Eurofins-TAG™ -

The ultimate traceability system
The BSE crisis has led to the loss of consumer confidence in a number of beef products.

An increased monitoring system is required to guarantee maximum food safety.

There is a need for a transparent system and 100% efficient traceability.
Companies with an established traceability system have been able to manage the crisis more effectively.

There is a need for «farm to fork» traceability.
Abattoir/slaughtering: BSE Test / DNA Test on carcass / brain

Stock Breeding Transports

Tissue sample (muscle, brain, saliva, ear cartilage...)

DNA Analyses

Data Bases:
- DNA
- genotypes

RS : Reference Sample
CS : Check Sample

RS/CS

Stock Breeding

Calf

Reference biological collection / RS

RS/CS

Transformed meat

Genetic fingerprint / DNA bar-code
**Quality Assurance**: aimed to reduce consumers concerns to consume beef

- Direct link between BSE-tested brain sample and piece of beef
- Total DNA traceability ensured from the calf to the piece of beef in the butcher shop or from “brain to steak” in case of BSE test

**Enforcement**: officers are able to check the origin of beef

- Direct link between the animal and/or the carcass and the piece of beef
- Direct link between BSE-tested brain sample and piece of beef
- Proof of identity of registered animals
- Loss of ear tags does not entail the loss of identity of the animal
ADVANTAGES OF DNA TESTING

- DNA is specific to each living being
- DNA is present in an identical form in all animal cells
- The same genetic fingerprint is obtained from DNA present in different parts (muscle, blood, brain, hair...) of the same animal
- DNA is a stable molecule and resistant to various processes (thermal and/or mechanical treatments)
The genetic fingerprint of bovine A is easily distinguishable from that of bovine B.
BIOLOGICAL TISSUE SAMPLING

Live animal or carcass

- Ear cartilage
- Muscles
- Hair with roots
- Blood
- Brain
- Any tissue containing DNA
Reference samples on live animals

Sampling can be done at the stage of eartagging
..or reference samples can be taken directly after slaughtering at the abattoir using Eurofins-TAG™ brush
Check samples

at the different steps during processing and storage

On supermarket shelf, butcher stall
Sample reception and sample databases management at Eurofins Scientific Laboratories

Sample and data collection

Data entry

Reference samples
GENETIC FINGERPRINTING (1)

DNA extraction and purification from reference and check samples
DNA manipulations are conducted under strict conditions to avoid contamination, particularly when performing PCR.
- EUROFINS TAG™ uses a proprietary DNA-based System to uniquely identify the individual animal

- Information is stored in a highly sophisticated database to allowing to retrieve information via secure internet site using password / access-right management

- System has proven to be absolutely efficient and cost-effective
Animal Passport IPG N°

1. Check samples: Slaughterhouse, store
2. Reception at Eurofins Scientific Laboratory
3. Reference Samples database
4. Follow back existing traceability system
   Connection Check Sample / animal / batch
5. DNA database/Check samples
6. Genotyping of check samples
7. Genotyping of corresponding reference samples
8. DNA fingerprints Data Base
9. Identification of the animal BSE Result

Data bank EUROFINS-TAG™
CHECK SAMPLING SITES

Transformation steps

- Slaughterhouse
- Distribution
- Check samples
- Check samples
- Traditional butcher shop
- Supermarkets

- Carcasses / Sides
- Primals
- Meat pieces: steak …
Thousands of traceability tests on abattoirs and stores check samples for:

- Carcasses and sides: 21%
- Primals: 62%
- Meat pieces (abattoirs and distribution): 17%
ALREADY LARGELY TESTED SYSTEM

- Eurofins-TAG™ has been tested on large populations of > 20 000 animals
- Reliable
- Experienced staff
- Quick and easy application
- Applied to pieces of meat but also on hamburger mixed meat
- Fully compatible with barcode systems
- Tailored: Can be used as “full” traceability system “from farm to fork” or to ensure quality of BSE-tested cattle
A CONVENIENT AND FLEXIBLE TOOL...

... for breeders, industrials, distributors and enforcement officers who want to:

- improve their own traceability system
- reassure consumers of product quality and safety
- look at specific steps in their processes
- check the available paper trace
Current Developments

- Proprietary DNA traceability system for beef, pork, lamb
- Alternative systems for rapid and automated sampling on live animals and / or carcasses
- Automation of genetic fingerprinting : SNP genotyping
- Collaborative research in European project on traceability and quality of meat