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DataHarvest Exemplar Data Management Plan and Step-by-Step Guideline for Research Partners

This document provides an overview of the GRDC Data Management Plan (DMP) and its importance in RD&E data organisation, as well as providing a step-by-step example for research partners.
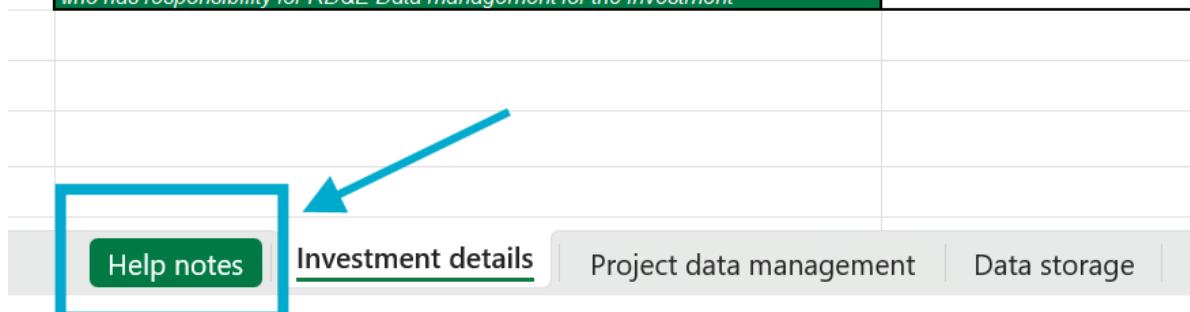
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1. Help Notes

Within the GRDC Data Management template, you will find the Help Notes sheet at the bottom of the Excel document.

- This sheet contains further useful details, such as file naming conventions, to distinguish the different versions of the DMP submitted during the life of the investment.
- Contractual requirements/activities associated with "Submitting an Updated DMP" Milestone.

2. Investment Details

This worksheet captures investment information. This information helps link the DMP back to the investment details found in GRDC's Investment Management System (IMS) and other GRDC systems, providing details about the personnel responsible for RD&E Data management at the GRDC Partner organisation.

i.   GRDC Contract Code

| GRDC contract code
This field contains the GRDC Contract Code as per Research Contract	*SAS2340-567RTX*

This field contains the GRDC Contract Code as per the Research Contract. Please ensure that this field is updated from any procurement ID (such as PROC-9176858) to the corresponding research contract code.

ii.   Contract title

| Contract title
This matches the Research Contract Title	*Multiscale Genetic Connectivity in Fragmented Landscapes within Western and Eastern Australian Regions*

This field should match the Research/Service Contract Title.

iii.   Prepared by

| Prepared by
The party that has prepared this Data Management Plan, including their organisation, position, phone number	*Dr. J. Citizen, ABC Research Organisation, Data Steward, 02 6666 6666, j.citizen@abcresearch.org.au*

In this section, name the party that has prepared this DMP, including their organisation and position, and contact information in the form of a phone number and ideally also an email address.

iv.   Date Prepared

| Date prepared
The date that the first complete version of this Data Management Plan was completed by the party named in the 'Prepared by' field	*01/07/2025*

The date prepared means the date that the first complete version of this DMP was completed by the party named in the 'Prepared by' field.

v.   Principal Investigator

| Principal Investigator
The Principal Investigator for the GRDC investment for which this Data Management Plan has been prepared	*Prof. E. Smith, e.smith@institute.edu.au*

In this section, you will name the Principal Investigator for the GRDC investment for which this DMP has been prepared.

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vi. Responsible party

Responsible party *The person employed by the GRDC Partner that is responsible for ensuring the Data Management Plan is followed and updated where necessary. It is important to clarify who has responsibility for RD&E Data management for the investment*	*Dr. J. Citizen*

The responsible party is the person employed by the GRDC Partner who is responsible for ensuring the DMP is followed and updated where necessary. It is important to clarify who is responsible for RD&E Data management for the investment.

Note: The 'Prepared by,' 'Principal Investigator' and 'Responsible Party' sections may all be the same person, or three different people, depending on the structure of your organisation.

3. Project Data Management

This worksheet contains information on how RD&E Data will be managed by you, your organisation, and any collaborators throughout the life of the investment, considering these factors in advance before beginning the project.

i. Data organisation

RD&E Data organisation *Document how data will be organised, e.g. file naming conventions, filing system. Include where the data is stored during the course of the project before it is archived in the Approved Repository*	Data will be stored on the Shared Drive/Institute Server, which is secure and frequently backed up. Data will be accessible to all team members. Raw datasets (e.g. phenotype, Soils, RNA-seq, and QTL mapping data) will be stored in their original form in a folder named "Source" and working files in a folder called "Work". Within "Work", each discrete component of the project (e.g. wheat population development) will have its own folder to be used by the relevant project members. Each user will also have their own folder for their own working files before sharing to the shared folders. Shared files that are static will have dates as prefixes within their names. Frequently updated working files will be prefixed "Current" with manual backups regularly saved in folders named "Archive" (this is in addition to normal backups).

Establishing clear processes for synchronising RD&E data files and documents across all parties will help prevent the creation of multiple, inconsistent versions of the dataset or documents. This can be achieved by using a shared working space.

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Many GRDC partners provide shared platforms specifically designed to support collaborative research. These platforms often include features such as file versioning, which can help safeguard against data loss.

It is also beneficial to agree in advance on consistent naming conventions for RD&E data files and documents, as well as a clear folder structure to organise the data effectively.

ii. Ethical, confidentiality or privacy considerations

Ethical, confidentiality or privacy considerations *List or describe any sensitivities associated with the Background or Third Party RD&E data to be used in this GRDC Investment. For more info visit https://ardc.edu.au/resources/working-with-data/sensitive-data/*	Grower survey data: Please refer to the ethics approval for this dataset for information. De-identified data from this survey can be made available upon request.

Here, you will identify any sensitivities associated with the Background or Third-Party RD&E data being used in the GRDC investment. Any ethical and privacy requirements can be met through access control and data security within the investment. More information on sensitive data is found on the ARDC website.

You may also include any ethical or confidentiality concerns associated with the data you will generate during the investment.

iii. Access and security

Access and security *Document the measures to be taken to protect sensitive data throughout this GRDC Investment e.g. name who has access and authority to alter/remove sensitive data, security of data storage locations identified in 'data organisation' above. Access may include collaborating partners*	Sensitive data will be stored on the secure shared drive on the Institute Servers, with access limited to project participants. The list includes employees at CompanyX and subcontractors at InstituteY who are engaged in the work. Once data storage in the nominated approved repository has taken place, data on the shared drive will be deleted.

Personnel who will have access to the RD&E Data in the investment should be listed here. Measures taken to protect sensitive RD&E Data from unauthorised access, or to alter the RD&E Data to remove sensitive information, should be provided here.

iv.   Backup

Backup *Outline how your data will be backed up during the life cycle of the investment. Location of back-ups*	The Institute Servers drive is backed up automatically each day. Dr J. Citizen is responsible for checking weekly that data backup is continuing successfully.

RD&E Data loss can represent a significant cost to an investment in terms of time and resources. The 'backup' field clarifies how RD&E Data and documents in the investment will be backed up to ensure against loss. Many shared platforms provided by GRDC Partners will automatically provide regular RD&E Data backup. If such an environment is not being used, a strategy for performing regular backups will need to be defined.

It is also beneficial to include here and consider who is responsible for checking that data backup is being completed successfully.

v.   Background Data

Background Data *Identify any existing and related RD&E datasets that could be added to the GRDC Data Catalogue. This is a chance to identify such GRDC co-owned RD&E Datasets and to arrange for them to be managed so they can be found through the GRDC Data Catalogue and used in future investments.*	SAS1840 - 003RTX: Resistance genetic testing results in wheat in the Western Australia region

As GRDC improves its approach to RD&E Data management, there will be historical RD&E Datasets that are not registered in the GRDC Data Catalogue or stored in an Approved Repository. This is a chance to identify such RD&E Datasets and to arrange for them to be managed so they can be found through the GRDC Data Catalogue and used in future investments. Background Data that is used in the GRDC investment should also be listed in the Project IP and Project Outputs (IPPO) Register.

If there is no background data, please mark as N/A.

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4. Data Storage

This worksheet focuses on archiving the RD&E datasets created throughout the investment. Each row entry corresponds to an RD&E Dataset created within the investment. RD&E Datasets are identified in advance and a plan made for their cataloguing and storage in an Approved Repository. The last two columns can only be filled out once the data is generated and ready to be uploaded to an approved repository.

Dataset Name *Enter a short descriptive name of the dataset to be managed. This should match the corresponding record in the GRDC IPPO Register.*	Dataset description *Enter a short description of the dataset that details its contents*	Storage location *Identify the Approved Repository where the data will be stored. Where applicable, this will be the Research Partner's data repository.* *You can find the Approved Repository list in the 'GRDC RD&E Data Capture and Storage Guidelines for Research Partners' on the GRDC website: https://grdc.com.au/research/partnering-in-rde-investment/contract-templates*	Milestone No. *Enter the associated contract milestone for the deposition of the dataset in the storage location. Each row in this table is expected to be generated through activities described in the contract milestone. *See Help Notes for Requirements/Activities associated with "Submitting an Updated DMP" milestone*	Data format *Enter the data format for the dataset. See list below this table for suggested data formats. Proprietary data standards should be avoided. See the suggested data formats in row 8 of this form.*	Access conditions *Options for access permissions are Open, Restricted, or Conditional. The access conditions will be consistent with the Research Contract or as negotiated between GRDC and the GRDC Partner as provided by the Research Contract. Please provide as much detail as possible.*	IPPO Register 'Project Outputs' Number *Please write the number that appears in the 'No' column of the IPPO Register 'Project Outputs' table to help clarify any limitations on dissemination or commercialisation due to IP embodied in the dataset*	Data uploaded to Approved Repository? *Once the associated data management milestone has been carried out and the data appears in an Approved Repository, please indicate that by pasting the URL for the metadata/dataset in this column*
EXAMPLE 1: Grower survey results from the West and East Australian regions in 2024-2025	This dataset will contain survey responses from approximately 80 growers in the Western and Eastern Australia regions, collected during the 2024-2025 growing season. The survey is focused on pest control practices. It will capture information on the types of treatments used, the timing and frequency of their application, the quantities applied, and growers' perceptions of their effectiveness. In addition to pest management data, the survey is also aimed at gathering information on broader farm management practices that may influence or relate to pest control decisions.	Zenodo	103	MS- WORD	Restricted. A de-identified version of this document can be made available upon request. Please refer to the ethics approval for this dataset for more information.	1	10.5281/zenodo.14880412
EXAMPLE 2: Assessment of heat tolerance in wheat in Western Australian systems from 2023-2025	Field wheat data at three locations at two times of sowing, both in season and post-harvest. Weather data collected at each site. Wheat phenotype traits, genotype based on 90K SNP Chip and site environmental data collected and at 2 different time of sowing (TOS1 and TOS2) from 2023 to 2025.	SAS data commons Zenodo	111, 114	CSV	Conditional, embargoed for 12 months for the purposes of publication.	5	10.5281/zenodo.14678456
EXAMPLE 3: Herbicide resistance inheritance	Segregation of individuals from crosses after treatment with herbicides, including dose response data.	Figshare	105, 109, 113, 117, 121, 124	XLSX, DOCX, JPEG, TXT	Open.	2	https://doi.org/10.6084/m9.figshare.42522145

i. Dataset Name

Dataset Name	Dataset description	Storage location	Milestone No.	Data format	Access conditions	IPPO Register 'Project Outputs' Number	Data uploaded to Approved Repository?
Grower survey results from the West and East Australian regions in 2024-2025	This dataset will contain survey responses from approximately 80 growers in the Western and Eastern Australia regions, collected during the 2024-2025 growing season. The survey is focused on pest control practices. It will capture information on the types of treatments used, the timing and frequency of their application, the quantities applied, and growers' perceptions of their effectiveness. In addition to pest management data, the survey aims to gather information on broader farm management practices that may influence or relate to pest control decisions.	Zenodo	103	MS- WORD	Restricted. A de-identified version of this document can be made available upon request. Please refer to the ethics approval for this dataset for more information.	1	10.5281/zenodo.14880412

This is a descriptive name of the RD&E Dataset. **Do not use your GRDC Contract Title in the dataset name**, as multiple datasets can be created under the one investment with unique titles.

The dataset name can be updated throughout the life of your investment, to which the name should also match the one in the IPPO Register, as this will ensure that any limits on dissemination or commercialisation and of this RD&E Dataset are well understood by referring to its entry in the IPPO Register.

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ii. Dataset description

Dataset Name	Dataset description	Storage location	Milestone No.	Data format	Access conditions	IPPO Register 'Project Outputs' Number	Data uploaded to Approved Repository?
Grower survey results from the West and East Australian region in 2024-2025	This dataset will contain survey responses from approximately 80 growers in the Western and Eastern Australia regions, collected during the 2024-2025 growing season. The survey is focused on pest control practices. It will capture information on the types of treatments used, the timing and frequency of their application, the quantities applied, and growers' perceptions of their effectiveness. In addition to pest management data, the survey aims to gather information on broader farm management practices that may influence or relate to pest control decisions.	Zenodo	103	MS- WORD	Restricted. A de-identified version of this document can be made available upon request. Please refer to the ethics approval for this dataset for more information.	1	10.5281/zenodo.14880412

This is a short description of the RD&E Dataset that details its contents. The description should inform other parties about the content of the RD&E Data.

For the example dataset about collecting grower survey data, we have the following description:

"This dataset will contain survey responses from approximately 80 growers in the Western and Eastern Australia regions, collected during the 2024-2025 growing season. The survey is focused on pest control practices. It will capture information on the types of treatments used, the timing and frequency of their application, the quantities applied, and growers' perceptions of their effectiveness. In addition to pest management data, the survey is also aimed at gathering information on broader farm management practices that may influence or relate to pest control decisions."

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iii.   Storage location

Dataset Name	Dataset description	Storage location	Milestone No.	Data format	Access conditions	IPPO Register 'Project Outputs' Number	Data uploaded to Approved Repository?
Grower survey results from the West and East Australian regions in 2024-2025	This dataset will contain survey responses from approximately 80 growers in the Western and Eastern Australia regions, collected during the 2024-2025 growing season. The survey is focused on pest control practices. It will capture information on the types of treatments used, the timing and frequency of their application, the quantities applied, and growers' perceptions of their effectiveness. In addition to pest management data, the survey is also aimed at gathering information on broader farm management practices that may influence or relate to pest control decisions.	Zenodo	L03	MS- WORD	Restricted. A de-identified version of this document can be made available upon request. Please refer to the ethics approval for this dataset for more information.	1	10.5281/zenodo.14880412

The storage location identified here will be an Approved Repository that has been agreed upon by both the GRDC Investment Manager and the GRDC Partner. A list of Approved Repositories is provided in the GRDC List of Approved Repositories for Research Partners v1.1.

Remember that your chosen GRDC Approved Repository is where the dataset will sit securely after it has been generated, not where it will be during the lifetime of its creation, such as in a shared drive like OneDrive, which is not the same as a repository.

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Dataset Name	Dataset description	Storage location	Milestone No.	Data format	Access conditions	IPPO Register 'Project Outputs' Number	Data uploaded to Approved Repository?
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RD&E Data storage and cataloguing activities within an investment are tied to Research Contract Milestones. Each row in the table corresponds to a valuable RD&E Dataset that is expected to be generated through activities described in a contract Milestone. The associated Milestone number is entered here.

The 'Milestone No.' field records the contract Milestone when the listed RD&E Dataset will be deposited into the selected Approved Repository and helps to plan for when RD&E Data storage and cataloguing will take place throughout the investment.

At the Milestone time, Project metadata will also be generated and registered with the GRDC Data Catalogue. In the example here, RD&E Data is collected at contract Milestone 103 (extract from the Schedule 1 Milestones section on the right). Text is added to the contract Milestone to indicate that an RD&E Data storage Milestone has been identified and recorded in the Data Management Plan. The Data Management Plan record (extract shown above) shows the Milestone at which we expect the RD&E Dataset to be created.

with varying levels of disease inoculum in the following five locations:
- Location 1
- Location 2
- Location 3
- Location 4
- Location 4

| 103 | Harvest all successful field trials Collate yield information into single data file that includes information inoculum level. Update IPPO register Complete Data Management Milestone. | 30/09/2022 | $155,590.00 |

v.   Data format

Dataset Name	Dataset description	Storage location	Milestone No.	Data format	Access conditions	IPPO Register 'Project Outputs' Number	Data uploaded to Approved Repository?
Grower survey results from the West and East Australian regions in 2024-2025	This dataset will contain survey responses from approximately 80 growers in the Western and Eastern Australia regions, collected during the 2024-2025 growing season. The survey is focused on pest control practices. It will capture information on the types of treatments used, the timing and frequency of their application, the quantities applied, and growers' perceptions of their effectiveness. In addition to pest management data, the survey aims to gather information on broader farm management practices that may influence or relate to pest control decisions.	Zenodo	103	MS- WORD	Restricted. A de-identified version of this document can be made available upon request. Please refer to the ethics approval for this dataset for more information.	1	10.5281/zenodo.14880412

The format of the RD&E Dataset is an important factor in its reusability. The 'Data format' field encourages planning of the RD&E Data format when writing the DMP. To maximise opportunities for future re-use, the chosen RD&E Data format should be non-proprietary, widely adopted, and machine-readable.

The following provides a list of suggested RD&E Data formats for several different Data types.

Suggested data formats:
Documents- HTML, TXT, XML, RTF, PDF, MS-Word
General numerical data- CSV, NetCDF, MS-Excel
Spatial data- Esri shapefile or geodatabase, GeoTIFF
Database- SQLite, MS-Access
Image- EPS, SVG (for vector images), PNG, TIFF (for images with sharp edges), JPEG (for photographs)
Audio- WAV or formats with lossless compression where possible

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Dataset Name	Dataset description	Storage location	Milestone No.	Data format	Access conditions	PPO Register 'Project Outputs' Number	Data uploaded to Approved Repository?
Collected Grower survey results from the West and East Australian regions in 2024-2025	This dataset will contain survey responses from approximately 80 growers in the Western and Eastern Australia regions, collected during the 2024-2025 growing season. The survey is focused on pest control practices. It will capture information on the types of treatments used, the timing and frequency of their application, the quantities applied, and growers' perceptions of their effectiveness. In addition to pest management data, the survey is also aimed at gathering information on broader farm management practices that may influence or relate to pest control decisions.	Zenodo	103	MS- WORD	Restricted. A de-identified version of this document can be made available upon request. Please refer to the ethics approval for this dataset for more information.		10.5281/zenodo.14880412

The Project Metadata describing RD&E Data will be publicly available via the GRDC Data Catalogue and will clarify which of the following Access Conditions apply to a given Dataset, see GRDC Guideline for Data Access Conditions for Research Partners.
The following options can be written in this field.

- **Open**: Project Metadata are findable, and RD&E Data are accessible with any Creative Commons Licence

  (https://creativecommons.org/about/cclicenses/).

GRDC advocates for Open Access Conditions for GRDC RD&E Data.

- **Conditional**: RD&E Data are publicly available subject to certain conditions being met. A common example of Conditional Access is an embargo placed on access to allow for publication of research or commercialisation activities. If an embargo is applied, the embargo period should be specified and a date for expiry of the embargo should be included.

- **Restricted**: Metadata are findable, and data are only accessible by third parties with approval from the Data Custodian and the relevant GRDC Investment Manager.

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vii. IPPO Register "Project Outputs" Number

This field and the link to the Approved Repository would be blank at the start of the investment (for a DMP submitted at contract execution) and will be populated over time as the Project Outputs are generated and the IPPO Register is updated.

This is the number that appears in the "No" column of the IPPO Register Project Outputs table to help clarify any limitations on dissemination or commercialisation of the GRDC RD&E Data and Background Material or Third-Party Material embodied in the dataset.

viii. Data uploaded to Approved Repository?

Once the associated data management Milestone has been completed and the data appears in an Approved Repository, a URL from the Approved Repository for the dataset Metadata should be available. This provides the GRDC Investment Manager with an opportunity to verify that the URL is working and, if necessary, review the data in the Approved Repository.

Dataset Name	Dataset description	Storage location	Milestone No.	Data format	Access conditions	IPPO Register 'Project Outputs' Number	Data uploaded to Approved Repository?
Collected Grower survey results from the West and East Australian regions in 2024-2025	This dataset will contain survey responses from approximately 80 growers in the Western and Eastern Australia regions, collected during the 2024-2025 growing season. The survey is focused on pest control practices. It will capture information on the types of treatments used, the timing and frequency of their application, the quantities applied, and growers' perceptions of their effectiveness. In addition to pest management data, the survey aims to gather information on broader farm management practices that may influence or relate to pest control decisions.	Zenodo	103	MS- WORD	Restricted. A de-identified version of this document can be made available upon request. Please refer to the ethics approval for this dataset for more information.	1	10.5281/zenodo.14880412

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5. Support Services Centre

For further assistance and to help answer any questions you may have about completing your DMP, please get in contact with the DataHarvest Support Services Centre at dataharvest@grdc.com.au or by phoning 0419739948. We also recommend that you reach out to your Investment Manager to discuss any specific requirements further.

DataHarvest is an investment of the Grains Research and Development Corporation (GRDC). It is led by Curtin University through the Centre for Crop and Disease Management (CCDM).

GRDC code: CUR2401-001BGX

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