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SUSTAVIANFEED

ALTERNATIVE ANIMAL FEEDS IN MEDITERRANEAN POULTRY BREEDS TO OBTAIN SUSTAINABLE PRODUCTS

Data Management Plan - #3

DELIVERABLE 1.4

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PROJECT INFORMATION	
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SUMMARY

The Horizon 2020 FAIR Data Management Plan (DMP) template is designed to be applicable to any Horizon 2020 project that produces, collects, or processes research data. In addition, this template is applicable to PRIMA projects.

SUSTAvianFEED project consortium has developed a DMP for the project to cover its overall approach.

The present document, Deliverable 1.4 is a review of the DMP developed in Deliverable 1.3. It includes the project's collected data in the second half of the project and the approach to the management of the data in accordance with project activities.

In addition, the document includes the Intellectual Property Rights (IPR) considerations for the project implementation.

The main principles of the DMP have not been modified, as there was no need to update data sharing or data collection protocols. On the other hand, the document includes a set of activities and documents developed during the period (M25-M48), such as databases, contact lists, consent forms or workshops, among others.

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Acronyms and abbreviations

Abbreviation	Description
CSV	Comma-separated values
DMP	Data Management Plan
FAIR	Findable, accessible, interoperable and re-usable
GDPR	General Data Protection Regulation
IP	Intellectual Property
PC	Project Coordinator
XML	Extensible Markup Language

1. INTRODUCTION

SUSTAvianFEED project complies with the FAIR data management concept to develop and update the Data Management Plan (DMP). FAIR data management requires that the project data should be 'FAIR', meaning: findable, accessible, interoperable, and re-usable. These principles precede implementation choices and do not necessarily suggest any specific technology, standard, or implementation-solution.

The DMP is not intended as a strict technical implementation of the FAIR principles; it is inspired by FAIR as a general concept. The following documents have been referred in order to develop the present DMP.

- Guidelines on FAIR Data Management in Horizon 2020 (EC, 2016)
- FAIR data principles (FORCE11, 2016)
- FAIR principles (Wilkinson et al., 2016)

The FAIR DMP template (EC, 2016) establishes a set of questions that should be answered with a level of detail appropriate to the project. It is not required to provide detailed answers to all the questions in the first version of the DMP that needs to be submitted by month 6 of the project.

Furthermore, the DMP was considered a living document, which have been updated according to project implementation needs. It has been updated in M24 and M48, as the present document shows. These dates are related to the mid-term and final reviews.

2. DATA SUMMARY

SUSTAvianFEED project will collect and generate data during the whole project duration and this has been the case during the first project period. This data is collected and generated according to project needs for successful project implementation.

The project collects and generates data in two main set of activities.

1. Firstly, for the pilot project implementation and the environmental, economic, and social analysis of the pilot activities (WP3), project partners will collect relevant data about the processes followed. The preparatory work of WP2 has been already developed and data and relevant info has been collected.
2. Secondly, the Living Lab activities (Task 4.1) address stakeholders from the quad-helix and the different participatory activities will generate data to be analyzed for project implementation. While in the first case, most of the data is to be provided by project partners, in the second one, the data is provided by the participants in the Living Lab activities. In this case, GDPR is followed. In addition, for communication and dissemination activities a contact database has been developed. This database follows GDPR as well.

On the other hand, the project generated data which have been published on the project website in the project deliverables, scientific articles and communication and dissemination materials. The deliverables were included in the project website once they have been approved. Different communication and dissemination material, together with press kit have been already included.

Data is supplied mainly in XLSX, CSV, PDF or Word DOCX formats in order to ensure compatibility with as many software as possible.

Existing databases have already been used as well for the development of the Life Cycle Assessment.

Regarding the size of the data generated at the end of the project, it is estimated in around 15 Gigabytes.

The generated data will benefit further projects and investigations on the sustainability field of the agri-food sector.

Table 1. Overview of SUSTAvianFEED collected data in the first reporting period (M1-M24)

Tasks/Tools/Activities related to data	Format	Work Package	Related deliverables in the 1st reporting period (M1-M24)	Responsible Partner(s)
Analysis of insects' farming questionary for each pilot region	.doc	WP2	D2.2. Potential for insect production in each pilot area	ENTOMO
Environmental impact of the diets with ReCipe 2016 assessment	.doc and .xlsx	WP2	D2.4 Environmental evaluation of the alternative diet	UMU
Environmental impact of the diets with ILCD 2011 assessment	.doc and .xlsx	WP2	D2.4 Environmental evaluation of the alternative diet	UMU
Nutritional characterization of ingredients	.doc	WP2	D2.5 Nutritional and health evaluation of the alternative diet	UMU
Analysis on the legislation for feed safety in each pilot region	.doc	WP2	D2.3 Feed safety assessment of the alternative diet	UNITO
Canvas questionnaire – Analysis of the poultry supply chain for each region	.xlsx	WP4	D4.2 - Stakeholder interactions along the supply chain	ALIA
Workshop and interviews data from Living Labs	.doc	WP4	D2.1 Sustainable feeding program definition D2.2. Potential for insect production in each pilot area D4.2 - Stakeholder interactions along the supply chain	ALIA, ENTOMO, ALL
Stakeholder contact list	.csv	WP5	D5.1 Dissemination and communication strategy	ALIA, SLOWFOOD
First consumer surveys summary	.doc and .xlsx	WP4	D3.1 Evaluation of the utilization of insects as a sustainable feed ingredient	RAYHANA, ENTOMO

Table 2. Overview of SUSTAvianFEED collected data in the second reporting period (M5-M48)

Tasks/Tools/Activities related to data	Format	Work Package	Related deliverables in the 2nd reporting period (M25-M48)	Responsible Partner(s)
Effect of diets in welfare and animal health evaluation	.doc	WP3	D3.3 Animal welfare and animal health evaluation	UNITO
Behaviour video recordings	.mp4	WP3	D3.3 Animal welfare and animal health evaluation	UNITO, pilot partners
Growth and slaughtering performance assessment, and nutritional meat quality parameters for meat-type chickens	.doc	WP3	D3.4 Product quality and productive traits of bird's evaluation	ISA-CM
Laying performance, physical egg quality parameters and chemical and biochemical egg quality parameters	.doc	WP3	D3.4 Product quality and productive traits of bird's evaluation	ISA-CM
Environmental impact of the diets with ReCipe 2016 assessment	.doc and .xlsx	WP3	D3.5 Environmental evaluation of pilot activities	UMU
Environmental impact of the diets with ILCD 2011 assessment	.doc and .xlsx	WP3	D3.5 Environmental evaluation of pilot activities	UMU
Economic evaluation of pilot activities -partial budgeting analysis	.doc and .xlsx	WP3	D3.6 Economic evaluation of pilot activities	EGE
Economic evaluation of pilot activities – cost benefit analysis	.doc and .xlsx	WP3	D3.6 Economic evaluation of pilot activities	EGE

Tasks/Tools/Activities related to data	Format	Work Package	Related deliverables in the 2nd reporting period (M25-M48)	Responsible Partner(s)
Sensitivity analysis under different scenarios – time series and price forecasting	.doc and .xlsx	WP3	D3.6 Economic evaluation of pilot activities	EGE
Consumers survey results databases – one per pilot city	.csv and .xls	WP3	D3.7 Social evaluation of pilot activities	EGE
Eco-label design and aspects to be measured	.pdf	WP4	D4.1 Planification and implementation of Living Labs activities	ALIA, SLOWFOOD
Living labs reports and number of participants	.doc	WP4	D4.1 Planification and implementation of Living Labs activities	ALIA
SUSTAvianFEED Project Communication and Dissemination Activities	.xlsx	WP5	T5.2 Implementation of the Dissemination and Communication Strategy T5.4 Capacity buildings and conferences organization T5.5 Participation on international events	SLOWFOOD, UNITO ISA-CM, ALL
SUSTAvianFEED Key Exploitable Results (KERs	.doc	WP5	T5.3 Exploitation Strategy	ALIA, ALL

3. FAIR DATA

1.1 Making data findable, including provisions for metadata

Data management included simple organizational measures such as following a file naming convention. The documents naming was defined in the Quality Procedures Manual (QPM) of the project as follows:

1. SUSTAvianFEED_WorkPackage_DocumentName_ ResponsiblePartner _ddmmyy_ Versionnumber_document format.

For example, SUSTAvianFEED_WP1_D1.2_ALIA_010921_v1.docx., was the name of the first version of the DMT, and SUSTAvianFEED_WP1_D1.4_ALIA_10032025_1 is the one for the present document.

Document filenames were kept short to avoid unnecessarily long paths, always included the last person to edit the document, and a version indicator.

All project documentation is stored in a dedicated Google Drive that enabled full control over editing permissions of project participators. No metadata is expected to be generated.

1.2 Making data openly accessible

The final data, deliverables, and project documentation to support published outcomes are deposited in a dedicated repository that ALIA, the project coordinator, has established. The data will be preserved for a minimum of ten years after the end of the project. In addition, the project website contains the relevant documentation so it will be available for the interested public, including public deliverables. The project website also includes relevant information such as the newsletter or the press kit.

1.3 Making data interoperable

During the project, partners collect and generate data for a successful implementation. Nevertheless, no large volumes of data and metadata were expected. The generated and collected data is included in the project deliverables and reports. In order to ensure good interoperability, XLSX, CSV, PDF or Word DOCX formats were used. The public deliverables and other relevant project results are accessible on the project's official website.

The project coordinator has proposed the use of standard vocabularies for all data types present, to allow inter-disciplinary interoperability.

1.4 Increase data re-use (through clarifying licences)

During the project implementation, the data quality assurance process was organised by the PC (responsible for data management), who searches for inconsistencies and other anomalies in the data and the project Google Drive folder.

After project implementation, ALIA will ensure that the relevant public data is available for ten years. In the repository which will contain this information, licenses and access conditions will be established.

4. ALLOCATION OF RESOURCES

The costs of the project Google Drive were free of cost as we did not exceed the expected 15 GB during the implementation and there remains plenty of space (14 GB). For the dedicated repository, ALIA used a similar service, that did not require more space than the free plan. Hard disk for storage of backups were acquired, with a cost of 60€.

The project coordinator was responsible for data. Everyday workflow tasks were delegated, but the PC ensured that consistent data management was performed along with project execution. In addition, the PC conducted six monthly reviews on the use of controlled vocabulary, file naming and versioning conventions and that the organizational logic of the Google Drive site was adequate.

Furthermore, the PC is also the responsible for data management during and after the project ends for at least ten years. Public deliverables and other key reports will be accessible publicly. In case any document, scientific article, prototype, or any other outcome are not fully public, the General Assembly will decide which parts should be public.

5. DATA SECURITY

5.1 Data Security Policies in SUSTAvianFEED Project

Access to project documentation and data is only available to those who have access to the project's Google Drive. This access was determined by the PC and implemented by ALIA staff. For security issues, a backup is performed biweekly. Every backup is kept separately with a date of saving code and will be saved in an external directory owned by the PC.

All SUSTAvianFEED data is collected, stored, protected, and shared, upholding security measures and in full compliance with relevant EU legislation. This data was not disclosed to anyone outside the research team until the data has been finalised for publication and approved for release by the Consortium.

As stated, ALIA will store all the project relevant data for at least ten years. This will ensure that funder, institutional or publisher retention compliance is satisfied, as is the authenticity of the original data for open data requirements or post research review if necessary.

5.2 SUSTAvianFEED Stakeholders' Personal Data

Only data strictly necessary for running the participatory and demonstration activities was collected and processed. Personal data, if any, are collected and stored within SUSTAvianFEED and for the purpose of the project aforementioned activities is permanently and irrevocably erased after the project completion. Nevertheless, only if an individual participant has provided his/her free informed consent, name, age, professional occupation, and professional views this data is included in project outputs. If such a consent is not provided by the individual participant, only information that may be processed in a way that inhibits tracing his/her opinions back to him/her (anonymised information) is part of the activities.

5.3 Data Anonymization

The aim of data anonymization is that personal data could not be identified or attributed to a natural person without the use of additional information. In the case of living labs activities, data anonymization takes part when it is requested by the participant, and when it is necessary for the results of the activities to be reliable.

6. INTELLECTUAL PROPERTY RIGHTS

6.1. Background

The consortium considers partners' background from the academia and private sector an important aspect for the implementation of project activities.

There is no need from partners to protect any specific aspect. However, a procedure was established in order to protect this background in case it was necessary along project implementation. This procedure is the same that the one established for generated knowledge to be protected, which is described in section 6.2.

6.2. Ownership of project results, access rights to background and to project results

All SUSTAvianFEED deliverables will be public in the project website and they will contain all the results and outputs of the project. In this sense, the results will have a joint ownership by the whole consortium. Scientific publications made by partners or any other kind of publication will be also public and open access.

If during the project implementation any partner considered that there was some knowledge which must be protected, or considered there was the need of doing a change in the ownership of results the established mechanism was:

1. Project partner with a request informed project coordinator.
2. Project coordinator scheduled a General Assembly to discuss the aim.
3. The General Assembly proceed to the vote of it and if the result was positive, the knowledge concerned will not be public as the rest of the project outputs.

In any case, the access rights not include a right to sublicense.

As said, project, innovation and project results will be public for its dissemination. As an example, during the development of project activities in the training developed by ENTOMO with RAYHANA involved stallholders, the possibility to create new bi-trophic system to produce black soldier fly in a place with little availability of waste to feed the larvae arose. It involves the production of *Azolla* spp. on a water table, and the plant could be grown out of few fertilizers, since *Azolla* absorb atmospheric nitrogen and grow at high ratio. The plant could be smash and offer to the larvae to create animal proteins with low water content, being more useful to feed the chickens. There is a potential to protect this innovation since this Azolla-black soldier fly do not exist in nature, the process can be industrialized, and the process has not been disclosed before. However, the project partners agreed that the process should be disclose to the public to follow the principles of the project to allow the implementation of new knowledge which will improve farmers production of chicken in more sustainable ways.

Another example about the importance of sharing knowledge applies to UNITO, which has implemented the experimental protocol as outlined by SUSTAvianFEED, which included an experimental group fed with live Black Soldier Fly Larvae (BSFL). This experimental group is part of the Core-Organic POULTRYNSECT project. Integrating these two projects into a single experimental program allowed for the simultaneous study of the inclusion of live and dried larvae of the same species (BSF), despite them coming from two different producers (ENTOMO, Spain for SUSTAvianFEED; INAGRO, Belgium for POULTRYNSECT). The initial results presented at ESPN2023

(European Symposium on Poultry Nutrition) were very encouraging as they demonstrate that, for native breeds, both live and dried BSF larvae are equally well-accepted, based on consumption times. Furthermore, additional interactions are expected with the ADVAGROMED project (funded by the PRIMA call in 2022), making the data obtained so far available from SUSTAvianFEED to implement the ADVAGROMED pilot.

Finally, it is important to remark that some Intellectual Property implications will not have an important negative impact in the dissemination, communication, and exploitation activities in any case. As the results will be public, even though some innovations could be protected, the vast majority of them will be public and use for these purposes.

7. ETHICAL ASPECTS

Any personal data gathering within the project conformed to informed consent expectations that are expected with regard to current Data Protection legislation, and the EU General Data Protection Regulation (GDPR) that started to implement on 25th May 2018. The SUSTAvianFEED Privacy Notice on the website is an example of this. It is available here: https://www.sustavianfeed.eu/privacy-policy/

During participatory activities involving personal data or photos taken, consent forms were produced and collected for participants. The consent forms were adapted to the specific activities and national context.

When written informed consent was not proportionated to the participants, verbal consent was solicited, and anonymization of the data was carried out when requested. As stated in the Consortium Agreement, the project does not have a specific Ethics Board. However, the General Assembly always dedicated a section to discuss any ethical aspect which was necessary. All the ethics issues were treated in the General Assembly, including data management ones.

The partner EGE was responsible for the consumer survey for Task 3.7. “Social evaluation of pilot activities” and coordinated the provision of ethical approvals for consumers focus groups and consumer survey. It was necessary that all the participating institutions received the necessary ethical permits from their respective local authorities in order to be able to publish the outcomes in scientific journals. This provision was accomplished by M38.

8. OUTLOOK AND CONCLUSIONS

The third version of the DMP includes the procedures, protocols, and organization modes that SUSTAvianFEED project followed in order to meet the PRIMA Foundation requirements.

ALIA as project coordinator monitored that all the procedures were implemented successfully by the project consortium and establish the needed channels.

Data generation and collection have been satisfactorily developed. Deliverable 1.4 set the basis for data management for the second stage of the project. This document is a DMP conclusion produced by the end of the project.

Finally, both documents include the Intellectual Property Rights (IPR) aspect of the project, highlighting the importance of sharing knowledge and making project innovations available to different actors and the general public.

9. REFERENCES

- *Data management - H2020 Online Manual*. Available at: https://ec.europa.eu/research/participants/docs/h2020-funding-guide/cross-cutting-issues/open-access-data-management/data-management_en.htm (Accessed: 31 August 2021).

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