



Food and Agriculture
Organization of the
United Nations

AGROVOC

AGRIS

The International System for Agricultural
Science and Technology

Building Equitable Digital Knowledge Commons in Agriculture:

Metadata Standards, Interoperability & Persistent Identifiers through FAO AGRIS and AGROVOC

3rd Global Summit on Diamond Open Access

Imma Subirats, *FAO AGRIS Programme Manager,*
AGROVOC Programme Manager - FAO



FAO makes scientific information on food and agriculture available and accessible worldwide

About FAO

The Food and Agriculture Organization (FAO) is a specialized agency of the United Nations that leads international efforts to defeat hunger.

Our goal is to achieve food security for all and make sure that people have regular access to enough high-quality food to lead active, healthy lives. With 195 members - 194 countries and the European Union, FAO works in over 130 countries worldwide.



We accomplish our goals by making scientific research and technical knowledge related to all aspects of food and agriculture available and accessible worldwide through a series of initiatives including:

- FAO AGRIS
www.fao.org/agris
- AGROVOC
www.fao.org/agrovoc

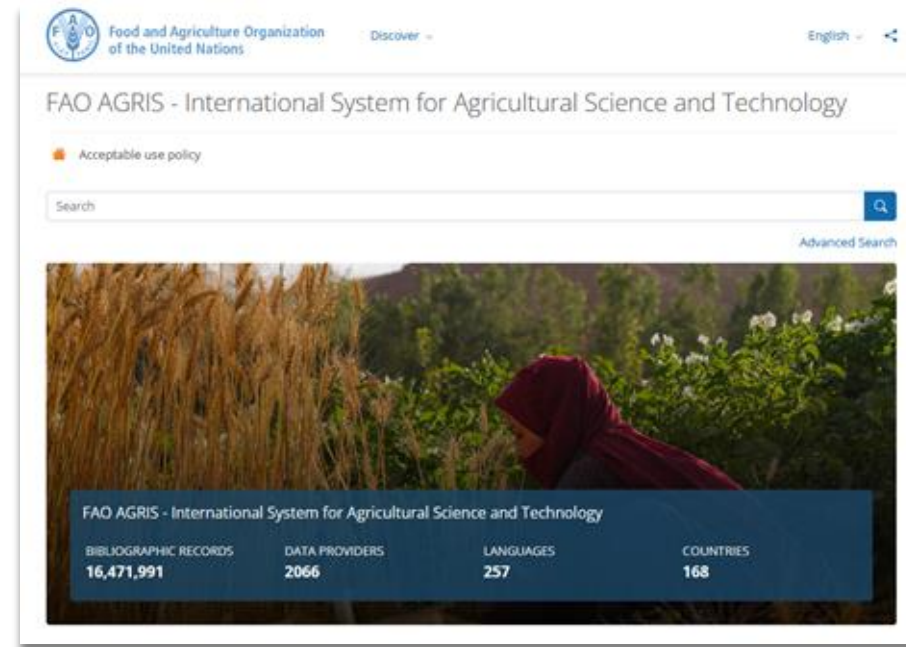
- FAO mandate: global access to food & agriculture knowledge
- Operates open, non-commercial infrastructures
- Key initiatives:
 - **FAO AGRIS** – global discovery platform
 - **AGROVOC** – multilingual controlled vocabulary
- Serving researchers, policymakers, librarians, and practitioners worldwide

What is FAO AGRIS

FAO AGRIS is a global discovery infrastructure for open agricultural research

- 16.4+ million structured bibliographic records
- Content in 250+ languages
- Contributions from 2,000+ data providers in 165+ countries
- Covers journals, repositories, theses, reports, datasets
- Certified Digital Public Good (DPG)
- Fully aligned with FAIR principles

FAO AGRIS is not a publisher, it amplifies society-led publishing



The screenshot shows the FAO AGRIS website homepage. At the top, there is the FAO logo and the text 'Food and Agriculture Organization of the United Nations'. To the right, there is a 'Discover' button and a language selector set to 'English'. Below this is the main heading 'FAO AGRIS - International System for Agricultural Science and Technology'. Underneath the heading, there is a link to the 'Acceptable use policy'. A search bar is present with the text 'Search' and a magnifying glass icon. To the right of the search bar is a link to 'Advanced Search'. The main content area features a large image of a woman in a red headscarf looking at a field of golden wheat. Below the image is a dark blue banner with the following statistics:

BIBLIOGRAPHIC RECORDS	DATA PROVIDERS	LANGUAGES	COUNTRIES
16,471,991	2066	257	168

- Diamond OA removes financial barriers, but discoverability remains a challenge
- Without high-quality metadata:
 - Research stays invisible
 - Local and Global South scholarship is under-represented
- Metadata is the backbone of equitable, open, and sustainable OA infrastructures

- FAO AGRIS relies on **shared metadata standards**
- Supports:
 - Dublin Core, [DOAJ](#), FAO [AGRIS AP](#), [EndNote](#), [MODS](#)
 - Qualified metadata
 - Structured subject indexing
- Ensures:
 - Consistency across countries
 - Reusability across platforms
 - Long-term preservation

FAO AGRIS bibliographic records contain:

- **ORCID**
- **Subjects - AGROVOC**
- **URIs:** handles, DOIs, URLs

FAO AGRIS recommends including persistent identifiers in metadata to enrich records, ensure their persistence, and increase visibility and standardization.

The use of persistent identifiers facilitates interoperability between systems, improves data discovery and exchange, guarantees stable long-term links, and supports proper attribution of authors, institutions, and resources - thereby strengthening the quality, reliability, and reusability of content.

- Encouraged in FAO AGRIS:
 - DOIs (publications, datasets)
 - ORCID (authors)
 - ROR (institutions)
- Benefits:
 - Attribution
 - Disambiguation
 - Long-term access
- Critical for:
 - Metrics without commercial bias
 - Responsible AI applications

From a total of 16,495,000 FAO AGRIS bibliographic records:

ORCID

- 712,797 bibliographic records contain ORCID

URIs

A total of **9,783,689** bibliographic records contain URLs, which are:

- Handles: 169,708 bibliographic records contain handles
- DOI: 8,232,374 bibliographic records contain DOIs

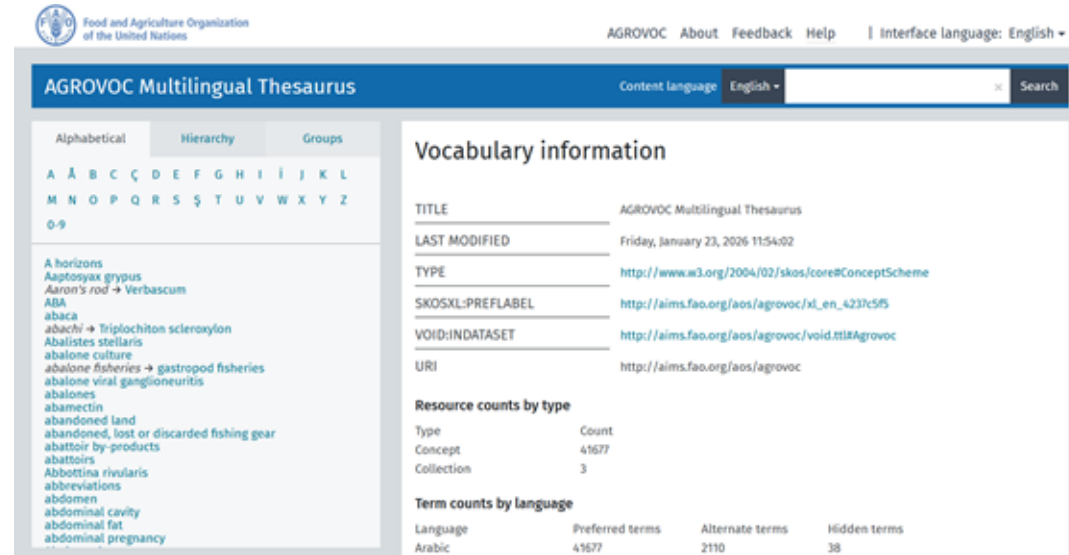
Subjects - AGROVOC

- **11,305,472** bibliographic records contain AGROVOC subject terms

- AGROVOC = multilingual controlled vocabulary
- Covers agriculture, food systems, environment
- 40+ languages
- Maintained by AGROVOC Editorial Network
- Used by humans and machines

Why it matters for Diamond OA

- Enables multilingual discovery
- Improves subject consistency
- Supports semantic search & AI responsibly



The screenshot shows the AGROVOC Multilingual Thesaurus interface. At the top, there is a navigation bar with the FAO logo, the text 'Food and Agriculture Organization of the United Nations', and links for 'AGROVOC', 'About', 'Feedback', and 'Help'. On the right, it says 'Interface language: English'. Below the navigation bar is a search bar with 'Content language' set to 'English' and a 'Search' button. The main content area is divided into two columns. The left column has three tabs: 'Alphabetical', 'Hierarchy', and 'Groups'. Under 'Alphabetical', there are two rows of letters: 'A Ȧ B C Ç D E F G H I J K L' and 'M N O P Q R S Ṡ T U V W X Y Z', followed by '0-9'. Below the letters is a list of terms starting with 'A', including 'A horizons', 'Aaptosyax grypus', 'Aaron's rod → Verbascum', 'ABA', 'abaca', 'abachi → Triplochiton scleroxylon', 'Abalistes stellaris', 'abalone culture', 'abalone fisheries → gastropod fisheries', 'abalone viral ganglioneuritis', 'abalones', 'abamectin', 'abandoned land', 'abandoned, lost or discarded fishing gear', 'abattoir by-products', 'abattoirs', 'Abbotina rivularis', 'abbreviations', 'abdomen', 'abdominal cavity', 'abdominal fat', and 'abdominal pregnancy'. The right column is titled 'Vocabulary information' and contains a table of metadata:

TITLE	AGROVOC Multilingual Thesaurus
LAST MODIFIED	Friday, January 23, 2026 11:54:02
TYPE	http://www.w3.org/2004/02/skos/core#ConceptScheme
SKOSXL-PREFLABEL	http://aims.fao.org/aos/agrovoc/xl_en_4237:5/5
VOID:INDATASET	http://aims.fao.org/aos/agrovoc/void.ttl#Agrovoc
URI	http://aims.fao.org/aos/agrovoc

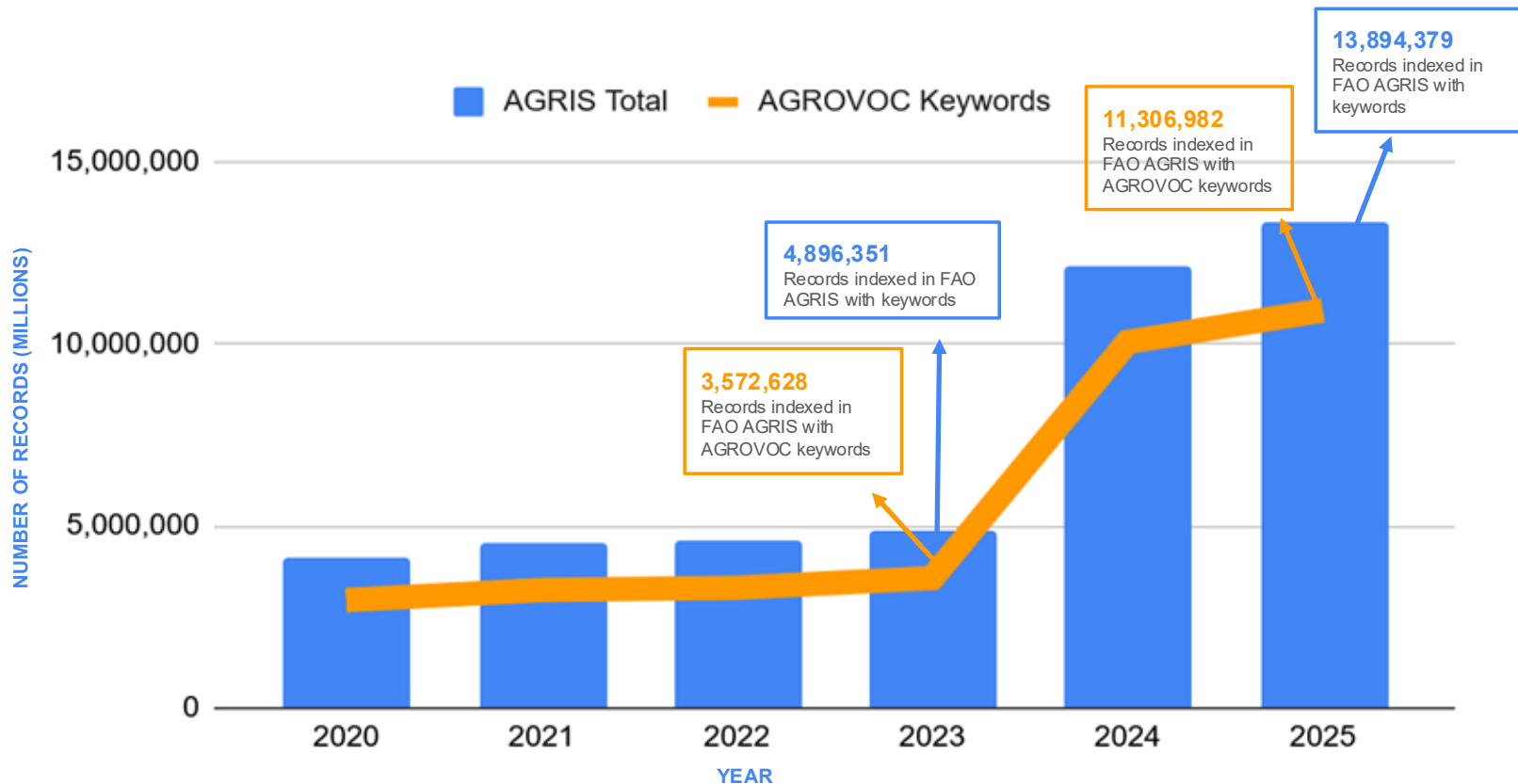
Below the table is a section titled 'Resource counts by type' with a table:

Type	Count
Concept	41677
Collection	3

Below that is a section titled 'Term counts by language' with a table:

Language	Preferred terms	Alternate terms	Hidden terms
Arabic	41677	2110	38

FAO AGRIS Records with Keywords vs FAO AGRIS Records with AGROVOC Keywords



- FAO AGRIS harvests metadata via OAI-PMH
- Promotes:
 - Clean sets
 - Rich subject metadata
 - Persistent identifiers
- Uses LOD-BD approach
 - Linked Open Data-enabled bibliographic data
- Connects FAO AGRIS with:
 - Other repositories
 - Knowledge graphs
 - Policy and research platforms

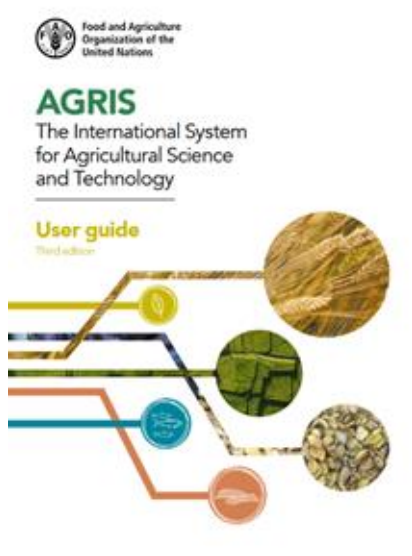
- Diamond OA journals can:
 - Use open standards
 - Adopt AGROVOC for subject indexing
 - Expose metadata via OAI-PMH
- FAO AGRIS provides:
 - Visibility without fees
 - Global reach
 - Technical guidance & training
- Call to collaboration:
 - Diamond OA thrives through shared responsibility, not competition

- Metadata harvesting for FAO AGRIS uses the Open Archives Initiative Protocol for Metadata Harvesting (OAI-PMH) to collect metadata from institutional repositories and journals.
- FAO AGRIS has published good practice guidelines to help data providers configure better OAI-PMH sets. <https://www.fao.org/agris/news/good-practices-optimizing-oai-pmh-sets-agris>
- Core recommendations include:
 - Organize sets by subject or theme (e.g., crop science, livestock, soil) for selective and relevant harvesting.
 - Use English labeling for sets to enhance findability and global interoperability.
 - Ensure publicly accessible endpoints with no authentication or IP restrictions.
 - Apply UTF-8 encoding to correctly represent multilingual metadata.
 - Include minimum quality metadata elements and persistent identifiers (e.g., DOIs).
 - Validate OAI-PMH endpoints regularly

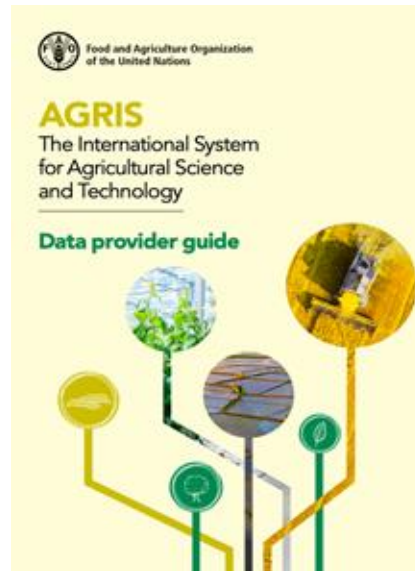
- FAO AGRIS runs training webinars and outreach to help institutions expose metadata and comply with OAI-PMH requirements.
- Notable sessions include:
 - “Metadata Matters” webinars - clarifies metadata standards and OAI-PMH compliance for data providers.
 - Technical workshops on configuring OAI-PMH sets and improving repository readiness for harvesting.
- Training helps participants learn:
 - What FAO AGRIS metadata requirements are and how they aid discoverability.
 - How OAI-PMH works and why it matters for metadata exposure.
 - How to prepare repositories for integration, including endpoint setup and metadata formatting.
- FAO offers ongoing support through:
 - Online resources
 - Data provider and User Guides
 - FAO AGRIS community networks

- Metadata standards enable equity
- Interoperability enables collaboration
- AGROVOC enables inclusion
- FAO AGRIS enables global visibility
- Together, they strengthen Diamond OA in agriculture

Equitable knowledge commons are not built by platforms alone, but by shared standards, trust, and collaboration.



[FAO AGRIS User Guide in English](#)



[FAO AGRIS Data Provider Guide in English](#)



[FAO AGRIS Brochure](#)

Visit the following links to stay up to date:

- FAO AGRIS Website - www.fao.org/agris
- AGROVOC Website - www.fao.org/agrovoc
- FAO AGRIS Interface - <https://agris.fao.org/>
- FAO AGRIS & AGROVOC X account - [@FAOAIMS](https://twitter.com/FAOAIMS)
- FAO AGRIS Newsletter - www.fao.org/agris/subscribe