Level and use of I&R by ICAR Members

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Summary

During 2003, the ICAR Subcommittee on Animal Identification performed a survey in all member organisations. The aim of the questionnaire was to provide a survey of the present situation of identification and registration (I&R). It was not the intention to provide recommendations or guidelines, but hopefully inspiration may be derived from looking at the systems reported. It should be noted that most answers were received from European countries. For this reason the survey is unintended heavily influenced by EU legislation.

Key words: ICAR, identification, recording, eartag, bolus, traceability, cattle, sheep, goat.

Introduction

Animal identification and registration (I&R) are changing from being voluntary farmer-designed systems facilitating management and breeding purposes at farm level to becoming mandatory government-designed systems facilitating also food safety, animal traceability, animal health and other purposes (e.g. premium and environmental control). This can have quite large consequences for animal producers in countries where I&R are not developed and used at a certain level. Food safety policies in some countries may rule out the above-described countries as suppliers of animals and animal food products.

Questionnaires on I&R

During 1993, the European farmers' organisation COPA/COGECA made a survey (questionnaire) in EU countries on animal I&R systems. The reason for the questionnaire was the new EU-regulation on animal identification (Council Directive 92/102), and the questionnaire formed a good basis for further development and for establishing minimum guidelines for species to fulfil requirements for traceability, animal health, animal breeding and for control of premium payments.
During 2003, the ICAR Subcommittee on Animal Identification made a survey on animal I&R systems worldwide covering cattle, sheep, goats and buffalo. All ICAR member organisations received a questionnaire build in a way that made it possible for the participants to enter information on almost any type of identification system from tattooing

to electronic identification. Questions concerning identification could be answered without answering questions on registration. Thus almost any system would be able to fit in the questionnaire. Member organisations were encouraged to report on all systems used in their countries or regions. A report on the questionnaire will be available from ICAR shortly. This paper is a brief summary of the report.

Answers were received from 100 I&R systems:

39 cattle systems
26 sheep systems
28 goat systems
7 buffalo systems

The geographical distribution of cattle systems reported on in the questionnaire:

Africa:	4 systems
Australia:	2 systems
EU countries:	17 systems
EU-joining countries, 2004:	8 systems
Rest of Europe:	4 systems
North America:	3 systems
South America:	1 system

64 % of all answers as regards cattle systems came from EU or EU-joining countries. 26 % of the answers came from outside Europe. The distribution of answers concerning other species was much similar to the one of cattle. Unfortunately, the questionnaire did not provide many answers to questions concerning I&R in developing countries. However, much inspiration may be derived from looking at the answers received.

Cattle systems

Identity and tagging

97 % of the reported systems used unequivocal lifetime identities. The questionnaire had plenty of options for reporting systems with identities that might change during the lifetime of an animal, but only one such systems was reported (temporary movement tags in Sudan). The unequivocal lifetime identity facilitates full traceability of animals and combines data on the same animal from different registration systems.

Description of cattle system	Percent of answers
Mandatory permanent ID-system for all animals, unequivocal lifetime ID	85
Mandatory permanent ID-system for herdbook animals, unequivocal lifetime ID	8
Mandatory permanent ID-system for disease control, unequivocal lifetime ID	3
Mandatory temporary ID-systems (movement tags)	3
Voluntary ID-systems for herdbook animals, unequivocal lifetime ID	3

92 % of the reported systems had governmental requirements attached. Please bear in mind that the majority of the answers came from EU and EU-joining countries. This may not reflect the situation worldwide.

Description of cattle system	Percent of answers
Governmental mandatory ID-system at animal level, no official database	0
Governmental mandatory ID-system and database at animal level	82
Governmental mandatory ID-system at group level, no official database	3
Governmental mandatory ID-system at group level and database	8
No governmental requirements	8

In 53 % of the reported systems the animals must be identified (tagged) within seven days from birth. 14 % of the reported systems allow identification to happen more than 30 days after birth. In 82 % of the reported systems the farmer applies the identification devices, whereas the official identification has to be done by a veterinary surgeon or inspector in the rest of reported systems.

Time of tagging of cattle	**Percent of answers**
Within seven days from birth	54
Within 20 days from birth	22
Within 30 days from birth	11
Within 60 days from birth	3
Within 180 days from birth	3
Before leaving place of birth	5
Temporary tagging at each movement	3

In 82 % of the reported systems the animals are tagged with two eartags for visual identification. In most countries both tags are plastic eartags, but in some countries one tag is made of plastic and the other one of metal. Both eartags must carry the same minimum of information. If one tag is lost, a replacement tag with the same visual ID code must replace it immediately.

85 % of the systems have purely numeric identification codes. 41 % of the systems make use of an ID code that includes a check digit for security reasons. In other systems this has not been found necessary. In 36 % of the systems the ID code is just a serial number without any predefined

connection to farm, region etc. 64 % of the reported systems had ID codes with predefined connections between animal ID and other information (region, farm, organisation).

ID codes for cattle

Visual ID numeric	Visual ID alphanumeric	Check-digit in visual ID	Visual ID purely serial	Visual ID contains region	Visual ID contains farm	Visual ID contains organisation	Visual ID unique, country	Visual ID unique, farm	Visual ID unique, organisation
87 %	13 %	Yes: 41% No: 18 %	36 %	44 %	21 %	10 %	82 %	10 %	3 %

Predefined connections between animal ID and other information (farm, region, organisation etc.) restrict the number of positions available for individual animal ID codes. If one ID code is structured to provide information on two or more items (e.g. animal ID, farm of birth), it will exclude sequences of numbers. In order to facilitate electronic identification (EID), the total individual ID code of each animal must be restricted to a maximum of 12 positions in order to comply with ISO standard 11784, which is the worldwide officially recognised standard for code structure in EID. ID codes must be chosen in a way that no reuse of EID codes should be allowed in foreseeable time (several decades). 82 % of the reported systems applied unique ID codes at national level. Unique numbering at national level should be a standard requirement in modern I&R systems.
Only a few systems with EID were reported. They all use transponders in eartags, in attachments to eartags or in boluses. No reported systems use implanted transponders. Some of the reported EID systems were part of the IDEA project run by EU.

EID in connection with cattle

EID approved	EID in eartag	EID in attachment to eartag	EID in bolus	EID in implant
Yes: 40% No: 60%	20 %	12 %	12 %	0 %

Traceability and database

77 % of the cattle systems require individual registration of each animal and on all movements of each animal in an official database. Such systems provide full and quick traceability of any animal in the country. Often manual on-farm registers containing all information on births and movements supplement the registration in databases. In EU countries, BSE gave rise to very strict regulations on traceability of cattle.
Theoretically, traceability is possible through manual on-farm registers. However, there is no information control to make sure that information from one on farm register matches information from the register of the next farm. Therefore the traces are easily broken, and no one will know about it until the day when there is a need to trace animals. Even without broken traces it takes a very long time to control traceability through manual on-farm registers.

Cattle Registration

Movement in official database	Movement at sale yard or auction mart database	Animal and movement in official database	Herdbook animal in herdbook database	Manual farm registers		Governmental requirements on movements	Governmental requirements on animals and movements	No governmental requirements
38 %	15 %	77 %	49 %	49 %		0 %	80 %	3 %

Computerised databases with mandatory frequent reporting from all animal holders are able to discover any discrepancy in traceability information by comparing information from buyer and seller, even trader or transporter. The database can immediately detect if a trace is broken, and measures to correct the errors can be initiated before a critical situation arises during a trace-back operation.

Traceability information of cattle

Place of origin	Date of birth	Breed	Sex	Mother	Father	Placement date	Previous farm	Outgoing/sale date	Next farm	Other
82 %	90 %	82 %	84 %	79 %	45 %	92 %	76 %	87 %	66 %	18 %

Other: veterinary information, culling reason, colour etc.

Sheep systems

Much of the basics of I&R systems are similar across species, so there will be less comments on sheep and goat systems than on cattle systems in this paper. However, in some developing countries the importance of sheep and goats may be higher than in most of the countries that filled in the questionnaire.

Description of sheep system	Percent of answers
Mandatory permanent ID-system for all animals, unequivocal lifetime ID	57
Mandatory permanent ID-system for herdbook animals, unequivocal lifetime ID	32
Mandatory permanent ID-system for disease control, unequivocal lifetime ID	7
Mandatory temporary ID-systems (movement tags)	4
Voluntary ID-systems for herdbook animals, unequivocal lifetime ID	0

Description of sheep system	Percent of answers
Governmental mandatory ID-system at animal level, no official database	11
Governmental mandatory ID-system and database at animal level	61
Governmental mandatory ID-system at group level, no official database	11
Governmental mandatory ID-system at group level and database	14
No governmental requirements	4

In 25 % of the reported systems flock registration was used instead of individual registration. Still in 96 % of the reported systems the animals have unequivocal lifetime IDs.
The time of tagging varies considerably more among sheep than cattle. This may be due to different management systems, different environments, etc.

Time of tagging of sheep	Percent of answers
Within seven days from birth	39
Within 20 days from birth	12
Within 30 days from birth	8
Within 60 days from birth	15
Within 180 days from birth	8
Before leaving place of birth	15
Temporary tagging at each movement	4

Purely serial ID codes are less frequent in sheep, whereas it is more frequent that information on farm is included.

ID codes for sheep

Visual ID numeric	Visual ID alphanumeric	Check-digit in visual ID	Visual ID purely serial	Visual ID contain region	Visual ID contain farm	Visual ID contain organisation	Visual ID unique, country	Visual ID unique, farm	Visual ID unique, organisation
79 %	21 %	Yes: 11 % No: 29 %	21 %	43 %	43 %	18 %	75 %	14 %	7 %

EID in connection with sheep

EID approved	EID in eartag	EID in attachment to eartag	EID in bolus	EID in implant
Yes: 30 % No: 70 %	10 %	10 %	10 %	0 %

Sheep registration

Movement in official database	Movement at sale yard or auction mart database	Animal and movement in official database	Herdbook animal in herdbook database	Manual farm registers		Governmental requirements on movements	Govermental requirements on animals and movements	No governmental requirements
25 %	0 %	39 %	39 %	57 %		18 %	46 %	11 %

The use of computerised databases is much lower even in connection with registration of flock movements. The traceability of cattle is better than the one of sheep.
Lower traceability of sheep and goats may also affect other species. In case of infectious diseases such as Foot and Mouth Disease the high traceability of cattle may be jeopardised by insufficient traceability of sheep, goats, pigs and other cloven-footed animals.

Traceability information in sheep

Place of origin	Date of birth	Breed	Sex	Mother	Father	Placement date	Previuos farm	Outgoing date	Next farm	Other
88 %	83 %	79 %	79 %	71 %	63 %	92 %	79 %	92 %	83 %	17 %

Goat systems

The goat systems hardly differ from the sheep systems reported. Please refer to the comments on sheep systems.

Description of goat system	Percent of answers
Mandatory permanent ID-system for all animals, unequivocal lifetime ID	58
Mandatory permanent ID-system for herdbook animals, unequivocal lifetime ID	31
Mandatory permanent ID-system for disease control, unequivocal lifetime ID	8
Mandatory temporary ID-systems (movement tags)	4
Voluntary ID-systems for herdbook animals, unequivocal lifetime ID	0

Description of goat system	Percent of answers
Governmental mandatory ID-system at animal level, no official database	12
Governmental mandatory ID-system and database at animal level	54
Governmental mandatory ID-system at group level, no official database	12
Governmental mandatory ID-system at group level and database	15
No governmental requirements	8

Time of tagging of goats	Percent of answers
Within seven days from birth	46
Within 20 days from birth	13
Within 30 days from birth	4
Within 60 days from birth	8
Within 180 days from birth	13
Before leaving place of birth	13
Temporary tagging at each movement	4

ID codes for goat

Visual ID numeric	Visual ID alphanumeric	Check-digit in visual ID	Visual ID purely serial	Visual ID contains region	Visual ID contains farm	Visual ID contains organisation	Visual ID unique, country	Visual ID unique, farm	Visual ID unique, organisation
85 %	15 %	Yes: 15 % No: 31 %	23 %	42 %	39 %	12 %	77 %	15 %	8 %

EID in goat

EID approved	EID in eartag	EID in attachment to eartag	EID in bolus	EID in implant
Yes: 35 % No: 65 %	12 %	12 %	12 %	0 %

Registration in goat

Movement in official database	Movement at sale yard or auction mart database	Animal and movement in official database	Herdbook animal in herdbook database	Manual farm registers		Governmental requirements on movements	Governmental requirements on animals and movements	No governmental requirements
19 %	0 %	35 %	39 %	54 %		15 %	42 %	19 %

Traceability information in goat

Place of origin	Date of birth	Breed	Sex	Mother	Father	Placement date	Previuos farm	Outgoing date	Next farm	Other
90 %	81 %	76 %	76 %	71 %	62 %	91 %	81 %	91 %	81 %	14 %