Available Open Datasets in Agriculture Technology and Production

Ruthie Musker
Linked Open Data Workshop
Berlin, Germany
September 27, 2017
Building a platform for agricultural technology sharing?

Linking data?

Which datasets are currently open??
What does GODAN call “open data”?

Findable
Accessible (Machine Readable)
Interoperable
Reusable
Boundaries

- Global
- Production to Harvest
- Various Crop Varieties
- Various Production Systems
What is Agricultural Technology?

Machinery and buildings
Irrigation
Satellite technology
Fertilizers
Pesticides
Genetically Modified Organisms (GMOs)
Investments
Patents
Personal technology
## Sources

<table>
<thead>
<tr>
<th>Source</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Government</td>
<td>11</td>
</tr>
<tr>
<td>Industry</td>
<td>6</td>
</tr>
<tr>
<td>International Organization</td>
<td>6</td>
</tr>
<tr>
<td>University / Research Centre</td>
<td>5</td>
</tr>
<tr>
<td>UN Body</td>
<td>4</td>
</tr>
<tr>
<td>NGO</td>
<td>1</td>
</tr>
</tbody>
</table>
Agriculture Machinery

**Number of datasets found:** 6

**Scale:** Global, usually country level

**Years:** Various

**Sample indicators and metrics**
- Emissions from Ag Machinery - Fuel use
- Agricultural machinery, tractors per 100 sq. km of arable land
- Agriculture machinery manufacturers
- Tractor Registration Statistics
- International agricultural machinery shipment statistics

**How FAIR?** 3 are machine readable. Others are in text form.
Irrigation

Number of datasets found: 3

Scale: Global, usually country level

Years: Various

Sample indicators and metrics
Global Map of Irrigation Areas
Sprinkler and Micro Irrigated Area

How FAIR? 1 is machine-readable, 2 are in text format
Investments and Patents

Number of datasets found: 5

Scale: Global

Years: Various

Sample indicators and metrics
National agricultural research expenditure data
National agricultural researchers

How FAIR? 2 are machine readable, 1 historical data, 1 not machine-readable, 1 subscription based
Satellite Technology - Crops

Number of datasets found: 18

Scale: Global

Years: Various

Sample indicators and metrics
Production – crops
Area Harvested (ha)
Crop Calendar Dataset
Crop Yield Forecasting
Early Warning
Monitoring

How FAIR? 2, others are not freely available or machine readable
Satellite Technology – Land use and climate

Number of datasets found: 5

Scale: Global

Years: Various

Sample indicators and metrics
- NDVI Anomaly (Normalized Difference Vegetation Index, unitless)
- Soil Moisture Anomaly: SMOS Level 2 soil moisture products
- Evaporative stress index
- Average surface air temperature

How FAIR? 4 machine readable
Personal Technology
(cell phones, access to internet)

Number of datasets found: 2

Scale: Global

Years: Various

Sample indicators and metrics
Mobile cellular subscriptions (per 100 people)
Internet users (per 100 people)

How FAIR? 2 are machine readable
Genetically Modified Organisms

Number of datasets found: 3

Scale: Global

Years: Various

Sample indicators and metrics
Approved GMO Database

How FAIR? 2 are machine readable
Fertilizers and Pesticides

**Number of datasets found:** 5

**Scale:** Global

**Years:** Various

**Sample indicators and metrics**
- Toxicity Forecasting
- Fertilizers (production, trade, consumption)
- Historical production, trade and consumption statistics
- Fertilizer Tradeflow Map
- Pesticide Maximum Residue Level (MRL)

**How FAIR?** 2, others are subscription based
Call for interoperability!
GODAN Action

Work Packages
• Standards
• Impact
• Capacity Building

Thematic Areas
• Weather data
• Nutrition data
• Land use data
GODAN envisions Global Data Ecosystem

- Finding business models that provide incentives
- Encouraging data standards
- Automating data collection
- Annotating datasets
- Building trust
- Ensuring sustainability
- Following the FAIR principles
- Using the data