



THE GLOBAL STANDARD
FOR LIVESTOCK DATA

Section 10 - Appendix B4: Preliminary Test for Conventional Ear Tags

Section 10 - Preliminary Test for Conventional Ear Tags

Version August 2024

Ref: 10-Appendix-B4-Preliminary-Test-for-Conventional-Plastic-Ear-Tags.docx

Network. Guidelines. Certification.

Table of Contents

1	Manufacturer requirements.....	3
2	Ear tag design.....	3
3	Colour staining test	3
4	Locking mechanism checks.....	3
5	Pre-conditioning of tag applicator	3
6	Application test.....	3
7	Resistance of the locking mechanism	4
7.1	Requirements.....	4
7.2	Introduction of samples into the climatic chamber	4

Change Summary

Date of Change	Nature of Change.
August 2017	Updated Sections 1, 4, 7, and 7.1
September. 2017	Updated styles and format into uniform template
October 2017	Corrected typographical errors. Cross references corrected.
February 2018	Changes approved by the ICAR General Assembly.
May 2023	Added Section 3 Colour Staining Test Added Section 5 Pre-conditioning of Tag Applicator Updated Section 2 Corrected grammatical errors. Cross-references corrected.
August 2024	Updated title page format

1 Manufacturer requirements

At the commencement of the Preliminary assessment the manufacturer must deliver:

- a. A sample of 130 ear tags marked with the reference printing applied using the same technique and style as used (or intended to be used) in the commercially marketed tags.
Note: Tags used in this phase are likely to be destroyed during testing.
- b. Two tag applicators or equivalent devices supplied for the application of tags to animals.

2 Ear tag design

Ear tags shall have smooth, rounded corners and no sharp edges or protrusions especially on the shaft of the piercing pin. The following measurements will be taken:

- a. The dimensions of the front and rear plate (height, width and thickness).
- b. The pin (length and diameter).
- c. The entrance hole of the cap.
- d. The weight of the complete locked ear tag.
- e. The distance between the base of the pin and the base of the plate, i.e. the maximum possible distance between the inner side of the male and female components when the device is coupled, measured at the pin, with the two tag plates parallel with each other.

Values and observations potentially impacting on animal welfare will be reported.

3 Colour staining test

This test detects the risk of potential colour staining resulting from inappropriate production processes with potential toxicity to humans and animals. The test will be done referencing ISO 105-X12. Grey scale will not be assessed but will be replaced by a visual inspection of colour staining on the cloths from the tag component under assessment. The colour staining test will be conducted on three randomly selected ear tags. If any colour residues specific to the colour of the tag are seen on the cloth, then the ear tag has failed the preliminary assessment. The cloth used in this test will be compliant with ISO-105-F09 (Specification for Cotton Rubbing Cloth).

4 Locking mechanism checks

The primary purpose of these tests is to verify that the male to female locking mechanism, once correctly applied using the supplied applicator, cannot be subsequently dismantled in such a way that would allow the tag or one of the tag parts to be re-used. A locked ear tag must be designed where neither the male nor female part can be re-usable. For one-piece (loop) tags, either the male pin or female locking cap must break such that the tag cannot be used. Tampering with a locked ear tag shall render the tag unusable.

5 Pre-conditioning of tag applicator

Devices requiring coupling for various testing procedures will be coupled in an environment of $21^{\circ}\text{C} \pm 2^{\circ}$ and a relative humidity (RH) of $50\% \pm 10\%$. Before coupling, the supplied applicator and the devices will be preconditioned to this environment for a minimum period of 24 hours.

6 Application test

The application evaluation will be carried out using two groups of tags:

Group 1: 80 tags with the front and rear tag components locked together but without being inserted through ears.

Group 2: 40 tags applied and locked into ears obtained post slaughter.

The performance level required for the 120 ear tags shall be:

- a. Successful locking of the front and rear tag components of all ear tags.
- b. No breakage of any tag component at locking.
- c. No deformation of any tag component after locking.
- d. No unlocking without breakage or irreparable damage to the ear tag.

The test centre will also check the rotation of the tag components on the locked tags. The following characterisation will be used:

- a. Tag components rotate freely.
- b. Tag components rotate but not freely.
- c. Tag components do not rotate.

7 Resistance of the locking mechanism

The 80 ear tags of Group 1 will be divided into four sub-groups of 20 tags. These four sub-groups will be subjected to increasing forces to determine the force required to cause breakage or unfastening of the ear tag. The forces will be applied at a speed rate of 500 mm/min. The force applied to cause breakage or unfastening of each ear tag will be recorded.

- a. Group 1: axial test at ambient conditions ($21^{\circ}\text{C} \pm 2^{\circ}$)
- b. Group 2: axial test at $55^{\circ}\text{C} (\pm 2^{\circ})$; the forces will be applied within 10 seconds after the tags are removed from the heating or climatic chamber
- c. Group 3: transverse test at ambient conditions ($21^{\circ}\text{C} \pm 2^{\circ}$)
- d. Group 4: transverse test at $55^{\circ}\text{C} (\pm 2^{\circ})$; the forces will be applied within 10 seconds after the tags are removed from the heating or climatic chamber.

Transverse testing is not conducted on one-piece (loop) tags.

7.1 Requirements

- a. None of the ear tags – neither male nor female part – must be re-usable. Male pin tips must break off and remain within the female caps (locking gap).
- b. At ambient conditions, axially tested tags designed to be used in cattle shall not break with the application of a force lower than 280 Newton.
- c. At ambient conditions, axially tested tags designed to be used in sheep and / or goats shall not break with the application of a force lower than 200 Newton.
- d. At ambient conditions, axially tested tags designed to be used in pigs shall not break with the application of a force lower than 200 Newton.

7.2 Introduction of samples into the climatic chamber

To avoid irradiation of the stem and pin, the samples must be closed with the applicator, then pulled apart and turned around so that male faces upwards and the female downwards, or vice versa. See pictures below:

