

Approval of official permanent eartags in France

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ICAR Subcommittee on Animal Identification, Niagara Falls, 17 June 2008

Summary

1. Introduction
2. Test Protocol
 - 2.1 Preliminary Assessments
 - 2.2 Laboratory Tests
 - 2.3 Field Test
3. Possible improvements of approval procedure



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Introduction

➤ Cattle

- **1970'** – Start of tests
- **1982** – First revision of field test protocol (generalization of official cattle identification)
- **1999** – Second revision of field test protocol

➤ Sheep and goat

- 1997 – Start of laboratory tests



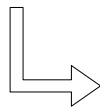
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Test Protocol

3 phases, step by step

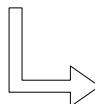
1 – Preliminary Assessments

If OK



2 – Laboratory Tests

If OK



3 – Field Test



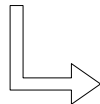
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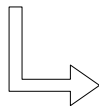
1 – Preliminary Assessments

If OK



2 – Laboratory Tests

If OK



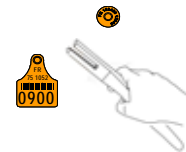
3 - Field Test



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Preliminary assessments

- Purpose : Evaluate the use of tag and pliers in application
- Test Organisation
 - In slaughterhouse
 - 100 ears of dead mature animals



	France	ICAR
Test on ear of dead mature animals	✓	✓
Test of machine readability		✓
Locking system <small>(Test simple à 23°C et à 80 °C test manuel à 80 °C)</small>		✓



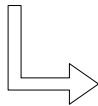
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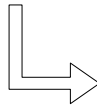
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3 - Field Test



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Laboratory Tests

1. Characterization of material

- Polymer
- Plastifying agent
- Composition
- Shore

2. Performance Tests

- Resistance to chemical agents
- Resistance to abrasion treatment
- Resistance of the locking system



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Laboratory Tests

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Resistance of printing

➤ Resistance to chemical agents (ISO 2812)

1. Acid bath treatment

- pH = 3
- 50 °C
- 3 weeks

00067

Initial state

2. Alkaline bath treatment

- pH = 12
- 50 °C,
- 3 weeks

00067

Acid treatment

00065

Alkaline treatment

France : Measure of contrast
ICAR : Visual assessment



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Laboratory Tests

1. Material Characterisation Tests

- Polymer
- Plastifying agent
- Composition
- Shore

2. Performance Tests

- Resistance to chemical agents
- Resistance to abrasion treatment
- Resistance of the locking system



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Resistance of printing

➤ Abrasion (ISO 9352)

Abrasion machine



Measure of contrast after 0, 450 and 900 cycles

Photo :
Source CETIM

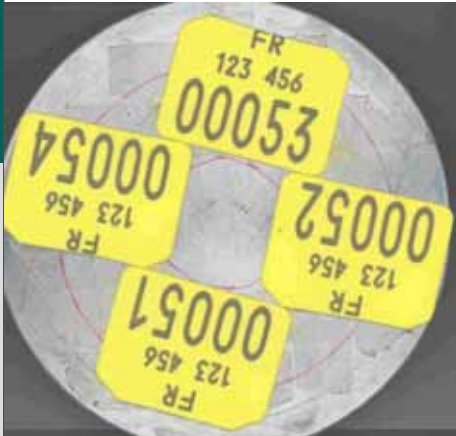


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Performance tests

Resistance to abrasion treatment

Initial state (0 cycles)



After 450 cycles



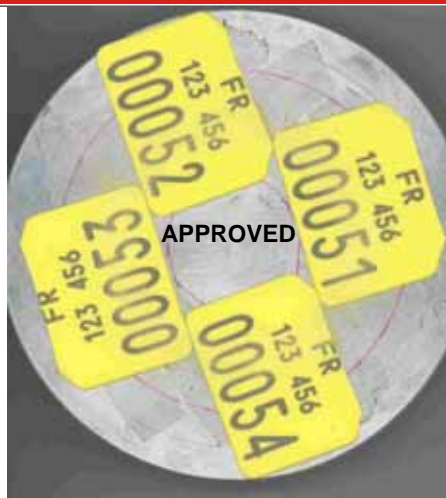
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Performance tests

Resistance to abrasion treatment

After 900 cycles



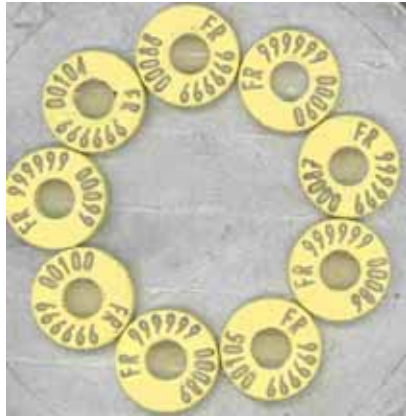
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Performance tests

Resistance to abrasion treatment

Initial state (0 cycles)



After 450 cycles



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Laboratory Tests

1. Material Characterisation Tests

- Polymer
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2. Performance Tests

- Resistance to chemical agents
- Resistance to abrasion treatment
- Resistance of the locking system

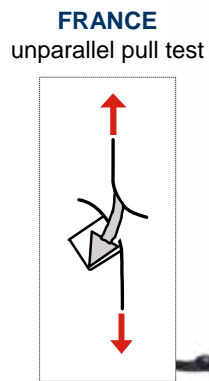
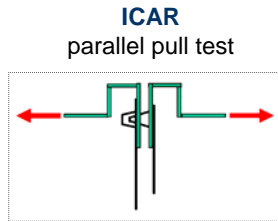


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Performance tests

Resistance of the locking system

➤ Resistance of the locking system (ISO 527)



Source photo : Instron



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PANEL TAG



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BUTTON TAG



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Performance tests

Resistance of the locking system

FRANCE (23°C, 50 tags)

Locking system is approved if :

- Tensile force :
at least 49/50 tags break above the limit (280 N)

AND

- Way of breakage (tamperproof characteristic) :
at least 45/50 tags are non re-usable

Test is also performed :

- with 10 unused tags at -10 °C
- with 10 unused tags at 45 °C
- with 10 aged tags at 23 °C



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Performance tests

Resistance of the locking system

ICAR (-23°C, 23°C, 45°C with 5 unused tags and 5 aged tags)

Locking system is approved if :

➤ Unused tag :

“The mean force applied should not cause breakage or unfastening at **280** Newton or less with a standard deviation of 20 Newton”

➤ Aged tags :

“The mean force applied should not cause breakage or unfastening at **250** Newton or less with a standard deviation of 20 Newton”



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Performance tests

Resistance of the locking system

Re-usable tags ...

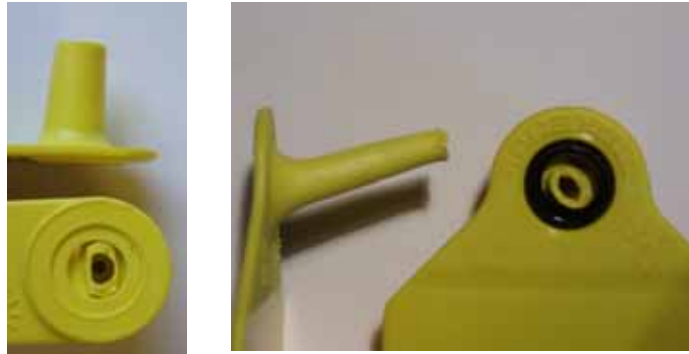


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Performance tests

Resistance of the locking system

Non Re-usable tags ...



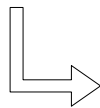
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Test Protocol

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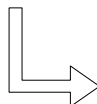
1 – Preliminary assessments

If OK



2 – Laboratory Tests

If OK



3 – Field Test



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Field Test

TEST ORGANISATION

- **France**
 - 24 months
 - 3 areas (dairy herds, suckler herds, mountains)
 - 60 farms, approximately 3000 births,
 - 500 cattle after 24 months

- **ICAR**
 - 12 months
 - 2 countries
 - 30 farms, approximately 750 calves,
 - 200 cattle after 12 months



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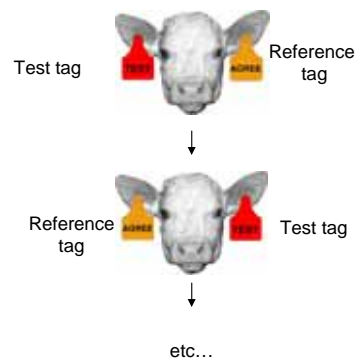


Field Test

TAG APPLICATION

- Animal tagged by the farmer within 20 days of birth

- In alternate ears on successive animal



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Field Test

PROVISIONAL APPROVAL

➤ **France**

After a test period of 6 months, if :

- » no problem with tag application in farm
- » Survival rate $\geq 0,95$



Possibility for manufacturer to sell tags
up to 20 % of official market

➤ **ICAR**

After a test period of 3 months, if :

- » Retention rate $\geq 0,99$
- » Necrosis rate $\leq 0,03$



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Field Test

FINAL APPROVAL

➤ **France**

After a test period of 24 months, if :

- » Survival rate $\geq 0,95$

➤ **ICAR**

After a test period of 12 months, if :

- » Retention rate $\geq 0,98$
- » Necrosis rate $\leq 0,03$



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Field Test

RESULT ANALYSIS METHOD

- Analysis of survival data
- To describe the "lifetime" of an element over time
- Method comes from human epidemiology
- Survival rate result from calculation of probability that a tag is not "dead" over N months

"Dead tag" :



lost



broken



illegible



No tag detected



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Possible improvements

... of approval procedure

1. Integrate the notion of "eartag family"
2. If statistically possible, decrease the number of farms to reduce the price of tests
3. Implement field tests for sheep and goat tags



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Photo : Source CETIM

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