



Food and Agriculture Organization
of the United Nations

39 Hints to Facilitate the Use of Semantics for Data on Agriculture the Nutrition

FAO Adoption story

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Food and Agriculture Organization of the UN

UN agency, goal is food security.

<http://www.fao.org/>

- Activities on policy, data
 - Eg. <http://www.fao.org/faostat/>
- HQ in Rome, offices in 130 countries
- FAO in RDA:
 - Agricultural Data IG (IGAD)
 - Agrisemantics WG
 - Fisheries Data Interoperability WG
 - Wheat Data WG



The challenge: Semantic data interoperability

Output focuses on:

- Tools: generic web framework for collaborative work with semantic resources
- Use (and reuse) of semantic resources
- Adoption of standards

- ..across the entire lifecycle
- ..considering all user profiles involved

Why Agrisemantics is relevant to ag. statistics

Statistical data heavily relies on classifications for their collection, use, analysis, integration.

But they are still largely treated “ad-hoc”.
Ultimately, interoperability is hampered.

Agrisemantics recommendations offer a comprehensive view on how to make it better

Statistical classifications in practice

Domain Code	Domain	Area Code	Area	Element Code	Element	Item Code	Item	Year Code	Year	U
QC	Crops	2	Afghanistan	5419	Yield	15	wheat	2018	2018	h
QC	Crops	3	Albania	5419	Yield	15	wheat	2018	2018	h
QC	Crops	4	Algeria	5419	Yield	15	wheat	2018	2018	h

FCL Item code	FCL Title	CPC ver.2 code	* CPC ver.2 title
0015	Wheat	01111	Wheat, seed
0015	Wheat	01112	Wheat, other
0016	Flour of Wheat	23110	Wheat and meslin flour
0016	Flour of Wheat	23130	Groats, meal and pellets of wheat and other cereals
0017	Bran of Wheat	39120	"Bran and other residues from the working of cereals or legumes; vegetable materials and vegetable waste, vegetable residues and by-products, whether or not in the form of pellets, of a kind used in animal feeding n.e.c."

Because... Words are ambiguous, codes too

Turkey

1079



Adoption @FAO, Statistics Division

Caliper, a web platform dedicated to statistical classifications

<http://stats-class.fao.uniroma2.it/caliper/>

Benefit to FAO: Have a single platform to manage statistical classifications in open and interoperable formats; supporting maintenance, publication and use with statistical information system. Produce public goods.

Ultimate goal = have better statistics – more timely, of higher quality, better comparable

Note: The platform is not yet an official service of FAO. Data can be accessed and tested but should NOT be taken as reference.

Caliper

Statistical Classifications in an Open Linked World

HOME

CLASSIFICATIONS

BROWSE

DOWNLOAD

QUERY

EDIT

SOURCES

DOCUMENTATION

FAQ

NEWS

CONTACTS

Statistical Classifications in an Open Linked World

The timeliness and interoperability of agricultural statistics largely depend on the availability of classifications in usable and standard formats. Instead, they are often in formats that are hardly or not-machine readable (e.g., PDF), or information is scattered in different files (e.g, multilingual titles and correspondences), or metadata in ad hoc and not-machine readable formats.

The goal of this project is to address those limitations by applying open technologies for the web. We look at all phases in the life cycle of statistical classification

- **Publication:**

- classifications can be **browsed and visualized** in different ways. We use three tools: SKOSMOS, PMKI, and the content management system Drupal.

- **Use:**

- download classifications in machine readable formats
- query and extract specific pieces of classification on demand
- programmatic access classifications, via APIs, or through content negotiation of web addresses (URIs).

- **Editing:**

- VocBench as a editing platform.

**Credentials: “caliper”,
“caliper”**

CREDITS: Caliper is part of a project run by the Food and Agriculture Organization of the UN (FAO) and supported by the Bill and Melinda Gates Foundation (BMGF). Vergata (Rome, Italy) provides technical and scientific support.

Caliper is

An aggregator of resources

- Based on semantic technologies and open standards
- Serving data to humans and machines

Recommendations implemented

1. Standard modelling and formats
 - Mostly, RDF-tech stack
 - SKOS, XKOS, URIs..
2. Reuse of common metadata models
 - DC, DCAT, VoID, for machine readability
 - Versioning and provenance information
3. A web-based platform
 - Addressing different users needs and roles
 - Open source tools and licenses

Some highlights

Coverage

Caliper

Vocabularies

from all ▾ Any language ▾ |

Vocabulary Categories

ACTIVITIES	ISICRev4
AID FLOWS	CRS 2016 05 CRS 2018 01
CROPS	ICC v1.0 ICC v1.1 WCACrops
FORESTRY	Forest Products Class. 2016
GEOGRAPHY	M49 FAO current M49 FAO Dec 2019 M49 FAO Jul 2019 M49 UNSD SDG grouping
NUTRITION	FoodEx2 2016
PRODUCTS	CPC v2.0 CPC v2.1 FCL HS
SOIL	WRB 1998

#1. Standard modelling and formats (URIs)



<http://stats-class.fao.uniroma2.it/geo/m49/792>



<http://stats-class.fao.uniroma2.it/FCL/v2019/1079>



<http://stats-class.fao.uniroma2.it/ISIC/rev4/1079>

#2. Common metadata models

Having in mind:

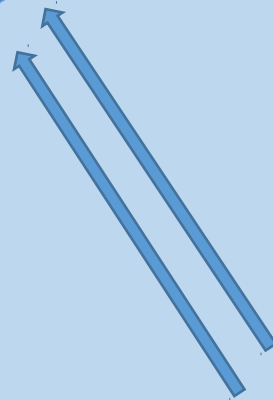
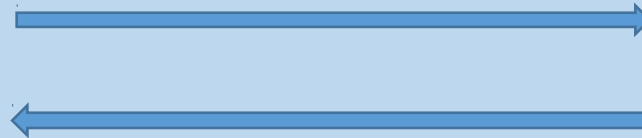
- machine interoperability
 - Dublin Core, DCAT, VoID, OWL provenance
- human credibility (!), to distinguish:
 - Author, version, etc of the classifications
 - Caliper as publisher of specific distributions

#3. Web platform and tools

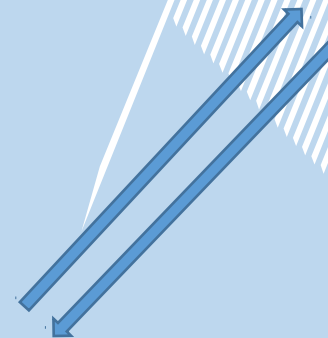
All open source:

- Visualization: SKOSMOS, Drupal, PMKI
- Editing: VocBench3
- Services: Apache Jena Fuseki, GraphDB, Yasgui
- Working towards a better integration of them, wrt
 - Data lifecycle
 - Users involved

Next: interoperability at a larger scale



Other
classifications
custodians and
users





Thank you!

Agrisemantics @FAO

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Caliper:
<http://stats-class.fao.uniroma2.it/caliper/>
credentials: caliper, caliper

Extra! Survey on adoption of Agrisemantics

Prof. Chris Baker and **Dr. Brett Drury** are conducting a comprehensive survey of attitudes and opinions about the current state of the art and adoption of Agrisemantics. They would like your opinions, and they would be grateful if you could complete a short questionnaire. See:

<https://www.godan.info/news/new-study-agrisemantics-food-security>

Contact: brett.drury@gmail.com