



ASEAN Animal Identification and Traceability System (AAITS)

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1. Introduction

Protecting animal and its products by safeguarding the total 'farm to fork', is vital to the well-being of each and every one of us. It promotes human health; wholesome, reliable and secure food resources; mitigates national economic threats; and enhances a sustainable environment. Essential to achieving this goal is an efficient and effective animal identification tracking program.

An animal health and tracking programs should involve all animal and its related industries. This would ensure that the Asean Animal Identification and Traceability System (AAITS) is coordinate in a uniform manner. This plan should be collectively assessed and workable suggestions should be made involving all of the various animal and its related industries, state-federal government professionals representing all the allied associations / organisations in Asean member states.

Fundamental in controlling any disease threat, foreign or domestic, to the nation's animal resources is to have a system that can identify individual animals or groups, the premises where they are located, and the date of entry to that premises. Further, in order to achieve optimal success in controlling or eradicating an animal health threat, the ability to retrieve that information within 48 hours, for example, of confirmation of a disease outbreak and to implement intervention strategies is necessary.

The species and / or industries that the system supports need to be outlined. Implementation will be in three phases:

1. Premises Identification
2. Individual or group. Lot identification for inter-country and intra-country commerce
3. Retrofitting remaining processing plants and markets and other industry segments with appropriate technology that will enhance our ability to track animals throughout the livestock marketing chain to protect and improve the health of the national herd.

2. Animal Identification and Traceability System

To achieve the trace back objective, the movement of individual animals or units of animals must be recorded. Reporting this information to a central database or creating a seamlessly linked local database infrastructure could enhance traceback. Animal agriculture needs to demonstrate its willingness to adopt the necessary identification system for each species in order to protect the health of the national herd. Industry and government should be committed to resolve issues regarding confidentiality and security to protect and improve the health of the national herd.

The outline of the Animal Identification and Traceability system needs to be defined together with the time frame. The basic components of a national Identification (ID) system are;

- Premises ID
- Individual ID
- Lot ID
- ID Devices

3. Standards

Standards for certain data elements are essential for a successful information system in which data is shared among member states, as well as being provided or linked through certified commercial service providers. The proposed key data elements requiring standards include:

- A uniform premises identification system
- A uniform, nationally recognizable numbering system for individual animal identification
- A uniform, nationally recognizable numbering system for a group or lot of animals
- A uniform numbering system for Non-producer Participants

Additionally, standards are required for identification devices to ensure minimum performance standards are achieved as well as standards associated with the integration of automated data collection systems. Such standards include:

- Barcode identification methods and devices for tracking of laboratory samples
- RFID identification methods and devices for official use in animals

3.1 Premises Identification

The trace back objective requires that the information system records an animal's or unit of animals' origin and its movement to other locations for its entire life. Such locations are referred to as "premises". Identifying these premises with a single and unique number is essential to trace animals potentially exposed to disease. If more than one premises number is used for the same location, animals subject to contagious disease can go undetected. Therefore, the establishment of a unique location identifier is strongly recommended.

A premise is defined as an identifiable physical location, which represents a unique and describable geographic entity (where activity affecting the health and/or traceability of food producing animals may occur) or represents the producer contact location when extensive grazing operations exists.

A grazing location is a geographic area defined by the producer where his stock resides at sometime during their life and where minimal or no facilities of physical structures exist. This area is not easily definable and turnover of stock may occur frequently. If in the judgement of the member state animal health officials it does not meet the premises definition it will not be required to have a premise ID

assigned. Animal movements will be recorded and maintained at a central location identified with a premise ID number and all movements into commerce will be reported from that premises. A geographic description of grazing locations should be recorded in the country premises system.

Uniquely assigned premises number to all locations in the livestock and poultry production chain, including animal production operations, markets, assembly points, exhibitions, processing plants, etc., will increase the accuracy and efficiency of the identification system. The ability to link the information to premises is achieved by a unique premises identification number.

The administration and management of the premises system is proposed to fall under the responsibility of each country Veterinary Department. The country will interface or link with the Premises Allocator System, administered by the main headquarter, to obtain a ASEAN unique premises number.

The ASEAN Repository could include the following fields:

- Premises ID Number
- Name of Entity
- Owner or Appropriate Contact Person
- Street Address
- City
- State
- Country
- Post Code
- Contact Phone number
- Operation Type
- Date Activated
- Date Retired
- Reason Retired
- GPS

Maps of premises location – Field Mapping (optional)

Longitude

Latitude

3.2 Animal Identification

Two types of levels of animal ID are necessary to support animal disease management programs: individual and “group/lot” identification. Individual animal identification is needed for tracking animals that are destined to be commingled

with animals outside of the production system in which they were born as they move through the production chain. While certain trace back functions can be achieved with Premises ID alone, it cannot be used to record an individual animal's movement through multiple marketing and commingling points. In this instance, individual animal identification is necessary.

Group/Lot ID can be used in species where groups of animals are assembled from within the same production system and tracking is achieved through recording of group movements and the maintenance of required production record elements. In the event animals identified through Group/Lot ID become commingled with animals outside the production system, individual animal identification becomes necessary. Groups are defined as static or dynamic. The requirements for Group/Lot ID may vary for species.

3.3 Identification Devices

There are two methods to identify animals – visual identification and radio frequency technology. Some basic performance standards are necessary to be defined here.

Radio Frequency Identification devices used must be ISO compliant. The various methods of attaching the RFID device to the animal exist, including implants, boluses, tags (ear tags) and tags attachments (cylinder devices that fit over the stem of the male ear tag when applied to the animal).

The different types of RFID readers to be used must be determined. This is because each device might have a unique protocol to integrate to the computers.

A technical committee should be appointed to be responsible for the accreditation of tags and readers for use under this program. The accreditation shall be based on species appropriate evaluation and may include laboratory trials, field trials, and review of existing data, as appropriate.

4. The Information System

Shall develop an information system and infrastructure to support the trace back objective. The overall system must allow for the identification of each premises, and the recording of the ASEAN Animal Identification Numbers and the ASEAN Group/Lot Identification Numbers. Additionally, the system will associate the animal ID data to each premise where the animal or group was located and the specific dates the animal(s) was at the location(s).

The system to be developed will incorporate the following components:

- Premises System
- Animal System
 - ASEAN Animal Identification Database (ID DB)
 - ASEAN Identification Number (AIN) Administrator
 - AIN Managers
- Data Access
 - Premises Repository
 - Interface

- Functionality
- Security
- ASEAN Animal Identification Database
- Data Validation
 - Data File Transmission
 - Data Integrity
- ASEAN Animal ID Database
- AIN Administrators and Managers

4.1 Premises System

The proposed system includes the Premises Identification Number Allocator (Premises Allocator), the Country Premises System/Databases (Country System) and the ASEAN Premises Repository (Premises Repository).

4.2 Animal System

The Animal System includes the Country Animal Identification Database (ID DB) that associates the AIN to a premise.

The ID DB is a centralised database that receives records from both producers and non-producer participants, including but not limited to the allocation of AIN a premise, records of animal sightings, movements, and termination. Access to the ID DB is restricted to Country animal health officials when information is required to perform their responsibility for maintaining the herd of the Country herd. The animal location/movement data/ records are obtained from:

- Producers
- Animal Health Officials
- Service Providers
- Markets
- Slaughter Plants
- Processing Plants
- Veterinary Clinics

4.3 Data Access

This is a very important feature in the system which needs to be carefully designed.

4.3.1 Premises Repository

The country animal health officials need access to the premises repository in animal trace back situations. Any other access to the premises repository will be limited to authorised users who have “look up” capability to validate information necessary to perform their roles as Non-producer Participants.

4.3.2 Interface

The two main interface needs that were identified require that Non-producer Participants need lookup of single premises ID and certain Non-producer Participants need offline capabilities to obtain validation on a group of premises ID in one single batch process. Therefore, the following interfaces are recommended:

- Manual access to the premises repository via a secure website
- Direct automated secure calls using internet file transmission to the premises repository to obtain a return file with the requested validation results.

4.3.3 Security

Among the security features recommend are as follows:

- Access to the premises repository is based upon logging into the system using a username and password
- Based upon level of access to the premises repository, a user will be assigned one of the three levels of access
- Based upon level of access to the premises repository, a user will be assigned access to specific state(s)
- Username and password and level of access are issued and maintained by the Veterinary Department after the AIN Non-producer Participant has passed the application process for having access to the premises repository
- Secure website access with various security layers between the web servers and database to avoid the introduction of viruses, or to prevent hackers from accessing the database
- No data can be edited in the database via the website (read only to authorised users)
- Audit trail whenever necessary

4.3.4 Animal Traceability System Database

It is recognised that approved country animal health officials would need access to the animal ID database(s) in the case of an animal trace back situation within a country, or across ASEAN. It is also recognized that approved country officials might only have access to records for animals that reside within their state. No other individuals will have access to the Animal ID database(s).

4.4 Data Validation

An error checking protocols will be established. This is to maintain the accuracy of the data at the national level. It is recommended that depending on the severity of the error, records will be stored in the system, and their error codes and a field indicating the level of severity of the error will be stored with the record. The errors would be electronically reported to MAIP Non-producer Participant who supplied the data, and basically allow the data supplier to fix the errors and resubmit the corrected data if they elect to do so.

4.4.1 Data File Transmission

Data files submitted to the national system need to be sent to a central location. A universal method of transmission will be implemented to meet the various industry needs. Only Non-producer Participants with the appropriate level of security will have access to the central location to transmit data files. As data files will be uploaded any time of the day, the system receiving the data files needs to be up and running 7 days a week and 24 hours a day. Cleaning out previously transmitted data files will be carried out at a predetermined frequency.

4.4.2 Data Integrity

To ensure an audit trail is maintained, all error will be stored in the database including the error codes and a level of severity associated with the type of error. If the error was caused due to a conflict with a previously submitted record, both errors will be labelled as errors. The database administrator will need to develop a level of severity.

To ensure the integrity of the database, it is deemed necessary for the Department of Veterinary Services to develop a certification program that data providers will need to adhere to. The certification process will include guidelines and standards for organizations submitting records. An organisation submitting records to the national system will need to adhere to the guidelines and standards before their Non-producer Participant ID is issued to them.

The database administrator will monitor the integrity and quality of the information sent to the database.