ICAR Technical Meeting
Verona - 31st May 2007

Caisley

- tissue sampling with animal identification
- sample handling, storage and transport
- lab integration

Caisley International's headquarter at Bocholt - Germany
4000 sqm, 25 mould injection lines, approx 55 staff

Caisley International GmbH – characteristics

- founded: 1962 by Hannelore & Roy Caisley as Caisley GmbH
- change of name and take over: 1989 by Reinhard Nehls as Caisley International GmbH
- product labels: MultiFlex, FlexoPlus, PrimaFlex, GENO-ear tags, DUO, TWIN
- production p.day: 150,000 pcs., max. 220,000 pcs.
- printing: firstly hot bumping, since 1992 increasing and now predominantly by laser, today approx. 85 %
- electronic since 1992 in collaboration with AEG,
- ear tags: 2003 take over of AEG identification systems GmbH
- Export: to more than 50 countries worldwide

Modular system for tissue sampling and sample processing in the lab

- ear tags with tissue sampling (obtainable with official identification or individual registration numbers)
- products and kits for standardized tissue sampling at carcasses and meat
- storage logistics for tissue samples
- lab integration

Ear tags for tissue sampling

- transparent projectile with metal blade
- sample container with/without desiccant
- male part desiccant female part
Types of ear tags

- official identification for cattle and sheep in combination with tissue sampling possible
- button tags for all species
- also available with RFID

RFID and tissue sampling

Tissue sampling

Range of application

- parentage testing
- determination of genetic defects
- proof of origin (e.g., quality meat programs)
- genotyping (e.g., scrapie)
- diagnostics (e.g., BVD antibody test)

Advantages

- definite allocation of sample and animal
- effective and time saving through automated data registration (human errors prevented)
- improvement of processing costs (standardized tissue samples)

Tissue sampling without animal identification

Vet kit for ear tissue sampling

Sample kit for carcasses and meat
Standardized sample size

Applicators
one type applicable for all ear tags
with or without tissue sampling
parallel closing mechanism
available adapter for all types of animal identification systems/tissue sampling
- official ID cattle/sheep
- button tags
- vet kits
- all other conventional ear tags (visual identification)

Sample identification
unique and guaranteed well-defined
labelling standard:
- DataMatrix-code with unique number
- customized identification (line one – up to 12 letters)
- individual sample number (2nd and 3rd line – up to 24 numbers)

encoding
DataMatrix-Code (ECC200):
- standardized
- supernumerary information
- reliable and safe data transfer
- omnidirectional decoding
- no orientation necessary
- 16 x 16 data fields
- 24 numerical digits
- Public domain, no licensing fees

Sample registration
- scanning of bottom printed DataMatrix codes in 96 position rack
- decoding and linking of individual sample numbers with each position on the rack

Data transfer to automated analytics
generating data for data transfer
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Data transfer to automated analytics
- code deciphered
- code not recognized
- corrected data entry
- vacant position
Lab integration in 96-well format

- analysis in standard 96-well format

Rack for 96-well format

- 96-position rack for highly efficient analysis
- all required steps performable on the same rack:
  - sample registration
  - opening of samples
  - lysis
  - DNA-purification
  - PCR preparation
  - ...

Storage / transport

Advantages of data handling

- no manual data registration
- no handwritten transfer of sample data to lab databases or analysis reports

- elimination of human error

Advantages of sample handling

- efficient storage management
- documentation of all storage movements
- documentation of sample throughput
- increase in performance
- reduction of costs

Automated opening of samples

- pneumatic press with exchangeable punching tool

- opening by piercing bottom or punching through membrane from top

- guaranteed contamination free
Automated opening of samples

- Buffer dispensing with robot
- Transfer of eluate to ELISA or PCR well plates

Sample processing by hand

- Lysis and incubation directly in the sample container with established protocols
- Liquid handling with conventional lab methods

Automated sample processing

- Positioning on 96-rack: +/- 3 min, 2000 samples/h, possible identification of damaged sample tubes
- Registration with scanner: +/- 3 min, 2000 samples/h, possible cleaning of dirty sample tubes
- Opening with punching tool: +/- 2 min, 2900 samples/h, punching tool needs to be disinfected on a regular basis

Capacities / performance

- Punching tool needs to be decontaminated on a regular basis
- 2900 samples/h +/- 2 min
- 2000 samples/h +/- 3 min

Thank you very much for your attention!