



D7.2 – Public



Plant Pest Prevention through technology-guided monitoring and site- specific control (PurPest)

Data Management Plan

VERSION

Version 1.0

DATE

22-06-2023

ABSTRACT

This deliverable describes the data management plan (DMP) for the PurPest project and gives an easy overview of research data the project is expected to generate, the types and formats of this data, and how this data is processed and stored to make them findable, accessible, interoperable and re-usable, according to the principles of FAIR data management. The purpose of the DMP is to contribute to good data handling during the project's lifetime, and to describe how such data will be curated and preserved.

KEYWORDS: FAIR Data Management, Open Access

DELIVERABLE ID	EC ID	DISSEMINATION LEVEL	DELIVERABLE TYPE
D7.2	D7.2	PU	DMP

AUTHORSHIP AND APPROVAL INFORMATION	
EDITOR Andrea Ficke / NIBIO	DATE 14-04-2023
CONTRIBUTORS Daniel Nilsen Wright / SINTEF Kutay Cingiz / WU	DATE 14-04-2023 19-04-2023
REVIEWED BY Stelios Kartakis / WU Maria Inacio / INIAV	DATE 20-06-2023 20-06-2023
First draft APPROVED BY Andrea Ficke / NIBIO	DATE 22-06-2023
ETHICS BOARD REVIEW REQUIRED?	SECURITY BOARD REVIEW REQUIRED?
YES/NO	NO

Release history

VERSION	DATE	VERSION DESCRIPTION / MILESTONE* DESCRIPTION
0.1	13-04-2023	PCOS proposed
02	08-06-2023	PCOS revised
03	12-06-2023	External proposed
04	22-06-2023	External approved

*The project uses a multi-stage internal review process, with defined milestones. Milestone names include terms (in bold) as follows:

- **PCOS* proposed:** Describes planned content and structure of different sections. Document authors submit for internal review.
- **PCOS revised:** Document authors produce new version in response to internal review comments.
- **PCOS approved:** Internal project reviewers accept the document.

*PCOS = *Planned content and structure*

- **Intermediate proposed:** Document is approximately 50% complete – review checkpoint. Document authors submit for internal review.
- **Intermediate revised:** Document authors produce new version in response to internal reviewer comments.
- **Intermediate approved:** Internal project reviewers accept the document.
- **External proposed:** Document is approximately 100% complete – review checkpoint. Document authors submit for internal review.
- **External revised:** Document authors produce new version in response to internal reviewer comments.
- **External approved:** Internal project reviewers accept the document.
- **Released:** Executive Board accepts the document. Coordinator releases the deliverable to the Commission Services.

Table of contents

List of Definitions, PurPests and Abbreviations	6
Executive Summary.....	8
1 Introduction	9
1.1 Purpose of the document	9
1.2 Intended readership	9
1.3 Structure of this document.....	9
1.4 Relationship with other deliverables	9
2 Data Summary.....	10
2.1 Purpose of the data collection and generation	10
2.2 Data for SSP development	11
2.2.1 Origin of data	11
2.2.2 Data formats and size	11
2.3 Data for Impact analysis.....	11
2.3.1 Origin of data	12
2.3.2 Data formats and size	12
2.4 SharePoint and metadata provision	12
2.5 Zenodo	13
2.6 Instructions for uploading datasets to SharePoint and Zenodo	13
3 FAIR Data Management.....	16
3.1 Making data findable	16
3.1.1 PurPest Community in Zenodo	16
3.1.2 Metadata in Zenodo	16
3.1.3 Versioning and Digital Object Identifiers (DOI)	16
3.1.4 Approach to search keywords	17
3.1.5 Naming conventions for documents	17
3.1.6 Naming convention for VOC collection and analysis datasets	17
3.2 Making data accessible	18
3.3 Making data interoperable	21
3.4 Reusable data.....	22
3.4.1 Recommended Creative Commons (CC) licences.....	22
3.4.2 Availability and longevity of the PurPest research data sets	22
4 Using references in deliverables and other project memos	24

4.1	Instructions for referencing	24
4.2	Example of reference table in deliverables and other project memos.	24
5	Allocation of resources	25
6	Data Security.....	26
6.1	Active Project - Data security as specified for SINTEF SharePoint.....	26
6.2	Repository - Data security as specified for Zenodo	26
7	Ethical Aspects	27
8	Conclusions	29
10	References	30
A	Appendix A: Template for Data Processing Agreement	31
DATA PROCESSING AGREEMENT.....		31
1.	The purpose of the agreement.....	31
2.	The rights and obligations of the Data Controller. The obligations of the Data Processor.....	31
3.	The use of sub-vendors.....	32
4.	Security and non-conformances	33
5.	Transfer of data to foreign countries.....	33
6.	The duration of the Agreement, termination orders, obligations in the event of expiry or cancellation	34
7.	Other obligations and rights.....	34
	Attachments.....	35

Table of Figures

Figure 1: Process for uploading datasets	15
--	----

List of Tables

Table 1: List of abbreviations.....	6
Table 2: Instructions for uploading datasets to SharePoint	13
Table 3: Expected datasets in PurPest	19

List of Definitions, PurPest and Abbreviations

Table 1: List of abbreviations

Term	Explanation
BibTeX	A reference management software for formatting lists of references.
CC licence	Creative Commons licenses are tools to grant copyright permissions to creative work.
CC-BY	This CC-license lets others distribute, remix, tweak, and build upon your work, even commercially, if they credit you for the original creation. This is the most accommodating of licenses offered. Recommended for maximum dissemination and use of licensed materials.
CC-BY-NC	This CC-license lets others remix, tweak, and build upon your work non-commercially, and although their new work must also acknowledge you and be non-commercial, they don't have to license their derivative works on the same terms.
CC-BY-SA	This CC-license lets others remix, tweak, and build upon your work even for commercial purposes, if they credit you and license their new creations under the identical terms. This license is often compared to "copyleft" free and open source software licenses. All new works based on yours will carry the same license, so any derivatives will also allow commercial use.
CSL	Citation Style Language An open XML-based standard to format citations and bibliographies.
DMP	Data Management Plan
DoA	Description of the Action
DOI	Digital Object Identifier
FAIR data	Findable, Accessible, Interoperable, Re-usable data
GDPR	General Data Protection Regulation. Regulation (EU) 2016/679.
IIM	Internal Instruction Manual
JSON	JavaScript Object Notation An open-standard file format.
MARCXML	An XML schema based on the common MARC21 standards
OAI-PMH	The Open Archives Initiative Protocol for Metadata Harvesting.
Research data	Refers to information, facts or numbers, collected to be examined and considered as a basis for reasoning, discussion, or calculation. In a research context, examples of data include statistics, results of experiments, measurements, observations resulting from fieldwork, survey results, interview recordings, and images.
REST API	REST is an architectural style that defines a set of constraints to be used for creating web services. API means Application Programming Interface



Term	Explanation
SSL/TLS	Secure Sockets Layer / Transport Layer Security These are protocols offering secure communication on the internet.
SSP	Sensor System Prototype
Zenodo	Zenodo is a catch-all research data repository that enables researchers, scientists, EU projects and institutions to share research results, make research results citable, and search and reuse open research results from other projects. Zenodo is harvested by the OpenAIRE portal and hosted by the CERN cloud infrastructure.

Executive Summary

About the project: The goal of PurPest is to develop, validate and demonstrate an innovative sensor platform that can rapidly detect five different pests during import and in the field to stop their establishment and reduce pesticide inputs by at least 50%. The sensor concept is based on detection of pest-specific volatile organic compounds (VOCs) emitted by host plants invaded by one or several pests. PurPest will determine the VOC signature of *Phytophthora ramorum*, the Fall armyworm, the Cotton bollworm, the Brown marmorated stinkbug and the Pinewood nematode under different abiotic stress conditions. The VOC database will be exploited to optimize existing and develop new sensor concepts to detect pest-specific VOCs, starting from proof of concept (TRL3) to demonstration in field trials (TRL6). PurPest will evaluate the socio-economic and ecological impact of 5 pests and how the new detection concept affects these impacts. As a number of control options, including the eradication of target pests, will be available with different implications for nurseries, importers, farmers and forest owners, a stakeholder survey presenting different scenarios will be conducted. This analysis will be the basis for formulating EU policies to ensure appropriate and systematic testing of plant material during import. Direct communication with stakeholders via the advisory board, workshops and webinars is part of PurPest's multi-actor approach to affirm involvement of all interest groups along the value chain.

The purpose of the DMP is to contribute to good data handling through describing what research data the project expects to generate and which parts of the data that can be shared with the public. Furthermore, it gives instructions on naming conventions, metadata structure, storing of the research data and how to make public data available.

During the 48 active months of the project, a SharePoint site will be used as the online working and collaboration platform. SharePoint is only accessible to project participants and can provide further access control through establishing folders and sub-sites with stricter access granted than to the main site. All datasets will be uploaded to this site and stored and handled in accordance with national and European rules on data protection and privacy. Metadata will be added to all datasets, and instructions on how to upload and store research data is provided in this document.

PurPest will use the open research data repository *Zenodo* to comply with the Europe Open Access Mandate. This mandate applies to the underlying research data of publications, but beneficiaries can also voluntarily make other datasets open. In PurPest, all public deliverables and publications including related research data will be uploaded to the PurPest Community and the *European Commission Funded Research (OpenAIRE)* Community in Zenodo. Other datasets not directly linked to deliverables and publications that has the dissemination level "*Public*" will also be uploaded to Zenodo. Uploads will be done upon approval of the deliverables by the European Commission, upon publication or acceptance of scientific publications, or, for underlying datasets, at the end of the project at the latest.

Each dataset will be given a persistent identifier (Digital Object Identifier, DOI), supplied with relevant metadata, and linked to the project name and grant agreement number. Publications and underlying research data will be linked to a Creative Commons license that will regulate reuse of the PurPest research data. Data security arrangements are defined for the SharePoint site and Zenodo.

Ethical aspects related to data collection, generation and sharing have been considered and nothing in this project shall be deemed to require a party to breach any mandatory statutory law under which the party is operating. This includes any national or European regulations, as well as rules and norms regarding ethics in conducting research.

The DMP is a living document and will be updated throughout the project to reflect the actual research data generated. The final version of the DMP will be made available at the end of the project and include instructions for how to access and reuse open research data from PurPest. Day-to-day data management and monitoring will be done using an online list in the SharePoint site that will be continuously updated to reflect actual data generation. The maintenance of this list is the responsibility of the WP Leaders.

1 Introduction

1.1 Purpose of the document

The DMP provides an easy overview of research data the project is expected to generate, the types and formats of this data, and how this data is processed and stored to make them findable, accessible, interoperable and re-usable, according to the principles of FAIR data management. The purpose of the DMP is to contribute to good data handling during the project's lifetime, and to describe how such data will be curated and preserved.

1.2 Intended readership

Internally in the project:

- Project participants who are responsible for, or in any way involved with, data collection and data handling can use this document for instructions on how to handle, store and process data.
- All project participants can use this document to get an overview of data collected in the project and how this is processed, stored and made accessible.

External audience:

- The **Data Summary** and **FAIR Data Management** sections can be used by all relevant stakeholders who are interested in PurPest related activities and research topics to get an overview of the data collected in the project, how to access this data, and, if applicable, how to re-use this data in their own activities.

1.3 Structure of this document

This document is structured as follows:

- Section 1 is an introduction chapter describing the main purpose, structure and intended readership of the DMP, as well as relationships to other project deliverables.
- Section 2 provides an overview of the research data in the PurPest project, with details on types, formats, origin and metadata provisions.
- Section 3 describes how the PurPest project will comply with the principles of FAIR data management and H2020 Open Access Mandate
- Section 4 describes the resources allocated to making data FAIR and open.
- Section 5 gives a detailed description of data security arrangements.
- Section 6 deals with ethical aspects related to data management in the PurPest project.

The online tool DMPOnline, hosted by Data Curation Centre, has been used to generate content for this document¹. The tool is based on the Horizon 2020 DMP template and guidelines for FAIR data management in Horizon 2020².

1.4 Relationship with other deliverables

The D5.4 - Results of the case studies on the benefits and costs of using pest-specific VOC sensors presented in this document receives input from the following deliverables:

D3.3 - First sensor system prototype: this document presents the developed pest-specific VOC sensor that is going to facilitate the case studies of D5.4. The D5.1 - Literature review presented in this document provide input to the following deliverables:

¹ https://dmponline.dcc.ac.uk/about_us

² http://ec.europa.eu/research/participants/data/ref/h2020/grants_manual/hi/oa_pilot/h2020-hi-oa-data-mgt_en.pdf



PurPest D7.2 – Data Management Plan

- D 5.2 – Report on the regional distribution of damage costs by farm type: this document presents the regional distribution of the damage caused by the five pests included in PurPest and will utilise relevant information derived from D5.1.
- D6.4 - White paper (policy recommendations): this document presents the most cost-effective control options in order to format an appropriate management strategy.

The D5.2 - Report on the regional distribution of damage costs by farm type. presented in this document provides input to the following deliverables:

- D5.6 - Seven draft manuscripts for publication: these documents present the results of the damage assessment for each pest.
- D6.4 - White paper (policy recommendations): The modelling framework of D5.2 (no-control scenario) will be utilised to compare and assess the cost-effectiveness of each of the identified management interventions.

The D5.3 - Results from the farm survey about preferred control options presented in this document provide input to the following deliverables:

- D5.5 - Recommendation for policy changes to support effective pest detection: this document presents the results derived from WP5 and formulates policy recommendations based on them to increase the adoption rate of such technologies.
- D5.6 - Seven draft manuscripts for publication: The results of the farm survey will be a part of this deliverable.

The D5.4 - Results of the case studies on the benefits and costs of using pest-specific VOC sensors presented in this document provide input to the following deliverables:

- D5.5 - Recommendation for policy changes to support effective pest detection: this document presents the results derived from WP5 and formulates policy recommendations based on them to increase the adoption rate of such technologies.

2 Data Summary

Table 3, on page 19, provides a list of all datasets currently expected to be generated in the PurPest project and their planned accessibility. We recognise that this list will develop and grow as the project evolves.

2.1 Purpose of the data collection and generation

The PurPest Project targets the following scope of the HORIZON-CL6-2021-FARM2FORK-01-04 topic:

- Develop efficient surveillance methods and strategies for early-detection and (bio)control of the pest(s).
- Analyse the social and economic implications for farmers affected by the plant pest(s) and developing approaches whereby those affected can best cope with the situation.
- Analyse the ecological impact of plant pest(s) spread and establishment.

The overall motivation for data collection in PurPest is to

- Identify relevant VOCs for development of a SSP facilitating detection of plant pests.
- Optimise sensor components to lower the limit of detection for SSP.
- Carry out social, ecological and economic impact of plant pests and pest management

For the last entry above, only data that is needed to perform project activities will be collected, and as far as possible, participants will not be asked to provide personal data unless this is necessary (see section [Feil! Fant ikke referansekilden.](#)).

There are two groups of data collected in PurPest



1. Data needed for SSP development
2. Data needed for social, ecologic and economic impact analysis

2.2 Data for SSP development

For SSP development, the PurPest project will collect, generate and reuse various types of data, such as:

- a) Existing data from literature reviews, databases, statistics, etc.
- b) VOCs from plant/pest experiments.
- c) Technical evaluations from SSP testing both in lab and in field.

Data from a) and b) will be made publicly available. Data from c) is regarded as sensitive and will not be publicly available, but could be used as basis for a publication.

Data will be organised in datasets according to type and content of the data, see Table 3.

The project will generate an internal instruction manual (IIM) to harmonise the data collection process for b).

2.2.1 Origin of data

Data for item a) will be collected from international sources. Data for item b) above will originate from plant experiments conducted by the partners within Europe. Data from item c) above will originate from Europe and field sites used by UNINE in Mexico and Kenya.

2.2.2 Data formats and size

The PurPest project will only use widely accepted formats for data generation, such as:

- **Documents/Reports/Publications:** .PDF/A, txt, doc/docx
- **Spreadsheets:** .xls/.xlsx
- **Log files:** .csv, .dat
- **Databases:** .csv, .dat
- **Self-describing formats:** netCDF, HDF

Size of data

The size of the data will vary but will in general be moderate and should not represent any challenge regarding storage capacity or handling. A more detailed list of planned datasets and accessibility is given in Table 3.

2.3 Data for Impact analysis

For impact analysis, the PurPest project will collect, generate and reuse various types of data, such as:

- a) Manually collected data from interviews, surveys, and questionnaires
- b) Automatically collected data from [e.g. mobile applications/software installed in...etc.]
- c) Contact information [e.g. project internal and external stakeholders/participants in pilots/workshops/evaluation activities etc.]
- d) Existing data from [e.g. literature reviews, databases, statistics, etc.]

Data will be organised in datasets according to type and content of the data, see Table 3.

Some of the data PurPest will collect and generate is classified as *personal data*, such as names, IP addresses, residence of participants etc. This data must be irreversibly anonymised before being made public. If such data cannot be irreversibly anonymised, it will remain confidential and only managed by designated Data Controllers in the project. If a partner who is not a Data Controller needs access to process personal data (Data Processor), an assessment of this will be done by the Data Controller and if granted a specific Data Processing Agreement will be set up between the Data Controller and the partner requesting access. A template for Data Processing Agreement is provided in appendix A. Non-anonymous data, although not openly shared in the

project or beyond, can still provide input to deliverables and publications. Only anonymised data or analysis of the aggregated data, containing no details that can be linked to individual participants, will be made public.

2.3.1 Origin of data

The PurPest project will collect primary and secondary data for impact analysis.

- The collection of primary data will be originated from: Interviews with groups and individual participants (case study at import control and tree nurseries - Task 5.4)
- Feedback from participants at stakeholder workshops (Task 6.5)
- Surveys/Questionnaires (survey data from European farms)

Secondary data will be derived from: Statistical offices, Literature review and open research data, Existing data platforms/networks (e.g. FASN)

2.3.2 Data formats and size

The PurPest project will only use widely accepted formats for data generation, such as:

- **Documents/Reports/Publications:** .PDF/A, txt, doc/docx
- **Spreadsheets:** .xls/.xlsx
- **Databases:** .csv
- **Self-describing formats:** netCDF, HDF
- **Audio files:** .mp3, .wav, .wma, .ra
- **Pictures:** jpg, png
- **Video:** avi, flv, mov, mp4, wmv

A dataset can include different types of formats. As an example, a manually collected dataset concerning user acceptance can consist of both written interview notes, audio files from interviews, pictures from pilot sites, and survey responses. Some of this data cannot be anonymised within the scope of this project (e.g. audio files, interview transcripts in local languages), so in most cases only parts of a dataset can be made openly available.]

Size of data:

The size of the data will vary but will in general be moderate and should not represent any challenge regarding storage capacity or handling. A more detailed list of planned datasets and accessibility is given in Table 3.

2.4 SharePoint and metadata provision

All datasets in the PurPest project will be stored in a SINTEF SharePoint project site. This will be the projects online collaboration area for 48 months the project is active. All partners will be responsible for uploading the datasets they have collected/generated during the project. Each dataset will be catalogued in a list providing an overview of all datasets in the project, as well as uploaded to a dedicated research data folder in the SharePoint site. All datasets will use standard SharePoint version control and access control is available to enable limited access to certain types of data.

These metadata will be provided for each data set:

- File name
- Date
- Version
- File type (given by file extension)
- Description
- WP number (given by folder location)
- Responsible person

- Lead
- Dissemination level

Sharepoint folders:

WP1 – analysis of collected VOCs from plant pest experiments

- One for VOC analysis "raw data"
- One for "standardised data package"

WP2 – The performance evaluations of the different SSP components will be stored in their respective task folder on sharepoint.

WP3 – data analysis

- VOC signature database

WP5 – Impact analysis

- Anonymised survey data will be stored in the folder for task 5.3.
- The data for the literature review and the impact analysis will be stored in their respective task folders

2.5 Zenodo

Zenodo is a "catch-all" open research data repository which gathers research data across all disciplinary fields. It is for non-military purposes only, and the repository is hosted and managed by CERN. All data deposited to Zenodo is stored securely in the CERN Data Centre's cloud infrastructure³ (see section 6.2).

PurPest will use the open research data repository *Zenodo* to comply with the H2020 Open Access Mandate⁴. All scientific publications, including public deliverables and public parts of underlying datasets will be uploaded to the *PurPest Community* and the *European Commission Funded Research (OpenAIRE) Community*⁵ in Zenodo. In addition, the project will upload other datasets (not directly linked to publications and deliverables) with dissemination level "*Public*" and make them openly accessible via Zenodo.

2.6 Instructions for uploading datasets to SharePoint and Zenodo

Table 2 and Figure 1 provide instructions to project participants on how to upload datasets to SharePoint and Zenodo:

Table 2: Instructions for uploading datasets to SharePoint

Upload instructions - PurPest Sharepoint Site
<ul style="list-style-type: none"> • Please identify relevant PurPest folder on sharepoint according to section 2.4. • Use this naming convention as described in section 3.1.5 • Be sure to use the same file name when uploading later versions • Register mandatory metadata, described in section 2.4 after upload.
Upload instructions – Zenodo
<ul style="list-style-type: none"> • Research data underlying scientific publications/classified as "Public" should, in addition, be uploaded to the PurPest Community in Zenodo. To do this you must complete the following steps: <ul style="list-style-type: none"> ○ Create a profile in Zenodo to be able to upload files

³ <https://zenodo.org/>

⁴ http://ec.europa.eu/research/participants/data/ref/h2020/grants_manual/hi/oa_pilot/h2020-hi-oa-pilot-guide_en.pdf

⁵ <https://zenodo.org/communities/ecfunded/?page=1&size=20>



- Click on the *PurPest Community* link above, or search for "*PurPest Community*" under the "Communities" tab at the top of the Zenodo site
- On the Community site, click the green "New upload" button in the top right corner
- Enter requested data and confirm the upload. The information requested is located in the metadata list on SharePoint (*PurPest Research Data*)
- Remember to add the European Commission community in the box labelled "communities". You can use the search function to locate the community and add it. The data will then automatically be uploaded to both communities, so you don't have to do it twice.
- Uploading should be done as soon as possible and at the latest on article publication or EC approval of deliverables for underlying datasets. Other datasets will be uploaded in the final month of the project at the latest.
- The task leader under which the data has been generated or should be published is responsible for uploading the data to Zenodo. If needed, WP2 leader will supply assistance.

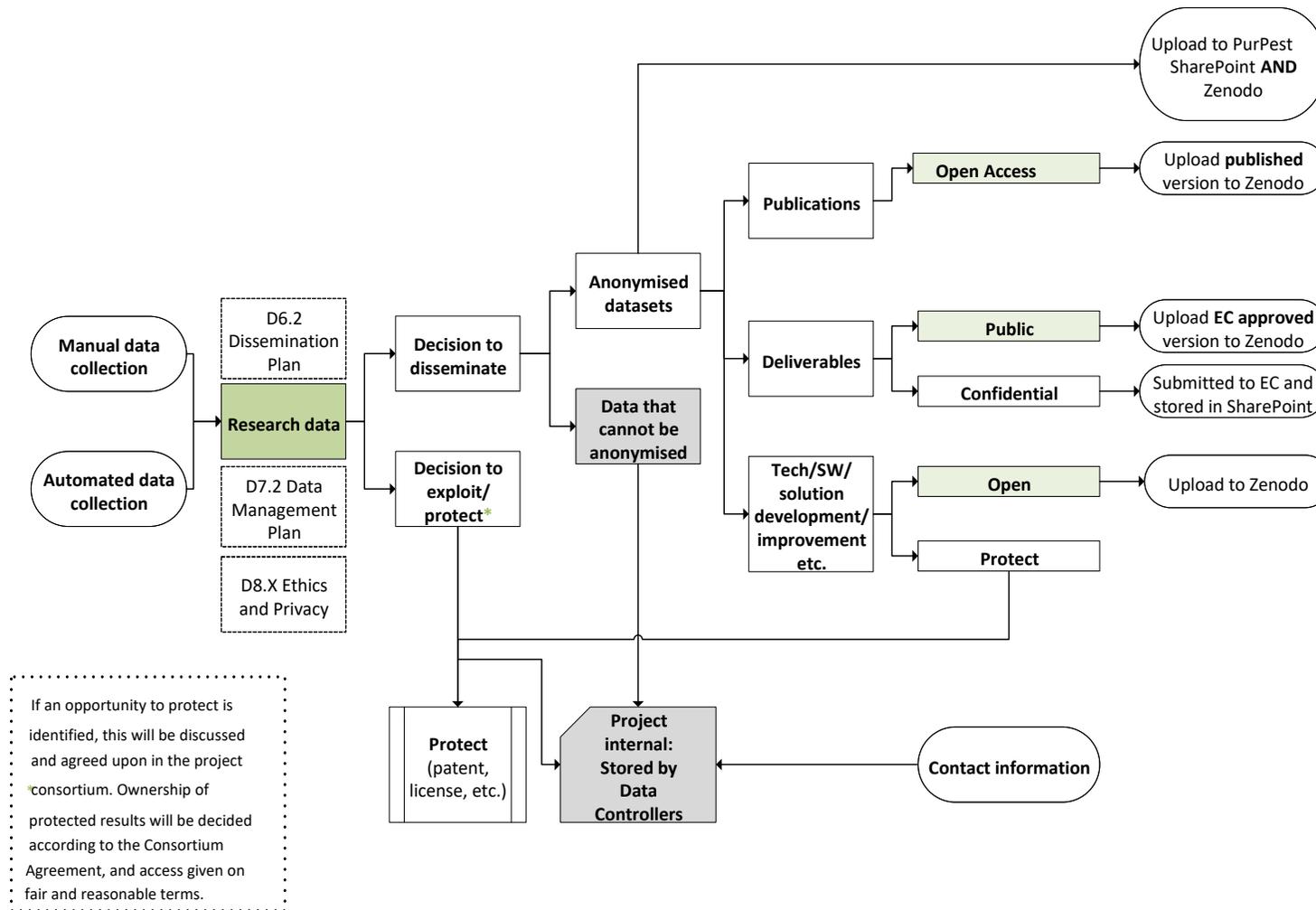


Figure 1: Process for uploading datasets

3 FAIR Data Management

PurPest will manage data in accordance with the principles of **FAIR data management**⁶ (Findable, Accessible, Interoperable and Re-usable data) The project aims to maximise access to, and re-use of research data generated by the project. At the same time, there are datasets, or parts of datasets, generated in this project that cannot be shared in order to protect the privacy of voluntary participants in the pilots and/or to allow for protection of results prior to commercial exploitation and/or to protect business sensitive information / and/or to protect confidential/classified information. Table 3 provides a current overview of the expected datasets in the PurPest project and their accessibility.

3.1 Making data findable

3.1.1 PurPest Community in Zenodo

PurPest will use the Zenodo repository as the main tool to make our research data findable in accordance with the H2020 Open Access Mandate.

A *PurPest* community has been established in the Zenodo repository, and the project will upload all our public datasets and deliverables⁷ as well as scientific publications to this community. In addition, we will link all our uploads to the *European Commission Funded Research (OpenAIRE)* community for maximum findability. All uploads will be enriched with standard Zenodo metadata, including Grant Number and Project PurPest. Zenodo provides version control and assigns DOIs to all uploaded elements.

3.1.2 Metadata in Zenodo

Metadata associated with each published data set in Zenodo will by default be as follows:

- Digital Object Identifiers
- Version numbers
- Bibliographic information
- Keywords
- Abstract/description
- Associated project and community
- Associated publications and reports
- Grant information (project name and GA number)
- Access and licensing info
- Language

3.1.3 Versioning and Digital Object Identifiers (DOI)

Zenodo provides DOI versioning of all datasets uploaded to their communities, which allows us to edit and update the uploaded datasets after they have been published. This also allows us to cite specific versions of an upload and cite all versions of an upload. As an example, DOI versioning of an uploaded software package that is released in two versions can look like this⁸:

- v1.0 (specific version): 10.5281/zenodo.60943
- v1.1 (specific version): 10.5281/zenodo.800648

⁶ http://ec.europa.eu/research/participants/data/ref/h2020/grants_manual/hi/oa_pilot/h2020-hi-oa-data-mgt_en.pdf

⁷ Deliverables will be uploaded once they have been "approved" in the Grant Management Services Portal

⁸ <http://help.zenodo.org/> (DOI versioning)

- Concept (all versions): 10.5281/zenodo.705645

The first two DOIs for versions v1.0 and v.1.1 represent the specific versions of the software. The last DOI represents all the versions of the given software package, i.e. the concept of the software package and the ensemble of versions. They are therefore also referred to as *Version DOIs* and *Concept DOIs*, but technically they are both normal DOIs.

This does not, however, mean that you will receive a new DOI each time you edit the metadata related to your upload (e.g. change the title of a file or dataset). A new DOI version will only be created if you update the actual files you have uploaded.

3.1.4 Approach to search keywords

Each partner who collects and generates public datasets will be responsible for uploading these to Zenodo and to assign specific search keywords relevant to these datasets. Dataset specific keywords must be descriptive to the content of the dataset. E.g., a dataset containing information on user acceptance of a solution should be tagged with corresponding keywords such as, "*Solution*"/"*user acceptance*". In addition, the project has defined a set of general keywords that apply to all public datasets, scientific publications and public deliverables. These are as follows:

- Pest Detection
- Volatile organic compounds
- Sensors

3.1.5 Naming conventions for documents

The naming convention will vary for the type of data collected. For documents we will use the following naming conventions:

YYYY-MM-DD WPX *Descriptive text*_HEU_PurPest_DeliverableNumber

YYYY-MM-DD *Descriptive text*_HEU_PurPest

Explanation of the naming convention:

- YYYY-MM-DD – Date of creation or deliverable submission
- WPX – Relevant work package
- "Descriptive text" refers to a *short* description of the content of the dataset (see example)
- "PurPest" is the project's short name
- "DeliverableNumber" refers to the deliverable number as described in the DoA

Example of document name:

2024-12-31 WP1 List of VOC from oviposition deterrent _HEU_PurPest_D1.3

2023-02-06 MEMO data collection and analysis _HEU_PurPest

3.1.6 Naming convention for VOC collection and analysis datasets

For the VOC collection from the plant and pest experiments, the project has developed a separate naming convention. Each sample will have a unique identifier (Sample Identifier, SID). Any data related to this sample will include a reference to this identifier.

At time of writing, the SID will use the following naming convention:



III-PPP-WWW-NNNN

Where:

- IIII = Institute (NIBI, MEND,...)
- PPP = pest (FAW, PHY etc)
- WWW = Plant
- NNNN = sequential experiment number, internal to the institute

The NNNN term is generated sequentially but the common Excel-file on SharePoint will be the common log file for all plant experiments.

The naming convention for all other datasets are being developed in the internal instruction manual (IIM)

3.2 Making data accessible

The H2020 Open Access Mandate aims to make research data generated by H2020 projects accessible with as few restrictions as possible, but also accept protection of personal or sensitive data due to privacy concerns and/or commercial or security reasons.

All public datasets, scientific publications and deliverables will be uploaded to Zenodo and made openly available, free of charge. Publications and underlying data sets will be linked through use of persistent identifiers (DOI versioning). Data sets with dissemination level "confidential" (non-anonymous datasets) will not be shared due to either privacy, security or ethical concerns. Potentially, some datasets might be restricted due to protection for commercial exploitation. If such cases arise during the project, this will be informed in the final version of the DMP.

Metadata including licences for individual data records as well as record collections will be harvestable using the OAI-PMH protocol by the record identifier and the collection name. Metadata is also retrievable through the public REST API. The data will be available through www.zenodo.org, and hence accessible using any web browsing application. No specific software or hardware is needed to access and reuse the data.

Table 3 below provides a list of all datasets expected to be generated in the PurPest project and their planned accessibility. This list constitutes the first version of dataset description and we recognise that it will develop and grow as the project evolves. In addition, some information concerning the datasets currently remain unknown, e.g. size of the datasets. An updated version of the list containing all dataset details will be provided at the end of the project.

Table 3: Expected datasets in PurPest

WP	Task	Name of dataset	Description/Purpose	Format	Responsible	Origin	Class	Comments
1	1.5	VOC analysis Raw data	Analysis of VOCs emitted and collected from the different plant experiments in PurPest. A common excel file will store experimental parameters and link to external files.	several (xlsx, dat, log, csv)	SINTEF	Plant experiments	CO	This is kept confidential since it is not FAIR. This data will be converted into a FAIR format (next row). Detailed description of how to format collected data given in internal MEMO.
1	1.5	VOC analysis	. This will be standardised from "raw data" for data analysis.	HDF5 or .netCDF (TBD)	SINTEF	Plant experiments	PU	HDF5 or .netCDF (TBD).
1	1.2	List of VOCs from literature review	Purpose is to identify VOCs for sensor development AND identify relevant parameters to record for PurPest plant experiments.	.xlsx	NIBIO	Literature	PU	Will be made publicly available after publishing the literature review.
2	-	Technical specifications for sensor components integration	Technical specifications needed for integration of sensor components into system to create Sensor System Prototype.	.docx	VOL	Partners	CO	Only to be shared internally in the project. Technical specifications can be commercially sensitive.
3	3.4	VOC signatures from different plant experiments	Data analysis of the "raw data" to find chemical signatures for the different pests. This will be used for sensor development.	HDF5 or .netCDF (TBD)	VOL	Plant experiments & AI	PU	List will be made publicly available for sensor community in a FAIR compatible format.
	5.1	Literature review on impacts	Summarise knowledge on PurPest's pests and understand their spread dynamics to assess their damage.	.docx	WBF	Literature	PU	Publicly accessible upon publication.



PurPest D7.2 – Data Management Plan

5	5.3	Preferred management options	Identification of the preferred and/or currently applied management options at the farm level to prevent and alleviate the damage by established (quarantine) pests	.docx .csv .xlsx	WU	Stakeholder Survey	PU, RE	Anonymous survey. Respondents' information available only internally to PurPest's partners, until outcomes of the survey will be published.
5	5.4	Dataset(s) from case studies	Data for the assessment of the pest-specific VOC sensor as a novel management strategy	.docx .csv .xlsx	WU	Case studies (import control, nurseries)	PU, RE	The insights obtained from the case studies will facilitate the cost-benefit analysis of the sensor and the comparison with the management options derived from Task 5.3. Open after publication.
6	6.5	Stakeholder feedback	Dataset to verify the results derived from Tasks 5.3 and 5.4	.docx	WU	Participatory Research, Stakeholder and expert workshop	PU	To be shared internally within the project's partners.

3.3 Making data interoperable

Zenodo uses JSON schema as the internal representation of metadata and offers export to other formats such as Dublin Core, MARCXML, BibTeX, CSL, DataCite and export to Mendeley. The data record metadata will utilise the vocabularies applied by Zenodo. For certain terms, these refer to open, external vocabularies, e.g.: license (Open Definition), funders (FundRef) and grants (OpenAIRE). Reference to any external metadata is done with a resolvable URL.

The project will collect massive amounts of data from plant experiments and VOC analysis. The VOC analysis will be done using many different types of equipment with varying output file types. The project will therefore standardise all this data into a standardised format, using one of the two formats:

- netCDF⁹ (network common data format)
- HDF¹⁰ (hierarchical data format)

The two file types are self-describing formats, which means that each file consists of metadata and data. The files are binary, such that they are not human-readable per se. Metadata can be added freely and should always include physical units. There are standard libraries to open and generate such file formats, for example in Python and Matlab. The formats are very similar to each other, though netCDF is even more flexible and easier to work with than HDF.

The overall methodology for VOC collection, labelling and analysis is illustrated in Figure 2.

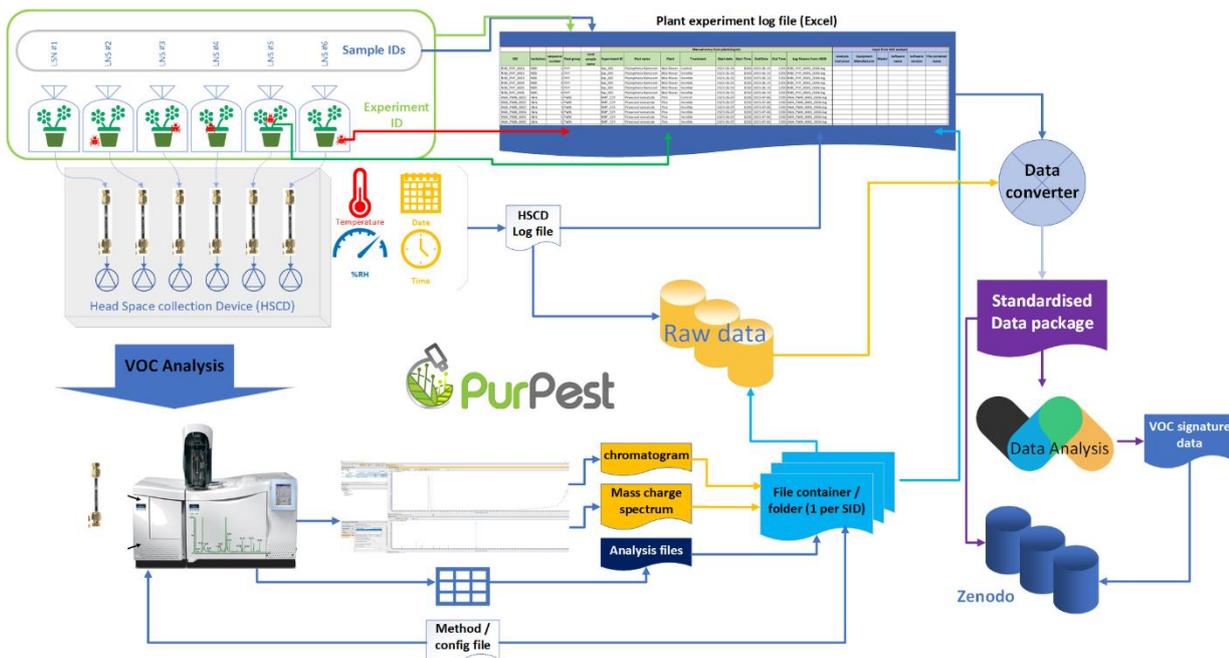


Figure 2: The overall methodology of VOC collection, labelling and analysis

At the time of writing the format has not been decided.

⁹ <https://www.unidata.ucar.edu/software/netcdf>

¹⁰ <https://portal.hdfgroup.org/display/HDF5/HDF5>

3.4 Reusable data

The PurPest project will enable third parties to access, mine, exploit, reproduce and disseminate (free of charge for any user) all public data sets, and regulate this by using Creative Commons Licences.

3.4.1 Recommended Creative Commons (CC) licences

PurPest will use Creative Commons licences (CC), which are tools to grant copyright permissions to creative work. As a default, the CC-BY-SA license will be applied for public PurPest research data. This license lets others remix, tweak, and build upon your work even for commercial purposes, as long as they credit you and license their new creations under the identical terms. This license is often compared to “copyleft”, free and open source software licenses. With this licence all new work based on PurPest data and results will carry the same license, so any derivatives will also allow commercial use. This does not preclude the use of less restrictive licenses as CC-BY or more restrictive licenses as CC-BY-NC, which does not allow commercial usage.

Application of licences will be assessed on a case-by-basis in close collaboration with the Coordinator, Innovation Manager and partners concerned.

3.4.2 Availability and longevity of the PurPest research data sets

Public (anonymous) data

For data published in scientific journals, the underlying data will be made available no later than by journal publication. The data will be linked to the publication. Data associated with public deliverables will be shared once the deliverable has been approved and accepted by the EC. For other public datasets not directly linked to a scientific publication or deliverable, such datasets will be made available upon assessment by the responsible partner that it is ready for publishing, and in the final month of the project at the latest.

Open data can be reused in accordance with the Creative Commons licences. Data classified as confidential will as default not be reusable due to privacy/security concerns.

The public data will remain reusable via Zenodo for at least 20 years. This is currently the lifetime stated by the host laboratory CERN. If Zenodo has to close their operations, they have provided a guarantee that they will migrate all content (including metadata) to other suitable repositories.

Confidential (non-anonymous) data

All non-anonymous data will be deleted at the end of the project. In case permission is given by the party providing and owning the data, some non-anonymous data will be kept for a maximum of 4 months after the contractual end date of the project¹¹. The additional 4 months is to keep the underlying datasets available to allow the completion of any scientific publications being prepared towards the end of the project.

An exemption is pictures and videos, taken with consent from voluntary project/pilot/workshop/exercise participants, that are used for communication purposes. If consent is *not* withdrawn at an earlier time, such data will be kept for up to 4 years after the end of the project to comply with the EC contractual obligation to

¹¹ At present, the contractual end date of the XXXX project is: 0000-00-00. However, changes can be made to this date during the project (e.g. in case of a project extension) and the final version of the DMP will provide the exact date.



continue dissemination, communication and exploitation activities after the project ends. If a party withdraws the consent to use this material (pictures, videos), it will be deleted without delay.

Classification of research outputs

The process of classifying research outputs from the PurPest project follows the guidelines provided in the "*H2020 Guidance for the classification of information in research projects*"¹² and will be described in updated versions of this document. Currently, no outputs from the project are expected to receive classification levels that restrict their handling or use in or outside the project.

¹² H2020 Programme. *Guidance for the classification of information in research projects*. Version 2.1. 26 October 2016. https://ec.europa.eu/research/participants/data/ref/h2020/other/hi/secur/h2020-hi-guide-classif_en.pdf

4 Using references in deliverables and other project memos

There are many different referencing software packages on the market. However, from experience it is not advisable to use the automatic features in MS Word for this purpose when many contributors are working on the same document as this will cause many errors in cross referencing. Additionally, none of the referencing software will work on Word Online, which may be used by some members of the consortium at times.

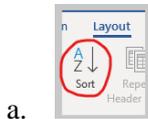
4.1 Instructions for referencing

To mitigate this issue before it arises, the consortium has decided to use the following procedure for adding references in deliverables and other internal project memos.

1. In the referencing chapter add a single column table without borders
2. Use the referencing software of choice to generate the reference in the style "Elsevier – Harvard with titles" (This is the name of the style in Zotero. It may differ in Endnote and other software). Below is an example (Simmons et al. 2004)

Simmons, A., Hyvarinen, J., Odell, R.A., Martin, D.J., Gunatillake, P.A., Noble, K.R., Poole-Warren, L.A., 2004. Long-term in vivo biostability of poly(dimethylsiloxane)/poly(hexamethylene oxide) mixed macrodiol-based polyurethane elastomers. *Biomaterials* 25, 4887–4900. <https://doi.org/10.1016/j.biomaterials.2004.01.004>

3. Copy and paste this reference to the first available row in your reference table.
4. In the text, add the reference in parathesis: (<Author surname> et al. <Year>), e.g. (Simmons et al. 2004). If there are more than one reference, add them in alphabetical order, separated by a semi colon (";"). E.g. Thomas Jung did fantastic work (Bazin et al. 2008; Jung et al. 2022; Simmons et al 2004) when in the forest...
5. When the deliverable is to be completed, select the reference table and use the "SORT" function in word. Make sure there are no empty rows since this will cause confusion for Word.



4.2 Example of reference table in deliverables and other project memos.

Unsorted

Simmons, A., Hyvarinen, J., Odell, R.A., Martin, D.J., Gunatillake, P.A., Noble, K.R., Poole-Warren, L.A., 2004. Long-term in vivo biostability of poly(dimethylsiloxane)/poly(hexamethylene oxide) mixed macrodiol-based polyurethane elastomers. *Biomaterials* 25, 4887–4900. <https://doi.org/10.1016/j.biomaterials.2004.01.004>

Bazin, D., 2008. VOCs in the forest, *Journal of fantastic trees* 47, 89-98.

Jung, T. et al., 2022. *Phytophthora* is not good, *Journal of Phytophthora*, 1-5.

Sorted:

Bazin, D. VOCs in the forest, some journal, 2008

Jung, T. et al., 2022. *Phytophthora* is not good, *Journal of Phytophthora*, 1-5.

Simmons, A., Hyvarinen, J., Odell, R.A., Martin, D.J., Gunatillake, P.A., Noble, K.R., Poole-Warren, L.A., 2004. Long-term in vivo biostability of poly(dimethylsiloxane)/poly(hexamethylene oxide) mixed



macrodiol-based polyurethane elastomers. Biomaterials 25, 4887–4900.
<https://doi.org/10.1016/j.biomaterials.2004.01.004>

5 Allocation of resources

Costs

PurPest uses standard tools and a free of charge research data repository. The costs of data management activities are limited to project management costs and will be covered by allocated resources in the project budget.

Long-term preservation of the public data is ensured through Zenodo. Other resources needed to support reuse of data after the project ends will be solved on a case-by-case basis.

Data Manager

The overall responsibility for data management lies with the Project Coordinator, which is Andrea Ficke. Project coordinator will be assisted in this task by the Management Support Team.

6 Data Security

In this chapter, the security features of the research data infrastructure used to store and handle data in the PurPest project are described.

6.1 Active Project - Data security as specified for SINTEF SharePoint

SINTEF SharePoint is the online collaboration platform used for the PurPest project. A dedicated project site has been established on this platform, accessible only by the partner representatives in the consortium.

The PurPest Sharepoint site has the following security settings:

- Access level: Restricted to persons (project members only). Further access restrictions on specific folders is enabled.
- Encryption with SSL/TLS protects data transfer between partners and the SINTEF SharePoint site.
- Threat management, security monitoring, and file-/data integrity prevents and/or registers possible manipulation of data.

Documents and elements in the SINTEF SharePoint sites are stored in Microsoft's cloud solutions, based in Ireland and the Netherlands. There will be no use of data centres in the US or outside EU/EEA and associated countries¹³.

Nightly back-ups are handled by SINTEF's IT operations contractor. As a baseline, all project data will be stored for 10 years according to SINTEF's ICT policy, unless otherwise agreed in contracts and data processing agreements.

6.2 Repository - Data security as specified for Zenodo

The following list describes the security settings for Zenodo:

- Versions: Data files are versioned. Records are not versioned. The uploaded data is archived as a Submission Information Package. Derivatives of data files are generated, but original content is never modified. Records can be retracted from public view; however, the data files and records are preserved.
- Replicas: All data files are stored in the CERN Data Centres, primarily Geneva, with replicas in Budapest. Data files are kept in multiple replicas in a distributed file system, which is backed up to tape on a nightly basis.
- Retention period: Items will be retained for the lifetime of the repository. The host laboratory of Zenodo CERN, has defined a lifetime for the repository of the next 20 years minimum.
- Functional preservation: Zenodo makes no promises of usability and understandability of deposited objects over time.
- File preservation: Data files and metadata are backed up nightly and replicated into multiple copies in the online system.
- Fixity and authenticity: All data files are stored along with an MD5 checksum of the file content.
- Files are regularly checked against their checksums to assure that file content remains constant.
- Succession plans: In case of closure of the repository, a guarantee has been made from Zenodo to migrate all content to suitable alternative institutional and/or subject based repositories.

¹³ EEA = Norway, Iceland, Liechtenstein

7 Ethical Aspects

The proposed work in PurPest will fully comply with the regulations set out in Regulation (EU) 2016/679, the General Data Protection Regulation (GDPR)¹⁴. In addition, PurPest comply with the principles of the European Charter for Researchers, the European Code of Conduct for Research Integrity, including ethical standards and guidelines, regardless country in which research is carried out.

An ethics advisor has been hired by the PurPest consortium to advise on any issues relevant to ethical aspects in the project:

The Ethics Advisor shall be consulted at least on the following points:

- The ethically adequate transfer of VOCs, pest samples and sensor components among EU and non-EU countries.
- Proper handling of personal data regarding the stakeholder survey (T5.3).
- Potential harm to the environment (e.g. accidental release of insects).
- Explaining in detail whether materials and data are exchanged between EU and Non-EU partners and what measures are taken to ensure European data protection rules are followed.
- A report by the Ethics Advisor regarding these issues must be submitted as a deliverable at the end of each reporting period; the first report is due after the first reporting period.

Contact information

Use of e-mail addresses in PurPest SharePoint Site:

An e-mail address is by definition personal information and covered by GDPR. The e-mail addresses of project participants are stored in the PurPest SharePoint Site. Only the project participants invited will have access. The e-mail address is a prerequisite to access the projects working area. By accepting the SharePoint invitation, the participants consent to use and store their e-mail address for the purpose of online collaboration in the project.

The email-addresses will be deleted when access to the project area is no longer needed.

SINTEF has signed GDPR data processing agreements with both Microsoft and the IT operations contractor handling our SharePoint platform.

Pictures and videos for communication purposes

PurPest will collect pictures and videos for use in communication activities (website, newsletter, social media). Such data will only be collected with prior consent from the people involved and only used for as long as consent is given. Pictures and video can contain personal data if an individual is the focus of the image or video. Examples include: 1) pictures/video of individuals stored together with personal details (e.g. identity cards); 2) pictures/video of individuals posted on the project website along with biographical details; 3) individual images published in a newsletter. Examples of pictures and video that is unlikely to contain personal data are: 1) pictures/video where people are incidentally included in an image or are not the focus (e.g. at a big conference/workshop); 2) images of people who are no longer alive (the GDPR only applies to living people, see section [Feil! Fant ikke referanseilden.](#)).

When collecting pictures and video PurPest will follow established guidance and best practice on collecting and processing such data to ensure that we adhere to the legal requirements (e.g. guidance established by the

¹⁴ Regulation (EU) 2016/679 of the European Parliament and of the Council of 27 April 2016 on the protection of natural persons with regard to the processing of personal data and on the free movement of such data, and repealing Directive 95/46/EC. <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex%3A32016R0679>



PurPest D7.2 – Data Management Plan

University of Reading, UK¹⁵). Under no circumstances will pictures containing personal information be publicly shared without the subject's explicit consent.

The PurPest project partners are obliged by European and national law (GDPR) to protect personal data.

The coordinator of the PurPest project, NIBIO, follow ethical guidelines in its work, and *all* work conducted by NIBIO is subject to the NIBIO Ethics Council and the appointed Ethics Representative. NIBIO will also ensure that all participants in the PurPest project follows the ethical guidelines of NIBIO. Important aspects with respect to this are:

- The ethical guidelines are based on the vision of using science and technology to create a better society and are reviewed continuously to ensure they stay up to date with developments in society and the challenges of today. They generally fall into these categories: research ethics, business ethics, and ethics in interpersonal relationships.
- NIBIO ethics are guided by the principles on the regulations of the national ethics committees, the principles promoted by the European Code of Conduct for Research Integrity and on international conventions such as the Vancouver and Helsinki Conventions. When dilemmas of research ethics require an assessment beyond the scope of our guidelines, our Ethics Council and Ethics Representative, we refer to statements from the EGE.
- All NIBIO employees are expected to act in accordance with the ethical guidelines and principles. As coordinator of the PurPest project, NIBIO will ensure that any ethical issues, which may arise, will be handled appropriately and in a transparent and fair manner.

¹⁵ <https://www.reading.ac.uk/internal/imps/DataProtection/DataProtectionRequirements/imps-d-p-photographic.aspx>



8 Conclusions

Formal approval and release of this deliverable within the consortium constitutes a formal commitment by partners to adhere to the DMP and the procedures it defines. When the deliverable is formally approved by the European Commission, this constitutes confirmation that the procedures are considered by the European Commission to be adequate.

As coordinator of the PurPest project, NIBIO will ensure that any data management issues which may arise during the project will be handled appropriately and in a transparent and fair manner.

The DMP is a living document that will expand as the project evolves and new information on data collection, generation and handling arise. Day to day data management will happen through the online tools described in this document, and through continuous collaboration between the partners responsible for data collection and generation in the project. A revised and extended version of this DMP will be prepared towards the end of the project to reflect the current status of data management in the project.



9 References

European Commission. *H2020 Programme. Guidance for the classification of information in research projects*. Version 2.1. 26 October 2016

European Commission. *H2020 Programme. Guidelines on FAIR Data Management in Horizon 2020*. Version 3.0, 26 July 2016

European Commission. *Horizon 2020 Programme. Guidelines to the Rules on Open Access to Scientific Publications and Open Access to Research Data in Horizon 2020*. Version 3.2, 21 March 2017

Regulation (EU) 2016/679 of the European Parliament and of the Council of 27 April 2016 on the protection of natural persons with regard to the processing of personal data and on the free movement of such data, and repealing Directive 95/46/EC

A Appendix A: Template for Data Processing Agreement

DATA PROCESSING AGREEMENT

Between

[ENTER DATA PROCESSOR], Company Reg. No. [xxx xxx xxx] (“the Data Processor”)

and

[ENTER CLIENT/PARTNER], Company Reg. No. [xxx xxx xxx] (“the Data Controller”)

being an agreement regarding the processing of personal data (“the Agreement”) to be performed by the Data Processor on behalf of the Data Controller as a consequence of [ENTER BACKGROUND, e.g. agreement entered into with the Data Processor as the Supplier and the Data Controller as the Client dated [date] (“the Principal Agreement”)].

1. The purpose of the agreement

The Data Processor shall process personal data on behalf of the Data Controller based on the background indicated above.

The purpose of the data processing, the duration and nature of the processing, the type of personal data to be processed and the categories of registered individuals are specified in attachments to this Agreement.

The Agreement shall ensure that personal data are processed in accordance with prevailing statutory requirements for processing personal data, including EU Directive 95/46/EF of 24 October 1995 on the protection of individuals relating to the processing of personal data and on the free movement of such data, which has been implemented in Norway through Act No. 31 of 14 April 2000 relating to the processing of personal data (the Personal Data Act) and associated statutory regulations, as well as the requirements pursuant to decree of the European Parliament and Council relating to the protection of individuals with regard to the processing of personal data and on the free movement of such data, superseding on 27 April 2016 Directive 95/46/EF (the Data Protection Directive), and Norwegian law and associated statutory regulations adopted pursuant to the Data Protection Directive and replacing the Norwegian Personal Data Act. Both the current and the subsequent Personal Data Act are referred to below as “the Personal Data Act”.

The Data Processor shall process the personal data as described in the Agreement, and in other ways as may be agreed in writing between the Data Processor and the Data Controller.

Terms and definitions used in the Agreement shall be construed in the same way as in the Personal Data Act.

2. The rights and obligations of the Data Controller. The obligations of the Data Processor

The Data Controller shall ensure that the relevant personal data can be processed. Specifically, Data Controllers shall ensure that adequate legal authority exists and that the agreements entered into with the registered individuals and any consents given are commensurate with and facilitate the processing of personal data as specified in Attachment 1.

The Data Processor confirms that it will implement suitable technical and organisational measures to ensure that all processing pursuant to this Agreement satisfies the requirements of the Personal Data Act with respect to the protection of the rights of the registered individual, as well as complying with all the requirements of

[Article 32](#) of the Data Protection Directive. See also Section 4 for additional obligations. The Data Controller shall at all times maintain full legal ownership of the personal data.

The Data Processor shall only process personal data on the basis of written instructions received from the Data Controller. The Data Processor shall at all times be able to provide documentation of such instructions. The Data Processor shall not process personal data to which it obtains access in any other manner than is necessary to carry out the assignments it receives from the Data Controller.

The Data Processor shall assist the Data Controller in responding to requests submitted by a registered individual wishing to exercise his or her rights pursuant to Chapter III of the Data Protection Directive, taking into account the nature of the processing, also assisting as far as possible by way of suitable technical and organisational measures. The Data Processor shall also assist the Data Controller by ensuring compliance with the requirements connected with personal data security and the assessment of the consequences for personal protection and prior consultation in [Articles 32 to 36](#), taking into account the nature of the processing and the information available to the Data Processor. If approved standards of conduct exist, pursuant to [Article 40](#) of the Data Protection Directive or approved certification pursuant to [Article 42](#), with which the Data Processor has undertaken to comply or according to which it has undertaken to be certified, the Data Processor is obliged to comply with said standards of conduct or certification requirements.

The Data Processor shall maintain a log of processing activities it carries out on behalf of the Data Controller, which shall include at least the information specified by [Article 30](#) of the Data Protection Directive. The Data Controller may at any time demand to be provided with a copy of such log.

The Data Processor shall make available to the Data Controller any information necessary to demonstrate that the obligations specified in this Section 2 are fulfilled, as well as facilitating and contributing to audits, including inspections, performed by the Data Controller or any other inspector authorised by the Data Controller. This also applies to providing access to security documentation. The Data Controller itself has direct responsibility for liaison with the relevant supervisory authorities.

The Data Processor has an obligation of secrecy with regard to personal data to which it obtains access as a consequence of the Agreement and its processing of personal data, and shall ensure that persons authorised to process the personal data have undertaken to do so confidentially or are subject to appropriate statutory professional confidentiality. This provision applies also after the expiry of the Agreement.

The Data Processor shall not divulge data or information that it processes on behalf of the Data Controller to third parties without explicit instructions from the Data Controller. The Data Processor shall forward any enquiries received in this respect to the Data Controller without undue delay.

If the Data Processor is of the opinion that an instruction from the Data Controller is in conflict with the Data Protection Directive, the Personal Data Act or any other regulation regarding the processing of personal data, the Data Processor shall immediately inform the Data Controller of this. The Data Processor undertakes to discharge its obligations pursuant to the Agreement irrespective of its opinion.

3. The use of sub-vendors

When processing personal data, the Data Processor shall only use sub-vendors (data processing sub-vendors) which have been approved in writing by the Data Controller and which have been confirmed as implementing suitable technical and organisational measures to ensure that processing pursuant to this Agreement complies with the requirements of the Personal Data Act and the need to protect the rights of registered individuals.

Approved data processing sub-vendors at the time of entry into the Agreement are specified in an attachment to the Agreement.

The Data Controller grants the Data Processor general permission to use data processing sub-vendors to process personal data pursuant to the Agreement. If the Data Processor plans to use other data processing sub-vendors or substitute other data processing sub-vendors, the Data Processor shall inform the Data Controller of such plans and give the Data Controller an opportunity to oppose such changes.

Any data processing sub-vendor shall be made familiar with the obligations of the Data Processor pursuant to this Agreement and with the regulations governing the processing of the Data Controller's personal data, and shall be subject to the same obligations with regard to the protection of personal data as are stipulated in the Agreement. The data processing sub-vendor shall furnish adequate guarantees that technical and organisational measures will be adopted to ensure that its processing complies with statutory requirements. If a data processing sub-vendor fails to satisfy its obligations with regard to the protection of personal data and the requirements of the Agreement, the Data Processor shall assume full responsibility vis-à-vis the Data Controller for the sub-vendor's failure to satisfy those obligations.

4. Security and non-conformances

The Data Processor shall satisfy the requirements with regard to security measures as specified by the Personal Data Act and associated statutory regulations. The Data Processor shall be able to document its procedures and other initiatives for satisfying these requirements. The documentation shall be made available to the Data Controller on request.

Security audits shall be carried out regularly at times agreed by the parties to the Agreement. An audit may embrace a review of procedures, random inspections, more comprehensive local inspections and other appropriate verification measures. Agreement shall be reached with regard to the Data Controller's obligation to cover the cost of any use of personnel and resources necessary in connection with the performance of such audits.

In the event of breach of security or personal protection stipulations, the Data Processor shall notify the Data Controller without undue delay. Such notification shall include at least the following:

1. A description of the nature of the breach of personal data security, including, wherever possible, the categories and approximate number of registered individuals affected, and the categories and approximate number of personal data records affected,
2. the name and contact details of the personal protection advisor or any other contact site at which additional information may be obtained,
3. a description of the probable consequences of the breach of personal data security,
4. a description of the measures taken or proposed to handle the breach, including where relevant measures for reducing any adverse effects resulting from the breach.

If all the information cannot be provided in the first instance, it shall be provided successively as soon as it becomes available.

The Data Controller is responsible for submitting notification to the supervisory authority and the Data Processor shall not submit such notification nor contact the supervisory authority unless instructed to do so by the Data Controller.

5. Transfer of data to foreign countries

Personal data shall only be transmitted to third countries outside the EU or EEA according to instructions from the Data Controller. The Data Processor shall therefore not transmit, or allow parties in third countries in any way to obtain access to, personal data without explicit prior approval and instructions to this effect from the

Data Controller. Consent and instructions must specify the countries to which the information may be transmitted. Even with consent and instructions, transfer to third countries shall only take place on condition that the requirements regarding security and the protection of the rights of the registered individuals pursuant to the Personal Data Act and other rules are satisfied.

6. The duration of the Agreement, termination orders, obligations in the event of expiry or cancellation

The Agreement is valid as long as the Data Processor processes or has access to personal data on behalf of the Data Controller pursuant to the Principal Agreement.

In the event of breach of this Agreement, the Personal Data Act or other relevant rules, the Data Controller is entitled to order the Data Processor to cease processing of the information with immediate effect.

On completion of the services connected with processing, the Data Processor shall, as instructed by the Data Controller, delete or return any personal data to the Data Controller and delete all existing copies unless required by law to continue to store the personal data. This also applies to any back-up copies, where it is enough to overwrite according to established routines for back-up creation.

The Data Controller shall receive written confirmation from the Data Processor that all personal data have been returned or deleted according to the instructions of the Data Controller, and that the Data Processor has not retained copies, printouts or personal data in any other form.

7. Other obligations and rights

Other obligations and rights ensue from the Principal Agreement between the Data Processor and the Data Controller regarding the services that necessitate the processing of personal data, and from this Agreement. The same contact representatives will serve in connection with this Agreement as for the Principal Agreement.

This Agreement shall not expand the Data Controller's right to impose sanctions, including the Data Processor's liability for damages, beyond the rights pursuant to the Principal Agreement.

In the event of conveyance of the Principal Agreement to other parties, this Agreement shall be conveyed correspondingly.

_____. _____ 2023

The Data Processor

The Data Controller

NAME

NAME

Two original copies of this Agreement have been prepared, of which each party has received one.



Attachments

The purpose of processing

[The purpose and intention of the processing shall be entered here.]

The duration of the processing

[Enter the length of time the processing shall take. If the processing is according to an agreement between the parties, the duration shall be expressed as “The processing shall last for as long as the Data Processor provides services to the Data Controller pursuant to the Principal Agreement.]

The nature of the processing

[Specify here what the processing consists of, for example, “Storage of personal data” or whatever circumstances necessitate the processing pursuant to the Principal Agreement.]

Types of personal data to be processed

The following types of personal data shall be processed pursuant to the Agreement:

[Enter the type of personal data, e.g. personal name, e-mail address, telephone number, etc. It is not necessary to give details of the information to be processed, only *the type* of information.]

Categories of registered individuals

[Specify categories of registered individuals, such as employees, clients, etc.]

Data processing sub-vendors at the time of entry into the Agreement

[Specify data processing sub-vendors and countries in which the data will be processed]

Members of the PurPest consortium



NIBIO
NORWEGIAN INSTITUTE OF
BIOECONOMY RESEARCH

Norsk Institutt for Bioøkonomi
(NIBIO)
Høgskoleveien 7
1432 Ås
Norway
www.nibio.no

**Project Coordinator & Scientific
Manager:**
Andrea Ficke
Andrea.ficke@nibio.no



SINTEF AS (SINTEF)
NO-7465 Trondheim
Norway
www.sintef.com

Project' Technical Manager:
Daniel Nilsen Wright
Daniel.nilsen.wright@sintef.no



NTNU

Norwegian University of Science and
Technology (NTNU)
Hogskoleringen 1
7491 Trondheim
Norway
www.ntnu.edu

Contact: Bente Berg
Bente.berg@ntnu.no



Julius Kühn-Institut
Bundesforschungsinstitut für
Kulturpflanzen (JKI)
Erwin-Baur-Strasse 27,
06484 Quedlinburg
Germany
www.julius-kuehn.de

Contact: Jürgen Gross
Juergen.gross@julius-kuehn.de



SAFTRA Photonics, SRO. (SAFTRA)
Moldavska Cesta 51,
040 11 , Kosice
Slovakia
www.saftra-photonics.org

Contact: Stanislav Roučka
Stanislav.roucka@saftra-photonics.org



Plante og Importkontroll AS (PLI)
Bruvegen 24
2409 Elverum
Norway
www.importkontroll.com

Contact: Martin Uthus
Martin.uthus@buskerudts.no



UNIVERSITÀ
DEGLI STUDI
DI PADOVA

Università Degli Studi Di Padova (UNIPD)
Via 8 Febbraio 2,
35122, Padova
Italy

Contact: Luca Cappellin
Luca Cappelin@unipd.it

www.unipd.it



Instituto Nacional de
Investigação Agrária e
Veterinária, I.P.

Instituto Nacional de Investigação
Agrária e Veterinária/INIAV
Quinta do Marquês,
2780-157 Oeiras
Portugal

**Dissemination and
communication coordinator:**
Maria L. Inácio
lurdes.inacio@iniav.pt

www.iniaiv.pt/



Mendelova Univerzita v Brne, (Mendelu)
Zemelska 1/1665,
61300 Brno Sever
Czechia

Contact: Thomas Jung
Thomas.jung@mendelu.cz

www.mendelu.cz



Volatile Technologies Lt UAB, (VOL)
Sauletekio Al. 15-1
10224 Vilniaus
Lithuania

Contact: Adomas Malaiska
adomas@volatile.ai

<https://volatile.ai/enose>



Airmotec Ag - Chromatotec Group,
(AIRMO)
15 Rue D'artiguelongue, Saint-Antoine,
33240 Aquitaine , Val De Virvee,
France

Contact: Damien Bazin
damien.bazin@chromatotec.com

www.chromatotec.com/



Wageningen University (WU)
Droevendaalsesteeg 4
6708 PB Wageningen
Netherlands

www.wur.nl/

Contact: **Justus Wesseler**
justus.wesseler@wur.nl



Direcção-Geral De Alimentação E
Veterinária (DGAV)
Largo Da Academia Das Belas Artes 2
1249-105 Lisboa,
Portugal

<https://www.dgav.pt/>

Contact : **Maria Clara de Almeida Serra**
cserra@dgav.pt



Associação Para A Valorização Da
Floresta De Pinho (CNP)
Estrada 23 De Fevereiro, Nº 372,
Deocriste,
4905-261 Norte, Viana Do Castelo
Portugal

www.centropinus.org/

Contact: **Susana Carneiro**
susanacarneiro@centropinus.org



Universidade De Evora (UNIEV) Largo
Dos Colegiais 2,
7000 803 Evora
Portugal

<https://www.uevora.pt/en>

Contact : **Dora Teixeira**
dmt@uevora.pt



Universite De Neuchatel (UNINE)
Faubourg De L'hospital 41,
2000 Neuchatel
Switzerland

www.unine.ch/

Contact: **Ted Turlings**
ted.turlings@unine.ch



PurPest D7.2 – Data Management Plan



Schweizerische Eidgenossenschaft
Confédération suisse
Confederazione Svizzera
Confederaziun svizra

Agroscope

Eidgenössisches Departement für
Wirtschaft, Bildung und Forschung,
(WBF)
Bundeshaus Ost
3003 Bern
Switzerland

www.agroscope.admin.ch/

Contact: **Jana Collatz**
jana.collatz@agroscope.admin.ch



The University of Warwick, (UWAR)
Kirby Corner Road –
University House, CV4 8UW ,
Coventry,
United Kingdom

<https://warwick.ac.uk/>

Contact: **Marina**
Marina.Cole@warwick.ac.uk



DX.X– Title of Deliverable