

TRACEABILITY OF BOVINE SEMEN

FRANCE LEADS THE WAY

Since 2004, French bovine semen collection centers (SCC) have implemented a new system based on bar coding to identify and trace bovine semen straws. In 2012, 100% of the semen doses produced in France were identified this way and more and more AI technicians in the fields are equipped to read this bar code prior inseminating a female.



BAR CODING OF SEMEN STRAWS

HOW DOES IT WORK ?



The bar code allows identifying:

- the bull
- the ejaculate through the date and through the rank of collection within the date
- the batch within the ejaculate (in case of split ejaculates for experimental or specific treatments like semen sorting).

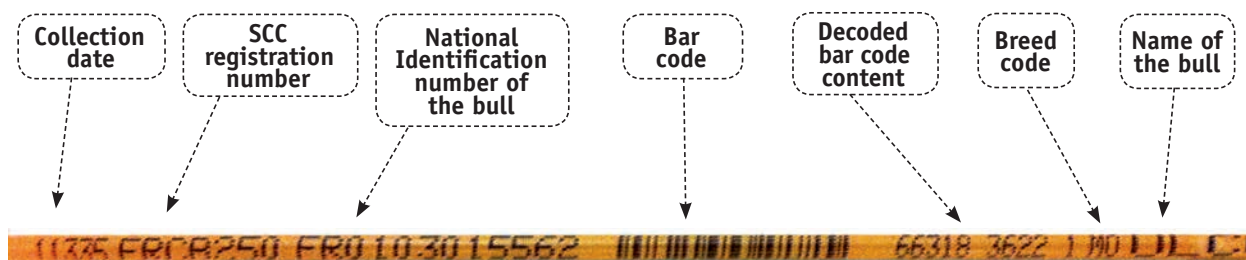
1 - Due to the small size and to the cylindric shape of a semen straw, the following technical solutions have been developed:

- **Code 128 format:** universal and self-controlled and also easier and safer
- **10 digits:**
 - 5 digits to identify the semen donor: IDELE registration Number (99999 possibilities)
 - 4 digits for the collection date: number of days spent since the 1st of January 2002
 - 1 digit for the number of the intra-ejaculate batch (10 possibilities)

NB: it is technically possible to print three additional digits to identify the SCC according to the ICAR's reference data base.

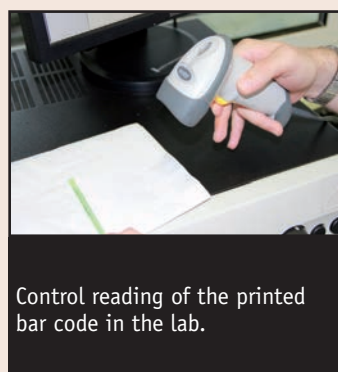
2 - Clearly identified data printed on the straws

In order to meet legislation requirements and also to allow AI technicians who cannot read the bar code to register the whole set of data linked to the insemination, all this information is also written on the straws in a decoded form

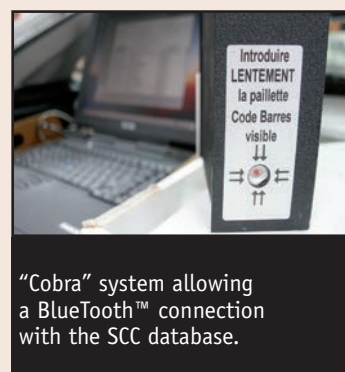


3 - The bar code and its use are compatible and complementary with the SMILE system.

This SMILE system was implemented by a specialized French company (IMV Technologies, L'Aigle, France) and guarantees the complete traceability of the semen from collection to printing of the straws.



Control reading of the printed bar code in the lab.



"Cobra" system allowing a Bluetooth™ connection with the SCC database.

FIVE MAIN STEPS OF BAR CODING OF BOVINE SEMEN

STEP 1: identification of the donor bull during the semen collection by reading the RFID eartag



STEP 2: recording in the production database and printing of a bar code to identify the collection tube

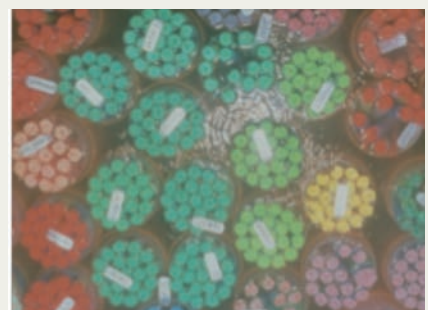
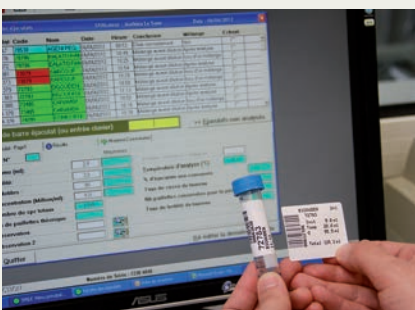


STEP 3:

assessment, processing and freezing of semen, bar coding permits the follow-up of the ejaculate at each stage of the process



STEP 4: the storage of semen doses is managed via a computerized organization thanks to the bar code



STEP 5: artificial insemination after selection of the right straw and bar code reading



BAR CODING OF SEMEN STRAWS

WHAT FOR ?

Securing the reliability of animal husbandry, sanitary or technical and economic data is a prerequisite to French breeding development and to its international acknowledgement.



1 - Security and animal husbandry

- Excellent traceability of ejaculates from collection to insemination.
- Reliability of the bull's identification and of the genetic selection procedures.
- Enhancement of the security in semen use while tracing ejaculates back to production in case of impaired fertilizing ability, of genetic abnormalities or of sanitary troubles following the utilization of a given ejaculate.



2 - Reliability Experiments

- Easier recording and analysis of breeding data.
- Improved reliability and implementation of experimental protocols for the comparison of different sperm treatments (split ejaculates).
- Optimization of the calculation, recording and utilization of fertility data calculated for a batch of semen, an ejaculate or a sire.



3 - Management Economic issues

- More efficient management of the invoice and AI bulletin by the AI technician.
- Optimized management of the semen production of a peculiar bull in relation with the field demand.
- Improvement of the reliability of the automatic storage of straws.