective, CARINA will establish national living labs (LLs) and organise 'co-define challenge' workshops within technical field visits, with the aim to cocreate solutions from lessons learned, and to implement them locally to deliver tailored roadmaps and business plans.

Lead: **SPANISH CO-OPS**

Participants: **ALL**

Months: 1-46

Potential users for the data sets of this WP include:

1	IP	*CARINA.WP5. Stakeholder's feedback. V1*
ID [ID type]		NYA
Chosen repository		ZENODO (recommended) - https://zenodo.org/
Version		V1

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Team in charge	**SPANISH CO-OPS**
Creator/s	Sagarna, Juan (Spanish CO-OPS)
Contributor/s	Sagarna, Juan (Spanish CO-OPS), UNIBO, NVMT, ARVALIS, TI, CCE, NUSEED, FAECA, FACA, URACYL, CACLM, FCAC, IFVNCS, SAIPOL, SPANISH CO-OPS
Contact Person/s	Sagarna, Juan (Co-ops sagarna@agro-alimentarias.coop)
Contents	The organisation of national Living Labs (LLs) in France, Italy and Spain, where the CARINA bio-based systems will be developed through a participatory approach. LLs will involve farmers, cooperatives, agronomic advisers, policy makers, farmer unions, academia, and other related experts to co-define challenges, explore emerging uses, and look for market opportunities. Task 5.2: Knowledge transfer of CARINA's results will greatly benefit from the massive and well-established relationships with farmers and cooperatives by Spanish Co-ops, ARVALIS, CCE, TI, NVMT, IFVNCS. It should be recognized that Spanish Co-ops represents more than 1 million farmers in Spain, TI has over 200.000 oil crop growers and f livestock farmers, ARVALIS is directly funded by farmers of which about 1.000 farmers are currently carrying out demo trials; NVMT has recently founded a new company (MaterAgro with Coldiretti that is the major organisation representing agricultural entrepreneurs at European level including about 1.5 million farmers; CCE operates in Spain directly cooperating with more than 500 farmers; finally, IFVNCS has a solid connection with more than 1.000 farmers. Results from this task will be included in D5.2. Task 5.3: First, the core team (DBFZ, Spanish Co-ops, UNIBO) will go through an exploring process to better understand the current challenges and be able to define and draw up a clear, engaging and positive challenge questions that would be brought to the co-define workshops with the LL set up in Task 5.1. This process will include literature review and interviews to know more about the challenge, engage key stakeholders – including potential funders of the upcoming solutions - and end users in the process, look at other innovative solutions to similar challenges in other places, and to understand end users' perspectives. Following, a series of 'local challenges workshops' will be organised in combination with the knowledge transfer activities in T5.2 in order to further tailor the overall challenges and co-create solutions. Showcasing examples from social innovators will be presented to inspire participants on how they had addressed similar challenges: what lessons they have learned and what should be avoided. Results from this task will be included in D5.3
Data format	Qualitative information - data collection/generation (raw data) data processing data preservation and sharing (.csv)
Data volume	To be determined
Accessibility	Metadata will be made available under a CC0 license, while data acquired in the project will be made available under a CC BY license to allow access to the data in accordance with FAIR principles.
Related publication/s	NYA

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WP6 – Dissemination, Communication and Exploitation

DISSEMINATION ACTIVITIES. Dissemination is a key factor for engaging relevant stakeholders in CARINA in order to elaborate exploitation routes and ensure that the project results will be exploited by the identified stakeholders at the end of the project. Therefore, all consortium partners will actively conduct dissemination activities, under the guidance and monitoring of PEDAL in WP6. The PEDC will be ready by M6 and thereafter the Dissemination activities will begin once the first results of the project emerge (M7 - M48).

COMMUNICATION ACTIVITIES. A strong and efficient **communication** strategy will be developed by PEDAL with the support of all partners. CARINA's communication strategy aims to provide project related information to multiple audiences – farmers, biobased industry, academia, policy makers, the media and the public. To achieve this goal, strong and efficient communication measures and activities targeted to different group of stakeholders will start from M1. A brief summary of the preliminary communication plan is provided below, including the main activities and channels (HOW), target groups (WHO), and target value (HOW MUCH). During the project, the progress of the communication activities will be monitored and adjusted if necessary. The communication activities will start in M1 and will be spread until M48 when the project will come to an end. The performed communications activities will be reported in M6, M24, and M48.

EXPLOITATION ACTIVIES. The knowledge and data created during CARINA will be useful in research, technological innovation, policy and business areas, therefore, this strategy will be designed keeping in mind the interest of the different partners. The priority is sharing results, processes, policies and tools and their underlying data as openly as possible (see 1.2.5), nevertheless, careful considerations over background IP will avoid any potential infringement of the IP of CARINA partners. The results of CARINA such as the carinata and camelina seed full characterizations, the CARINA factsheets about local challenges and executive summary of field visits, Policy Recommendations, Compilation of the national roadmap and business reports will be open, including the underlying data. All stakeholders will have access to the projects results free of charge via the CARINA website and their availability will be broadcasted by communication and dissemination activities.

The Project's results (ones not subject to background IP) will be made available to the interested users. A thorough exploitation plan will be drafted in WP6 led by our partners

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PEDAL with the contribution of all partners during the project. However, some of the partners have already indicated their exploitation interest. PEDAL will use the projects results to improve on its service portfolio to support its clients better. In the table below, we give a summary of the exploitable outcomes from this project. The exploitation activities will take place between M4 – M48 and will be reported on in M24 and M48.

Objective: the specific objective is to ensure wide visibility of CARINA by setting up an effective communication dissemination strategy and, at the same time, pave the way for the exploitation of the CARINA results. CARINA will achieve this objective posing attention to cluster and create synergies with other EU initiatives with strong links with CARINA.

Lead: **PEDAL**
Participants: **ALL**
Months: 1-48

Potential users for the data sets of this WP include:

1 IP	*CARINA.WP6.T6.1. Website & social media analytics. V1*
ID [ID type]	NYA
Chosen repository	ZENODO - https://zenodo.org/
Version	V1
Team in charge	**PEDAL**
Creator/s	Mester, Gabor (PEDAL)
Contributor/s	Mester, Gabor (PEDAL), ALL PARTNER
Contact Person/s	Mester, Gabor, (PEDAL - g.mester@pedal-consulting.eu)
Contents	Social media statistics (Facebook, YouTube, Twitter and LinkedIn): These data will be collected/generated through a periodic monitoring of the project's social media statistics (i.e., Facebook, YouTube, Twitter and LinkedIn) with a view to measuring and assessing the performance and results of the project social media activity in terms of dissemination and communication. With that in mind, the data will be mostly quantitative in nature addressing the metrics reached on each channel (e.g., number of followers, tweets impressions on twitter, friends, likes on Facebook, number of people reached through posts, etc.). Additionally, these data will be followed by an analysis of the results stemming from them and possible ways to improve the results to reach the project's targets.
Data format	Numerical, born digital, quantitative and raw. (.xlsx) (.docx).
Data volume	Final volume of data is expected to be 10 GB
Accessibility	Metadata will be made available under a CC0 license, while data acquired in the project will be made available under a CC BY license to allow access to the data in accordance with FAIR principles.
Related publication/s	NYA

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2 IP	*CARINA.WP6.T6.1. Dissemination and communication activities.V1*
ID [ID type]	NYA
Chosen repository	ZENODO - https://zenodo.org/
Version	V1
Team in charge	**PEDAL**
Creator/s	Mester, Gabor (PEDAL)
Contributor/s	Mester, Gabor (PEDAL), ALL
Contact Person/s	Mester, Gabor (PEDAL - g.mester@pedal-consulting.eu)
Contents	These data will be collected through the periodic monitoring of the project's miscellaneous dissemination activities such as publications in relevant journals, posts in the blogs, etc. The data will consist of an excel form designed to keep track of any kind of communication and dissemination activity, including, but not limited to, press releases, social media posts, website articles, interviews, events (conferences, meetings, workshops, etc.), other publications, e-mails, presentations, informal discussions, seminars, etc. The purpose of collecting these data is to assess the outreach and efficiency of the dissemination activities during the implementation of the project. For this purpose, a template will be shared with all partners to recommend activities to be performed and log the activities they performed. The template is provided also online so as the partners can directly update their input.
Data format	Quantitative and qualitative, cleaned, numerical, visual. All the data will be integrated in a single excel file (.xlsx).
Data volume	Final volume of data is expected to be 500 KB
Accessibility	Metadata will be made available under a CC0 license, while data acquired in the project will be made available under a CC BY license to allow access to the data in accordance with FAIR principles.
Related publication/s	NYA

3 IP	*CARINA.WP6.T6.1. Newsletter subscription.V1*
ID [ID type]	NYA
Chosen repository	ZENODO - https://zenodo.org/
Version	V1
Team in charge	**PEDAL**
Creator/s	Mester, Gabor (PEDAL)
Contributor/s	Mester, Gabor (PEDAL), ALL PARTNER
Contact Person/s	Mester, Gabor (PEDAL - g.mester@pedal-consulting.eu)
Contents	A subscription form hosted in the project's web site will aid the collection of these data in which any interested stakeholder can freely provide their contact details in a dedicated sign-up form so as to receive the most up-to-date news and outcomes of the project. A newsletter will be sent to subscribers once per 6 months. With that in

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	mind, these data will be collected so as interested stakeholders can be informed about CARINA's progress and upcoming events. The data will be comprised of a list of subscribers along with their personal information such as: (i) email address, (ii) first and last name, (iii) country, (iv) type of organization, (v) region and (vi) gender. A copy of this contact list will be stored to Icontact, which is used for e-mail campaigns and newsletters distribution. All personal information included in this contact list will be used and protected according to provider's Privacy Policy. Subscribers can find details about how their personal information are managed on the respective privacy policy section of the CARINA website.
Data format	Numerical and textual, born digital quantitative and qualitative. (.xlsx).
Data volume	Final volume of data is expected to be 1 MB
Accessibility	Metadata will be made available under a CC0 license, while data acquired in the project will be made available under a CC BY license to allow access to the data in accordance with FAIR principles.
Related publication/s	NYA

4	**IP**	***CARINA.WP6.T6.2. project events stakeholder engagement.V1***
ID [ID type]		NYA
Chosen repository		ZENODO - https://zenodo.org/
Version		V1
Team in charge		**PEDAL**
Creator/s		Mester, Gabor (PEDAL)
Contributor/s		Mester, Gabor (PEDAL), ALL
Contact Person/s		Mester, Gabor (PEDAL - g.mester@pedal-consulting.eu)
Contents		These data will be collected during the implementation of the project through: (i) the different events (e.g. workshop, conferences, interviews, physical and virtual events, etc.) organized by CARINA (either alone or jointly with other projects or initiatives) consisting of the participants lists that will enclose demographic information about the participants; and (ii) the participation of CARINA partners in relevant third party events in order to reach out and engage stakeholders, thus collecting general information about the events attended and their outreach. Along these lines, these data will be collected so as to keep track of the results of activities in events for stakeholder engagement and provide the opportunity to project partners to report on these activities. Moreover, these data will be updated every time a partner attends an event, or a partner organizes an event.
Data format		Quantitative, qualitative stored in a standard spreadsheet (.xlsx, .png, .pdf, .docx).
Data volume		Final volume of data is expected to be 500 KB
Accessibility		Data will be available and shared through public repository through an Open license data (TBD).
Related publication/s		NYA

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WP7 – Coordination & Management

The coordination and management structure of the project is composed by the following bodies, of which specific tasks and procedures will be described in the Consortium Agreement (CA) adopted by the consortium before the project starts: a) the Coordinator, Andrea Monti (UNIBO), will be ultimately responsible for the overall project coordination and act as intermediary between the Consortium and the EC; b) The General Assembly, comprised of one member from each partner institution, will be the steering and decision-making body; d) Work Package Leaders, in charge of supervising the activities carried out in the respective WPs, will be the executive body; e) The Project Manager will be appointed within the European Program and Project Office of UNIBO. They will assist the General Assembly and the Coordinator in all administrative and financial duties; f) The Communication, Dissemination and Exploitation Manager (PEDAL), will assist the Coordinator and the WP Leader in the communication, dissemination, and exploitation activities; g) The Stakeholder Advisory Board, external body comprised of relevant public and private stakeholders, will provide feedback and advice as required.

Objective: the specific objective is to coordinate and supervise the project activities, ensuring quality and timing of project deliverables; (2) to carry out administrative and financial management, and reporting; (3) to manage contacts with the EU Commission (EC); (4) to resolve possible conflicts; (5) to oversee the knowledge and innovation management activities; (6) to manage the data generated by the project (Data Management Plan - DMP).

Lead: **UNIBO**

Participants: **ALL**
Months: 1- 48

No dataset is expected at the moment.

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Annex II: "README" file template

A "README" file is a document that will be deposited with each dataset, containing relevant information about data set authorship, terms of reuse and responsibilities, explaining data set content and structure, collection procedures and analysis (such as file specifics, methodologies, codebooks of variables, data sources, and further necessary notes). The template of the README file that will be used by CARINA is shown here.

README file

Data Set Title: **"[insert title as defined in the DMP]"**
Data Set Author/s: **Name Surname** (Affiliation), ORCID (if available);
[Add one or more creators, if present]
Data Set Contributor/s: **Name Surname** (Affiliation), ORCID (if available);
[Add one or more contributors, if present. Otherwise, cancel this line]
Data Set Contact Person/s: **Name Surname** (Affiliation), ORCID (if available), email;
[Add one or more contact person]
Data Set License: this data set is distributed under a **(INSERT LICENSE)**
[Insert the chosen license as indicated in the DMP: e.g. "this data set is distributed under a Creative Commons Attribution 4.0 International (CC BY 4.0) license, https://creativecommons.org/licenses/by/4.0/"]
Publication Year: **(insert YEAR)**
Project Info: **[insert PROJECT ACRONYM] ([project full title],** funded by European Union, Horizon 2020 Programme. Grant Agreement num. **[insert grant agreement number]**; **[insert project website url]**

Data set Contents

The data set consists of:
[Indicate the files that compose the dataset and their name and format.
WE STRONGLY SUGGEST YOU TO FOLLOW THE EXAMPLES PROVIDED FOR THE FILE NAMING, MATCHING THE DATASET FILENAME WITH THE README ONE
In the following examples the data sets were composed by only one file. In case the dataset consists of more files you can name them as described and put them in a compressed folder. In this case readme file name should match the compressed folder name]
EXAMPLE1

- 1 textual qualitative file saved in .rtf format
  "**ProjectAcronym_WP3_T3-2_ItalyInterviews_20161221_v01.rtf**"
  [structure of the filename "ProjectAcronym_insert WP number_insert Task number, e.g. T3.2_ insert Content Describing Keywords_insert date YYYYMMDD_insert version, if needed.format"
  Suggested format:
  -for textual qualitative data .rtf or .txt
  -for tabular quantitative and qualitative data .csv
  avoid proprietary formats such as .doc/.docx and .xls/.xlsx]
- 1 README file

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"README_ProjectAcronym_WP3_T3-2 _ItalyInterviews_20161221_v01.rtf"

[Same naming as the dataset file. Preferred format .rtf/.txt, allowed format .pdf]

EXAMPLE2

- 1 tabular quantitative file saved in .csv format **"ProjectAcronym_WP7_T7.3_Questionnaire_Sweden_20170905.csv"**
- 1 README file **"README_ProjectAcronym_WP7_T7-3_Questionnaire_Sweden_20170905.rtf"**

Data set Documentation

Abstract

[Insert a brief abstract describing the content of the dataset]

Content of the files:

- file **[Insert filename]** contains ...

[Provide a brief description of the content of the file/s. This is an example of how you could start]

- file **[Insert filename]** contains ...

File specifics

[Provide useful info regarding file conversion etc… (Optional)
Please indicate instruction/technical info in order to allow potential users to correctly visualize and reuse your data (e.g. specific software, …).
In case of data converted in open formats it could be useful to provide some further information. For example if you deposit for long term preservation a .csv file derived from an excel you can describe the conversion. Here is an example of description of conversion using libre office calc software:
To create the .csv files, "LibreOffice Calc" version: 5.1.4.2 (portable) was used, with the following specifics:
•Character set Europa occidentale (Windows-1252/WinLatin1)
•Field delimiter « , » (comma)
•Text delimiter « " » (quotes)]

Notes

[Related to the whole dataset or to single files of a multi-file dataset (Optional)]

Data sources

[Optional]

Methodologies

[If necessary to understand how to reuse data]

Codebook of variables

[If necessary to understand the meaning of the variables]

Instructions, examples ad footnotes should be deleted from final version.

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