INCENTIVIZING AGRICULTURAL RESEARCHERS TO SHARE OPEN & INTEROPERABLE DATA

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CABI: Opening up Agricultural Research and Data (Nov 11, 2020)
A FUTURE FARM
Feeding the future. Byte by byte.

BIG DATA-DRIVEN SOLUTIONS
Find, access data
Interpret
Aggregate
Visualize
Analyze

SURVEY DRONES
Aerial drones survey the field to map crop health and yield, and soil variation. Cloud storage enables faster data movement, analysis and exchange, increasing computational capacity while decreasing costs.

FARM TO CLOUD
Farms generate vast amounts of rich and varied data, which can now be stored, processed, and shared in the cloud, to be delivered back to farms as important advisory services.

LIVESTOCK LIVE
Decreasing costs of small devices, such as mobile phones and sensors, are increasing access to get rural farmers - and their livestock - online and benefiting from data exchange.

UBER AGRIBOTS
Peer-to-farmer services allow smallholder farmers access to cost-effective cutting edge technology such as agribots that can tend to or harvest crops, and provide precise application of fertiliser and water, saving economic and environmental costs.

CGIAR
Platform for Big Data in Agriculture
Hey Cigi, When should I plant my maize? How should I manage my crop?

- Real-time decision support for farmers
- Easy natural language as an interface
- Smart artificial intelligence trained by CGIAR and partners
- …requires leveraging multiple open, harmonized, interoperable databases with quality data
We need data on crop management and yield response to validate our model and DSS. Help??

Where do I find data or pubs on nutrition status in rural households?

Where in Sub-Saharan Africa is fertilizer use profitable?

Open data… that is also

Findable Accessible Interoperable Reusable Ethical Reproducible
KISR: KEEP IT SIMPLE FOR RESEARCHERS

WHAT DO I NEED TO DO?
• Clear policy (2013; 2021); digital strategy (2021)

HOW DO I DO IT?
• Capacity enhancement: guidelines to implement; webinars; workshops; data curathons/sprints; bespoke help sessions...

https://bigdata-cgiar.course.tc/catalog/course/fair
KISR: KEEP IT SIMPLE FOR RESEARCHERS

HOW DO I DO IT?

- Tools, services, data processing scripts that are easy to use
EXPLORE GARDIAN'S ASSETS BY GEOGRAPHY

Explore data assets from across CGIAR and a growing set of institutional partners, including: USAID, the UK’s Foreign, Commonwealth & Development Office, the World Bank, the US Department of Agriculture, the Indian Council for Agricultural Research, and the Open Government Data Platform India.

EXPLORE
- publications and datasets
- global crop production data
- global climate model projections

COLLABORATE
- on a data science project

GET HELP
- with your metadata
- with your PII
- with your FAIRness

PUBLICATIONS
170329

DATASETS
27656
**KISR: KEEP IT SIMPLE FOR RESEARCHERS**

**HOW DO I DO IT?**

- FAIR guidance and workflows

[Diagram showing levels of compliance and associated metrics.]
“I’ve been told I need to make my data FAIR. How do I do this?”
“Are there tools to help me collect standards-compliant agronomic data?”

AgroFIMS
Agronomy Field Information Management System

Generate standardized field books to collect agronomic data that is...

Findable
Accessible
Interoperable
Reusable

agrofims.org
**KISR: KEEP IT SIMPLE FOR RESEARCHERS**

**HOW DO I DO IT?**

- Capacity enhancement
- Tools, services, data processing scripts that are easy to use
- FAIR guidance and workflows
- Publish datasets – data journals or accompaniments to publications
- DMPs – Open and FAIR from project conception *(Funder requirements would help!)*
- Budgetary recommendations and guidance *(Funder requirements?!)*
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...WHY DO I NEED TO DO IT?

• Open, FAIR data has transformed other sectors (biomedical, environmental research…)

• Enables realization of the value of data (exemplars; data products that can be leveraged)
“I want to be able to explore data visually!”

CLICK 1: Select CMIP6 Model
CLICK 2: Pin region
CLICK 3: Select time period
CLICK 4: Download data as GeoJSON or CSV

gardian.bigdata.cgiar.org/labs.php
“Where in Sub-Saharan Africa is fertilizer use profitable?”

108 data sets
760 locations
12,000 observations

Bonilla (CIAT), Chamberlin (CIMMYT), Hijmans (UC Davis): https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0227764
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- Enables realization of the value of data (exemplars; data products that can be leveraged)
- Annual evaluation, KPIs, project indicators (should!) demand it
- Rewards?? (salary increments; publicity)
- Project management should not close project financially w/out FAIR data
- Institutional, individual reputation, as funder OA/OD policies evolve (Funders – non-compliance??)
THANK YOU!

Join our Community of Practice if you would like to know more.

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