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# Role and work of the ICAR Sub-Committee on Animal Identification

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The role and the work of the Sub-Committee on Animal Identification is reviewed. Beside regular meetings and other general activities, the work of the Committee is mainly focussed in setting up guidelines and procedures for the testing of identification devices with regard to their conformity to the current ISO standards and their performance in the field. Testing is based on several protocols elaborated by the Sub-Committee after discussion with the identification industry and related parties. In the field of Radio Frequency Identification Devices (RFID), 129 transponders of different types have been successfully evaluated since the beginning of the procedure and may officially be used in animal identification. A first test for ISO compliant readers has also been carried out recently. Furthermore, a procedure for the evaluation of conventional plastic eartags to be used in official identification programs has been prepared and was launched recently.

*Keywords: identification, registration, transponder, reader, eartag, conformity, performance, ISO standard.*

Unique identification is a basic requirement for all activities where individual animal recognition is necessary, e.g. farm management, animal recording, animal breeding, animal health, disease eradication/prevention, beef labelling, purposes of trade, control of subsidies etc. The necessity of functioning identification and registration systems especially in disease prevention situations has become obvious during the outbreak of Foot and Mouth Disease in some countries of the European Union (EU) as well as during the recent BSE crisis.

The importance of unique identification for all kinds of performance testing and evaluation of productivity in livestock has been recognised by the International Committee for Animal Recording (ICAR). For this

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## Summary

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## Introduction

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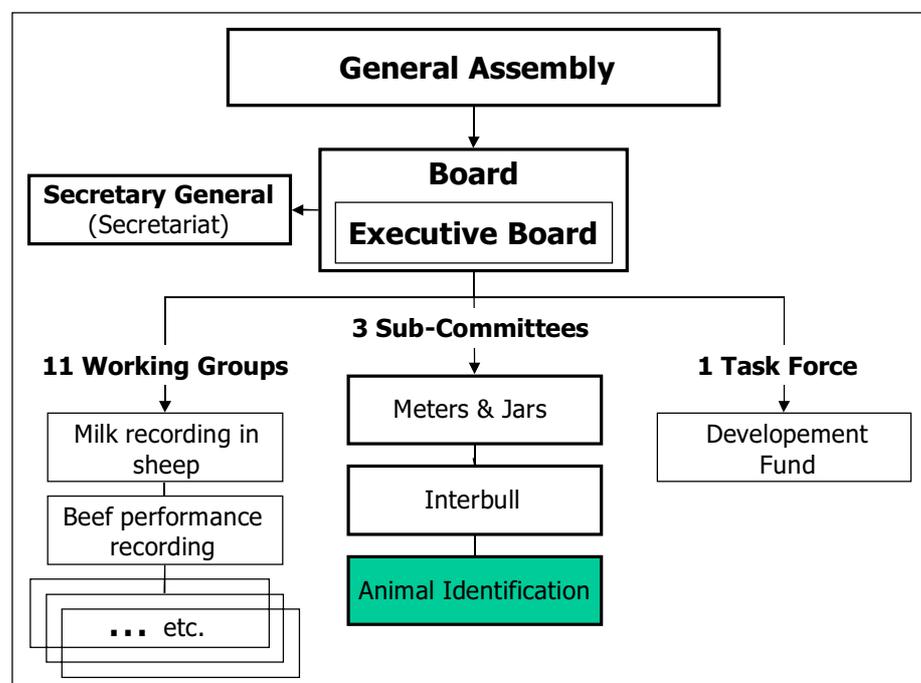
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reason, ICAR, an “international non governmental non profit organisation” (INGO) with more than 50 members all over the world created a “Working Group on Animal Identification and Registration” by the end of the 80’s. According to the vote of the General Assembly in 1998, the working group was upgraded to be the “Sub-Committee on Animal Identification”. The Sub-Committee on Animal Identification is one of three Sub-Committees within ICAR’s operating structure (Figure 1). Within its terms of reference, the Sub-Committee on Animal Identification covers the following subjects related to identification and registration:

- Preparation of guidelines for the relevant appendices of the International Agreement on Recording Practices.
- Stimulation of new developments in and report on new equipment, procedures and methods dealing with:
  - Electronic identification.
  - Other identification devices.
  - Standardised layout of eartags for individual animals.
- Advising the ICAR Board on approval and/or certification of:
  - Institutes serving as ICAR test-centres.
  - Identification devices used in individual animal identification.

According to the terms of reference, the work of the Sub-Committee on Animal Identification is focussed mainly to the following subjects/issues:

1. Meetings and miscellaneous general activities.



*Figure 1. Operating Structure of ICAR and the position of the Sub-Committee on Animal Identification*

2. Organisation of device testing.
3. Publication/evaluation of a questionnaire on I&R of farm animals in ICAR member countries.

Currently, the Sub-Committee has seven members and, occasionally, guests and observers attending the meetings held at least once a year. Members of the Sub-Committee regularly attend ISO/TC 23/SC 19/(T)WG3 working group sessions where international standards in electronic identification (RFID=Radio Frequency Identification Devices) are prepared. In these meetings the Sub-Committee presents and discusses guidelines on conformance testing of RFID-transponders/-readers and performance testing of RFID-transponders/-readers. Furthermore, members of the Sub-Committee keep close contacts to national/international bodies with responsibilities in animal identification e.g. to the Commission of the EU prior to the publication of the new regulations. Relationships to other relevant organisations in animal identification also exist e.g. with the World Small Animal Veterinary Association (WSAVA).

Within miscellaneous general activities, the work of the Sub-Committee also consists in handling requests from ICAR members, the industry and interested parties on animal identification issues.

In general, the activities of the Sub-Committee with regard to the testing of identification devices can be subdivided into two main categories as illustrated in figure 2.

- **Conformity testing**  
This kind of testing has to be applied if the function and the use of identification devices are bound to any kind of official regulation. An example for conformity testing is the test of transponders and readers concerning their conformance with the ISO standards 11784/11785. In general, the submission of identification devices to conformity testing is obligatory previous to their application in the official identification of animals. Conformance tests are carried out by officially authorised institutions (e.g. ICAR being appointed by ISO as Registration Authority to perform conformity tests on transponders).
- **Performance testing**  
Performance testing is a mandatory option for checking the utilisation of identification devices in concerning the special characteristics of identification devices to the end-user, e.g. farmer/owner. While conformance testing is mainly carried out in laboratories, the most important part of performance testing is field testing. ICAR is currently introducing a performance test for transponders (extended laboratory test) and a performance test (application/field test) for eartags used in official identification schemes (see below).

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## Meetings and miscellaneous general activities

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## Organisation of device testing

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Test category	Kind of test		
Performance	<i>Application-/Field test</i> (for any kind/combination of identification devices)		
	<i>Extended laboratory test</i> (for any kind/combination of identification devices)		
Conformity	<i>Laboratory test (predominant)</i>		
	Transponder conformity (with granting of manufacturer code)	Reader conformity	Other ID-devices conformity

Figure 2. Categories for the testing of identification devices.

The Sub-Committee has set up several guidelines describing the procedures on how to test devices and grant approvals for successfully tested identification equipment. Through this the Sub-Committee has contributed to the extension of the “International Agreement on Recording Practises” with reference to Section 1: “ICAR Rules, Standards and Guidelines on Methods of Identification”.

**Conformity Testing of Radio Frequency Identification Devices (RFID)**

Conformity testing of RFID-transponders is based on the ICAR guideline “Conformance evaluation of RFID-devices, Part 1: ISO 11784/11785 – conformance of transponders including granting and use of a Manufacturer Code for ISO compliant transponders”. Since the beginning of this test activity in 1995, 63 manufacturers applied for participation. Altogether 129 transponders have successfully passed the tests at the ICAR test-centres. In the end, participation to this test aims at receiving a manufacturer code. The manufacturer code is necessary to ensure unique identification numbers as long as national databases do not exist and, therefore, is a prerequisite to start commercial production and distribution of transponders. ICAR offers 3 types of tests: a full test (for the first transponder or in case of modification in technology), a limited test (for transponders with a modification in primary/secondary packaging) and a listing update test (for transponders already tested in

the full/limited procedure for one manufacturer and to be used by a second manufacturer). In general, the transponders tested so far can be classified as follows:

- Injectable transponders (small size transponders able to be injected into an animal's body and encapsulated in a biocompatible and non-porous material, i.e. glass).
- Electronic eartag transponders (plastic covered transponders able to be fixed to the ear of the animal using a locking mechanism or to be attached in non-reversible way to an eartag).
- Electronic attachment transponders for application with conventional eartags.
- Electronic bolus transponders (transponders placed into a high specific gravity container able to be orally administered to a ruminant and remaining permanently in its fore stomachs).

With regard to device type, the majority of transponders tested were eartags with a share of 45%. Injectables and bolus transponders showed up with 33% and 16%. Transponders to be attached to ordinary eartags were tested in 3 out of 11 years. The exact distribution of tests by type of device and year can be seen in figure 3.

Test results are published via the ICAR web page ([www.icar.org](http://www.icar.org), see Figure 4).

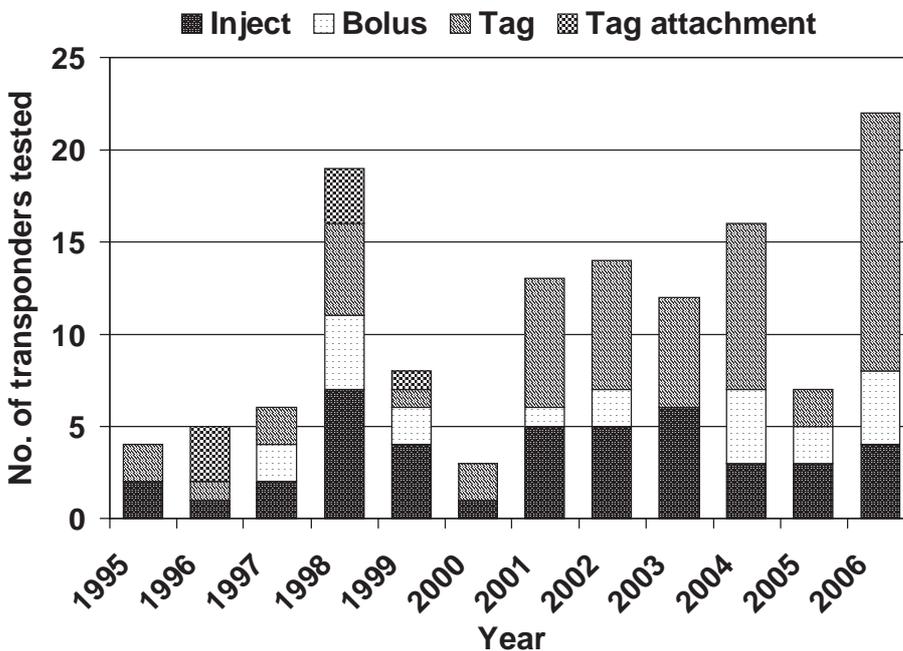


Figure 3. Transponders tested for conformity by type of device and year.

Conformity testing of RFID-readers is based on the ICAR guideline “Conformance evaluation of RFID-devices, Part 2: ISO 11784/11785 – conformance of transceivers”. The first reader test on ISO conformity, i.e. capability of reading both HDX and FDX-B transponders, has already been carried out in.

**Performance testing of official identification devices**

An important activity of the Sub-Committee during the past years was the setting up of a guideline for testing conventional eartags titled “Performance Evaluation and Approval of Official Identification Devices, Part 1: Conventional permanent plastic eartags with or without machine readable printings.” From experiences gained in several practical applications it became obvious that there is a potential need to have reliable test results for eartags used in official identification schemes. These results are not only of importance for the farmers but also for competent authorities responsible for the supervision of animal identification and registration rules. The whole testing procedure for conventional eartags is subdivided into three main subsections as follows:

1. Participation in the test procedure to obtain ICAR approval.
2. Description of laboratory/field tests and assessment procedures.
3. Conditions for granting, maintenance and use of approvals.

Manufacturer	Product Code	Technology	Design	Description	Date of approval	Image
1	HD	RFID	Inject	Cylindrical, open, unencapsulated, 1.5 mm in diameter, 2.0 mm in height	September 2010	
1	HD	RFID	Inject	Open like eartags with metal, unencapsulated, 1.5 mm in diameter, 2.0 mm in height	September 2010	
1	HD	RFID	Inject	Cylindrical, open, unencapsulated, 1.5 mm in diameter, 2.0 mm in height	April 2010	
1	HD	RFID	Inject	Encapsulated eartags with a metal, unencapsulated, 1.5 mm in diameter, 2.0 mm in height	April 2010	
1	HD	RFID	Inject	Encapsulated eartags with a metal, unencapsulated, 1.5 mm in diameter, 2.0 mm in height	February 2010	
1	HD	RFID	Inject	Encapsulated eartags with a metal, unencapsulated, 1.5 mm in diameter, 2.0 mm in height	February 2010	
1	HD	RFID	Inject	Encapsulated eartags with a metal, unencapsulated, 1.5 mm in diameter, 2.0 mm in height	February 2010	

Figure 4. The results of the tests are published on ICAR’s web page at: [www.icar.org](http://www.icar.org).

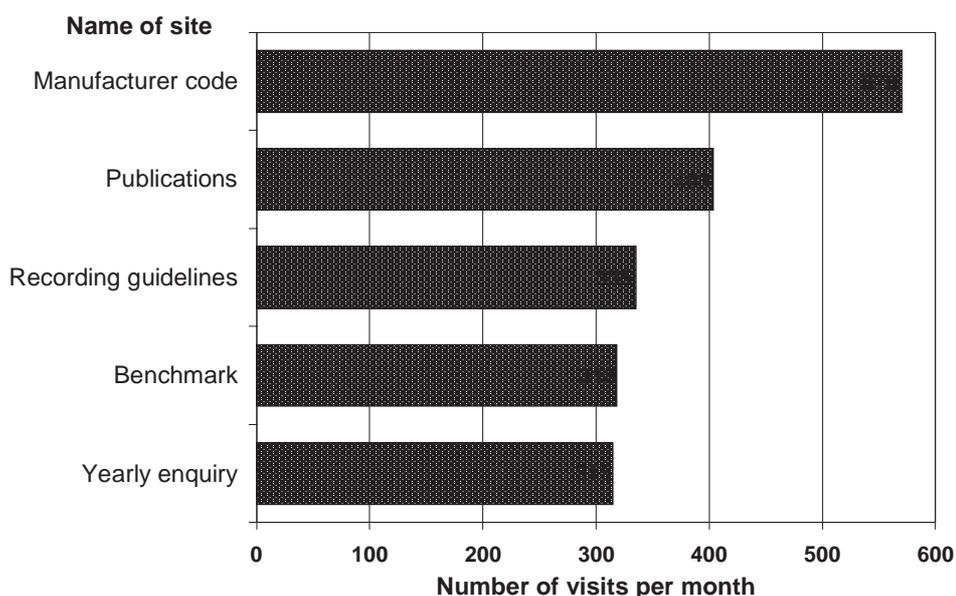


Figure 5. "Top5"-sites on ICAR webpage, average no. of visits from December 2005 to February 2006.

The draft guideline has been discussed with the industry during several joint meetings and was generally. After incorporation of some minor corrections and amendments, the first test run was launched recently.

Among the activities of ICAR ID-device testing receives major attention from the public which can be seen from the frequent visits of the website compared to other websites (Figure 5).

To accomplish its tasks within testing of identification devices, ICAR co-operates with two test centres. They perform the conformity tests on RFID devices according to the ICAR guidelines. Test centres have to be approved by the ICAR Board and are audited on a regular basis by members of the Sub-Committee. Enhancing its testing activities, ICAR is interested in having more test houses preferably located in ICAR member countries.

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**ICAR  
approved test  
centres**

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Beside other activities within the terms of reference, the Sub-Committee has made considerable efforts to prepare guidelines for testing and approval of identification devices used in official animal recognition. The guideline on conformance testing of RFID transponders and granting of manufacturer codes is well established and accepted. ICAR's role in this field is enforced by ISO through the appointment as an official

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**Conclusions**

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