



## Assessment Information

[CoreTrustSeal Requirements 2020–2023](#)

Repository: Thailand Agricultural Research Repository (TARR)  
Website: <https://tarr.arda.or.th>  
Certification period: 09 November 2023 - 08 November 2026  
Requirements version: CoreTrustSeal Requirements 2020-2022

This repository is owned by: **Agricultural Research Development Agency (Public Organization)**

# Thailand Agricultural Research Repository (TARR)

## CORE TRUSTWORTHY DATA REPOSITORIES REQUIREMENTS

### Background Information

#### Repository Type

Please provide context for your repository. You can select one or multiple options.

#### Compliance level:

Not Applicable - 0

#### Response:

- Research project repository

#### Links:

### Reviews

#### Reviewer 1:

#### Compliance level:

Not Applicable - 0

#### Comments:

#### Reviewer 2:

#### Compliance level:

Not Applicable - 0

#### Comments:

### Description of Repository

Provide a short overview of the repository.

#### Compliance level:

Not Applicable - 0

#### Response:

Thailand Agricultural Research Repository (TARR), under the supervision of the Agricultural Research Development Agency (Public Organization), is the national information system to provide agricultural research-based knowledge and related information services. As web-based service, TARR enables collaboration with 52 other work units within the Ministry of Agriculture and Cooperatives and external organizations to centralize the agricultural research and knowledge. The objectives include development and integration of the digital tools for agricultural databases to support 'single-window' service access point for research-based networks in agriculture.

TARR is designed to be the national agricultural research repository of well-categorized information with related metadata. The Ministry of Agriculture and Cooperatives works with partner organizations and institutions to integrate the existing information with the emerging research findings and academic knowledge that are related to Thailand's agriculture. The system for data sharing should follow the international standards in order to link various databases for mutual benefits.

The purposes of developing the Thailand Agricultural Research Repository are as follows.

1. To examine the current trend of knowledge administration within the work units of the Ministry of Agriculture and Cooperatives and related organizations such as, Thailand National Research Repository (TNRR), the agricultural information networks from Thailand and abroad, and the digital agricultural repositories, etcetera.
2. To analyze the demand for data integration and the specific needs of various users, such as researchers, entrepreneurs, farmers, scholars and relevant industry leaders.
3. To describe the suitable metadata for an integrated knowledge management structure and system architecture by adopting appropriate standards to

## Thailand Agricultural Research Repository (TARR)

connect with various research databases within the country and abroad, including other partnering databases.

4. To develop a central platform for research information and knowledge management; from the point of submission, collection, connection and searching of the information; for benefits of economic development and agricultural information service for all groups of users.

The Agricultural Research Development Agency (ARDA) is established in 15 March 2003 as a public organization under the supervision of the Minister of Agriculture and Cooperatives. Under the royal decree for the Agricultural Research Development Agency (Public Organization).

**Links:**

**Reviews**

**Reviewer 1:**

**Compliance level:**

Not Applicable - 0

**Comments:**

**Reviewer 2:**

**Compliance level:**

Not Applicable - 0

**Comments:**

**Designated Community**

**Provide a clear definition of the Designated Community**

**Compliance level:**

Not Applicable - 0

**Response:**

The designated community of the Thailand Agricultural Research Repository (TARR) are as follows.

1. Researchers and scholars, from both the government sector and private sector, should be able to access the information resources for research and development purposes that serve the national stipulation.
2. Students should be able to access the resources for academic references.
3. Farmers and entrepreneurs should be able improve their production based on relevant knowledge and information.

**Links:**

**Reviews**

**Reviewer 1:**

**Compliance level:**

Not Applicable - 0

**Comments:**

**Reviewer 2:**

**Compliance level:**

Not Applicable - 0

**Comments:**

**Level of Curation**

## Thailand Agricultural Research Repository (TARR)

Select all relevant types of curation.

- Content distributed as deposited
- Basic curation – e.g., brief checking, addition of basic metadata or documentation
- Enhanced curation – e.g., conversion to new formats, enhancement of documentation
- Data-level curation – as above, but with additional editing of deposited data for accuracy

Compliance level:

Not Applicable - 0

Response:

- B. Basic curation – e.g. brief checking; addition of basic metadata or documentation

Links:

Reviews

Reviewer 1:

Compliance level:

Not Applicable - 0

Comments:

Reviewer 2:

Compliance level:

Not Applicable - 0

Comments:

Level of Curation - explanation

Please add the description for your Level(s) of Curation.

Compliance level:

Not Applicable - 0

Response:

Thailand Agricultural Research Repository (TARR) collects the research documents from the internal Ministry units and the allied external organizations. The data is collected either as research findings or agricultural body of knowledge with collaboration from various organizations to share the information with mutual agreement of preservation and dissemination to the public in digital formats.

Links:

Reviews

Reviewer 1:

Compliance level:

Not Applicable - 0

Comments:

Reviewer 2:

Compliance level:

## Thailand Agricultural Research Repository (TARR)

Not Applicable - 0

**Comments:**

**Insource/Outsource Partners**

**If applicable, please list them.**

**Compliance level:**

Not Applicable - 0

**Response:**

The Thailand Agricultural Research Repository (TARR) includes three key stakeholders participating in its operation, as follows:

1. The Agricultural Research Development Agency (ARDA), overseen by the Information Technology Office, is responsible of managing the Treasury system's data warehouse and document information. They also contribute to the budget of Kasetsart University for development incentives for a Thai agricultural research database.
2. The U-Know Center at Kasetsart University, also known as the Advanced Research Center of Unified Knowledge and Language Engineering, developed the software for the TARR data warehouse. Since 2017, ARDA has provided continuous financial support to the university in the form of an annual employment contract for a support role in numerous technical duties and maintenance.
3. The Office of the National Digital Economy and Society Commission (ONDE) is a government agency that offers the Government Data Center and Cloud Service (GDCC), which TARR employs in its Virtual Machine to ensure the utmost level of data protection and security.

**Links:**

**Reviews**

**Reviewer 1:**

**Compliance level:**

Not Applicable - 0

**Comments:**

**Reviewer 2:**

**Compliance level:**

Not Applicable - 0

**Comments:**

**Significant Changes**

**Summary of Significant Changes Since Last Application if applicable.**

**Compliance level:**

Not Applicable - 0

**Response:**

-

**Links:**

**Reviews**

**Reviewer 1:**

**Compliance level:**

## Thailand Agricultural Research Repository (TARR)

Not Applicable - 0

**Comments:**

**Reviewer 2:**

**Compliance level:**

Not Applicable - 0

**Comments:**

### **Other Relevant Information**

**You may provide other relevant information that is not covered by the requirements.**

**Compliance level:**

Not Applicable - 0

**Response:**

The Thailand Agricultural Research Repository (TARR) was established as part of the project "Development of the National Agricultural Research Information Center System." It has been in place since 2017 in collaboration with government research bodies in the form of a memorandum of understanding (MOU) to cooperatively distribute agricultural research information. There are now about 42,000 research data and outputs, with an average usage rate of 20,000 times each month.

**Links:**

### **Reviews**

**Reviewer 1:**

**Compliance level:**

Not Applicable - 0

**Comments:**

**Reviewer 2:**

**Compliance level:**

Not Applicable - 0

**Comments:**

### **Organizational Infrastructure**

#### **R1 Mission/Scope**

**The repository has an explicit mission to provide access to and preserve data in its domain.**

**Compliance level:**

The guideline has been fully implemented in the repository - 4

**Response:**

The Thailand Agricultural Research Repository (TARR) is a data repository that saves and collects agricultural research findings and information in digital format in accordance with international standards, with permission to publish provided by the work's author, in order to provide research knowledge information services at a single point (single window) to access agricultural knowledge data, which can be searched from anywhere at any time, free of charge. The goals are to preserve agricultural data and provide knowledge-based agriculture production innovation development and further research, as

## Thailand Agricultural Research Repository (TARR)

well as apply knowledge to develop a competitive business with a network of partners, in order to strengthen the economy and increase farmer income through knowledge-based farming.

The Agricultural Research Development Agency's Office of Information Technology is in charge of the TARR. The office is defined in the Royal Decree that established it as "a center for providing information and information services in agriculture derived from studies, research, and development, as well as linking with educational institutions and other relevant agencies both domestically and internationally." Kasetsart University is in charge of system development as well as numerous technical duties and maintaining the information system, for which a budget has been allocated in order to administer the data repository consistently.

### Links:

- [1.1 Duty of Honor and Responsibilities](#)
- [1.2 Memorandum of Understanding for Cooperation between ARDA and a network of partners](#)
- [1.3 Organization Policy with Vision & Mission Statement](#)
- [1.4 Annual administrative goals and government policy for the fiscal year 2022 \(number 4.1\)](#)
- [1.5 The royal decree for establishment of the Agricultural Research Development Agency \(Public Organization\), in section 7 number 5](#)
- [1.6 Information Preservation Plan](#)
- [1.7 Policy, Mission and Scope](#)

### Reviews

#### Reviewer 1:

##### Compliance level:

The guideline has been fully implemented in the repository - 4

##### Comments:

#### Reviewer 2:

##### Compliance level:

The guideline has been fully implemented in the repository - 4

##### Comments:

### R2 Licenses

**The repository maintains all applicable licenses covering data access and use and monitors compliance.**

##### Compliance level:

The guideline has been fully implemented in the repository - 4

##### Response:

The Ministry of Agriculture and Cooperatives appoints the Agricultural Research Development Agency (ARDA) as the center of agricultural information services to collect and disseminate the data from study, research and development, and to connect various institutions and organizations through the use of Thailand Agricultural Research Repository (TARR).

TARR thus defines the terms of use and access rights for data submission and data reuse as follows.

- Data Submission: The Information Technology Office manages data, metadata, and document files from various departments by ensuring the quality of the data, document files, and permission to disseminate works in the TARR system comply with international standards.

If the depositor fails to meet the conditions, the Information Technology Office will return the data and advise the depositor that the work must be corrected before it can be published in the repository system.

- Data Access: All users have rights to access the repository and search for any information on the website <http://www.tarr.arda.or.th/>. To download the full texts, users are requested to register for the purpose of personal data collection.

- Data Reuse: Users have access to all items, including table of contents, preview and download the texts in full or partial according to the predefined accessibility by the author.

- Data Replication: Users can use and copy the information according to the Creative Common Licenses Attribution-NonCommercial-NoDerivs 3.0 (CC BY-NC-ND 3.0 TH). This indication is shown on every result page of text description. Each work can be given license according to the author permission.

Referring to the Personal Data Protection Act B.E. 2562 (PDPA) and internal policy on personal data treatment, TARR also reviews the details and quality of information for confidentiality and sensitivity before every publication.

## Thailand Agricultural Research Repository (TARR)

TARR also issues the privacy policy and terms of use on its website with the right statement regarding appropriate data treatment, following the Copyright Act B.E. 2537 (1994) and the Copyright Act (No.2 & No.3) B.E. 2558 (2015).

### Links:

- [2.1 Grants Eligibility \(page 3 number 13\)](#)
- [2.2 Terms of conditions for data deposit and data reuse](#)
- [2.3 CC label placement on a research detail webpage](#)
- [2.4 Ethics on Data Collection](#)
- [2.5 Conditions and Codes of Conduct on Copyrights / Data Access Rights and Terms of Use](#)
- [2.6 Metadata Descriptions](#)
- [2.7 Data Submission Process](#)

### Reviews

#### Reviewer 1:

##### Compliance level:

The guideline has been fully implemented in the repository - 4

##### Comments:

#### Reviewer 2:

##### Compliance level:

The guideline has been fully implemented in the repository - 4

##### Comments:

### R3 Continuity of access

**The repository has a continuity plan to ensure ongoing access to and preservation of its holdings.**

##### Compliance level:

The repository is in the implementation phase - 3

##### Response:

The Thailand Agricultural Research Repository (TARR) facilitates support in the scope of information technology for hardware and network at policy level. The Information Technology Office, under provision of the Agricultural Research Development Agency (ARDA), has a sole responsibility by the royal decree of establishment to be "a center of agricultural information services which supports research and development and promotes networking among educational institutions within the country and abroad." A business continuity budget administration plan is then set forth to manage orders from ARDA.

TARR has a set of data management agreement; covering the process of data submission, collection, access, reuse and replication; to ensure the users that all data in the system will remain preserved and accessible at all times.

TARR has a succession plan in place to address uncertainties in repository operations, such as a change in the organization's goals and purposes, revocation of repository funding/budget, project completion, and so on. This will enable TARR to provide digital data management, digital information production systems, information storage, and other services.

The Information Technology Office has been tasked with conducting missions and obligations on a continuing basis. This concluded in 2020 as a Quick Win project for the Ministry of Agriculture and Cooperatives. If the agency dissolves, the TARR service will continue to be available under the supervision of the Ministry of Agriculture and Cooperatives.

TARR data and information is stored in the Government Cloud (G-Cloud), a development project by title of the Government Data Center and Cloud Service (GDCC) of the Office of the National Digital Economy and Society Commission (ONDE), with aims to stabilize government system pipeline and ensure level of information security per international standards.

### Links:

- [3.1 Scope of Responsibilities and Data Preservation Time](#)
- [3.2 Business Continuity Plan \(BCP\)](#)



## Thailand Agricultural Research Repository (TARR)

- [3.3 Information Security Risk Management](#)
- [3.4 Succession plan](#)
- [3.5 Assessment Report](#)

### Reviews

#### Reviewer 1:

##### Compliance level:

The repository is in the implementation phase - 3

##### Comments:

Accept on level 3 since there is no formal agreement with another organisation that would have agreed to take over in case of service discontinuity.

#### Reviewer 2:

##### Compliance level:

The repository is in the implementation phase - 3

##### Comments:

### R4 Confidentiality/Ethics

**The repository ensures, to the extent possible, that data are created, curated, accessed, and used in compliance with disciplinary and ethical norms.**

##### Compliance level:

The guideline has been fully implemented in the repository - 4

##### Response:

Thailand Agricultural Research Repository (TARR) has specified its privacy policy and the website's terms of use in accordance with the vision to be a center of agricultural information services which supports research and development and promotes networking among educational institutions within the country and abroad.

All information in the TARR system must be authorized under the Creative Commons licenses by the owner for publication. Such information must not be commercialized data since it must be accessible by public users. In other words, all information assets shall be classified as unclassified for public access.

However, the sensitive information or prone to copyright infringement; such as the annual budgets, profile of researchers, personal information, etc.; shall be reviewed for owner's permission to disclose before dissemination in the service system.

All research works that may contain scientific tests on human or animal subjects shall be regarded according to each institution's ethical code of conduct.

##### Evidence Links

4.1 Ethics and related operational protocol <https://tarr.arda.or.th/statTarr/managementpolicy>

4.2 Scholarship Guideline and Ethical Code of Conduct for Scientific Research on Human and Animal (Page 22 section 2.3) <https://shorturl.asia/EYnZq>

4.3 Organization Standards of Moral Practice (Chapter 2)

<https://www.arda.or.th/datas/file/1415241397555.pdf>

4.4 Official Announcement on Data Governance Team Appointment

<https://shorturl.asia/U9jAZ>

4.5 Information Assets Classification Labelling and Handling Procedure

<https://shorturl.asia/GBCQM>

4.6 Workshop Documents

<https://shorturl.asia/d4SszZ>

4.7 Terms of Use

<https://tarr.arda.or.th/statTarr/privacy>

4.8 Guideline on Data Submission

<https://tarr.arda.or.th/statTarr/privacy>

##### Links:

# Thailand Agricultural Research Repository (TARR)

## Reviews

### Reviewer 1:

#### Compliance level:

The guideline has been fully implemented in the repository - 4

#### Comments:

### Reviewer 2:

#### Compliance level:

The guideline has been fully implemented in the repository - 4

#### Comments:

## R5 Organizational infrastructure

**The repository has adequate funding and sufficient numbers of qualified staff managed through a clear system of governance to effectively carry out the mission.**

#### Compliance level:

The guideline has been fully implemented in the repository - 4

#### Response:

The Thailand Agricultural Research Repository (TARR) operates under the provision of the Information Technology Office comprising of four unit of personnel including;

1. Agricultural research and information development unit,
2. Agricultural knowledge management and dissemination unit,
3. Information technology system development unit, and
4. General administration unit.

The personnel of agricultural knowledge management and dissemination unit is directly responsible for the repository.

The staff would also regularly attend workshops and seminars hosted cross-organization on update trend and technology for idea and information exchange.

The Information Technology Office receives an annual budget delegation for TARR administration. A team of IT experts is assigned to manage and operate the repository, to develop the digital data structure, to work on metadata description, and to promote the use of repository.

A separate team of IT experts will handle the management of network computer, server computer and repository software. Internal workshops and idea exchange sessions are regularly dated to enhance staff learning and contribution.

In terms of training to improve skills and knowledge, the Information Technology Office has developed an Individual Development Plan (IDP) and regularly sends staff members to professional training and seminars. Every year, it serves as an incentive for individuals to improve their skills and knowledge while exchanging experiences with professional personnel from different areas by attending meetings, seminars, conferences, workshops, training, and associated academic activities.

#### Links:

- [5.2 Data storage location and data management access](#)
- [5.3 ARDA Master Plan for Digital Technology](#)
- [5.4 ARDA Annual Budget Plan of 2022 \(Page 48 section 3.1\)](#)
- [5.5 IDP Plan Documents for Staff](#)
- [5.6 Organizational infrastructure](#)
- [5.1 User Guideline for Cloud GDCC](#)

## Reviews

### Reviewer 1:

#### Compliance level:

## Thailand Agricultural Research Repository (TARR)

The guideline has been fully implemented in the repository - 4

**Comments:**

**Reviewer 2:**

**Compliance level:**

The guideline has been fully implemented in the repository - 4

**Comments:**

### R6 Expert guidance

**The repository adopts mechanism(s) to secure ongoing expert guidance and feedback (either in-house, or external, including scientific guidance, if relevant).**

**Compliance level:**

The guideline has been fully implemented in the repository - 4

**Response:**

Thailand Agricultural Research Repository (TARR) recruits several advisors for development of information technology infrastructure, both hardware and software. They would also supervise the working team through official and unofficial channels; for example a sit-down meeting, telephone call or email inquiry, in the process of information management and data searching efficiency.

The development of TARR has been aided by both internal and external domain experts. Under the annually contact, The experts from the Center of Excellence for Unified Knowledge and Language Engineering (U-Know CoE) of Kasetsart University provides guidance on database design. In addition, TARR also receives guidance from independent consultant on service design.

TARR opens several communication channels to contact admin for user inquiry and comments, such as telephone, email and LINE instant messaging. Various feedback usually comes during conferences with work units and organizations via LINE instant messaging, Q&A forum or website survey.

Evidence Links

6.1 Profile of Advisor from Kasetsart University

<https://shorturl.asia/ps3vj>

<https://tarr.arda.or.th/statTarr/structure>

6.2 Multiple channels to contact the experts

<https://shorturl.asia/yxVrA>

6.3 Annually Contact

<https://shorturl.asia/dfZM5>

6.4 Channel to communicate with the user of TARR

<https://shorturl.asia/9K2GP>

**Links:**

### Reviews

**Reviewer 1:**

**Compliance level:**

The guideline has been fully implemented in the repository - 4

**Comments:**

**Reviewer 2:**

**Compliance level:**

The guideline has been fully implemented in the repository - 4

**Comments:**

# Thailand Agricultural Research Repository (TARR)

## Digital Object Management

### R7 Data integrity and authenticity

**The repository guarantees the integrity and authenticity of the data.**

#### Compliance level:

The guideline has been fully implemented in the repository - 4

#### Response:

The Thailand Agricultural Research Repository (TARR) has a protocol to review integrity of the collected information. Once the data is deposited by the owner or representative organization, TARR staff shall conduct an initial review of the data authenticity and the required metadata description fields before approval to dissemination. The TARR administrator and staff will be notified by email when information from the depositor or owner entity is received. Initially, the depositor's or the work's owner's email address will be checked directly, and the data entry form must be completed.

TARR utilises the software that is developed specifically for repository management. The program has been designed to manage the digital files with backoffice dashboard integration for reviewing data metadata integrity.

During the data import process, the staff will prepare the data for import by following the operating manual and entering the digital resource's metadata. When the import (Dublin Core metadata + digital file) is finished and the metadata has been confirmed, the import will be generated and saved for the import date (creation date), update date, information identification number (document ID), and source of information.

After importing the data, the operator performs a metadata quality check and records the necessary modifications in the file quality checklist using MD5 Checksum data validation. After altering the data item or its digital file, the system will record the changes made in the data source section, which includes the identity of the person who performed the data modification (username), the date of modification, and the number of data files. The document list page in the Back Office allows staff to view the editing history of each item.

TARR collects any related contents to particular items within a single folder to maintain data integrity and authenticity of information. To ensure that users can access all information they request, the repository brings forth the connection of metadata, digital files, CC license, graphics and other relevant data.

#### Links:

- [7.7 Data Deposit Guideline and Application Form](#)
- [7.1 Data Audit Protocol](#)
- [7.2 Handbook of Data Ingest and Complete Metadata Description](#)
- [7.3 Sample review of metadata modification](#)
- [7.4 Checksum data validation](#)
- [7.5 Data Modification Strategy](#)
- [7.6 Reserved URL for long term accessibility](#)

#### Reviews

##### Reviewer 1:

#### Compliance level:

The guideline has been fully implemented in the repository - 4

#### Comments:

##### Reviewer 2:

#### Compliance level:

The guideline has been fully implemented in the repository - 4

#### Comments:

### R8 Appraisal

**The repository accepts data and metadata based on defined criteria to ensure relevance and understandability for data users.**

#### Compliance level:

## Thailand Agricultural Research Repository (TARR)

The repository is in the implementation phase - 3

### Response:

Thailand Agricultural Research Repository (TARR) conducts a standard required fields of metadata description which have to be completed and reviewed by admin before dissemination in the digital repository. The fields may include 1) type of submission 2) project title 3) project lead and team members 4) keywords 5) abstract 6) year of initiation 7) year of completion 8) copyrights and 9) host organization.

An automated program performs the inspection function to screen for duplications. The system will automatically send a notification to the admin if duplicated works are found. If there is an error in specifying metadata after the document has been published, the organization or the owner of the document can report the problem using a change notification form and send it to the repository's staff via convenient channels such as phone, e-mail, LINE official, or a forum thread.

TARR data management policy is to be the central resource and collection of Thai agricultural research. Any data or information that does not follow the guidelines shall be removed from the system with notification informing a reason of rejection to the depositor. A manual of complete step to the establishment of TARR gives an insight to how the information has been collected by the type of submission and the data catalog process according to the valid international standard. Some sample cases of data catalog with automated scopes of information review were given to ensure the data integrity and authenticity. A digital file management manual determines the format of digital files to check the quality of the data, whether it fulfills the standards set and conforms with the agreement. If the depositor fails to meet the conditions, the Information Technology Office will return the data and inform the depositor that the work must be corrected before it can be published in the repository system. If the staff discovers inconsistencies in previously published information, they will remove or delete items that do not comply with the agreement and notify the depositor of the items that have been deleted from the TARR system or are in the process of being added to a withdrawal process.

### Links:

- [8.1 Data Screen Protocol / Data Management Guideline](#)
- [8.2 Change Form](#)
- [8.3 Guideline to Metadata Description Practice](#)
- [8.4 Information Review Process in the Handbook of Data Ingest \(section 4\)](#)
- [8.5 Management Policy](#)
- [8.6 Compatible File Types](#)
- [8.7 Handbook of Data Ingest](#)

### Reviews

#### Reviewer 1:

#### Compliance level:

The repository is in the implementation phase - 3

#### Comments:

#### Reviewer 2:

#### Compliance level:

The repository is in the implementation phase - 3

#### Comments:

### R9 Documented storage procedures

The repository applies documented processes and procedures in managing archival storage of the data.

#### Compliance level:

The guideline has been fully implemented in the repository - 4

### Response:

Thailand Agricultural Research Repository (TARR) follows the operation guideline on research archives information management. The staff are expected to implement the protocol step-by-step. For example, the staff will review the submitted files for compatibility and standard metadata description after the data is deposited. The data will then be cataloged and collected in the repository. Once disseminated, the process of data backup and security check will

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also happen at the same time.

According to the archive's backup and recovery plan, TARR shall regularly back up several copies of the material to separate places. Source code is backed up on Gitlab, and incremental backups are performed weekly, containing only the material that has changed since the last backup. This is run in parallel by two parts: 1. the Information Technology Office backs up data in ARDA's Data Center, and 2. the Kasetsart University Center of Excellence for Unified Knowledge and Language Engineering (U-Know CoE) by storing it on Kasetsart University's server.

All versions of backed up data are kept and cannot be erased or overwritten. Backup data can be restored within 24 hours according to the maintenance contract with Kasetsart University.

The following policies govern access to data stored in the backup area.

1. The data held throughout the submission process is only accessible by developers/administrators and authorized personnel based on user roles.
2. Developers/administrators and ordinary users can access data stored throughout the archiving process (items containing metadata and content files).
3. The developer/administrator can view the data saved during the backup procedure.

HTTPS (Hypertext Transfer Protocol Secure) is an Internet communication protocol that helps in the integrity and secrecy of user data transmitted between a user's computer and a website. Users can access the repositories via the HTTPS (Hypertext Transfer Protocol Secure) Internet communication protocol with a search function at <https://tarr.arda.or.th/search>. Through search and document access control systems, users can access published material based on their permissions.

### Links:

- [9.1 Data Storage Process](#)
- [9.2 Documentation of File Storage Location](#)
- [9.3 Documentation of Data Backup](#)
- [9.4 SLA Cloud GDCC](#)
- [9.5 Documentation on Data Backup and Data Restore](#)
- [9.6 Documentation of Media Disposal Procedure](#)

### Reviews

#### Reviewer 1:

#### Compliance level:

The guideline has been fully implemented in the repository - 4

#### Comments:

#### Reviewer 2:

#### Compliance level:

The guideline has been fully implemented in the repository - 4

#### Comments:

### R10 Preservation plan

**The repository assumes responsibility for long-term preservation and manages this function in a planned and documented way.**

#### Compliance level:

The repository is in the implementation phase - 3

#### Response:

Thailand Agricultural Research Repository (TARR) works in conjunction with two organizations, including the Agricultural Research Development Agency (ARDA) and the Office of the National Digital Economy and Society Commission (ONDE). The preservation plan therefore refers to the information management structure of the two organizations.

The Agricultural Research Development Agency (ARDA) emphasizes that the preservation plan should consider taking the information risk management strategy into account for administration or update according to certain contexts. The information risk management policy is thus defined as a part of good corporate governance. The board entrusts that the risk management and business continuity plan (BCP) will deter the impact and resolve potential damages to the assets of the organization, and as a result, Thai agriculture shall prevail by providing a constant service from ARDA to the stakeholders.

## Thailand Agricultural Research Repository (TARR)

The preservation plan provides guidelines for long-term reservation and access to agricultural information resources, following the good practice and the concept of OAIS (Open Archival Information System) or OAIS Reference Model. The preservation plan covers the preservation of digital information resources, data security, data recovery when the backup system is damaged, opening digital files in the future, system storage management to accommodate more data in the future, data transfer to accommodate changes in technology, outdated equipment and tools, and data storage devices; an agreement of terms and conditions of use is made between the licensor, data importer, and the Repository as seen in the permission form for dissemination. The agreement and permission are granted under the condition that the content does not violate human rights and follows the PDPA Act 2019. Verification of information and specifications is carried out.

The Government Data Center and Cloud services (GDCC) has shaped the information technology security plan by following the central government security policy and standard of cloud data storage. The responsible staff shall manage the information according to the set of protocol; including reviewing, cataloging and disseminating; to ensure that the digital files are preserved by standards of the repository and long-term preservation plan. TARR has adopted various standards, such as, for information management, appropriate metadata descriptions for specific type of resources, information preservation method, operation manual, or guideline to settings, etc. The repository requires that the system shall be regularly checked for quality maintenance and constant development according to the assigned tasks per job functions.

### Links:

- [10.4 Succession plan](#)
- [10.1 Documentation on Information Security Policy and Protocol](#)
- [10.2 Documentation on Data Backup and Data Restore](#)
- [10.3 Operating Terms and Conditions / Transfer of Rights Conditions/ License Scope of the Repositor / Data Preservation and Data Transfer](#)

### Reviews

#### Reviewer 1:

##### Compliance level:

The repository is in the implementation phase - 3

##### Comments:

You can be certified at level 3 but next recertification you will need the published plan.

#### Reviewer 2:

##### Compliance level:

The repository is in the implementation phase - 3

##### Comments:

Without a published preservation plan this can be accepted on level 3.

### R11 Data quality

**The repository has appropriate expertise to address technical data and metadata quality and ensures that sufficient information is available for end users to make quality- related evaluations.**

##### Compliance level:

The guideline has been fully implemented in the repository - 4

##### Response:

Thailand Agricultural Research Repository (TARR) has a protocol to check the quality of data whether it meets the integrity standards. The reference guidelines for standard of operations may include, a handbook for metadata descriptions, an operation manual for handling digital information resources, and guidelines on digital file conversion, file name definition, data cataloging, metadata review and result display.

The procedure executed in TARR follows the workflows regulated in the manual of operation. All information shall be reviewed and described with appropriate metadata before cataloging. If any digital file or metadata is found with errors, either via internal audit or user report, the staff shall review the case and immediately take further actions. Designated user communities can participate in data quality development through submitting comments, reports, or direct email to the admin. They may also create a forum post on the webpage of each individual item.

## Thailand Agricultural Research Repository (TARR)

TARR also evaluates the user satisfaction in data quality via online survey form on the website. There is a customer service protocol to respond upon receiving an error report from users ie. initial inspection, edit verification and confirmation back to users after revision.

### Evidence Links

#### 11.1 Quality Control

<https://tarr.arda.or.th/statTarr/privacy>

#### 11.2 Audit of Quality Control

<https://tarr.arda.or.th/statTarr/privacy>

#### 11.3 Data Quality Feedback Form

<https://shorturl.asia/m5Bqu>

### Links:

### Reviews

#### Reviewer 1:

#### Compliance level:

The guideline has been fully implemented in the repository - 4

#### Comments:

#### Reviewer 2:

#### Compliance level:

The guideline has been fully implemented in the repository - 4

#### Comments:

### R12 Workflows

**Archiving takes place according to defined workflows from ingest to dissemination.**

#### Compliance level:

The guideline has been fully implemented in the repository - 4

#### Response:

Thailand Agricultural Research Repository (TARR) has specified a systematic workflow, from a step of data collection and review to catalog of information to illustrate preservation processes and functions which are aligned to the Open Archival Information System (OAIS) reference model. Category of archives data shall follow specific terms and conditions of the data catalog system for the host organizations to submit their research works accordingly. The digital files submitted must meet the digital media standard and match with compatibility criteria of the repository. An assigned admin will contact the owner or host organizations via predefined communication channels; such as phone call, email or LINE instant messenger; to inform the dissemination result or coordinate on various matters.

The workflows developed and applied by all types of digital objects, are used as operational guidelines and is documented in the Staff's manual to meet long-term preservation and access standard which will lead to efficiency and trustworthiness of the repository.

The TARR workflow system is operated by the staff from various expertise who respectively work in order of task requirements; from receiving of data deposited by the author or host organization, to reviewing of ownership for licenses and copyright, to describing the metadata, and to disseminating of preserved information on the TARR website. Cloud computing is also working simultaneously to duplicate data and create backup files. The local backup process is scheduled weekly to automatically activate. Users can report to the repository admin in case there is any fault or errors found to the data.

### Links:

- [12.1 Documentation of Workflow Diagram](#)
- [12.2 Repository Information Management/ Result Checks](#)
- [12.3 Acceptance and Announcement of Personal Information Protection Policy](#)

### Reviews

#### Reviewer 1:



## Thailand Agricultural Research Repository (TARR)

### Compliance level:

The guideline has been fully implemented in the repository - 4

### Comments:

### Reviewer 2:

### Compliance level:

The guideline has been fully implemented in the repository - 4

### Comments:

### R13 Data discovery and identification

**The repository enables users to discover the data and refer to them in a persistent way through proper citation.**

### Compliance level:

The repository is in the implementation phase - 3

### Response:

Thailand Agricultural Research Repository (TARR) offers a search system with multiple search criteria. Users insert the desired keyword and select the search condition before the system can match and display the search results. Each search result page comes with three types of automated citation styles for user convenient reference disposal.

Popular search engines, such as Google, Yahoo, and Bing, might lead to the Thailand Agricultural Research Repository. Information is available on the TARR website (<https://tarr.arda.or.th>) and the Ministry of Agriculture and Cooperatives network website (<https://www.moac.go.th>), as well as the TARR Official Account on Line application (Line Chatbot).

TARR adopts the Dublin Core method to ensure index records meet the international standard. For example, a research project data will have persistent identifiers, in numerical or alphabet, to authenticate and link to the digital files and citation.

The repository supports the OAI-PMH Protocol (The Open Archives Initiative Protocol for Metadata Harvesting) for metadata harvesting to facilitate content dissemination and repository interoperability. Data can be retrieved via OAI-PMH or API (Application Programming Interface). The repository also provides RSS feed buttons on community's and collection's main page which can be used to promote new item submissions on the website.

The Thailand Agricultural Research Repository has registered and is in the process of requesting a Digital Object Identifier (DOI) from the National Research Council of Thailand (NRCT), DataCite's DOI registration agency in Thailand. The Information Technology Office plans to add DOI codes to the archives, consisting of 3 parts:

1. On the technical front, Kasetsart University has been engaged in improving the functionalities in the Thai Agricultural Research Archive to display research data with DOI numbers so that it may be searched for and referred to. This project will be finished by the end of 2023.
2. Information is being prepared to be submitted to the National Research Council of Thailand (NRCT) for Digital Object Identifier (DOI) service, which will be finished by the end of 2023.
3. In terms of policy, the Information Technology Office shall recommend guidelines for developing policies for ARDA funding contracts to the Subcommittee on Agricultural Information Technology. It is important that research-based digital information resources have a DOI code number so that research-based digital information resources are permanent and will not alter regardless of where they are stored.

### Links:

- [13.1 Search System Interface on Website](#)
- [13.2 Documentation on Citation](#)
- [13.3 API](#)
- [13.4 Metadata Descriptions](#)
- [13.5 Documentation of Platform Design](#)
- [13.6 Process of requesting a DOI](#)

### Reviews

### Reviewer 1:

### Compliance level:

The repository is in the implementation phase - 3

## Thailand Agricultural Research Repository (TARR)

### Comments:

Response Text: The plan to assign persistent identifiers is highly recommended and should be complete before renewal

### Reviewer 2:

#### Compliance level:

The repository is in the implementation phase - 3

### Comments:

#### R14 Data reuse

**The repository enables reuse of the data over time, ensuring that appropriate metadata are available to support the understanding and use of the data.**

#### Compliance level:

The guideline has been fully implemented in the repository - 4

### Response:

Thailand Agricultural Research Repository (TARR) is eligible to reuse the digital files by Creative Commons license agreement shown on each document page, and preferred file formats with Dublin Core metadata description for user research useability.

Besides the metadata description, there are some additional detail fields to give preview to the documents which will help users to quickly sort through the right information they are looking for; such as file download counter, advance search, facet search filter, and recommended resources which may relate to a particular result. Users can also download the abstract of the result, or full-text is also available in PDF.

TARR provides groups of interest with agricultural and associated research information. Because the majority of the information is in the form of a text document, the process of preserving the integrity of the original and allowing it to be referenced is critical. The archives accept PDF files, the most frequently used document file type, which may be viewed using PDF reader software or standard web browsers such as Chrome, Firefox, Microsoft Edge, and others.

TARR manages its information resources with an application approach. The digital files are evaluated for conformity to ensure their accessibility in the future. The data resources are managed in a way that they are always ready for transfer, conversion, and backup for long-term preservation. System is maintained in response to the Dublin Core Metadata method that is one data item in a single folder. Corresponding meetings and consultations with experts in digital archives are regularly scheduled to share knowledge and updates in data backup technology according to the system maintenance plan. The Information Technology Office is closely monitoring digital continuity and technical advances, as well as reviewing and planning for data migration and file format conversion to assure long-term data availability and retention.

Backup systems are in place in the case of an emergency or a technological development that may disrupt access to the archive, as defined in R9 and R16.

### Links:

- [14.1 Metadata Descriptions](#)
- [14.2 Terms of Data Use and Data Reuse](#)
- [14.3 Type of Collected Data / Data Transfer Plan / Preferred file formats of TARR](#)

### Reviews

#### Reviewer 1:

#### Compliance level:

The guideline has been fully implemented in the repository - 4

### Comments:

#### Reviewer 2:

#### Compliance level:

The guideline has been fully implemented in the repository - 4

# Thailand Agricultural Research Repository (TARR)

**Comments:**

## Technology

### R15 Technical infrastructure

**The repository functions on well-supported operating systems and other core infrastructural software and is using hardware and software technologies appropriate to the services it provides to its Designated Community.**

**Compliance level:**

The guideline has been fully implemented in the repository - 4

**Response:**

The Thailand Agricultural Research Repository (TARR) is developed in collaboration with the U-Know Center: the Advanced Research Center of Unified Knowledge and Language Engineering at Kasetsart University. Two distinct phases comprise the software development process.

1. In 2017-2019, DSpace, a software that is perpetually developed by a large community of developers, was utilized as a code disclosure software for developing and managing digital repositories. The software is widely recognized in both the public and private sectors, and has been used by a variety of educational institutions, research agencies, libraries, and other organizations. On the basis of the Open Archival Information System (OAIS), the primary objectives were to archive and preserve digital information generated by the organization's internal and external communities.

2. Since the year 2020, the DSpace system has been replaced by the Hector system. It is designed to be more suitable and user-friendly, and it can migrate data from all DSpace systems. The new system has three primary components.

1) User interface: It is designed to work with Chrome Version 79 or above and Firefox Version 72 or higher browsers. Instead of using the mouse, users will be able to choose functions via keyboard navigation. This saves the user from having to move their hands from the keyboard to the mouse for each option. By creating such a feature, it is a type of Excel function utility that many users are already familiar with in terms of importing data via Excel files. Users will find it easier to adapt to the newly created application as a result of this. The ClojureScript programming language is utilized to create the utility.

2) Workpiece Validation: It was created using the Clojure and ClojureScript programming languages. This is related to data metadata import validation and integrity.

3) Storage: PostgreSQL is used to store the data.

The Thailand Agricultural Research Repository (TARR) is housed at Thailand's Government Data Center and Cloud Service (GDCC), which is overseen by the Ministry of Digital Economy and Society, the Office of the National Digital Economy and Society Commission (ONDE), and the National Telecom Public Company Limited. GDCC is made up of cloud infrastructure design and communications systems that fulfill international standards ISO 27001:2013 and ISO 20000:2018 while maintaining high stability and security by professionals with knowledge and experience in data centers and cloud computing. GDCC uses VMware and OpenStack technologies with 99.99% SLA cloud system uptime.

**Links:**

- [15.3 Reference of GDCC Architecture](#)
- [15.4 SLA Cloud GDCC](#)
- [15.5 Succession plan](#)
- [15.1 Documentation of Platform Design](#)
- [15.2 Technical Documentation of the System](#)

## Reviews

**Reviewer 1:**

**Compliance level:**

The guideline has been fully implemented in the repository - 4

**Comments:**

**Reviewer 2:**

**Compliance level:**

The guideline has been fully implemented in the repository - 4

**Comments:**

# Thailand Agricultural Research Repository (TARR)

## R16 Security

The technical infrastructure of the repository provides for protection of the facility and its data, products, services, and users.

### Compliance level:

The guideline has been fully implemented in the repository - 4

### Response:

The Agricultural Research Development Agency's (ARDA) Office of Information Technology is in charge of managing and maintaining TARR in accordance with the information security management policy. There is an effective management protocol in place in accordance with international standards for information security and stability, CIA (Confidentiality Integrity Availability), which consists of data rights and access (Confidentiality), data integrity (Integrity), and data availability (Availability).

Thailand's Government Data Center and Cloud Service (GDCC), which is managed by specialized organizations, houses the Thailand Agricultural Research Repository (TARR). The security system is safeguarded by encrypted website data with Secure Socket Layer (SSL) or https to encrypt system users' and the server's data transfer. When using, personal information such as registration data and history data is secure. If connection to the system's host computer is necessary, VPN access is required to access the network of central government cloud services.

The Service SLA stipulates that GDCC must conduct daily backups as part of the system availability requirement. During system outages, a backup must be maintained, and recovery is required to keep the TARR system operational. Information is accessible and usable when required. In addition to GDCC backups, it is necessary to have backups in various storage areas that are performed weekly. This supplementary backup procedure consists of the two steps listed below.

1. The Office of Information Technology backs up data at ARDA's Data Center, which has been accredited to international information security standards ISO/IEC 27001:2013. The use of information technology security systems to avoid technological cyber failures, intrusions, and activities that might harm data systems and stored data. This also protects the equipment used to monitor data usage through the system (Proxy Server), anti-virus system equipment, computer (Antivirus), DDOS PROTECTION protection system, and identity verification system to detect suspicious behavior, internal network system intrusion (Network Access Control), computer network security system with Firewall Log Analyzer Monitoring system, notification of the host computer's status, network equipment log analysis system, and fingerprint scanning system for server room.

2. Kasetsart University's Advanced Research Center of Unified Knowledge and Language Engineering (U-Know Center) creates backups of the server's data and stores them in a secure, off-site location. The TARR system has two components that need to be verified regularly: 1) a daily checklist is used on workdays, and 2) a weekly checklist is used on Fridays by Kasetsart University administration. If an issue is discovered, it will be fixed if possible, and the head of the Kasetsart University administrative team will be notified so that they can look into it further. If the problem cannot be fixed, the administrator will alert the team leader, who will then investigate and take remedial measures until normal operation is restored.

### Links:

- [16.1 Information Security Management System Manual](#)
- [16.2 Organization Structure](#)
- [16.3 Risk Assessment Tool by Scenario Analysis & Process](#)
- [16.4 Reference of GDCC Security](#)
- [16.5 Authentication and Authorization](#)

## Reviews

### Reviewer 1:

#### Compliance level:

The guideline has been fully implemented in the repository - 4

#### Comments:

### Reviewer 2:

#### Compliance level:

The guideline has been fully implemented in the repository - 4

#### Comments:

## Applicant Feedback

## Thailand Agricultural Research Repository (TARR)

### R17 Applicant Feedback

We welcome feedback on the CoreTrustSeal Requirements and the Certification procedure.

#### Compliance level:

The guideline has been fully implemented in the repository - 4

#### Response:

We have adjusted R3 and R10 to level 3 according to the suggestions of the reviewers and will improve to level 4 for the next recertification. Thank you very much.

#### Links:

### Reviews

#### Reviewer 1:

#### Compliance level:

The guideline has been fully implemented in the repository - 4

#### Comments:

#### Reviewer 2:

#### Compliance level:

The guideline has been fully implemented in the repository - 4

#### Comments: