General trends of data processing in CEE countries

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The paper describes general trends in animal data processing for production and breeding in CEE countries. Starting from similar mainframe based computer systems of eastern origin, this antiquated technique was or is going to be replaced by a PC-based technique. There is a wide range of concepts for the replacement of the old data processing systems and the development of new concepts. The reasons for this diversity should be seen in country specific political, institutional and economic conditions.

Finally, an indication is given to strong links between a national concept for a veterinary data bank as required by EU Regulation 820/97 and data processing for animal production and breeding. In many CEE countries there is a need to develop data processing for both fields. It is proposed to link or even join both systems on national scales.

Summary

This paper generally remarks on the development of data processing for cattle production and cattle breeding in CEE countries (CEECs). They are based on consultancy projects of ADT Project Ltd (Directors: Dr Klaus Meyn and Dr Ferdinand Schmitt) in seven countries: Belarus, Estonia, Lithuania, Poland, Romania, Russia and Ukraine.

Data processing in these countries developed in different ways and at a different speed. The reasons for this diversity are described in this paper.

Introduction

Until the early 1990s, the situation of data processing was more or less similar in CEECs:

· central data processing units, located at research institutes;
· equipped with IBM/370 compatible mainframe hardware of eastern origin;
· main focus of identification, recording and data processing on breeding (not on herd management support).

The Situation in the "Old Days"

Technical equipment had limited capacity, low performance and was unreliable. Modern mainframe technology proved to be too costly if used for animal data processing only. This was the case at most locations. Consequently, changes were necessary everywhere.

PC–based technology has been regarded as suitable for the future of animal data processing in most countries. Changing computer technology implied a strategy, how and how long to continue with the old technology.

Replace concepts for the old mainframe technology

Different approaches to replace the old mainframe technology could be observed:

· "sudden death" of the whole system without alternative (loss of historical data, break in data processing);
· temporary update of mainframe technology (used hardware);
· freezing of mainframe technology.

Similar differences could be seen with regard to the development of application software on these mainframes:

· freezing of the application software;
· small improvements/adjustments;
· full use of updated mainframe power with data bank software.

General concepts for new animal data processing systems

In all countries, PCs are the basic technology for new concepts in data processing. There are basically two different concepts for the introduction of this technology:

· distributed data processing: data entry and pre-processing at several places with data exchange to and from a central data bank;
· central data processing: with or without PCs for data entry on farms/at regional offices.

Country differences can be observed in the use of data bank/application development software:

· enterprise software packages (e.g. ORACLE);
· small business software packages (e.g. Paradox, FoxPro, MS Access).

One important change seems to affect all concepts: data processing as a service for the herd management has become an important argument for further developments.

Looking to the countries, the present situation of new developments in animal data processing is widely different from client server technology; applied country wide with internet/intranet access to a central data bank;

to programmes for data entry and basic herd management reports used in test regions with all variants between these extremes. What are the reasons for this diversity?

The realisation of a new data processing concept needs more time everywhere in the world.

Limits for fast development

However, some conditions seem to be unfavourable especially in CEE countries:

· difficulty to agree on a general national concept due to structural changes in the agricultural economy (privatisation), due to structural changes of public organisations;
· limited financial resources due to limited experience to promote concepts due to limited experience to sell services due to low political/ institutional priority of data processing;
· many basic and detailed decisions: no experience with many alternatives for hardware, system software, application software, data bank design, staff training, outsourcing of software engineering, software packages or own development.

Another important factor for "unsatisfactory" progress is unrealistic time expectation.

Starting a new concept from scratch with new engineering technology, projects for complex animal data processing including genetic evaluation, have shown a need of approximately six years until full implementation:

· three years for the basic concept, staff training and building a prototype;
· two years to develop the final system and preparation of historical data;
· one year for field tests, optimisation and implementation.

Of course, time can be shortened if knowledge about animal production and breeding is combined with highly skilled software engineering on new technology. However, this situation is in most countries, not only in CEE countries, a dream.

New developments in animal data processing started on a similar basis in most CEE countries and are moving, as the country reports of this Round Table Workshop will show, towards:

Key for development: personal engagement and motivation

· country specific concepts and solutions
    - under very different project approaches;
    - at widely different speeds.
Possible reasons for this have been mentioned before.

Based on inside views into several country situations, I congratulate my colleagues for their work carried out under difficult working and living conditions, especially during the last years.

They deserved a fair chance, to make even better use of their skills and engagement.

EU Regulation 820/97 and its impact on a national animal data processing concept

EU regulations are or will be more or less the concern of all CEE countries.

EU Regulation 820/97 "Identification and Registration of Bovine Cattle and Labelling of Beef and Beef Products" is the one which has the strongest impact on national animal data processing concepts.

This regulation requires:

· an internationally unique system of farm/holding identification;
· an internationally unique system of animal identification;
· a national data bank with the content of the total cattle population:
        a) all birth records and import records;
        b) all movement records between holdings;
        c) all death, export and slaughter records.

These requirements were defined to improve veterinary control, subsidy control and beef consumer confidence. However, it is obvious that the identification and all these recordings are also the base for animal production data processing. There should be no logical argument, not to link or even better, not to combine the veterinary cattle data bank system with animal production processing systems.

In building up new data processing systems for both veterinary and animal production/breeding purposes, CEE countries have the unique chance to combine both tasks into one system.

Figure 1 sketches the logical links between a data bank system according to EU Regulation 820/97 and animal production/breeding data processing.

As in many of the CEE countries, data processing systems for both national veterinary and animal production purposes, are still in the initial phase. The chance for a combined system should therefore be seriously considered.

**Concept of a National System for
Identification and Registration of Cattle**

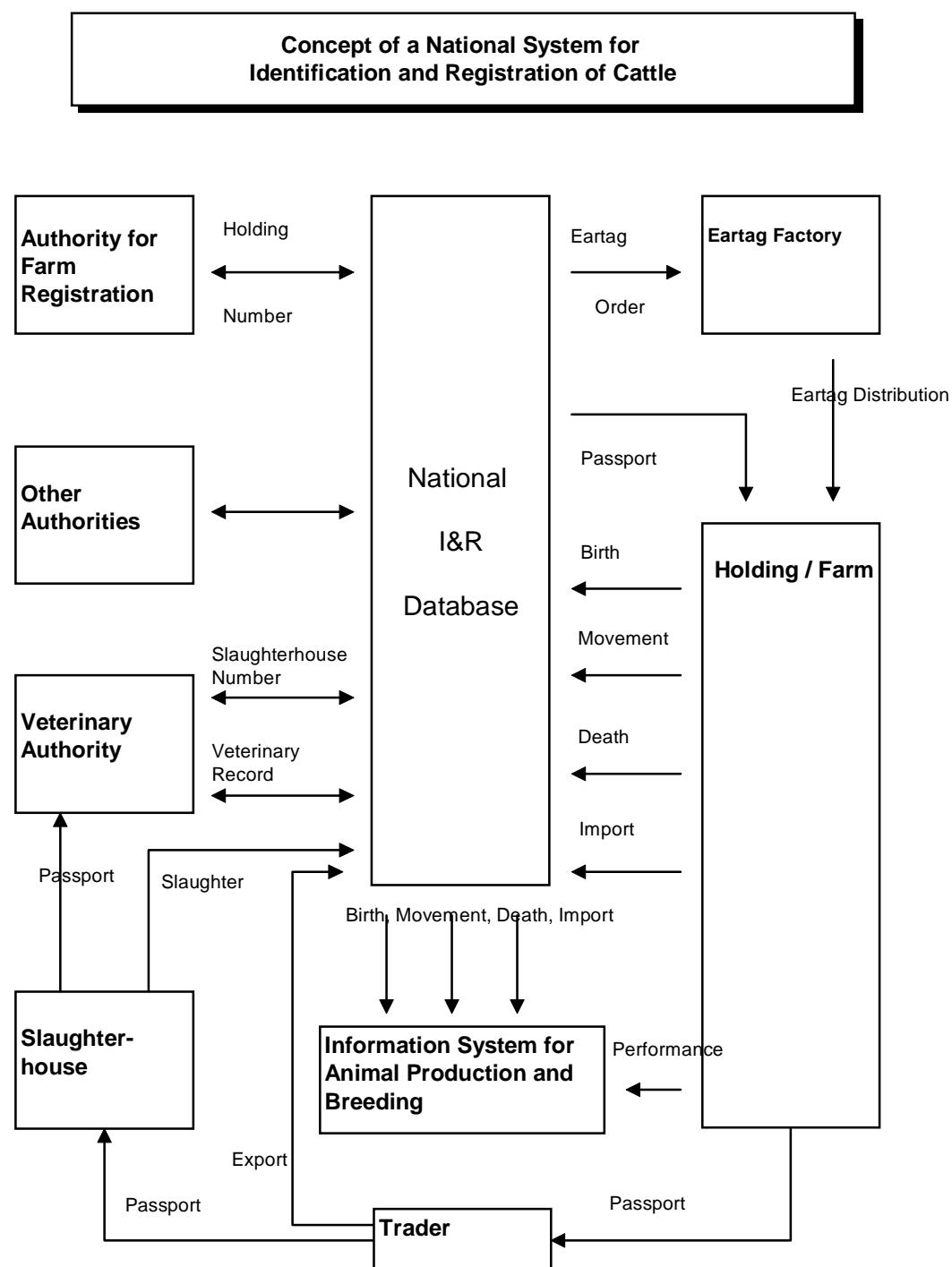|		
Authority for Farm Registration	Holding ⟷ Number	Eartag → Order → **Eartag Factory**
Other Authorities ⟷	National I&R Database	Eartag Distribution
	Passport	
Veterinary Authority	Slaughterhouse Number ⟷ Veterinary Record ⟷	**Holding / Farm** Birth Movement Death Import
Slaughter-house	Passport Slaughter Birth, Movement, Death, Import	**Information System for Animal Production and Breeding** Performance
	Export Passport **Trader** Passport	

*Figure 1. logical links between a data bank system according to EU Regulation
820/97 and animal production/breeding data processing*