



RESEARCH DATA ALLIANCE

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# RDA for Agricultural and Environmental Data

Celebrating A Decade of Data  
RDA community cross-fertilisation workshop

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## ABOUT THE WORKSHOP

The community cross-fertilisation workshop, 'RDA for Agricultural and Environmental Data', brought chairs and members of RDA community groups together, with members of the wider research data community, to share and discuss challenges, solutions and initiatives associated with managing agricultural and environmental data. The key findings of the workshop summarised herein will be used to direct the future strategy of the RDA community. Read more about the [community cross-fertilisation workshop series](#) in commemoration of the [RDA's 10th Anniversary](#).

## CHALLENGES TO BE ADDRESSED WITHIN THE THEME OF AGRICULTURAL AND ENVIRONMENTAL DATA

### Lack of standards for the diversity of data

- Agricultural and environmental research is multidisciplinary comprising diverse data and metadata types, sources, and formats that lack standardisation to enable [Findable, Accessible, Interoperable and Reusable \(FAIR\)](#) data practice.
- Due to the heterogeneity of data, it is uncertain which types of data to use as 'reference data' to classify/categorise data.
- Large proportions of data in subdisciplines (e.g., Hydrology) is not research data and is not FAIR.
- Challenge to map, understand, and navigate myriads of cross-disciplinary initiatives.

### Institutional & data stewardship

- Managing large, multidimensional and/or commercially sensitive agricultural and environmental data often demands specialised skills and training.
- Adoption of data management standards and best practices is not routinely taught as part of research data management training curricula.
- Data is not always deemed valuable by its creator and is, therefore, not shared or reused.
- Authors do not know which databases and/or repositories to use to publish data.
- Lack of tools to implement standards and best practices for data governance, management sharing, and reuse.
- Lack of funding and financial sustainability for RDM and data stewardship.

### Governance, legal & ethics

- Commercially sensitive data (e.g., collected from farms and fisheries) requires controlled, secure data storage, access, and reuse.
- Managing collection, ownership, and access to data, and how to prevent its misuse.
- Lack of attribution to data creators, leading to power imbalances between Global North and South.
- Democratising data and enabling equitable access to data across government, industry and research organisations globally.
- Striking a balance between openness vs. IPR/contractual agreements.
- Anonymising personal/identifiable information to enable data sharing or reuse (data from farms).

## PARTICIPATING GROUP & WORKSHOP LEAD\*



### [Improving Global Agricultural Data \(IGAD\) Community of Practice](#)

Workshop lead: [Valeria Pesce](#)

Outputs: [Wheat Data Interoperability Guidelines, Ontologies and User Cases, Recommendations from the RDA Wheat Data Interoperability Working Group](#)

[39 Hints to Facilitate the Use of Semantics for Data on Agriculture and Nutrition, Recommendations from the RDA Agrisemantics Working Group](#)



See [community group card](#)



### [Global Water Information Interest Group](#)

Workshop lead: [Sylvain Grellet](#)



See [community group card](#)

\*The workshop lead collected challenges, solutions and initiatives in preparation for the workshop and explained them during the workshop on behalf of their group.

## SOLUTIONS TO ADDRESS THE CHALLENGES

- Encourage more agricultural and environmental organisations to participate in the development, socialisation, and adoption of disciplinary data standards and best practices.
- Determine incentives and barriers to the creation and reuse of FAIR data; define actionable steps taken by stakeholders (e.g., researchers, data support professionals) and gaps to be addressed.
- Develop and implement tools/solutions for data governance, e.g., codes of conduct and data sharing agreements, to mitigate ethical and legal challenges.
- Develop interoperable agricultural and environmental monitoring networks to connect agricultural and environmental research.
- Provide training and certification to build capacity for digital literacy; educate stakeholders about standards and best practices and make their adoption mandatory.
- Encourage collaboration among RDA groups to avoid duplication of efforts (e.g., [Sensitive Data IG](#)).
- Raise awareness of the RDA's work (via position papers) across different geopolitical contexts.
- Identify support for agricultural and environmental data initiatives through collaborations with funding and private organisations.



## ACTIONS FOR THE RDA COMMUNITY



**Create a 'typology of data'.** Creation of schema(s) to classify different types of data (including reference data) within agricultural and environmental research subdisciplines, with a crosswalk to translate elements and values from one schema to another, and facilitate interoperability across subdisciplines.

**Collect case studies to identify and demonstrate the benefits of agricultural and environmental research data management standards and best practices.** Collection of real-world examples of disciplinary best practices (e.g., [FAIR Implementation Profiles](#)) to showcase the practical implementation of [FAIR](#) principles within agricultural and environmental (hydrology) research disciplines. Such case studies may provide the basis for setting standards within related agricultural and environmental research disciplines.

**Develop open knowledge networks to map and navigate [cross-]disciplinary initiatives, standards, and best practices.** Development of a dynamic, connected information infrastructure to include information about various initiatives, standards, and best practices to enhance understanding of the international agricultural and environmental data landscape.

### Pending ideas for relevant RDA WGs:

- Data governance, legal and ethics
- Impact of climate change on water and agriculture
- Crop data management

## INITIATIVES & RESOURCES OF INTEREST

- [AgBioData](#)
- [AgGateway](#)
- [Agricultural Data Coalition](#)
- [Australian Farm Data Code](#)
- [Biodiversity Information Standards \(TDWG\)](#)
- [CGIAR](#)
- [CODATA Agriculture Task Group](#)
- [EU Water4All Joint Partnership](#)
- [Food and Agriculture Organization \(FAO\)](#)
- [GBIF - Agrobiodiversity data standards](#)
- [GODAN](#)
- [IEEE group focused on agricultural data](#)
- [ISO Strategic Advisory Group on Smart Farming](#)
- [Meridian Institute](#)
- [National Ag Producers Cooperatives](#)
- [The Open Geospatial Consortium - water data interoperability group co-hosted with World Meteorological Organization \(WMO\)](#)
- [US Internet of Water Coalition](#)
- [US National Agricultural Library, Association of Public and Land Grant Universities \(APLU\)](#)

## WORKSHOP PARTICIPANTS

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*\*A workshop participant is an employee of the United States Department of Agriculture (USDA). USDA is an equal opportunity lender, provider, and employer. Mention of trade names or commercial products in this report is solely for the purpose of providing specific information and does not imply recommendation or endorsement by the USDA.*

For more information about the RDA community cross-fertilisation workshop series, please contact Community Development Managers, Connie Clare ([connie.clare@rda-foundation.org](mailto:connie.clare@rda-foundation.org)) and Kathryn Barker ([kathryn.barker@ardc.edu.au](mailto:kathryn.barker@ardc.edu.au)).

To become a member of the RDA, register [here](#)