AgBioData RCN Education Working Group



2024 AgBioData Community Workshop April 29-30 and May 1, 2024

Education WG Membership

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Leyla Cabugos	University, San Luis Obispo
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Megan O'Donnell	Library
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Meg Staton	University of Tennessee, Knoxville



Educational WG Goals

Mission:

Create an educational curriculum that teaches FAIR data principles within the context of GGB agricultural research

- Purpose, structure, and uses of GGB databases
- FAIR (data) and TRUST (systems) principles
- How to use and access data in GGB databases
- How to find, use, and make FAIR data
- How GGB databases advance scientific knowledge and global progress



Why is this work important?

- Skill Development
 - Complex science, systems, and data
- Recruitment
 - Researchers, curators, and educators
- Community values
 - Ethical, scientific, and technological

- Policy awareness
 - Changing practices and expectations
 - Sustainability
 - Quality is worth the cost
- Good practice
 - Good data, better science



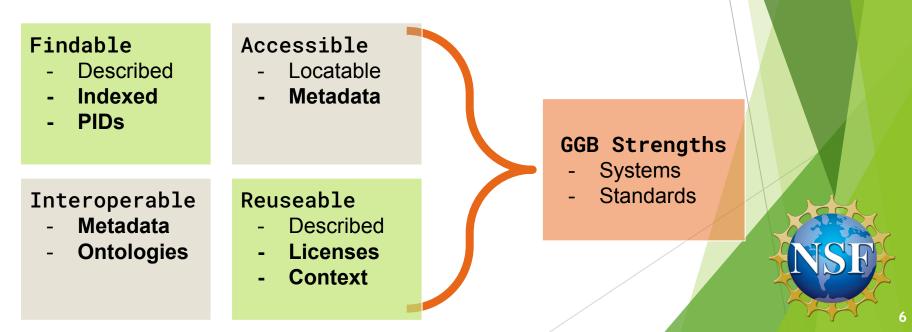
Year 2 - Refining our Purpose

- How FAIR data principles are related to databases is not well covered in current education
- FAIR data is a uniting principal for GGB databases, but the methods to achieve it are often hidden to users
 - FAIR principles apply to both data and **data systems**
 - System design and rigor are pathways to achieving FAIR
 - Users must be literate in science, data, and technology systems to see the connection



Year 2 - Refining our Purpose

Our introductory lessons surface the methods and motivations for FAIR data within GGB databases and serve as a base for further instruction and learning



Year 2 - Refining our Purpose

Audience:

- Basic materials for high school students
- Introductory materials for undergraduate
- Deeper readings and activities for graduate students

Design principles:

- What and Why conceptual and applied
- Relevant useful and important
- Easy to use open access and multimodal
- Adaptable
 customizable and remixable

Core curriculum: basic concepts

- 1. What is a biological digital repository?
- 2. FAIR and databases
- 3. Bio-databases: types of data, finding and obtaining data
- 4. Creating and sharing trustworthy data
- 5. Submitting data to a database
- 6. How to use your library resources
- 7. Databases for agriculture



Core curriculum: scaffolding

- 1. What is a biological digital repository?
- 2. FAIR and databases
- 3. Bio-databases: types of data, finding and obtaining data
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Deliverables

- **Core curriculum:** finalized
- Slides and lesson plans: completed
- Recorded lectures: partially complete
- White paper: finalizing text
- Virtual Workshop at Plant Biology 2024: upcoming
- Publication of teaching materials: upcoming
 - Lesson plans, slides, activities, and recorded lectures
 - Will link into white paper which provides broad overview and historical framing.



Building off the core

- More lessons have been identified for potential development
 - Introduction to ontologies
 - Database technology (basic and advanced)
 - How to... (database/organism/method specific)
- New volunteers are needed to make them happen
- AgBioData members can link to, remix, and reuse the materials to educate their users



Recommendations for AgBioData

- Create a centralized, open access, sustainable repository for WG outcomes (Zenodo?)
- Recruit new WG members from
 - Livestock community (most of us are plant people/librarians)
 - Professional groups
 - Beyond NA and R1 universities
 - Educators to adapt/improve materials for their audience



Recommendations to AgBioData Members

- Each member is responsible for providing instructions for users
 - The curricula can help
- Ensure you are communicating not just FAIR data principles, but also TRUST principals (lesson 4)





Lin, Dawei, Jonathan Crabtree, Ingrid Dillo, Robert R. Downs, Rorie Edmunds, David Giaretta, Marisa De Giusti, et al. 2020. "The TRUST Principles for Digital Repositories." *Scientific Data* 7

https://doi.org/10.1038/s41597-

(1): 144.

020-0486-7.

FAIR requires TRUST

- TRUST emphasises what GGB databases contribute to the community
- Vital for FAIR data and government requirements





Thank you!