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# Identification and registration of cattle: a challenge for breeding organizations

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The implementation of an identification and registration (I&R) system is a difficult and demanding process to reach expected and sometimes unexpected results. The animal health and breeding organizations have to cooperate to achieve an efficient and effective system covering the needs of all organizations and farmers. The I&R system has to register all farms and all cattle (or pigs, sheep and goats), register all movements of the cattle and the tracing back of individual cattle is possible.

The I&R system is a basic system and it should be an independent system which can be used by all organizations based on authorisation rules and by using standardised interfaces.

Breeding organizations (herd books, milk recording (MR), artificial insemination (AI), etc.) can play an important role in the execution of the I&R system and can benefit in using the I&R system to improve and enlarge their activities and offer the farmers more and better services at a lower cost. This requests active involvement of the breeding organizations in the development and implementation of a national I&R system.

Authorisation rules have to be established to guarantee reliability and to reach the best results.

This paper describes the conditions for the implementation of an I&R system, the activities to be done and the difficulties and the challenges for breeding organizations to be involved and to use the I&R system.

**Key words:** *National I&R systems, ID-methods, tracing of animals, database, active breeding population, product differentiation, marketing and labelling of meat.*

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## Abstract

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## **Introduction**

The necessity to have or to implement an identification and registration (I&R) system is growing daily. To create a well functioning national I&R system is a challenge. Only a few countries worldwide have a national I&R system covering all cattle. The need for quality controlled production systems and new techniques has stimulated and will stimulate to improve the current I&R systems. Regulations increasingly prescribe the conditions for an I&R system to guarantee healthy and safety products for the consumers. Sometimes the regulations prevent the building up of a practical system or prevent the building up of a system that can be easily controlled. Cooperation of all organizations is a must to establish a well functioning I&R system.

It is important for every system but especially an I&R system that the system be:

- simple and practical;
- cheap;
- accepted by the farmers;
- based on international standards;
- usable for all purposes;
- quality control is possible at all levels;
- accepted to EU and EU rules.

History has taught us that it is not easy to fulfil the above conditions. The first four conditions are common and acceptable for everybody, although the opinions about the realisation can differ. The last two conditions are difficult ones and can create a lot of discussions during the developing process. Compromises on the last two conditions are obstructing a simple and cheap I&R system. To which extent the existing systems fulfil these conditions can be questioned.

Using an I&R system for all purposes today means:

- veterinary and zootechnical checks;
- breeding including performance recording;
- farm management;
- premiums;
- hormones and residue control;
- quality control on meat production including labelling of meat;
- chain control.

## **History**

For more than one hundred years have animals have been registred in herd books. The animals were identified individually and only records on breeding were registered. In the fifties several countries started to identify animals for animal health programmes. These two systems were different and today in many countries only two systems exist, which is a big disadvantage. Having two or more systems is less farmer friendly and more expensive and the quality of the systems is lower.

Many identification methods are possible: eartag, tattoo, ear-notching, branding, paint marking, transponders (injectable, eartag and bolus), biometric methods or any combination of these. Today in the EU, cattle can only be identified by eartags. It is foreseen that transponders can be used from 2001 in national programmes, the use of biometric methods, maybe in combination with another ID-system, depends on results in practice in the near future.

The establishment of the Single Market in the EU and the implications for intra-community and other international trade has brought new inputs to the need for national I&R systems for animals. In 1992 the first EU Regulation for national I&R systems for farm animals came into force. Before 1992 only I&R regulations for pure-bred animals were in force. Animal health regulations for transport and import have existed since 1964.

In 1997 the regulations for cattle were updated and the Council Directive 820/97/EC has been in force since 1 July 1997. Updates for other species of farm animals are in progress.

To minimise the fraud with premiums in the EU, in 1998 it started a trial with electronic identification of cattle, sheep and goats. This project is called IDEA (Identification electronic des animeaux).

Until recently the requirements of an I&R system were only based on purposes during the life of animals. Consumers will have guarantees to buy a safe product, the processing of meat sets also requirements for the I&R system. This is very new and research and practical experiences are necessary to complement the system. The question is what is necessary to guarantee that each piece of meat can be traced back to its origin, the animal or a group of animals. Labelling of meat came into force on 1<sup>st</sup> January 2001.

Before developing an I&R system the requirements should be agreed upon by all involved organizations. To prepare a proposal to the EU about “the EU requirements for the identification of cattle, pigs, sheep and goats” a working group of Copa/Cogeca made a report in October 1996 with this title. Minimum guidelines were worked out for the given species to fulfil requirements for animal health, animal breeding and premium payments to ensure traceability of animals in EU Member States. These guidelines are still valid.

The EU legislation 920/97 is a Council Directive, which means it has to be implemented at national level without any change. Still several details have to be decided at national level. As an example: the individual number of the animal at national level should not be more than 12 digits. How to create such a unique number is up to the Member States. When possible the number should be a consecutive number with reference to region, farm

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## **Guidelines for national I&R systems**

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number, etc. The reason for this is that the logistic of the eartags is much easier (less expensive) and the information about region, farm, etc., is stored in the computer.

In Central and Eastern European countries there is a preference to use the veterinary district and sometimes the number of the farm of origin is included, because the network today is not sophisticated enough, the database can be entered at district, village or farm level.

Another aspect in preparing guidelines is the tradition of identification and movement recording, the level of education of farmers and employees and the experience with the use of the computer.

It is clear that the conditions for an I&R system for cattle is different from that of pigs, sheep and goats.

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### **Herd Information System (HIS)**

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An essential part of I&R systems is the identification of the holdings. Each holding needs a unique number at national level and the same number should be used for all purposes. Establishing such a HIS in combination with the use of data exchange realises the possibility for the data of farms collected in different systems to be combined to improve the support of the farmer in his farm management. It is a time consuming process to get agreement by all organizations on the use of the HIS number. The sooner the discussion is started the sooner the goal will be reached.

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### **Identification of the animals**

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As far as possible the identification of the animals should be done by farmers. On small farms the private veterinarian or the breeding specialist (AI-technician or milk recording (MR) should carry out the identification of the animals).

Only international officially accepted methods of identification should be used. The "to be used" ID devices per manufacturer have to be approved for use. The test of the devices should be done by ICAR.

Retagging of animals is not allowed, only when the eartag is lost and the same ID number has to be used.

The breeding organizations use only officially approved methods. The farmer can use additional methods and these numbers can be presented on record sheets beside the official identification.

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### **Registration of all movements**

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To have a system which guarantees that 100 percent tracing of all animals is possible, the movements of the animals have to be registered. Beside the possibility of tracing, it is a very good tool for controlling the system. The

EU is today requesting to report the movements within at least seven days, which is a good limit in the regulation. It is practical to ask the farmers and traders to report as much as possible the same day.

When the outgoing and incoming animals are registered individually in the database, the database can easily report the missing animals in the system. In this context it is good to realise that the use of the I&R system by breeding organizations also detects missing animals much easier and earlier. When breeding organizations use the same system it is not possible to move animals in the system through a breeding report to the system. Movement registration should only be possible by the I&R system and this system will update the other systems by data exchange.

When tracing is necessary there are two main functions:

- On which holdings, market places, etc. and for what period the animal is there and to determine the holding of origin.
- Which animals were at the same moment on the same holding.

Avoid doubles. In Central and Eastern European countries the farmer has also to inform the City Hall before an animal can be moved. This is not necessary after the introduction of the I&R system.

Another aspect is the use of a passport. Starting to record the movements is very important. When the I&R database is functioning well, it is no longer a duty to use the passport.

Thanks to a good I&R system, contagious diseases are quickly traced back to the source, therefore, adequate measures can be taken to prevent further spreading of the disease. As all movements are recorded, the I&R system perfectly supports the system for monitoring the animal health status on herd level.

For hormone and residue examination the I&R system can be used in two ways:

- notably hormone and residue control in the slaughterhouses;
- in case of suspicion, the farm location of the animal can be traced and further examination can be started.

Today's consumer wants more and more information about food products. They expect guarantees and an open information stream. As a consequence of the BSE crises and the Dioxine, the improvement in the transparency of the conditions for the production of the products, particularly the traceability, is necessary.

The EU started the real discussion about labelling of the products by publishing Council Directive 820/97. The objective of labelling is to give

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**Monitoring of  
animal health  
status,  
hormone and  
residue  
examination**

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**Labelling beef  
and beef  
products**

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maximum transparency in the marketing of meat and meat products and shall in addition supply information about where the animals from which the meat was derived were born, reared and slaughtered. Urgent reflection is needed on this subject, bearing in mind that it may not be easy to design a global system applicable to all feed and food.

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## **Database**

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Without the support of a database it is not possible to establish a good functioning national I&R system. The EC requested Member States to have a database operational as of 1<sup>st</sup> January 2000. Some countries already have long and positive experiences with a database.

The database should record at least:

- identification code;
- new identification code when different;
- registration number when different;
- number of origin when different;
- date of birth;
- number of holding of birth;
- all dates of movement and number of holdings, market places, etc.;
- date of death or export;
- date of import;
- country of origin (birth);
- country of import;
- sex;
- mother of the animal;
- health status of holdings;
- health status of animal.

The data communication between the I&R database and other national and international databases should be in accordance with international standards. Today this is the ISO standard for data exchange. Presently the slaughterhouses, retailers and supermarkets use the EAN standard INCOME. Which protocol to use should be discussed and decided upon or databases should communicate by using one of the two protocols.

The more organizations that use the I&R database for their activities, the more reliable are the data in the database.

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## **Quality control and supervision**

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Quality control becomes more and more important. Two aspects have to be considered: the (administrative) process control as is done by the 9000 ISO standards and product quality.

The ISO standards will not be discussed in this paper. Product quality, which means the quality of the data is essential for the good functioning of a national I&R system. The EU prescribes to carry out quality checks and also ICAR is asking for this. Through the database, several checks can

be carried out for no extra costs. Furthermore, it is important to visit the holdings where the identification is carried out, traders, markets and slaughterhouses, etc.

The main tasks of a breeding organization are to:

1. Support farmers in herd management by offering:
  - a. herd book registration;
  - b. performance recording (milk, beef, type and fertility, etc.);
  - c. artificial insemination and embryo transplantation;
  - d. herd management tools.
2. Support the selling and buying of animals.
3. Carry out breeding programmes.

When combining all activities within one organization, the national database, including the responsibility for the estimation of breeding values, should be organized in a separate body or at national level, other organizations or firms should carry out the activities given under 2 and 3.

In many countries the tasks of the herd book will change totally when I&R is introduced. The identification and registration in a database is already done. Based on the information received from the I&R database, through the database, breeding organizations take care that the pedigree registration is done and a document per animal can be produced showing the data and pedigree of the animal.

The breeding organizations have to study the following aspects:

- getting farmers interested in the registration of all animals (males included) in the herd book;
- regulating by constitution the data in the I&R database to avoid problems with the privacy of information;
- basing the fee for herd book registration on the additional activities to be done and stimulating the fee system, the farmer registers all animals in the herd book;
- accepting only the ID methods accepted for the I&R system and always presenting the ID number on documents;
- farmers and breeding organizations may use additional ID methods for internal use;
- registering the data on the insemination and embryo transfers into the breeding database before the cow calves;
- bloodtyping or DNA fingerprinting to supervise herd book registration (and can also be used to control the I&R system);
- trying to also establish breeding values for beef traits and longevity. The breeding values are used to promote the breed;
- trying to realise that the I&R database is located in the same building where the breeding database is located.

## Tasks of breeding organizations

## Breeding organizations and the I&R system

## **Organizational aspects for breeding organizations**

To realise the breeding organizations actively involved in the I&R system, the following aspects have to be considered:

1. A national structure of the breeding organizations is necessary to realise their involvement.
2. The breeding organizations mainly register a low number of animals. This is a handicap to realise the breeding organizations becoming actively involved in the I&R system and becoming responsible for the activities to be done at farm level.
3. Veterinary departments or agencies underestimate the complexity of the I&R system, the consequences for other organizations and persons (slaughterhouses, traders, markets, veterinary stations, farmers, etc.) and mostly do not initiate the cooperation with the breeding organizations.
4. In Central and Eastern Europe the existence of many small farms and common grazing is an additional complication in introducing a national I&R system.
5. To carry out herd book registration with or without a national I&R system is totally different. Using the I&R system cuts down the farm activities (needed people) and it requests PC-driven activities.
6. The I&R system has much more influence over the other activities of the breeding organizations as is expected (method of collection of data, the data flow and dependency of the I&R system).

## **Finally**

To guarantee the quality of the products and to fulfil the wishes of consumers, a national I&R system is a must. It is an on-going process (new, sometimes complex developments and further internationalisation of our activities) and new regulations become increasingly stricter. Cooperation between the veterinary department and the breeding organizations is another great challenge to establish an efficient and effective system which is the basis for all other activities of the veterinary department and of the breeding organizations. In the near future, electronic identification will be used in national I&R systems.

Breeding organizations should communicate internationally regarding the changes in structure and activities. Last but not least the involvement of Central and Eastern European countries in EU legislation is necessary to establish that the EU legislation will also work in these countries. The problem of the small herds and common grazing by running an I&R system is the best example in this regard.

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## **Annex 1 - EU Regulations**

The most important points in the EU Directive 92/102/EEC of 27 November 1992 are:

1. Farm animals (cattle, pigs, sheep and goats) must be identified in accordance with the EU Regulations.
2. The tracing of animals to its original or transit holding must be possible.
3. Animals must be identified before leaving the farm and for cattle also within 30 days.
4. Cattle must be identified by eartags.
5. Eartags shall be approved by the competent authority and shall be tamperproof and easy to read during the animals' lifetime.
6. In case the mark has become lost or illegible, a new mark must be applied. When a new number is used a link between the two numbers must re-established.
7. When imported animals are remarked a link between the number of origin and the new number must be established.
8. Keepers of animals must maintain up-to-date records of the animals on their holdings. For cattle all individual movements including birth must be recorded.
9. The holding registers must be available on the holding and to the competent authority for at least three years.
10. The competent authorities must have an up-to-date list of all holdings, specifying the species of animals kept and their keepers.
11. Any keeper of animals to be moved to or from a market or collection centre provides a document that accompanies the animals.
12. Any keeper must, on request, supply the competent authority with all information needed.

For cattle the Regulation has been amended since 1 July 1997 the Council Regulation 820/97 is in force. The timetable for the implementation of different parts of the Regulation is:

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|----------------|--|
| 1 July 1997    | Marking of calves within 30 days and reporting of birth and movements within 20 days; any cattle from another Member State shall retain its original eartag; no eartags may be removed or replaced without permission of the competent authority and data in the holding register or database should at least be available for three years.  |
| 1 January 1998 | Issuing of passports for new registered animals and whenever an animal is moved, it shall be accompanied by its passport, only when a national database is operational does a passport have to be issued and used for export; new born calves have to be identified with two approved eartags and used eartags which do not comply with the requirements of the regulation shall be replaced before this date. |

- 1 September 1998 All animals except slaughter animals for export have to be identified in accordance with the Regulation.
- 1 September 1999 Also slaughter animals have to be identified in accordance with the Regulation.
- 1 January 2000 Marking of calves must be done within 20 days and reporting of birth and movements within seven days; a national database should be operational in the Member States; meat to be exported must be labelled and a decision about electronic identification has to be taken.

Details of the Regulation are given in the Commission Regulations Nos. 2628/97, 2629/97, 2630/97 and 494/98 concerning:

- requirements for eartags;
- requirements for the passport;
- requirements for the herd register;
- minimum level of controls to be carried out;
- application of penalties;
- transitional provisions for the start-up period of the system.

On a free basis the labelling of meat is possible. In the same Council Directive 820/97 in Title II the Regulations are given. The important points are:

- labelling must be done in accordance with the Title of 820/97;
- only approved operators or organizations by the competent authority may label meat;
- only information which can be easily checked at the point of sale may be printed on the label;
- only the following information may be given:
  - country or holding of birth;
  - country of holding of fattening;
  - country or holding of slaughtering;
  - identification number and sex of animal;
  - method of fattening or other information relating to feeding;
  - information on slaughtering (age, date, maturing);
  - other information with acceptance of the competent authority;
- the name or logo of the approved operator or organization must be given on the label;
- withdraw of approval or imposing supplementary conditions;
- a compulsory beef labelling system will be obligatory in all Member States from 1 January 2001 onwards and before this date the Commission will take a decision about the rules for the compulsory system.

Member States with a functional I&R system for bovine animals may impose a compulsory labelling system before 2001.

Member States have to inform the Commission about the implementation of the labelling system for beef.