Identification and registration of cattle in the Czech Republic

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Users, organisations and bodies involved in the identification and registration system

- **Ministry of Agriculture**
  - *Administrator*

- **Czech Moravian Breeders’ Corporation, Inc.**
  - Delegated organisation for technical keeping

- **Czech Breeding Inspection**
  - *Breeder inspections*

- **State Veterinary Office**
  - *Breeder inspections*

- **Breeders and companies**
  - Data access to the farmer portal
Overview: identification and registration

- The Czech Moravian Breeders’ Corporation, Inc. oversees all processes related to identification and registration
- Authorised by the Ministry of Agriculture

Identification and registration

- Integrated Agriculture Register (IZR)
  - IZR is a system used to identify and register livestock animals

- The Czech Moravian Breeders’ Corporation uses the IZR system to ensure routine aspects of identification and registration are met
  - Engages in consultancy, testing and development of IZR and its farmer portal
Connection of Integrated Agriculture Register with other systems

*Web services are used for data transfer*
IZR Architecture

- The IZR system is a web application that meets the following requirements:
  - High accessibility of 365x7x24 with minimal accessibility at 98%
  - System security – distinguishes internet and intranet users at the application layer level
IZR Architecture

- System based on a three-layer architecture
- Presentation layer
- Application layer: servers on the Microsoft .NET platform Framework runs in an MS Windows Server environment
- Data layer: Oracle Database 11g system
IZR System Testing

- Testing was performed to compare outputs with the previous identification and registration system
- Outputs:
  - Documents from the cattle identification and registration database
  - Error messages = reasons for events not being recorded in the database
  - Inventory of animal holding numbers
  - Data transfer (fertility, milk recording, etc.) to Czech Moravian Breeders Corporation systems
Development of the Integrated Agriculture Register

- Automated data processing is routinely used for milk recording of cattle and performance recording of other livestock in the CR
- Automated data processing was introduced in the 1960s
- 2006 – work begins on updating the system
  - Detailed analysis
  - Implementation
- 01/2008 – migration of data and opening of modules for routine practice
- 06/2009 – all modules available for routine practice
Further development of the Integrated Agriculture Register

• 01/2010 – breeders’ module launched
• 02/2011 – online data processing of identification and registration reports
• 2015 – breeders’ module allows users to request welfare subsidies
• 2016 – 2018 – breeders’ module updated
Animal registration

The breeder sends the report, including eartag number, birth and import details. The report is then processed and reviewed:

- Eartag data reviewed for accuracy
- Pedigree calculated
- Animal location verified

Results are sent to the breeders:

- Successful registration
- Unsuccessful registration (with reasons given in the report)

Communication by standard post or e-mail.
Pedigree calculation

- Animal birth report
  - Date of birth
  - Number of mother

Pedigree calculation
- Breeding database processes data for pedigree calculation

Pedigree updated in the identification and registration database
- Accompanying document printed
Pedigree calculation

• Birth report – all data, including details on natural mating where relevant, sent to breeding database for pedigree calculation

• Pedigree calculation
  - Pedigree calculated in the breeder database from identification and registration database + data from the database with reproduction in cattle (artificial insemination, ET)

• Calculation results returned to the identification and registration database, including:
  - Line and register of father
  - Breed
  - Donor number (in the case of ET)

• Pedigree recorded in the identification and registration database
  - Pedigree calculated
  - System generates accompanying documents on the animal
  - Documents printed
PLS – accompanying document

- Official document
- Includes protection against falsification

PLS of bull

PLS of heifer and cow

PLS – reverse side of document
Protective elements

- Printing below eartag number
- QR includes eartag number, date of birth, breed, breed composition, eartag of mother, line-register of father
- Bar code includes eartag number
- On the reverse side – water mark with ICAR logo
Eartag ordering

• **Eartags (incl. duplicates) can be ordered on the IZR system**

• Breeders can only request eartags for animals registered in the ordering system

• Breeders can only order duplicates for animals in a holding
Examples of eartag/duplicate ordering screens
Czech Cattle ID Structure

**CZ999999999K** is the ID number unique to each cow

- **CZ** – country code
- **999999999** – eartag order number
- **KKK** – sex and the region ID of the animal’s birth

**Example**

CZ0001410139**62** – female
CZ0006451370**62** – male

62 – South Moravian region
Cattle eartag manufacturers certified in the Czech Republic

- Czech Moravian Breeders’ Corporation, Inc. prints and provides Datamars eartags
- HEMA MALSICE provides Allflex eartags
- DITA – a disabled community production cooperative
- EUROPACK, Ltd.

Method used for animal identification

- Plastic eartags
- RFID
- The farm ID incorporates an additional tool linked to the official ID
What checks are carried out to ensure correct animal identification and avoid duplication?

- Routine checks
- Eartag issue procedure
- The Czech Moravian Breeders’ Corporation, Inc. (CMBC) oversees a system of supervision and quality control, with all inspectors serving as employees of the CMBC
- State supervision
- **SNP technology used, replaced by STR during the transition period**
- **DNA analysis and parentage verification are used for:**
  - Breeders
  - Czech Breeding Inspection – checks and supervision
  - Performance recording, herdbooks
  - Bulls, mothers of bulls, fathers of mothers
  - Heifer pedigree – harem mating
- Pedigree verification applies to all animals born and recorded within the system
- Plausibility checks are implemented for reproduction and fertility
Sample identification

- Bar codes for identifying samples (100%)
- Electronic data capture (PDA)
Conclusion

• This presentation summarises the key aspects of identification in the Czech Republic

• The challenge for ICAR going forward will be to improve automation in all areas, but particularly with regard to identification of big herds (1,000 – 2,000 cows)

• ICAR working groups must continue to collaborate on existing multidisciplinary approaches to automation

• ICAR is responsible for overseeing RFID testing and ensuring the quality of identification processes and tools
Thank you for your attention!