



Regenerating soils for climate and farmers

Data management plan



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Executive summary

This deliverable gives an overview of AgriCapture's Data Management Plan based on European Commission's Guidelines on FAIR Data Management in Horizon 2020 Programme. To this end, it largely provides about how project related data will be collected, processed and/or generated by consortium partners, therefore, demonstrating how these data will be rendered Findable, Accessible, Interoperable and Re-usable (FAIR) throughout AgriCapture's lifecycle and beyond.

Based on the inputs received by month 8 of the project (August 2021) by all Work Package Leaders, the present document summarises specific aspects regarding management of data – primarily – linked to the nature, traceability, accessibility and the reuse of data. It, also, expands to an extent how the data handling practices pursued within each Work Package support the achievement of the high-level project objectives. Overall, the discussion shows how FAIR Principles are implemented in practice by AgriCapture's Data Management Plan as put forward by each Work Package, also, in relation to AgriCapture platform. The AgriCapture platform includes all products, services and stakeholders that are involved in quantifying, verifying, and promoting soil organic carbon capture, allowing (i) farmers and other landowners to become "carbon farmers", (ii) food companies to offset their carbon footprint and offer "zero carbon" products, and (iii) certifying organisations to scale up and automatise their processes.

Based on the analysis of the inputs from all relevant Work Package Leaders, it can be observed that there is already significant progress made in data management, taking into account the relatively early stage of the project. More specifically, *the data collected and generated can be divided, mainly, into two categories: data used for dissemination and communication purposes, which may contain personal data, and data associated with climatic details or soil properties which are related to the pilots.* The management of the free and open Copernicus data sets, included in the second category, will be further investigated in the future. Given the project focus on non-personal data, measures for personal data protection are relatively scarce. The purpose of data collection and the use of the data are generally clearly outlined, while it is anticipated that data exploitation, curation and preservation aspects are further clarified at later stages as the project develops.

The original inputs provided by Work Package Leaders in response to the initial request on the respective data management plans, including the initial input request, are incorporated under the Appendices. It is intended that this deliverable forms a living document throughout the duration of AgriCapture. Any occurring updates to the specific contents, including with respect to AgriCapture platform maybe, therefore, provided accordingly



under D1.4 AgriCapture project assessment and, possibly, under the periodic project reports.



List of abbreviations

EU	European Union
DMP	Data Management Plan
DPO	Data Protection Officer
SOC	Soil Organic Content
WP	Work Package



1 Introduction

1.1. Aim

The overarching objective of AgriCapture is to promote regenerative agriculture as a solution in the fight against climate change while providing agronomic and economic benefits for farmers. Given that the agricultural sector is responsible for 18.4% of the global GHG emissions¹, reforming agriculture is key in solving the climate crisis. In this respect, AgriCapture is developing an innovative, robust, and scalable solution to measure carbon capture in soil. The data, therefore, to be collected and/or generated during the project's duration are meant to contribute to the aforementioned measurement.

1.2. Scope

Based on the updated European Commission's Guidelines on FAIR Data Management in Horizon 2020², AgriCapture's Data Management Plan (DMP) focuses on the data management life cycle of all data to be collected, processed and/or generated by the project. To this end, the document captures the data management plans per Work Package (WP), to the extent possible, by Month 8 of the project. It, thus, touches upon, among other, the following aspects:

- a) what data will be collected, processed or generated;
- b) what methodology and standards will be applied;
- c) whether data will be open or confidential;
- d) how the specific data will serve the project objectives

The discussion, also, provides to an extent on how data will be curated and preserved (including after the end of the project). The aforementioned aspects and the rest of the aspects to be covered by the present DMP contribute to the illustration of *how making the data findable, accessible, interoperable and reusable in practice*, in accordance with the FAIR principles provided under the applicable Guidelines of the European Commission.

Notably, according to the earlier stated European Commission's Guidelines³, the DMP of AGRICAPTURE project covers exclusively research data. Interestingly, it is considered

¹ Hannah Ritchie and Max Roser (2020) - "CO₂ and Greenhouse Gas Emissions". Published online at OurWorldInData.org. Available at: <https://ourworldindata.org/co2-and-other-greenhouse-gas-emissions> [Online Resource].

² H2020 Programme Guidelines on FAIR Data Management in Horizon 2020 Version 3.0, 26 July 2016. Available at: http://ec.europa.eu/research/participants/data/ref/h2020/grants_manual/hi/oa_pilot/h2020-hi-oa-data-mgt_en.pdf.

³ H2020 Programme Guidelines on FAIR Data Management in Horizon 2020 Version 3.0, 26 July 2016. Available at:



that: *"Digital research data is information in digital form (in particular facts or numbers), collected to be examined and used as a basis for reasoning, discussion or calculation; this includes statistics, results of experiments, measurements, observations resulting from fieldwork, survey results, interview recordings and images."*⁴ The enumeration of types of information that qualifies for research data is indicative, therefore, allowing for other types of information to be considered as research data as well.

In light of the above, more specifically, the term 'data' used in this document refers mainly to the following, non-exhaustive categories of information that will be used or produced during the project:

1. Datasets that are collected or generated as a result of operations of the AgriCapture Platform.
2. The deliverables within the Work Packages that will be either openly accessible or confidential.
3. Communication and dissemination materials, including mailing lists, media items, and reports.
4. Software products, including open-source code, produced or created by the AgriCapture Platform.

Furthermore, scientific or other publications will be made publicly available. All journal and conference papers will be made available on the project website.

The deliverable incorporates inputs made available by almost all Work Package (WP) Leaders and gives an overview of the respective plans. More specifically, it integrates inputs provided by WP1 - MANAGE: project management, WP 2 - ENGAGE: build a European Regenerative Agriculture Network, WP3 - DEVELOP: Co-creation of the AgriCapture platform, under WP4 - CERTIFY: Defining the deployment methodology, by WP5 - PILOT: Use cases in an operational environment and by WP6 - LAUNCH: Promotion, uptake and commercial transition. Due to the nature of WP7 - Ethics requirements and its intrinsic links with WP1 and, in particular, with Task 1.4 on Legal and Ethical Issues, it was deemed redundant that the respective data management plans are provided separately.

The creation of this DMP falls under Task T1.4 Data Management reflecting the objectives of the previously mentioned Work Package 1, mostly, in relation to the assurance of the

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

⁴ European Commission, H2020 Programme, AGA- Annotated Model Grant Agreement Version 5.2, 26 June 2019. Available at:

https://ec.europa.eu/research/participants/data/ref/h2020/grants_manual/amga/h2020-amga_en.pdf#page=34.



project objectives and the associated contractual requirements. It is intended that the deliverable forms a living document throughout the duration of AGRICAPTURE; any occurring updates to the specific content, also, with respect to AGRICAPTURE platform will be, therefore, provided under D1.4 AgriCapture project assessment and, possibly, under the periodic project reports.

1.3. Methodology

As previously mentioned, this deliverable is based on input Task 1.4 directly received from WP Leaders, which was further processed for the purpose of the analysis. The input request was structured upon the five (5) main elements of the related task description, therefore, addressing the following:

- Data collected and generated; the input requested WP Leaders to provide for the name of the data set, the data types, the expected size of the data, the data origin, the purpose aspired and the relation to the objectives of the project.
- Responsible parties and IP; WP Leaders were requested to make explicit whether the indicated datasets would be open or confidential.
- Data exploitation and reuse; WP Leaders were similarly requested to identify the data formats, the standards and metadata, as well as to provide for any envisioned re-use of existing data.
- Data curation and preservation; in this respect, WP Leaders were requested to provide information regarding the data usefulness, the accessibility, the purpose and relation to the objectives of the project.
- Privacy protection; although personal data protection is less relevant for the scope of AgriCapture, WP Leaders were requested to give information on the associated technical and organizational measures in place to safeguard, where relevant, privacy. AgriCapture, also, provides for a Data Protection Officer (DPO) at project level. Information in this respect is provided under the Grant Agreement.

Note that, in the context of the analysis, the discussion stayed deliberately close to the original inputs provided by the WP Leaders; it was considered that extensive rewording would entail the risk of interpretation at the expense of the levels of precision aspired.



1.4. Target audience

This document, being a public deliverable, is not addressed to AgriCapture consortium and to European Commission services, but it will be -also- made available to the wider public through the project's website. In this respect, this deliverable is targeted towards farmers, as well as towards a much broader audience, meaning, all those interested in promoting regenerative agriculture as well as those interested in supporting the fight against climate change.

1.5. Structure

This document is composed of four (4) chapters. Following the current introductory Chapter 1, Chapter 2 provides for a summary of the data management plans received by AgriCapture WP Leaders. Chapter 3 provides for an analysis of the resulting findings in line with the objectives of a DMP under H2020 Program. Finally, Chapter 4 draws a set of concluding remarks. The original input provided by WP Leaders, as well as the original request circulated by T1.4 leading partner can be found under the Appendices.



2 Data Summary

This chapter summarizes the inputs delivered by the AgriCapture work package leaders, considering the data sets used. It touches upon the type, origin, format and size of data, as well as the purposes of data collection, accessibility and privacy measures to the extent relevant. Furthermore, it sets out how the data management is related to the objectives. The information in the table below is retrieved from questionnaires distributed among the work package leaders. For the reasons explained, this summary maybe subject to further updates during the project.

WP	WP1 Manage	WP2 Engage	WP3 Develop	WP4 Certify and WP6 Launch	WP5 Pilot
Partner	GILAB	EEB, LEAF	GILAB (S1 + S2 + REGENERATIVE + PARCELS + INSITU + EXPLORATION). GILAB & PLANET (PLANET), Enviromentrix (SOIL)	OCW	ELGO
Name of the data set	<p>DATASET1_BANKING_DETAILS</p> <p>The data includes banking information from the partners.</p>	<p>MAILING LIST</p> <p>A collection of people's names, organisations, and email addresses for contacting in regards to events and e-communications.</p>	<p>AGRICAPTURE_S2</p> <p>Sentinel-2 data for the agricultural parcels involved in AgriCapture project.</p> <p>AGRICAPTURE_S1</p> <p>Sentinel-1 data for the agricultural parcels involved in AgriCapture project.</p> <p>AGRICAPTURE_PLANET</p> <p>Planet Fusion daily satellite data.</p> <p>AGRICAPTURE_SOIL</p> <p>Pan-European data on Soil Organic Carbon content in soil and</p>	<p>AGRICAPTURE CO2 INTERVENTIONS SCREENING FORM</p> <p>A form to collect high level information on the user and to assess which regenerative practices have been carried out or are planned by the user (farm).</p> <p>KMZ/SHAPE FILE</p> <p>A file that sets out the geographical outlines (boundaries) of</p>	<p>AGRICAPTURE _WP5_ELGO_Plots</p> <p>Data set for real time monitoring of Crete plots</p>



		<p>uncertainty of the predictions.</p> <p>AGRICAPTURE_REGENERATIVE</p> <p>Set of data on farmer's application of Regenerative Practices (no/reduced tillage, cover crops, residues, etc.).</p> <p>AGRICAPTURE_PARCELS</p> <p>Boundaries of Agricultural parcels involved in AgriCapture project.</p> <p>AGRICAPTURE_INSITU</p> <p>In situ data needed for training the models.</p> <p>AGRICAPTURE_EXPLORATION</p> <p>Monthly long term mean meteorological data and soil properties data</p>	<p>the users (farm) land</p> <p>SOIL SAMPLE DATA</p> <p>User (Farm) provided. A document providing information on the soil organic carbon (and other characteristics) of the users (farm) land. NB: Soil sample data may be obtained from WP3 outputs which will be managed by the relevant DMP as perscribed under WP3.</p> <p>AGRICAPTURE CO2 INTERVENTIONS DATA QUANTITATIVE</p> <p>A form to collect data on the regenerative practices that have been carried out or are planned by the user (farm) as identified in the form "AgriCaptureCO2 Interventions Screening Form"</p> <p>AGRICAPTURE CO2 INTERVENTIONS DATA QUALITATIVE</p> <p>A form to collect data on the regenerative practices that have been carried out or are planned by the user (farm) as identified in the form "AgriCaptureCO</p>
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				<p>2 Interventions Screening Form"</p> <p>AGRICAPTURE CO2 INTERVENTIONS DATA_FERTILIZERS</p> <p>A form to collect data on the fertilizer application practices that have been carried out or are planned by the user (farm)</p> <p>AGRICAPTURE CO2 INTERVENTIONS DATA_PROJECT TYPE NAME</p> <p>Evidence on the above data. A form to collect data on the specific regenerative practices that have been carried out or are planned by the user (farm).</p> <p>VCS_AFOLU_NON-PERMANENCE-RISK-ASSESSMENT-QUESTIONNAIRE</p> <p>Supporting data to provide evidence of the inputs prescribed by the previously listed data capture forms</p> <p>UN CLIMATE NEUTRAL NOW PLEDGE</p> <p>Quick questionnaire to support the UN Climate Neutral</p>	
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				<p>Now Initiative participation (optional for farm case studies).</p> <p>AGRICAPTURE CO2 CARBON FOOTPRINT DATA CAPTURE FORM</p> <p>Information is collected measure the baseline of a case study carbon footprint</p>	
<p>Data types</p>	<p>Account holder's name, IBAN/ account number, BIC/SWIFT CODE, bank name, address of the bank branch, account holder's name, address</p>	<p>ALL DATASETS – User input</p>	<p>S2 - Raster data. Optical multispectral satellite data.</p> <p>S1 - Raster data. Radar data.</p> <p>PLANET - Raster data. Optical multispectral satellite data.</p> <p>SOIL - Raster geospatial data.</p> <p>REGENERATIVE - Raster geospatial data.</p> <p>PARCELS - Vector geospatial data</p> <p>INSITU - Information about times and types of agricultural activities and events that occurred/were conducted on specified agricultural plots. Tabular data.</p>	<p>AGRICAPTURE CO2 INTERVENTIONS SCREENING FORM - Unstructured - user input</p> <p>KMZ/SHAPE FILE - Real time data stream</p> <p>SOIL SAMPLE DATA" - USER (FARM) PROVIDED - Real time data stream</p> <p>AGRICAPTURE CO2 INTERVENTIONS DATA QUANTITATIVE - Unstructured - user input</p> <p>AGRICAPTURE CO2 INTERVENTIONS DATA QUALITATIVE -</p>	<p>Real time data stream</p>



			EXPLORATION - Raster geospatial data.	Unstructured - User Input AGRICAPTURECO2 INTERVENTIONS DATA_FERTILIZERS - Unstructured - user input AGRICAPTURECO2 INTERVENTIONS DATA_PROJECT TYPE NAME - Unstructured - user input EVIDENCE ON THE ABOVE DATA - Unstructured - records VCS_AFOLU_NON-PERMANENCE-RISK-ASSESSMENT-QUESTIONNAIRE - Unstructured - user input AGRICAPTURECO2 CARBON FOOTPRINT DATA CAPTURE FORM - Unstructured - user input UN CLIMATE NEUTRAL NOW PLEDGE - Unstructured - user input UNCNOW INITIATIVE - CLIMATE	
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				ACTION QUESTIONS - Unstructured - user input	
Data formats	.xlsx		INSITU – Excel. CSV Others: GeoTiff	<p>AGRICAPTURECO2 INTERVENTIONS SCREENING FORM - xls.</p> <p>KMZ/SHAPE FILE - KMZ.</p> <p>SOIL SAMPLE DATA" - USER (FARM) PROVIDED - Multiple</p> <p>AGRICAPTURECO2 INTERVENTIONS DATA QUANTITATIVE - xls.</p> <p>AGRICAPTURECO2 INTERVENTIONS DATA QUALITATIVE - word</p> <p>AGRICAPTURECO2 INTERVENTIONS DATA_FERTILIZERS - xls.</p> <p>AGRICAPTURECO2 INTERVENTIONS DATA_PROJECT TYPE NAME - xls.</p> <p>EVIDENCE ON THE ABOVE</p>	CSV



				<p>DATA - Invoices/Purchase Orders/Sold Declarations</p> <p>VCS_AFOLU_NON-PERMANENCE-RISK-ASSESSMENT-QUESTIONNAIRE - xls.</p> <p>AGRICAPTURECO2 CARBON FOOTPRINT DATA CAPTURE FORM - xls.</p> <p>UN CLIMATE NEUTRAL NOW PLEDGE - pdf</p> <p>UNCNOWN INITIATIVE - CLIMATE ACTION QUESTIONS - word</p>	
Expected size of the data	To be defined.	Unknown	<p>SOIL + REGENERATIVE + PARCELS: to be defined</p> <p>INSITU + EXPLORATION: several MB</p> <p>Others: Depends on the size of the area and the time frame of interest, hard to define.</p>	<p>AGRICAPTURECO2 INTERVENTIONS SCREENING FORM - 500KB</p> <p>KMZ/SHAPE FILE - 8KB</p> <p>SOIL SAMPLE DATA" - USER (FARM) PROVIDED - 500KB</p> <p>AGRICAPTURECO2 INTERVENTIONS DATA QUANTITATIVE - 500KB</p> <p>AGRICAPTURECO2 INTERVENTIONS DATA</p>	1Mb/day



				<p>QUALITATIVE - 125KB</p> <p>AGRICAPTURECO2 INTERVENTIONS DATA_FERTILIZERS - 50KB</p> <p>AGRICAPTURECO2 INTERVENTIONS DATA_PROJECTTYPE NAME - 50KB</p> <p>EVIDENCE ON THE ABOVE DATA - tbd</p> <p>VCS_AFOLU_NON-PERMANENCE-RISK-ASSESSMENT-QUESTIONNAIRE - 50KB</p> <p>AGRICAPTURECO2 CARBON FOOTPRINT DATA CAPTURE FORM - 1 MB</p> <p>UN CLIMATE NEUTRAL NOW PLEDGE - 2.7 MB</p> <p>UNCNOWN INITIATIVE - CLIMATE ACTION QUESTIONS - 38 KB</p>	
Standards and metadata	Not relevant.	Individual completes form on the website and then submits.	Not applicable	<p>KMZ/SHAPE FILE - N/A</p> <p>SOIL SAMPLE DATA - USER (FARM) PROVIDED - N/A</p> <p>UN CLIMATE NEUTRAL NOW PLEDGE -</p> <p>Greenhouse Gas Protocol Corporate Standard</p>	<p>Metadata for weather stations:</p> <ol style="list-style-type: none"> 1) Meteo stations 2) Soil moisture sensors <ol style="list-style-type: none"> a. Volumetric Water Content (VWC) b. Dielectric



				Others: Based on VM0042 VERRA methodology and others as identified from the research.	<p>c. Temperature</p> <p>d. Bulk Electrical Conductivity (EC)</p>
Data origin	Response to emailed forms sent to partners.	AgriCapture CO ₂ website.	<p>S2 - Google Cloud Storage public datasets - Sentinel-2</p> <p>S1 - ASF (Alaska Satellite Facility) DAAC (Distributed Active Archive Center)</p> <p>PLANET – Planet</p> <p>SOIL - Generated from in situ data (e.g. LUCAS, local soil sampling, etc.) and satellite data (e.g. Landsat, Sentinel-2)</p> <p>REGENERATIVE – Generated from satellite data (Sentinel-1 and Sentinel-2).</p> <p>PARCELS – Provided by the farmers.</p> <p>INSITU – provided by farmers/pilots</p> <p>EXPLORATION - Climate Data Store (ERA5-Land monthly averaged meteorological data); OpenLandMap service (Soil properties data)</p>	<p>KMZ/SHAPE FILE - Google Earth</p> <p>Others: User Input</p>	<p>Continuous data sets (specific time steps intervals) will be received by the meteo-station and the soil moisture sensors.</p> <p>The data will be obtained by the sensors with a telemetric way (for meteo-station and soil moisture sensors there will be an accessible online database with raw data, time step: 10' minutes for meteo-station sensors and 60' minutes for soil moisture sensors also the data could be inserted in an online platform for further graphic analysis)</p>
Re-use of existing data	No reuse of existing data.	No reuse of existing data	<p>Standard :For generation of added-value datasets.</p> <p>SOIL - For monitoring of SOC change in agricultural parcels, generation of the optimal locations for soil sampling, and the estimation of annual SOC sequestration over several years for the inclusion of one or several RegAgri practices in particular conditions.</p> <p>REGENERATIVE - For verification of farmers</p>	No reuse of existing data (unless through other partners)	No reuse of existing data will be used for meteo and soil moisture data sets. Historical data may be provided for yield if necessary, for the generation of synthetic datasets, it will be essential to create a recipe, reusing the existing data in logs etc.



			<p>application of Regenerative Practices.</p> <p>PARCELS – For running the services.</p> <p>INSITU – For the generation of added-value datasets.</p> <p>EXPLORATION - For estimation of annual SOC sequestration over several years for the inclusion of one or several RegAgri practices in particular conditions.</p>		
Data usefulness	<p>The data are useful for the coordinator of AgriCapture, GILab, to coordinate payments to project partners.</p>	<p>Project as a whole</p>	<p>SOIL + INSITU + EXPLORATION - The broader community outside of AgriCapture.</p> <p>Others: The responsible partner.</p>	<p>AGRICAPTURECO₂ INTERVENTIONS SCREENING FORM -</p> <p>Data will be used for AgriCapture project purposes to assess the eligibility of generating carbon credits. However it will also be used to identify any potential gaps where further training would be required for farms where they are not currently implementing applicable regenerative practices</p> <p>KMZ/SHAPE FILE - Data will be collected and distributed to WP3 for measurement and verification services</p> <p>AGRICAPTURECO₂ CARBON FOOTPRINT DATA CAPTURE FORM - Data will be used to measure baselines of farms</p> <p>UN CLIMATE NEUTRAL NOW PLEDGE - Data will be used for</p>	<p>Data will be used for AgriCapture project purposes but at the same time will be provided to the farmers in order to receive specific information of their activities that could be helpful for advices towards regenerative agriculture.</p>



				<p>optional participation in the UN Climate Neutral Now Initiative</p> <p>UNCNNOV INITIATIVE - CLIMATE ACTION QUESTIONS - Participation in the UN CCNOW</p> <p>Others: Data will be used for AgriCapture project purposes to make a qualitative assessment of generating carbon credits.</p>	
Accessibility	Confidential - The data is only accessible to the Project Financial Manager on a secure computer.	Confidential	<p>S1 + S2 - Open</p> <p>PLANET + PARCELS + INSITU - Confidential</p> <p>SOIL + REGENERATIVE + EXPLORATION - Commercial</p>	<p>KMZ/SHAPE FILE - Open Access</p> <p>UN CLIMATE NEUTRAL NOW PLEDGE - shared with 3rd party (UN climate Neutral Now climate team)</p> <p>UNCNNOV INITIATIVE - CLIMATE ACTION QUESTIONS - shared with 3rd party (UN climate Neutral Now climate team) - and available publically on the UN website</p> <p>Others: internal use only</p>	Open
Project pilot (if applicable)	N/A	N/A	All AgriCapture pilots.	All AgriCapture pilots.	Crete pilot - ELGO



<p>Purpose and relation to the objectives of the project.</p>	<p>The data will be used to transfer the funds to the project partners.</p> <p>WP 1's activity is the management and coordination of the project. This includes administering and distributing the financial contribution.</p>	<p>Contacting for information of new events</p> <p>e-communications</p> <p>Keeping stakeholders up to date with project news and activities</p>	<p>S1 + S2 – For generation of added-value datasets. Provides necessary information for running the AgriCapture services.</p> <p>SOIL - For monitoring of SOC change in agricultural parcels, generation of the optimal locations for soil sampling, and the estimation of annual SOC sequestration over several years for the inclusion of one or several RegAgri practices in particular conditions. Provides necessary information for running the AgriCapture services.</p> <p>REGENERATIVE – For verification of farmers application of Regenerative Practices. Provides necessary information for running the AgriCapture services.</p> <p>PARCELS - The added-value data for AgriCapture services will be generated for the agricultural parcels. Provides necessary information for running the AgriCapture services.</p> <p>INSITU - For training the models that will verify the farmer's application of Regenerative Practices. It essential for building the services.</p> <p>EXPLORATION - For estimation of annual SOC sequestration over several years for the inclusion of one or several RegAgri practices in particular conditions. Provides necessary information for running the AgriCapture services.</p>	<p>The data is collected to measure the baselines of carbon footprints for case studies and also for a baseline for calibrating farm data for Earth Observation. The future data may be used to register projects to generate carbon credits as a compensation for farmers (such as the VERRA VM0042 methodology .</p> <p>Information is collected to support the methodology development and definition (wp4.2)</p> <p>Information is collected to support certifying AgriCapture methodology (wp4.3)</p> <p>Information is collected to support establishing use case baselines (wp5.2)</p> <p>Information is collected to support creating a business plan (wp6.2)</p>	<p>For information of the farmers towards the best conditions to be applied for regenerative agriculture and for training purposes.</p> <p>The obtained data will be used from AgriCapture partners that will work on earth observation activities and for establishing the AgriCapture platform that will enable to capture different aspects of agriculture production</p>
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<p>Measures (technical and organizational) for compliance with the personal data protection principles</p>	<p>The data is stored securely on the computer of the Financial Manager in secured premises.</p> <p>The data will be kept only for the project purpose and deleted after the distribution of the very last payment.</p>	<p>Please see data privacy policy</p>	<p>PARCELS – Data will be stored securely inside the database. Data access will be provided only to authorized users.</p> <p>INSITU - Data won't be shared outside of the consortium members.</p> <p>Others – N/A.</p>	<p>All data will be held on the OCW drive covered by our IT security protocols. Once the project is completed the data will be uploaded onto the AgriCaptureCO2 dropbox and will be subject to the relevant AgriCaptureCO2 data management plans.</p>	<p>N/A</p>
<p>Remarks</p>	<p>The dataset does not contain personal data</p>	<p>N/A</p>	<p>N/A</p>	<p>N/A</p>	<p>N/A</p>



3 Analysis of the data management plans

3.1 Data collected and generated

This section outlines what data that the project will collect and generate. This includes the names of the data sets, the data types, the size of the data, their origin and the purpose of data collection.

WP1 – MANAGE, on project management and coordination, requires the collection of data for administering and distribution of financial contributions to the project partners. The data collected will primarily include banking information that will be used to transfer funds to the project partners, as well as responses to emailed forms sent to partners. This will consist of account details such as the account holder's name and address, IBAN, BIC/SWIFT CODE, and the name and address of the bank.

For **WP2 – ENGAGE**, on the establishment of a European Regenerative Agriculture Network, as of now, only data for the mailing list are collected, for the purpose of keeping stakeholders up to date with project news and events. This data set includes the names, organisations and email addresses, which are collected from the AgriCaptureCO₂ website as well as from user input. This information will be used to contact people for sharing events and e-communication. The size of the data is yet unknown.

For **WP3 – DEVELOP**, which focuses on the co-creation of the AgriCapture platform, 8 different datasets are collected and processed, mostly captured by satellites. SENTINEL-1 and SENTINEL-2 collect data for the agricultural parcels involved in the AgriCapture project, consisting of raster data, optical multispectral satellite data, which originate from Google Cloud Storage public data sets (SENTINEL-2) and radar data from ASF DAAC⁵ (SENTINEL-1). SENTINEL-1 and SENTINEL-2 data are used for the purpose of generating added-value data sets and provide necessary information for running the AgriCapture Services. The PLANET Fusion daily collects satellite raster data. The AGRICAPTURE_SOIL data set consists of pan-European data on Soil Organic Carbon (SOC) content and uncertainty of predictions. The data is generated from in situ data, such as LUCAS or local soil sampling, and satellite data collected by, for example, Landsat or Sentinel-2. The data are used for the monitoring SOC change in agricultural parcels, for the generation of the optimal locations for soil sampling, and for the estimation of annual SOC sequestration over several years for the inclusion of one or several RegAgri practices under particular conditions. The AGRICAPTURE_REGENERATIVE set, generated from satellite data, consists of data on the application of regenerative practices of farmers, such as the degree of

⁵ Alaska Satellite Facility Distributed Active Archive Center. See also: EarthData NASA. Alaska Satellite Facility (ASF) DAAC. Available at: <https://earthdata.nasa.gov/eosdis/daacs/asf>.



tillage, amount of cover crops, residues, etc. The purpose is to allow farmers to verify the application of regenerative practices. Both the SOIL and REGENERATIVE data sets are captured in raster geospatial data, and provide necessary information for running the AgriCapture services. The AGRICAPTURE_PARCELS set, containing vector geospatial data, is provided by the farmers and contains information about the boundaries of agricultural parcels. For training the models, AGRICAPTURE_INSITU is used, which contains tabular data about times and types of agricultural activities and events that occurred or were conducted on specified agricultural plots. This data, provided by farmers or the pilots, is used for training models that verify the application of regenerative practices by the farmer. Finally, the AGRICAPTURE_EXPORATION set covers climate data containing ERA5-Land monthly averaged meteorological data, and OpenLandMap service containing data on soil properties. This is important for the estimation of annual SOC sequestration over several years in order to include one or several Regenerative Agriculture practices in particular conditions. The sizes of most data sets are yet hard to define, given that they depend on the size of the area and the time frame, yet the AGRICAPTURE_INSITU and AGRICAPTURE_EXPORATION will most likely comprise of no more than several MB.

WP4 – CERTIFY and **WP6 – LAUNCH** manage 10 data sets, which are collected with a dual purpose. On the one hand they are used to measure the baselines of carbon footprints for the case studies, and on the other hand they serve as a baseline for calibrating farm data for Earth Observation. Copernicus is the EU's Earth observation and monitoring program, that contains and produces free data with an open data license. AgriCapture project makes use of Copernicus and Earth Observation activities that together contribute to the Global Earth Observation System of Systems (GEOSS).^{6,7} This interconnected nature of earth data originating both from AgriCapture (e.g. data collected through sensors in the grounds), as well as from GEOSS, emphasizes the importance of the management, in particular, of the open data sets. Future work on the data management plan of AgriCapture will, thus, look into the handling of these specific data sets.

Most data, with the exception of the KMZ/SHAPE FILE, originate from user input. KMZ/SHAPE is an 8KB KMZ file generated real-time Google Earth images that sets out the geographical outlines of the farmland. These data will be collected and distributed to WP3 for measurement and verification services. Moreover, the AGRICAPTURECO2

⁶ European Commission. CORDIS EU research results: Developing EO-powered services to promote soil carbon sequestration through regenerative agriculture. Grant agreement ID: 101004282. Available at: <https://cordis.europa.eu/project/id/101004282>.

⁷ European Commission. Funding & tender opportunities: Copernicus market uptake, TOPIC ID: DT-SPACE-01-EO-2018-2020. Available at: <https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/dt-space-01-eo-2018-2020>.



INTERVENTIONS SCREENING FORM, is a 500KB xls. form used to obtain high level information on the user and to assess which regenerative practices have been carried out or are planned by the farmers. It will not only be used for AgriCapture project purposes to assess the eligibility of generating carbon credits, but also to identify any potential gaps where farmers are not currently implementing applicable regenerative practices. These insights can be used to provide training schemes. Furthermore, SOIL SAMPLE DATA are collected from users, which are generally farmers. This document, which comes in multiple formats, provides insights into the SOC and other soil characteristics of the farmland. The AGRICAPTURECO₂ INTERVENTIONS DATA *QUANTITATIVE* (xls.) and the AGRICAPTURECO₂ INTERVENTIONS DATA *QUALITATIVE* (word) are respectively 500KB and 125 KB forms used to collect data on the regenerative practices that have been carried out or are planned by the farm as identified in the form "AgriCaptureCO₂ Interventions Screening Form". For both, data will be used for AgriCapture project purposes to make a assessment of generating carbon credits. AGRICAPTURECO₂ INTERVENTIONS DATA_FERTILIZERS is a 50KB xls. form used to collect data on the fertilizer application practices that have been carried out or are planned by the farm. To provide evidence of the before-mentioned data sets, AGRICAPTURECO₂ INTERVENTIONS DATA_PROJECT TYPE NAME is used: a form to collect data on the specific regenerative practices that have been carried out or are planned by the farmer. The VCS_AFOLU_NON-PERMANENCE-RISK-ASSESSMENT-QUESTIONNAIRE (50 KB, xls.) provides supporting data to generate evidence of the inputs prescribed by the previously listed data capture forms. UN CLIMATE NEUTRAL NOW PLEDGE is a quick questionnaire, captured in PDF, to support the UN Climate Neutral Now Initiative participation, which is optional for farm case studies. Finally, the AGRICAPTURECO₂ CARBON FOOTPRINT DATA CAPTURE FORM captures information that is collected to measure the baseline of a case study carbon footprint.

WP5 – PILOT captures AGRICAPTURE_WP5_ELGO_Plots, a real-time CSV data set for real time monitoring of Crete plots, with the purpose to provide information for the farmers on the best conditions to be applied for regenerative agriculture and for training purposes. It includes metadata for weather stations and soil moisture sensors measuring volumetric water content, dielectric measurements, temperature and bulk electrical conductivity. These are continuous data sets that originate from the meteo-station and the soil moisture sensors. The data will be obtained by the sensors with a telemetric way. For meteo-station and soil moisture sensors there will be an accessible online database with raw data. The time intervals are 10' minutes for meteo-station sensors and 60' minutes for soil moisture sensors also the data could be inserted in an online platform for further graphic analysis. The size of the data set is approximately 1MB a day.



Currently, all information made available regarding use cases concern the use case in Crete. The remaining information on the other use cases will be provided, as explained, at a later project stage.

3.2 Responsible parties and Intellectual Property

In this section, there will be elaborated upon who will collect the data, and the IP issues to consider.

For **WP1 – MANAGE**, GILAB is the responsible partner. The data processed under this work package are to be held confidential. GILAB is also responsible for the management of the mailing list under **WP3 – DEVELOP**, which also contains confidential information. OCW is leading **WP4 – CERTIFY**, but also delivered input for **WP6 – LAUNCH**, which is formally led by Satagro. The degree of confidentiality under WP4 differs. Whereas Sentinel-1 and Sentinel-2 produce open data, the PLANET, PARCELS and INSITU data sets are confidential. The SOIL, REGENERATIVE and EXPLORATION data sets are deployed commercially. Lastly, **WP5 – PILOT** is led by ELGO. The files in WP5 are mostly for internal use only, yet the KMZ/SHAPE FILE is open access. The data sets associated with the UN are shared with 3rd parties or made publicly available.⁸

3.3 Data exploitation and reuse

This section discusses whether and how data will be exploited or made accessible for reuse. This section looks further into the standards and metadata, as well as the reuse of existing data.

As outlined in the previous section, data is exploited for commercial purposes under WP4 and WP5. Other data sets are held confidential or are open source.

For all work packages except WP4 and WP6, there is no reuse of existing data. WP4 and WP6 do reuse existing data for a variety of purposes. Data can be reused to generate added-value datasets, to monitor SOC change, determine the right locations for SOC or estimate the annual SOC sequestration. Furthermore, data can be reused for verification of whether farmers actually applied the regenerative practices, or for running the services.

⁸ Based on additional input received separately by SatAgro, in the context of WP5 and WP6 activities, the user of the data when entering into an agreement to use the satellite service, is requested to sign a contract that grants permission to the service provider to use certain of the user's data disclosed in the course of the activities covered by the contract. Such a contractual arrangement is necessary for the processing, copying and publishing of the data in order to develop the related activities, monitor and communicate the outputs. In principle, farm and crop related data are -subject to exceptions, of course,-considered as confidential information. This particular aspect regarding data used in the context of the satellite service will be further addressed under future versions of the present DMP.



With regards to the standards and metadata, it is indicated by WP4 And WP6 that most data sets are based on the VM0042 methodology, which is a methodology for improved agricultural land management⁹, and other methodologies identified from the research. WP5 collects metadata from weather stations.

3.4 Data curation and preservation

Generally, the information retrieved on how the data is curated and preserved is scarce. This section focuses therefore mainly on the future outlook, which is indicated by the data usefulness. For WP1, the data is useful for the coordinator of AgriCapture to manage the finances. The data is confidentially stored on a secure computer and will only be accessible to the Financial Manager is the project. For WP2, the data on information of new events and e-communications are useful for the project as a whole and will also remain confidential. In relation to W3, the data are partly useful for the broader community outside of AgriCapture, or only for the responsible partner. The WP4 and WP6 data is collected to measure the baselines of carbon footprints for case studies and for calibrating farm data retrieved from Earth observation, including Copernicus data. The future data may be used for registering carbon credit projects as a compensation tool for farmers. The information is retrieved for different tasks, outlined in WP4.2, WP4.3, WP5.2 and WP6.2. For WP5, lastly, data will be used not only for AgriCapture project purposes but will also be transferred to the farmers in order to receive specific information associated with their agricultural activities. These insights could support farmers to strengthen their regenerative agricultural practices.

Any scientific publications resulting from the activities under AgriCapture will be made available on the online repository. Further details in this respect are provided under the project's Grant Agreement.

3.5 Privacy protection

This section discusses the technical and procedural measures of the platform to protect privacy.

AgriCapture has its own privacy policy that applies to visitors and subscribers, which is outlined on the website and will be particularly relevant for data related activities under WP2.¹⁰ The WP1 Leaders is to ensure that data is stored at the computer of the Financial Manager under secure circumstances. The data is exclusively stored for the project

⁹ VERRA (no date). VM0042 Methodology for Improved Agricultural Land Management, v1.0 [web page]. Retrieved from: <https://verra.org/methodology/vm0042-methodology-for-improved-agricultural-land-management-v1-0/>.

¹⁰ AgriCaptureCO₂ (no date). Privacy Policy [web page]. Retrieved from: [Privacy Policy - AgriCaptureCO₂](#).



purpose and will be deleted after all payments are completed. Under WP3, some data sets will be stored securely inside the data base which will be only accessible for authorized users, whereas other data will not be shared outside of the consortium. WP4 and WP6 data is stored on the OCW drive and protected by IT security protocols. After the project is finalized, the data will be made available on the AgriCapture dropbox and regulated by the general data management plants. For WP5, there is currently no information regarding the data protection measures in place.



4 Conclusion

The objective of this deliverable was to capture an initial version of the data management plan of AgriCapture, as it could be made available by Month 8 of the project. Taking into account the FAIR principles provide under the applicable Guidelines of the European Commission, the deliverable outlined (i) what data that the project will collect and generate, (ii) who will collect it and the IP issues to consider, (iii) whether and how it will be exploited or made accessible for re-use, (iv) how it will be curated and preserved, and (v) technical and procedural measures of the platform to protect privacy. This is, mainly, done by first summarising the data management plans per work package (Chapter 2), by means of input provided by work package leaders, followed by an analysis of the data summary in response to the task description.

It can be observed from the data summary and the analysis of the data management plans that, given despite the early stage of data collection in the project, the WP Leaders generally have clear insight onto the scale of data collection and to the size and nature of the data sets. In particular, there are generally two categories of data that are collected, namely, personal data associated with communication purposes, and geographical data, such as climate and soil data, that are often related to the use cases. The second category, also, includes Copernicus data. The handling of this category of data will be further investigated as the project evolves and it will be addressed under future versions of this deliverable. As far as the personal data falling under the first category are concerned, there are generally relevant measures in place. As to the second category, it can be argued that it is generally clear what the purpose of the data collection is and how this is linked to the project objectives.

This deliverable will serve as a living document. As the project progresses, next steps will be, among other, to outline more clearly how the data sets are curated and preserved, and, where relevant, how the data are going to be exploited and reused. It is aimed that D1.4 AgriCapture project assessment and, possibly, the periodic project reports provide accordingly.



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Appendices

Appendix I

Input Request sent to Work Package Leaders

Please, complete all fields. In case a specific field is not relevant for your WP, please, make it explicit and provide a brief explanation.

WP	
Partner	
Name of the data set	[AGRICAPTURE _Wx_Tz_01] Please, provide one sentence description.
Data types	[Real time data stream, unstructured like tweets, synthetic data stream, log data of IDS, etc.]
Data formats	[JSON-like, CSV]
Expected size of the data	[To be defined, 3 TB/Day or 12 GB/day when compressed etc.]



Standards and metadata	[The metadata attributes list. The used methodologies.]
Data origin	[Information from applications to be developed by the partner]
Re-use of existing data	[No reuse of existing data, for the generation of synthetic datasets, it will be essential to create a recipe, reusing the existing data in logs etc.]
Data usefulness	[The broader research community outside CONCORDIA, the responsible partner etc.]
Accessibility	Open/Confidential
Project pilot (if applicable)	Please, make a specific reference to one of the project pilots.
Purpose and relation to the objectives of the project.	<ul style="list-style-type: none">• What are the data collected/generated specifically used for?



	<ul style="list-style-type: none">• How does the specific data set link to overall objectives of AGRICAPTURE project? <p>Please, draw a link between the specific data set and the project objectives identified.</p>
<p>Measures (technical and organizational) for compliance with the personal data protection principles.</p> <p><i>Only relevant, in case of processing of personal data.</i></p>	<p>[Encryption, in house DPO, not applicable due to exclusive use of synthetic data etc.]</p>
<p>Remarks considered necessary and/or relevant per WP.</p>	



Appendix II

Input on WP1

WP	WP1
Partner	GILab
Name of the data set	[Dataset1_banking_details] The data includes banking information from the partners.
Data types	Account holder's name, IBAN/ account number, BIC/SWIFT CODE, bank name, address of the bank branch, account holder's name, address
Data formats	.xlsx
Expected size of the data	To be defined.
Standards and metadata	Not relevant.



Data origin	Response to emailed forms sent to partners.
Re-use of existing data	No reuse of existing data.
Data usefulness	The data are useful for the coordinator of AgriCapture, GILab, to coordinate payments to project partners.
Accessibility	Confidential - The data is only accessible to the Project Financial Manager on a secure computer.
Project pilot (if applicable)	n/a
Purpose and relation to the objectives of the project.	<p>The data will be used to transfer the funds to the project partners.</p> <p>WP 1's activity is the management and coordination of the project. This includes administering and distributing the financial contribution.</p>



<p>Measures (technical and organizational) for compliance with the personal data protection principles.</p> <p><i>Only relevant, in case of processing of personal data.</i></p>	<p>The data is stored securely on the computer of the Financial Manager in secured premises.</p> <p>The data will be kept only for the project purpose and deleted after the distribution of the very last payment.</p>
<p>Remarks considered necessary and/or relevant per WP.</p>	<p>The dataset does not contain personal data</p>

Table 1: Dataset1_banking_details

<p>WP</p>	<p>WP1</p>
<p>Partner</p>	<p>GILab</p>



Name of the dataset	[Dataset2_project_members] The data includes partner's contacts details.
Data types	First and last names, affiliation, position, e-mail addresses.
Data formats	.xlsx
Expected size of the data	To be defined.
Standards and metadata	Not relevant.
Data origin	Provided bilaterally by partners.



Re-use of existing data	Partial re-use of the data collected during the proposal phase.
Data usefulness	The data are useful for all the project members.
Accessibility	Confidential - The data is only accessible to the project members, who have a nominative access to AgriCapture's instance on Dropbox.
Project pilot (if applicable)	n/a
Purpose and relation to the objectives of the project.	<p>The data will be used for internal project communication.</p> <p>WP 1's activity is the management and coordination of the project. This includes maintaining the project contact's data base up to date for the project internal communication.</p>
Measures (technical and organizational) for compliance with the personal data protection principles.	Restricted access to dropbox for individuals nominated by project partners.



<p><i>Only relevant, in case of processing of personal data.</i></p>	
<p>Remarks considered necessary and/or relevant per WP.</p>	<p>This data was used to create mailing lists for all participants and for WP specific mailing lists as required.</p>

Table 2: Dataset2_project_members



Appendix III

Input on WP 2

WP	2
Partner	EEB, LEAF
Name of the dataset	Mailing List A collection of people's names, organisations, and email addresses for contacting in regards to events and e-communications.
Data types	
Data formats	
Expected size of the data	Unknown



Standards and metadata	Individual completes form on the website and then submits.
Data origin	AgriCaptureCO ₂ website.
Re-use of existing data	No reuse of existing data
Data usefulness	Project as a whole
Accessibility	Confidential
Project pilot (if applicable)	N/A
Purpose and relation to the objectives of the project.	<ul style="list-style-type: none">• What are the data collected/generated specifically used for? Contacting for information of new events e-communications <ul style="list-style-type: none">• How does the specific dataset link to overall objectives of AGRICAPTURE project?



	Keeping stakeholders up to date with project news and activities
Measures (technical and organizational) for compliance with the personal data protection principles. <i>Only relevant, in case of processing of personal data.</i>	Please see data privacy policy
Remarks considered necessary and/or relevant per WP.	



Appendix IV

Input on WP4 and WP6

WP	WP4 – Certify – WP6 Engage and Case Studies
Partner	One Carbon World
Name of the dataset	<p>"AgriCaptureCO2 Interventions Screening Form"</p> <p>A form to collect high level information on the user and to assess which regenerative practices have been carried out or are planned by the user (farm).</p> <p>"KMZ/SHAPE File"</p> <p>A file that sets out the geographical outlines (boundaries) of the users (farm) land</p> <p>"Soil Sample Data" - User (Farm) provided</p> <p>A document providing information on the soil organic carbon (and other characteristics) of the users (farm) land. NB: Soil sample data may be obtained from WP3 outputs which will be managed by the relevant DMP as perscribed under WP3.</p> <p>"AgriCaptureCO2 Interventions Data Quantitative"</p> <p>A form to collect data on the regenerative practices that have been carried out or are planned by the user (farm) as identified in the form "AgriCaptureCO2 Interventions Screening Form"</p>



"AgriCaptureCO2 Interventions Data Qualitative"

A form to collect data on the regenerative practices that have been carried out or are planned by the user (farm) as identified in the form "AgriCaptureCO2 Interventions Screening Form"

"AgriCaptureCO2 Interventions Data_Fertilizers"

A form to collect data on the fertilizer application practices that have been carried out or are planned by the user (farm)

"AgriCaptureCO2 Interventions Data_Project Type Name"

Evidence on the above data

A form to collect data on the specific regenerative practices that have been carried out or are planned by the user (farm)

"VCS_AFOLU_Non-Permanence-Risk-Assessment-Questionnaire"

Supporting data to provide evidence of the inputs prescribed by the previously listed data capture forms

UN Climate Neutral Now Pledge

A pledge to commit to report on GHG emissions year by year

UNCNNow Initiative - Climate Action Questions

quick questionnaire to support the UN Climate Neutral Now Initiative participation (optional for farm case studies).



	<p>AgriCaptureCO2 Carbon Footprint Data Capture Form</p> <p>Information is collected measure the baseline of a case study carbon footprint</p> <p>Please, provide one sentence description.</p>	
<p>Data types</p>	<p>"AgriCaptureCO2 Interventions Screening Form"</p> <p>"KMZ/SHAPE File"</p> <p>"Soil Sample Data" - User (Farm) provided</p> <p>"AgriCaptureCO2 Interventions Data Quantitative"</p> <p>"AgriCaptureCO2 Interventions Data Qualitative"</p> <p>"AgriCaptureCO2 Interventions Data_Fertilizers"</p> <p>"AgriCaptureCO2 Interventions Data_Project Type Name"</p> <p>Evidence on the above data</p> <p>"VCS_AFOLU_Non-Permanence-Risk-Assessment-Questionnaire"</p> <p>AgriCaptureCO2 Carbon Footprint Data Capture Form</p> <p>UN Climate Neutral Now Pledge</p> <p>UNCNNow Initiative - Climate Action Questions</p>	<p><i>Unstructured - user input</i></p> <p><i>Real time data stream</i></p> <p><i>Real time data stream</i></p> <p><i>Unstructured - user input</i></p> <p><i>Unstructured - user input</i></p> <p><i>Unstructured - user input</i></p> <p><i>Unstructured - user input</i></p> <p><i>Unstructured - records</i></p> <p><i>Unstructured - user input</i></p> <p><i>Unstructured - user input</i></p> <p><i>Unstructured - user input</i></p> <p><i>Unstructured - user input</i></p>



Data formats	<p>Xls KMZ, word, invoices, purchase orders</p> <table><tr><td>"AgriCaptureCO2 Interventions Screening Form"</td><td>xls.</td></tr><tr><td>"KMZ/SHAPE File"</td><td>KMZ.</td></tr><tr><td>"Soil Sample Data" - User (Farm) provided</td><td>Multiple</td></tr><tr><td>"AgriCaptureCO2 Interventions Data Quantitative"</td><td>xls.</td></tr><tr><td>"AgriCaptureCO2 Interventions Data Qualitative"</td><td>word</td></tr><tr><td>"AgriCaptureCO2 Interventions Data_Fertilizers"</td><td>xls.</td></tr><tr><td>"AgriCaptureCO2 Interventions Data_Project Type Name"</td><td>xls.</td></tr><tr><td>Evidence on the above data</td><td>Invoices/Purchase Orders/Self Declarations</td></tr><tr><td>"VCS_AFOLU_Non-Permanence-Risk-Assessment-Questionnaire"</td><td>xls.</td></tr><tr><td>AgriCaptureCO2 Carbon Footprint Data Capture Form</td><td>xls.</td></tr><tr><td>UN Climate Neutral Now Pledge</td><td>pdf</td></tr><tr><td>UNCNNow Initiative - Climate Action Questions</td><td>word</td></tr></table>	"AgriCaptureCO2 Interventions Screening Form"	xls.	"KMZ/SHAPE File"	KMZ.	"Soil Sample Data" - User (Farm) provided	Multiple	"AgriCaptureCO2 Interventions Data Quantitative"	xls.	"AgriCaptureCO2 Interventions Data Qualitative"	word	"AgriCaptureCO2 Interventions Data_Fertilizers"	xls.	"AgriCaptureCO2 Interventions Data_Project Type Name"	xls.	Evidence on the above data	Invoices/Purchase Orders/Self Declarations	"VCS_AFOLU_Non-Permanence-Risk-Assessment-Questionnaire"	xls.	AgriCaptureCO2 Carbon Footprint Data Capture Form	xls.	UN Climate Neutral Now Pledge	pdf	UNCNNow Initiative - Climate Action Questions	word
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"KMZ/SHAPE File"	8KB																								
"Soil Sample Data" - User (Farm) provided	500KB																								
"AgriCaptureCO2 Interventions Data Quantitative"	500KB																								
"AgriCaptureCO2 Interventions Data Qualitative"	125KB																								
"AgriCaptureCO2 Interventions Data_Fertilizers"	50KB																								
"AgriCaptureCO2 Interventions Data_Project Type Name"	50KB																								
Evidence on the above data	tbd																								
"VCS_AFOLU_Non-Permanence-Risk-Assessment-Questionnaire"	50KB																								
AgriCaptureCO2 Carbon Footprint Data Capture Form	1 MB																								
UN Climate Neutral Now Pledge	2.7 MB																								
UNCNNow Initiative - Climate Action Questions	38 KB																								
<p>Standards and metadata</p>	<table border="1"> <tr> <td>"AgriCaptureCO2 Interventions Screening Form"</td> <td>Based on VM0042 VERRA methodology and others as identified from the research.</td> </tr> </table>	"AgriCaptureCO2 Interventions Screening Form"	Based on VM0042 VERRA methodology and others as identified from the research.																						
"AgriCaptureCO2 Interventions Screening Form"	Based on VM0042 VERRA methodology and others as identified from the research.																								



	"KMZ/SHAPE File"	n/a
	"Soil Sample Data" - User (Farm) provided	n/a
	"AgriCaptureCO2 Interventions Data Quantitative"	Based on VM0042 VERRA methodology and others as identified from the research.
	"AgriCaptureCO2 Interventions Data Qualitative"	Based on VM0042 VERRA methodology and others as identified from the research.
	"AgriCaptureCO2 Interventions Data_Fertilizers"	Based on VM0042 VERRA methodology and others as identified from the research.
	"AgriCaptureCO2 Interventions Data_Project Type Name"	Based on VM0042 VERRA methodology and others as identified from the research.
	Evidence on the above data	Based on VM0042 VERRA methodology and others as identified from the research.
	"VCS_AFOLU_Non-Permanence-Risk-Assessment-Questionnaire"	Based on VM0042 VERRA methodology and others as identified from the research.
	AgriCaptureCO2 Carbon Footprint Data Capture Form	Greenhouse Gas Protocol Corporate Standard
	UN Climate Neutral Now Pledge	Based on the UNFCC Climate Neutral Now Initiative Participation
	UNCNNow Initiative - Climate Action Questions	Based on the UNFCC Climate Neutral Now Initiative Participation
Data origin	[Information from applications to be developed by the partner]	



	"AgriCaptureCO2 Interventions Screening Form"	User Input
	"KMZ/SHAPE File"	Google Earth
	"Soil Sample Data" - User (Farm) provided	User Input
	"AgriCaptureCO2 Interventions Data Quantitative"	User Input
	"AgriCaptureCO2 Interventions Data Qualitative"	User Input
	"AgriCaptureCO2 Interventions Data_Fertilizers"	User Input
	"AgriCaptureCO2 Interventions Data_Project Type Name"	User Input
	Evidence on the above data	User Input
	"VCS_AFOLU_Non-Permanence-Risk-Assessment-Questionnaire"	User Input
	AgriCaptureCO2 Carbon Footprint Data Capture Form	User input
	UN Climate Neutral Now Pledge	User input
	UNCNNow Initiative - Climate Action Questions	User input
Re-use of existing data	[No reuse of existing data, for the generation of synthetic datasets, it will be essential to create a recipe, reusing the existing data in logs etc.]	
	"AgriCaptureCO2 Interventions Screening Form"	There will be no re-use of existing data (unless through other partners)
	"KMZ/SHAPE File"	There will be no re-use of existing data (unless through other partners)
	"Soil Sample Data" - User (Farm) provided	There will be no re-use of existing data (unless through other partners)



	"AgriCaptureCO2 Interventions Data Quantitative"	There will be no re-use of existing data (unless through other partners)
	"AgriCaptureCO2 Interventions Data Qualitative"	There will be no re-use of existing data (unless through other partners)
	"AgriCaptureCO2 Interventions Data_Fertilizers"	There will be no re-use of existing data (unless through other partners)
	"AgriCaptureCO2 Interventions Data_Project Type Name"	There will be no re-use of existing data (unless through other partners)
	Evidence on the above data	There will be no re-use of existing data (unless through other partners)
	"VCS_AFOLU_Non-Permanence-Risk-Assessment-Questionnaire"	There will be no re-use of existing data (unless through other partners)
	AgriCaptureCO2 Carbon Footprint Data Capture Form	There will be no re-use of existing data (unless through other partners)
	UN Climate Neutral Now Pledge	There will be no re-use of existing data (unless through other partners)
	UNCNNow Initiative - Climate Action Questions	There will be no re-use of existing data (unless through other partners)
Data usefulness	[The broader research community outside CONCORDIA, the responsible partner etc.]	
	"AgriCaptureCO2 Interventions Screening Form"	Data will be used for AgriCapture project purposes to assess the eligibility of generating carbon credits. However it will also be used to identify any potential gaps where further training would be required for farms where they are not currently implementing applicable regenerative practices
	"KMZ/SHAPE File"	Data will be collected and distributed to WP3 for measurement and verification services
	"Soil Sample Data" - User (Farm) provided	Data will be used for AgriCapture project purposes to make a quantitative assessment of generating carbon credits.
	"AgriCaptureCO2 Interventions Data Quantitative"	Data will be used for AgriCapture project purposes to make a quantitative assessment of generating carbon credits.



	"AgriCaptureCO2 Interventions Data Qualitative"	Data will be used for AgriCapture project purposes to make a quantitative assessment of generating carbon credits.
	"AgriCaptureCO2 Interventions Data_Fertilizers"	Data will be used for AgriCapture project purposes to make a quantitative assessment of generating carbon credits.
	"AgriCaptureCO2 Interventions Data_Project Type Name"	Data will be used for AgriCapture project purposes to make a quantitative assessment of generating carbon credits.
	Evidence on the above data	Data will be used for AgriCapture project purposes to make a quantitative assessment of generating carbon credits.
	"VCS_AFOLU_Non-Permanence-Risk-Assessment-Questionnaire"	Data will be used for AgriCapture project purposes to make a qualitative assessment of generating carbon credits.
	AgriCaptureCO2 Carbon Footprint Data Capture Form	Data will be used to measure baselines of farms
	UN Climate Neutral Now Pledge	Data will be used for optional participation in the UN Climate Neutral Now Initiative
	UNCNNow Initiative - Climate Action Questions	Participation in the UN CCNOW
Accessi bility	Open/Confidential	
	"AgriCaptureCO2 Interventions Screening Form"	Internal use only
	"KMZ/SHAPE File"	Open Access
	"Soil Sample Data" - User (Farm) provided	Internal use only
	"AgriCaptureCO2 Interventions Data Quantitative"	Internal use only
	"AgriCaptureCO2 Interventions Data Qualitative"	Internal use only
	"AgriCaptureCO2 Interventions Data_Fertilizers"	Internal use only
	"AgriCaptureCO2 Interventions Data_Project Type Name"	Internal use only
	Evidence on the above data	Internal use only



	<p>"VCS_AFOLU_Non-Permanence-Risk-Assessment-Questionnaire" Internal use only</p> <p>AgriCaptureCO2 Carbon Footprint Data Capture Form Internal use only</p> <p>UN Climate Neutral Now Pledge shared with 3rd party (UN climate Neutral Now climate team)</p> <p>UNCNNow Initiative - Climate Action Questions shared with 3rd party (UN climate Neutral Now climate team) - and available publically on the UN website</p>
<p>Project pilot (if applicable)</p>	<p>Please, make a specific reference to one of the project pilots.</p> <p>"AgriCaptureCO2 Interventions Screening Form" Data will be collected for each pilot</p> <p>"KMZ/SHAPE File" Data will be collected for each pilot</p> <p>"Soil Sample Data" - User (Farm) provided Data will be collected for each pilot</p> <p>"AgriCaptureCO2 Interventions Data Quantitative" Data will be collected for each pilot</p> <p>"AgriCaptureCO2 Interventions Data Qualitative" Data will be collected for each pilot</p> <p>"AgriCaptureCO2 Interventions Data_Fertilizers" Data will be collected for each pilot</p> <p>"AgriCaptureCO2 Interventions Data_Project Type Name" Data will be collected for each pilot</p> <p>Evidence on the above data Data will be collected for each pilot</p> <p>"VCS_AFOLU_Non-Permanence-Risk-Assessment-Questionnaire" Data will be collected for each pilot</p> <p>AgriCaptureCO2 Carbon Footprint Data Capture Form Data to be collected for each pilot</p> <p>UN Climate Neutral Now Pledge Data to be collected for each pilot</p> <p>UNCNNow Initiative - Climate Action Questions Data to be collected for each pilot</p>



Purpose and relation to the objectives of the project.

- What are the data collected/generated specifically used for?

The data is collected to measure the baselines of carbon footprints for case studies and also for a baseline for calibrating farm data for Earth Observation. The future data may be used to register projects to generate carbon credits as a compensation for farmers (such as the VERRA VM0042 methodology)

- How does the specific dataset link to overall objectives of AGRICAPTURE project?

Information is collected to support the methodology development and definition (wp4.2)

Information is collected to support certifying AgriCapture methodology (wp4.3)

Information is collected to support establishing use case baselines (wp5.2)

Information is collected to support creating a business plan (wp6.2)

Please, draw a link between the specific dataset and the project objectives identified.

WP4.2 + 4.3 + WP5.2	"AgriCaptureCO2 Interventions Screening Form"
WP4.2 + 4.3 + WP5.2	"KMZ/SHAPE File"
WP4.2 + 4.3 + WP5.2	"Soil Sample Data" - User (Farm) provided
WP4.2 + 4.3 + WP5.2	"AgriCaptureCO2 Interventions Data Quantitative"



	<p>WP4.2 + 4.3 + WP5.2 "AgriCaptureCO2 Interventions Data Qualitative"</p> <p>WP4.2 + 4.3 + WP5.2 "AgriCaptureCO2 Interventions Data_Fertilizers"</p> <p>WP4.2 + 4.3 + WP5.2 "AgriCaptureCO2 Interventions Data_Project Type Name"</p> <p>WP4.2 + 4.3 + WP5.2 Evidence on the above data</p> <p>WP4.2 + 4.3 + WP5.2 "VCS_AFOLU_Non-Permanence-Risk-Assessment-Questionnaire"</p> <p>WP4.2 + 4.3 +WP5.2 AgriCaptureCO2 Carbon Footprint Data Capture Form</p> <p>WP4.2 + 4.3 +WP5.2 UN Climate Neutral Now Pledge</p> <p>WP4.2 + 4.3 +WP5.2 UNCNow Initiative - Climate Action Questions</p>
<p>Measures (technical and organizational) for compliance with the personal data protection principles.</p>	<p>[Encryption, in house DPO, not applicable due to exclusive use of synthetic data etc.]</p> <p>All data will be held on the OCW drive covered by our IT security protocols. Once the project is completed the data will be uploaded onto the AgriCaptureCO2 dropbox and will be subject to the relevant AgriCaptureCO2 data management plans.</p>



<p><i>Only relevant, in case of processing of personal data.</i></p>	
<p>Remarks considered necessary and/or relevant per WP.</p>	<p>Please note that data is shared to dropbox and project partners may need access to this data for their workpackets</p>



Appendix V

Input on WP5

WP	WP5
Partner	ELGO
Name of the dataset	[AGRICAPTURE _WP5_ELGO_Plots] Dataset for real time monitoring of Crete plots
Data types	Real time data stream
Data formats	CSV
Expected size of the data	1Mb/day



Standards and metadata

Metadata for weather stations:

3) Meteo stations

Parameter	Sensor type	Range	Resolution	Accuracy
Temperature	Electronic – PN junction silicon diode	–40 to +65 °C	0.1 °C, –23.3 to +37.8 °C 0.2 °C otherwise	±0.3 °C, +15.6–+37.8 °C ±1.7 °C, –40 to +15.6 °C ±1.1 °C, +37.8–+65 °C
Relative humidity	Electronic – Film capacitor element	0–100%	1%	±3%, 0–90% ±4%, 90–100%
Wind direction	Wind vane with potentiometer	0–360°	1°	±3°
Wind speed	Wind cups with magnetic switch	1–67 m/s, 3–241 km/h (large wind cups) 1.5–79 m/s, 5–282 km/h (small wind cups)	1 km/h, 0.5 m/s	±max(5%, 3 km/h/1 m/s) (large wind cups) ±max(5%, 5 km/h/1.5 m/s) (small wind cups)
Rainfall	Tipping bucket	(0–100 mm/h)	0.2 mm	±max(3%, 0.2 mm), for rain rates up to 50 mm/h ±max(3%, 0.25 mm), otherwise
Atmospheric pressure	Electronic	540–1100 hPa	0.1 hPa	±1.0 hPa
Solar radiation	Silicon photodiode with diffuser (400–1100 nm)	0–1800 W/m ²	1 W/m ²	±5%

4) Soil moisture sensors

i) Volumetric Water Content (VWC)

Range

Mineral soil calibration 0.00–0.70 m³/m³

Soilless media calibration 0.0–1.0 m³/m³

Apparent dielectric permittivity (ϵ_a) 1 (air) to 80 (water)

Resolution 0.001 m³/m³

Accuracy

Generic calibration ±0.03 m³/m³ typical in mineral soils that have solution EC <8 dS/m

Medium specific calibration ±0.01–0.02 m³/m³ in any porous medium

Apparent dielectric permittivity (ϵ_a) 1–40 (soil range), ±1 ϵ_a (unitless) 40–80, 15% of measurement

ii) Dielectric Measurement Frequency 70 MHz



	<p>iii) Temperature</p> <p>Range -40 to +60 °C</p> <p>Resolution 0.1 °C</p> <p>Accuracy ±1 °C from -40 to 0 °C ±0.5 °C from 0 to +60 °C</p> <p>iv) Bulk Electrical Conductivity (EC)</p> <p>Range 0–20 dS/m (bulk)</p> <p>Resolution 0.001 dS/m</p> <p>Accuracy ±(5% + 0.01 dS/m) from 0–10 dS/m, ±8% from 10–20 dS/m</p>
Data origin	<p>Continuous datasets (specific time steps intervals) will be received by the meteo-station and the soil moisture sensors.</p> <p>The data will be obtained by the sensors with a telemetric way (for meteo-station and soil moisture sensors we will have an accessible online database with raw data, time step: 10' minutes for meteo-station sensors and 60' minutes for soil moisture sensors also the data could be inserted in an online platform for further graphic analysis)</p>
Re-use of existing data	<p>No reuse of existing data will be used for meteo and soil moisture datasets. Historical data may be provided for yield if necessary, for the generation of synthetic datasets, it will be essential to create a recipe, reusing the existing data in logs etc.</p>
Data usefulness	<p>Data will be used for AgriCapture project purposes but at the same time will be provided to the farmers in order to receive specific information of their activities that could be helpful for advices towards regenerative agriculture.</p>



Accessibility	Open
Project pilot (if applicable)	Crete pilot - ELGO
Purpose and relation to the objectives of the project.	<ul style="list-style-type: none">• What are the data collected/generated specifically used for? <p>For information of the farmers towards the best conditions to be applied for regenerative agriculture and for training purposes.</p> <ul style="list-style-type: none">• How does the specific dataset link to overall objectives of AGRICAPTURE project? <p>The obtained data will be used from AgriCapture partners that will work on earth observation activities and for establishing the AgriCapture platform that will enable to capture different aspects of agriculture production</p>



<p>Measures (technical and organizational) for compliance with the personal data protection principles.</p> <p><i>Only relevant, in case of processing of personal data.</i></p>	<p>N/A</p>
<p>Remarks considered necessary and/or relevant per WP.</p>	<p>N/A (if needed we will get back to you later during the implementation)</p>



End of document



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