



United States
Department
of
Agriculture

Marketing
and
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Programs

Animal and
Plant Health
Inspection
Service

National Animal Identification System (NAIS)

*“Administration of
Official Identification Devices
with the
Animal Identification Number”*

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Introduction

As part of its ongoing efforts to safeguard U.S. animal health, the United States Department of Agriculture (USDA) initiated the implementation of a National Animal Identification System (NAIS) in 2004. The NAIS is a cooperative State-Federal-industry program administered by USDA's Animal and Plant Health Inspection Service (APHIS). The main objective is to develop and implement a comprehensive information system which will:

- Support ongoing animal disease monitoring, surveillance, detection, and response capabilities in order to complete current eradication programs;
- Enable State and Federal animal health officials to respond rapidly and effectively to animal health emergencies such as foreign animal disease outbreaks or emerging domestic diseases with significant economic, social, or public health consequences;
- Enable State and Federal agencies to identify animals that are lost or scattered through natural disasters such as hurricanes or stolen at any time; and,
- Enable State and Federal animal health officials to promptly ascertain animal health status for the purpose of issuing intrastate, interstate, or international animal health movement certificates.

When an animal disease is detected, the first question is, "Where has the infected animal been?" Answering this question is critical in determining what other animals were exposed and estimating the size and scope of the outbreak. The more quickly this can be done, the less the disease will spread, and the less impact the outbreak will have.

The ultimate long-term goal of the NAIS is to provide State and Federal officials with the capability to identify all animals and premises that have had direct contact with a disease of concern within 48 hours after discovery.

The NAIS is a voluntary program. Producers and other stakeholders can now participate in the program to test the system and offer feedback to help ensure that practical solutions evolve. To have a successful animal disease management program, all producers and affected industry segments will have to participate eventually. As the system is further developed, market forces are likely to be the primary "driver" that will encourage participation. While there has been some support from industry for making parts of the system mandatory, the USDA would only consider such an approach in the future if determined to be necessary. At that time, USDA would follow the normal rulemaking process in changing the status of the NAIS from voluntary to mandatory. The public would have the opportunity to comment on any proposed regulations.

The NAIS will be established through a phased-in approach by implementing these key components:

- Premises Identification

The identification of premises (locations that manage or hold animals) provides the foundation of the NAIS; thus, this is the starting point of the program. Each premises that participates in the NAIS will be identified with a unique seven-character identifier, which is recognized as a premises identification number (PIN).

Having the ability to plot locations within a radius of an infected premises helps determine the potential magnitude of contagious disease and the resources that are needed to contain it. This can only be done if the infected premises and other premises in the area are registered prior to the outbreak. Otherwise, at the beginning of an outbreak and for weeks after, animal health crews must drive up and down country roads looking for premises containing susceptible species. Meanwhile, the disease may spread and the cost of containment, escalate. Thus, premises information alone, even without animal movement information, is of critical importance to our agency's prime objective of protecting American agriculture.

Additionally, premises registration is a prerequisite of animal identification and is needed to establish animal movement information. All States and several Tribes became operational on premises registration by mid 2005, with 160,000 premises registered as of December 1, 2005.

- Animal Identification

Animals are identified either individually with a unique animal identification number (AIN) or, if they are managed and moved through the production chain as a group, with a group/lot identification number (GIN). Animal identification associates an animal with a premises and will provide the origin, or birthplace, of the animal.

- Animal Tracking

As animals move from premises to premises, the AIN or GIN will be associated with the new PIN while the animals maintain their original numbers. Only a few basic pieces of information will be collected for each reportable movement: The AIN or GIN, the PIN of the receiving location, and the date of the animal or animals' arrival. The ability to achieve the 48-hour traceback goal is directly related to the percentage of animal movements that are recorded and will require significant infrastructure throughout the preharvest production chain. This component will likely take years to establish.

The basic requirements for official identification devices are defined in the Code of Federal Regulations (CFR). APHIS supports the integration of technologies to automate the collection and/or validation of the AIN and has established a technology-neutral position for such options. APHIS, therefore, will not select specific animal identification technologies for use in the NAIS and believes that the marketplace and stakeholders, within certain constraints, can best determine the most practical animal identification technologies.

Uniformity and compatibility of technology are critical to ensure that collection of animal identification data is practical and cost effective throughout the preharvest production chain. Therefore, it is appropriate that minimal performance and "open" technology standards be established that will allow for compatibility when such technologies are used. Such standards will be recommended by Species Working Groups to the NAIS Subcommittee of the Secretary's Advisory Committee on Foreign Animal and Poultry Diseases (SACFAPD). The NAIS Subcommittee will then report to the SACFAPD, which will make recommendations to the Secretary. APHIS will review the recommendations.

The Department also recognizes the need to have compatibility of identification technologies with Canada and Mexico. As the NAIS is phased in, ongoing efforts to harmonize animal identification with other countries will facilitate safe trade in animals with other countries.

OFFICIAL IDENTIFICATION

As noted above, two types or levels of animal identification are necessary to support animal disease management programs: individual animal and “group/lot” identification. Individual animals may be identified in the NAIS by means of the AIN. The identification devices may differ among species. For example, eartags are typical for cattle, while other devices, such as implants, are used for horses, alpacas, and lamas. Existing official identification devices recognized in the CFR for use in APHIS’ disease control and eradication programs will continue to be available.

Technology that may enhance the utility of the AIN, such as by allowing the number to be collected automatically, will be allowed, but not required. The use of such technology will be market driven. Such options, referred to in this document as supplemental identification, will be discussed later in this document.

Animal Identification Numbers (AIN)

In an interim rule published in the Federal Register on November 8, 2004, and effective on that date (69 FR 64644-64651, Docket No. 04-052-1), USDA recognized the AIN as an official numbering system for individual animals reared in the United States. The AIN consists of 15 digits, with the first 3 being the country code (840 for the United States).

Example: 840123456789012

(The interim rule actually recognized not only numbers beginning with the “840” country code but also numbers beginning with the alpha characters “USA” and with the numeric code assigned to the manufacturer of the identification device by the International Committee on Animal Recording (ICAR) as AINs. The latter two formats, which some producers were using prior to the interim rule, are transitional, however, and will be phased out.)

The interim rule did not require use of the AIN. The regulations continue to allow the use of numbering systems previously recognized in the CFR, such as the National Uniform Eartagging System.

Official Identification Devices

Eartags are the most commonly used method of individual animal identification for certain species; therefore, the interim rule amended the definition of official eartag. The previous definition of official eartag only allowed for the use of the National Uniform Eartagging System or use of a system using a PIN in conjunction with the producer’s livestock production numbering system. The revised definition of official eartag also allowed for the use of the AIN. The revised definition also required that official eartags must bear the U.S. shield in addition to an official identification number and must be tamper-resistant and have a high retention rate in the animal. We have continued, however, to recognize eartags without the shield that feature the transitional “USA” or manufacturer’s code AINs so that producers already using such tags would not be forced to retag their animals.

AIN Tags

Participation in the NAIS is voluntary, and eartags using the AIN (referred to in this document as AIN tags) will be an option for use with certain species when individual official animal identification is required by the CFR. Producers that choose to use the AIN must first obtain a PIN. AIN tags must conform to the CFR requirements for official eartags and meet the standards for printing characteristics, readability, durability, etc., that are contained in table 1 of this report. These standards assume the use of AIN tags imprinted with the “840” number and the U.S. shield.

Table 1. AIN Tag – Requirements and Description**Performance Requirements**

A. One-time use	The tag must be designed for one-time use (tamper evident), making it impossible to remove and reapply the tag without visual evidence of tampering
B. Unalterable	The printing on the tag may not be readily altered.
C. Readability	The AIN must be easily and reliably readable. The printing and color contrast of the U.S. Shield, lettering, and numbers are to be readable at a distance of 30 inches (0.75 m).
D. Tag loss rates	On average, when applied in a manner approved by the manufacturer, not more than 1 percent of tags applied may be lost in the year following application or in any year thereafter under normal field conditions over the expected life of the tag.
E. Expected tag life	The minimum time that a tag shall be expected to remain on an animal in a functional state (physically) is for the expected life of the animal.
F. Tag toxicity and animal injury	Tags may do no harm to an animal or affect its health or well-being. Tags may not cause chemical contamination of meat or edible offal or damage the hide.
G. Tag deterioration	There may be no diffusion of colorant from tags. There may be no apparent physical deterioration (other than color) due to detrimental effects by UV light, rain, heat (45C) and cold (-30C) or other environmental influences such as chemicals, mud, urine, or manure for at least 5 years of wear.
H. Tag plasticity	Devices may not split or crack under normal use.
I. Tag coupling/tensile strength	Tag coupling/tensile strength: Evaluation standards must conform to ICAR testing standards and, at minimum, should comply with ISO standards 37 and 527.
J. Tag abrasion resistance	Tag abrasion resistance: Tags shall not exhibit damage or change due to wear, may be subjected to ICAR testing standards and, at minimum, should comply with ISO standard 9352.

Description of Printing

- The tag must have the U.S. Shield imprinted on its surface. Two-piece tags must have the U.S. Shield and the AIN with the “840” country code imprinted on both pieces.
- The tag must bear the entire 15-digit AIN.
- The U.S. Shield must have a minimum width of 0.2 inches (5 mm).
- The font for all characters imprinted on the tag must be Arial or, if different, approved by APHIS.
- Print size for bovine tags must be a minimum height of 0.2 inches (5 mm) for numbers and letters.
- An indentation of the manufacturer’s unique, copyrighted logo or trademark must be easily observed on the tag. Having such information permanently imprinted on the tag is also acceptable.
- The text “Unlawful to Remove” should be imprinted on the tag.
- A space should be inserted between each 3rd digit of the AIN imprinted on the AIN tag; for example, 840 003 123 456 789.
- Printing of other information may be authorized if it does not compromise the readability of the required information.

Authorization of AIN Tags

- **USDA Approval Pending**

We are establishing the “USDA Approval Pending” designation to support the use of the “840” AIN in conjunction with approved tags during the initial, voluntary phase of NAIS. AIN tags that meet the parameters described in Table 1 of this document will qualify for USDA Approval Pending status. The applicant must provide documentation when submitting the application that confirms that the tags meet or exceed the requirements.

- **USDA Approved**

When the NAIS becomes fully operational, more complete testing and evaluation procedures and an approval process for official identification devices will be available. At such time, a designation of “USDA Approved” will be established. Manufacturers of AIN tags, regardless of prior permission to use the devices in the NAIS, will have to submit new or appended applications to be considered for USDA Approved status.

USDA/APHIS reserves the right to independently evaluate identification devices using resources within the agency or through contractual services with universities or private research firms. Evaluations may include laboratory and/or field studies to verify compliance with tag criteria and tag specification standards, either before or following issuance of USDA Approval Pending or USDA Approved status. Loss of USDA Approval Pending or USDA Approved status may occur at any time if USDA evaluations reveal that manufacturing and/or performance measures do not meet the standards and criteria listed in Table 1. These studies may include controlled experiments comparing USDA Approval Pending and USDA Approved devices as well as individual device performance in varying environments across the United States.

Supplemental Identification

Producers may elect to incorporate supplemental identification methods or technologies they prefer with the AIN tag. In such cases, the AIN tag, or device with the AIN, will remain the official identifier.

International standards, or standards that achieve a base of conformity, must be established and incorporated for the integration of technologies when used to supplement the primary or basic identification tag. For example, if radio frequency identification (RFID) devices are to be used for supplemental identification, the devices’ transponders will need to conform to ISO 11784 and 11785. Such compliance allows for one reader to interrogate transponders manufactured by various companies. This approach will also allow RFID of other frequencies, biometrics (DNA, retinal imaging, etc), and other desired technologies to be used as supplemental identification with the AIN tag or device.

- **Supplemental Identification for Bison and Cattle**

The identification technology and/or method used to integrate the AIN may vary among species. Cattle are a priority in the initial roll-out of the AIN. The use of RFID eartags with the AIN was discussed in the NAIS Draft Program Standards, published May 2004. Prior to the publication of that document, the NAIS Subcommittee had recommended the use of an RFID tag as the standard identification tag for cattle in the NAIS. Commenters on the Draft Program Standards who discussed the issue of cattle identification methods, while acknowledging the need to integrate new technologies as they develop, also supported the use of RFID ISO compliant eartags.

At this time, USDA views visual identification tags as a starting point for the identification of cattle to ensure greater participation among all producers. Table 1, above, provides minimum standards for such tags. However, producers preferring RFID may opt to use additional

technology as supplemental identification devices; thus RFID tags, as described in the Draft Program Standards, remain an option for official identification in the NAIS.

- AIN/RF ISO Tags for Bison and Cattle

The combination of an ISO-compliant RFID transponder encased in a visual tamper-evident eartag with the AIN imprinted is called an AIN/RF ISO tag. The AIN imprinted on the AIN/RF ISO tag must also be encoded in the transponder.

To provide an open market for the transponders, yet ensure compatibility of the technology across vendors, ISO 11784 (Radio frequency identification of animals—Code structure) and 11785 (Radio frequency identification animals—Technical concept) must be used for AIN/RF ISO tags in order for those tags to be recognized as supplemental identification devices in the NAIS. Therefore, all transponders must be certified for conformance with ISO 11784 and 11785 by ICAR. ICAR is a world-wide organization with over 40 member countries dedicated to the standardization of animal recording and productivity evaluation. The organization's goal is to promote improvement of farm animal recording and evaluation through the formulation of definitions and standards. ICAR administers the testing procedures to determine compliance of RFID transponders with ISO 11784 and 11785.

ISO 11784 defines the code structure of the transponder while ISO 11785 defines technical (communication) protocols and allows transceivers (readers) to be compatible with transponders manufactured by different companies. However, ISO standards are not performance standards, and, thus, not all ISO-compliant transponders perform equally. The performance standards for AIN/RF ISO tags are contained in table 2. These standards must be met, in addition to the requirements for the visual components of the tag described in table 1. As we have noted already, RFID tags are not required for use in the NAIS but may be used as supplemental identification devices.

Tags that meet the requirements contained in tables 1 and 2 will receive "USDA Approval Pending" authorization as described earlier.

Table 2. Bovine and Cattle AIN/RF ISO Tag Standards

A. ISO Compliant	All transponders must be certified by ICAR for conformance with ISO-11784 and 11785.
B. Electronic Read Rates and Ranges	<p>In a laboratory with a neutral electromagnetic environment: Transponders must have a 100 percent read rate in best orientation at 24 inches (60 cm) in a stationary test and a moving test of 1 m/sec over a passage length of at least 20 inches (50 cm).</p> <p>In a field test environment: Transponders must be reliably machine read at a rate of 95 percent without regard to orientation by a standardized dual HDX/FDX reader, as cattle move by in a single file passage at 4 mph (1m/sec).</p>
C. Expected tag life	The minimum time that a tag shall be expected to remain functional (electronically) is for the expected life of the animal.
D. Transponder security	<p>The official number encoded within each transponder must not be able to be altered and must be contained within the tag.</p> <p>Tags will be tamper-evident and impossible to unseal without visible evidence of tampering.</p>
E. Transponder failure rates	The transponder within the tag shall be reliable and machine-readable for the expected lifetime of the animal.

The AIN Management System

The AIN Management System is a Web-based program that administers AINs. The AINs are allocated to companies that manufacture official identification devices or technologies. Other individuals and organizations may perform roles that support the distribution of official identification devices to producers. The complete and accurate recording of the AINs distributed and assigned to each premises is imperative. The AIN Management System allows for many participants in various roles and provides the means to record AIN allocations to manufacturers and distribution to premises.

Key roles in the initial roll-out of the AIN Management System include AIN tag manufacturers, managers, and resellers. Manufacturers have specific roles and responsibilities regarding the manufacturing of AIN tags; managers and resellers have roles that support the distribution of AIN tags to producers' premises.

The manufacturers, managers, and resellers (distributors) are referred to as nonproducer participants (see page 4 of the Draft Program Standards). Each nonproducer participant will obtain a nonproducer participant number (NPN) through the premises registration system in the State in which the company's headquarters is located. For example, if the company's corporate office is in Kansas, the company will obtain an NPN through the Kansas premises registration system. All NPNs are unique seven-character numbers similar to PINs.

Manufacturers, managers and resellers must obtain a Level 2 eAuthentication account to have access to the authorized user options of the AIN Management System. eAuthentication is an identity verification system used by the USDA to provide a single authorization for multiple USDA accounts. To begin the process, go to the eAuth website at <http://www.eauth.egov.usda.gov/eauthWhatIsAccount.html>.

- AIN Tag Manufacturers

AIN tag manufacturers are companies authorized by APHIS to manufacture approved identification devices and are responsible for the overall production and quality of the official identification devices that contain the AIN. Potential AIN tag manufacturers must submit an AIN tag manufacturer application to USDA. AIN tag manufacturers may only produce AIN tags with the AINs that have been allocated to them by APHIS. AIN tag manufacturers may also be AIN tag managers.

Note: For the purposes of the NAIS, companies that acquire the ID tag from another source and are responsible for imprinting the devices are considered the manufacturers and assume all responsibility for the product. In such cases, the company that imprints the tag submits the AIN tag manufacturer application and is the sole contact for APHIS regarding tag quality issues.

AIN tag manufacturers must:

1. Abide by the terms and conditions set forth in the AIN tag manufacturer agreement;
2. Complete the AIN tag manufacturer training program provided by USDA;
3. Imprint the "840" AINs allocated to them with the U.S. Shield on identification devices approved by APHIS;
4. Maintain the uniqueness of the AINs allocated to them;

5. Imprint approved tags according to the specifications listed in table 1 of this document;
6. Report the shipment of all AIN tags to the AIN Management System according to established protocols prescribed in the NAIS Technical Supplement (provided on www.usda.gov/nais) within 24 hours of shipment;
7. Have an operational computerized system that communicates with the AIN Management System and is compatible with NAIS standards to maintain the necessary information, including a database of the manufacturer product codes for all devices that contain an AIN;
8. Furnish official identification devices to AIN tag managers;
9. Have a means to support the distribution of AIN devices through marketing agreements with AIN tag managers or be AIN tag managers themselves;
10. Provide a record (if applicable) to APHIS of all “transitional” AINs produced with a “USA” prefix (this format is referred to as the American ID numbering system) and their ICAR manufacturer number;
11. Agree to discontinue the printing of any identification numbering system as directed to do so by USDA if USDA terminates and phases out an official numbering system;
12. Maintain a record of inventoried AIN tags and have such records available to the USDA upon request; and
13. Enter the names of nonproducer participants that they wish to utilize as AIN managers into the AIN Management System, advising them that such designation requires participation in AIN manager training provided by USDA.

Note: One AIN tag is required to meet the definition/criteria for official identification. A second AIN tag for the same animal with the same AIN may be used when double tagging is preferred. Regarding AIN/RF tags, only one tag with the AIN encoded in the transponder is permissible.

▪ AIN Tag Managers

AIN tag managers are individuals, organizations, or companies that provide AIN tags to another AIN tag manager or reseller, or to a premises. The AIN tag manager must have an AIN tag distribution agreement with an AIN tag manufacturer(s).

In order to be an authorized AIN tag manager, the individual or firm must agree to abide by the following:

1. Complete the AIN tag manager training provided by USDA;
2. Distribute AIN tags only to a premises or entity that has either a PIN or NPN and validate the accuracy of the PIN or NPN;
3. Provide the validated PIN or NPN to the entity that ships the AIN tags when not completing the delivery themselves;
4. Maintain a record of inventoried AIN tags received from an authorized AIN tag manufacturer or another authorized AIN tag manager or returned from a premises, and have such records available to the USDA upon request;
5. Submit to the AIN Management System within 24 hours (or close of next business day), in accordance with prescribed protocols, a record of all AINs shipped or delivered; and
6. Educate producers receiving AIN tags on the proper use of official animal identification devices.

The AIN tag manager confirm on-line, using the AIN Management System, that they have a marketing agreement with a specific AIN tag manufacturer(s). USDA will recognize the individual or entity as an AIN tag manager upon confirmation of the marketing agreement(s) and upon the AIN tag manager completing training.

- AIN Tag Resellers

The AIN tag reseller has a marketing agreement with an AIN tag manager instead of the manufacturer. He or she assumes the same responsibility as an AIN tag manager, validating PINs and reporting the distribution of the AIN tags he or she ships or delivers to a premises. In order to be an authorized AIN tag reseller, the individual or firm must agree to abide by the following:

1. Complete the AIN tag reseller training provided by USDA;
2. Distribute AIN tags only to a premises or entity that has either a PIN or NPN and validate the accuracy of the PIN or NPN;
3. Provide the validated PIN or NPN to the entity that ships the AIN tags when not completing the delivery themselves;
4. Maintain a dated record of inventoried AIN tags received from an authorized AIN tag manager or another authorized AIN Tag Reseller, or returned from a premises, and have such records available to the USDA upon request;
5. Submit to the AIN Management System within 24 hours (or close of next business day), in accordance with prescribed protocols, a record of all AINs shipped or delivered; and
6. Educate producers receiving AIN tags on the proper use of official animal identification devices.

The AIN tag reseller must confirm on-line, using the AIN Management System, that they have a marketing agreement with a specific AIN tag manager(s). USDA will recognize the individual or entity as an AIN tag reseller upon confirmation of the marketing agreement(s) and upon the AIN tag reseller completing training.