EN L'AN 2000.

A Very Busy Farmer
FUTURE FARMS
small and smart

SURVEY DRONES
Aerial drones survey the fields, mapping weeds, yield and soil variation. This enables precise application of inputs, mapping spread of pernicious weed blackgrass could increasing Wheat yields by 2-5%.

FLEET OF AGRIBOTS
A herd of specialised agribots tend to crops, weeding, fertilising and harvesting. Robots capable of microdot application of fertiliser reduce fertiliser cost by 99.9%.

FARMING DATA
The farm generates vast quantities of rich and varied data. This is stored in the cloud. Data can be used as digital evidence reducing time spent completing grant applications or carrying out farm inspections saving on average £5,500 per farm per year.

TEXTING COWS
Sensors attached to livestock allowing monitoring of animal health and wellbeing. They can send texts to alert farmers when a cow goes into labour or develops infection increasing herd survival and increasing milk yields by 10%.

SMART TRACTORS
GPS controlled steering and optimised route planning reduces soil erosions saving fuel costs by 10%.

Image credit: nesta.org.uk
All 232 SDG Indicators: What data is available?

This visualization shows for which of the 290 Sustainable Development Goals (SDGs) Indicators data is available at SDG-Tracker.org.

- Indicators for which recent global official metrics are available, or for which alternative good-quality cross-country source are available (e.g. estimates from independent research institutes).
- Indicators that do have official metrics, but for which data is very incomplete or outdated.
- Yellow boxes also mark Indicators for which there are no official metrics, but for which closely related estimates are available that allow informative but imperfect monitoring.
- Indicators for which – to the best of our knowledge – global monitoring is not currently possible.

You find all data on SDG-Tracker.org, a sister project of OurWorldInData.org. In case you are aware of relevant data we have not included yet please let us know via SDG-Tracker.org.
Realizing a Global Data Ecosystem for Agriculture and Food

“This paper looks at the challenges and principles that must be addressed in building a global data ecosystem for agriculture.

We set out the key global standards and data publishing principles that can be followed in supporting this, including the ‘Five stars of open data’ and the ‘FAIR principles’ and offer several recommendations for stakeholders in the industry to follow.”
Watch the **Farm Data Train**
• **Topic:** Agriculture and Food
  - Realising a Global Data Ecosystem for Agriculture and Food using semantics (Agrisemantics) and open data (GODAN) and start implementing the FAIR data principles in Food Systems (for example as shown by the [Farm Data Train](#))

• **IN contact person:** Ben Schaap (GODAN / Wageningen UR), Sophie Aubin (INRA)

• **Membership**
Targeted Objectives

■ In order to address the global challenges related to Food Systems with FAIR data we will work on the following objectives that adhere to the above guiding principles:
  ■ To advocate for FAIR data principles in data sharing policies.
  ■ To foster the continued implementation of FAIR principles based on existing recommendations and if needed support to create new ones.
  ■ Facilitate agreement on the use of vocabularies, standards and protocols.
  ■ To disseminate best practices to a large community of practitioners.
Support adoption of principles for semantic interoperability (derived from the RDA Agrisemantics WG) in the various projects and actions members of the IN are involved in;

Apply FAIR principles to semantic resources to minimize the cost of (re)developing those commonly used in the agri-food domains. Continue the development and adoption of a Global Agricultural Concept Scheme (GACS).

Extend general metadata vocabularies such as Schema.org with agri-food research data specificities relying on existing initiative, e.g. Bioschemas.org project.

Clearly establish the value of semantic approaches to agri-food data and services FAIRification through a set of publicly-available use cases, and common communication resources.

Disseminate and educate by extensively demonstrate our services/applications in conferences and meetings with tutorials and demonstrations.

Coordinate with the activities developed in the context of projects tackling semantics issues (as a large spectrum including, text and data mining, vocabulary services, semantic indexing, etc.) at national and international levels. Coordinate also with the RDA Interest Group on Agricultural Data especially the follow-up of RDA Agrisemantics WG, the GACS GODAN working group and other GO-FAIR INs with similar objectives and in related scientific domains.
This portal provides a global map of existing vocabularies for the exchange of data in the field of food and agriculture.

**Total: 399**

- **Food and agriculture**: 215
- **Generic / peripheral**: 181
- **AgroPortal**: 76
- **VEST Registry**: 329

**By domain**

Number of data standards by domain

- Peripheral / neighbors...
- Plant Science and...
- Natural Resources...
- Food and Human...
- Government, Agriculture...
- Agricultural Research...
- Farms and Farmers...
- Animal Science and...

**By type**

Number of data standards by type

- Ontology
- Schema / element...
- Thesaurus
- Classification scheme
- Glossary
- Model
- Application profile
- Binary / text data...
<table>
<thead>
<tr>
<th>Registry</th>
<th>Name</th>
<th>Abbreviation</th>
<th>Type</th>
<th>Subject</th>
<th>Domain</th>
<th>Taxonomy</th>
<th>Related Database</th>
<th>Related Standard</th>
<th>Related Policy</th>
<th>Related In Collection/Repository</th>
</tr>
</thead>
<tbody>
<tr>
<td>Access to</td>
<td>Access to</td>
<td>ABCD_EFG</td>
<td>Standard</td>
<td>Geology</td>
<td>None</td>
<td></td>
<td>GeoCASo Data Portal</td>
<td>ABCD XML</td>
<td>None</td>
<td>None</td>
</tr>
<tr>
<td>Biological</td>
<td>Biological</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Collection</td>
<td>Collection</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Databases</td>
<td>Databases</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Extended for</td>
<td>Extended</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Geosciences</td>
<td>Geosciences</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Castor Bean</td>
<td>Castor Bean</td>
<td>CO_347</td>
<td>Standard</td>
<td>Agriculture, Life</td>
<td>Phenotype</td>
<td>F. communis</td>
<td>AgroPortal</td>
<td>EO, PO, OWL, CO,</td>
<td>None</td>
<td>None</td>
</tr>
<tr>
<td>Ontology</td>
<td>Ontology</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FoodOn</td>
<td>FoodOn</td>
<td>FOODON</td>
<td>Standard</td>
<td>Agriculture, Food</td>
<td></td>
<td></td>
<td></td>
<td>OBO, OWL, ONS</td>
<td>None</td>
<td>None</td>
</tr>
<tr>
<td>Process and</td>
<td>Process and</td>
<td>PO2</td>
<td>Standard</td>
<td>Agriculture, Food</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Observation</td>
<td>Observation</td>
<td>Ontology</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Durum Wheat</td>
<td>Durum Wheat</td>
<td>DURUM_WHEAT</td>
<td>Standard</td>
<td>Agriculture, Life</td>
<td></td>
<td></td>
<td></td>
<td>OWL, BIOREFINERY</td>
<td>None</td>
<td>None</td>
</tr>
<tr>
<td>Lentil</td>
<td>Lentil</td>
<td>CO_339</td>
<td>Standard</td>
<td>Agriculture, Life</td>
<td></td>
<td></td>
<td></td>
<td>OWL, CO</td>
<td>None</td>
<td>None</td>
</tr>
<tr>
<td>Ontology</td>
<td>Ontology</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reporting</td>
<td>Reporting</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Guideline</td>
<td>Guideline</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
SOME THOUGHTS

- Global Goals (SDG) → IFDS
- Mission driven research requires FAIR data

- Focus:
  - Building FAIR data stations
  - Widening group of experts
  - Curriculum for different levels of expertise
  - Industry solutions
  - Make data FAIR by design
  - Fair Funder Cycle