



RDA Wheat Data Interoperability Working Group

Improving Semantics in Agriculture" Workshop 2-3 July 2015

research data sharing without barriers
rd-alliance.org

- The wheat research community is facing societal challenges...
 - Wheat is the most widely grown crop in the world and provides 20% of the daily protein and food calories in the human diet.
 - Wheat is the 2nd most important food crop in the developing world after rice.
 - With a predicted world population of 9 billion in 2050, the demand for wheat is expected to increase by 60% compared with 2010
 - To meet this demand, mean annual yield increases must rise from the current level of 1% (2001-2010) to 1.6% (2011-2050)
 - How do we produce more wheat with less (land, water, pesticides, energy, man power, etc.)?
- Associated with technical challenges
 - How do we integrate very different types of data (for instance genetic, genomic, phenotypic data but also genetic resources data, environment data...) to allow meta-analysis such as the understanding of the interaction of plants with the environment and the cropping systems, given that:
 - A variety of new technologies are producing an important amount of heterogeneous data
 - Wheat related information and data systems are diverse

The WDI working group in brief

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- Endorsed by the Research Data Alliance (RDA) in March 2014
- The objective: contribute to the improvement of Wheat related data interoperability by
 - Build and promote a common interoperability framework (metadata, data formats and vocabularies)
 - Provide guidelines for describing, representing and linking Wheat related data
- Strategy: reuse existing assets as much as possible and build with the community

Who is involved?

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Contributors



Food and Agriculture Organization
of the United Nations



Sponsors



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Target users

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Target users	Expected benefits
Data managers and curators	Describe, represent and annotate data in a standardized way
Integrated Wheat information systems	Easily capture data from different data sources
Computation and modelling tools	Easily interpret, aggregate, analyse, etc. data from different sources

The strategy of the wg

- Identity existing assets that can be recommended as standards and promote interoperability mechanisms
 - Standardization takes time
 - It also takes time to get existing systems to conform to new standards
 - There are many uses cases
 - Even standards evolve



- Recommendations and guidelines (<http://ist.blogs.inra.fr/wdi/>)
 - a set of rationalized recommendations regarding the data formats or metadata standards to describe, represent and share different types of wheat data
 - good practices regarding wheat data and metadata annotation (which controlled vocabularies), tools, etc.
- A portal of wheat related ontologies and vocabularies
 - Part of Agroportal, an ontology/vocabulary portal dedicated to plant, agronomic and environment sciences.
 - Allows the access to the ontologies and vocabularies through APIs.
 - Additional functions: mappings, text annotation, ontology recommender
- A prototype (semantic Web warehouse)
 - Implements real use cases of wheat data integration
 - Example: identification of wheat genes that control root growth

- Extend the guidelines to more data types
- Beyond wheat
 - Many initiatives and projects on Plant and crop data management and sharing: crop ontology, planteome, copo (Collaborative Open Plant Omics), Wheat Information System, Agroportal, etc.
 - Semantics represent one of the cornerstones of good data management and sharing
 - How do we coordinate the ongoing efforts to be more efficient and avoid flooding the end user?

The working group members

■ Co-chairs

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■ Members

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Thank you!