

Capacity building in support of animal identification for recording and traceability: FAO's multipurpose and global approach

I. Hoffmann, B. Besbes, D. Battaglia & H. Wagner
Animal Production and Health Division, Food and Agriculture
Organization of the United Nations (FAO), Rome, Italy*

Summary

In recent years, the main forces driving the development of traceability systems for animals and their products have been concerns about animal and human health. As a response, animal identification and traceability have been addressed by various international agreements and standards, such as the World Trade Organisation (WTO) Agreement on the Application of Sanitary and Phytosanitary Measures, the World Organisation for Animal Health (OIE) Terrestrial Animal Health Code and the Codex Alimentarius under the Joint Food Standards Programme of the Food and Agriculture Organization of the United Nations (FAO) and the World Health Organization (WHO). Other organisations such as the International Committee for Animal Recording (ICAR) and the International Organization for Standardization (ISO) also play a relevant role.

Animal identification is not only an essential component of traceability and disease control, it also serves multiple other purposes in a country's livestock sector. The unique identification of animals is the basis for pedigree and performance recording, artificial insemination schemes, subsidy payment schemes, good farm management, prevention of animal rustling and trade certification, and contributes to securing access to markets for higher-quality and geographically identifiable products.

While the role of national competent authorities is fully recognised, the multipurpose implications of animal identification systems need to be considered and discussed with all relevant stakeholders, to increase their acceptance and the equitable distribution of the costs among all stakeholders.

Capacity building is needed to enable standards and schemes to be applied adequately; this is at the heart of FAO's mandate. Taking account of the multipurpose nature of animal identification, FAO's capacity-building activities rely on an integrated approach that involves all relevant partners and stakeholders. FAO provides support for relevant policy development, drafting of legislation and strategic planning, and technical assistance for the implementation of relevant Codex Alimentarius and OIE standards. FAO's collaboration with ICAR on animal recording for smallholders in developing countries dates back to the 1990s. Decision-support guidelines for establishing sustainable animal identification and recording systems are currently being developed. FAO facilitates access to knowledge, information, training tools and services that are relevant to animal identification for traceability and performance recording. Effective capacity building requires alliances among organisations, based on a shared understanding of goals, coordination and acceptance of the complementary roles of the different players.

* © FAO. The views expressed in this publication are those of the authors and do not necessarily reflect the views of the Food and Agriculture Organization of the United Nations. Also the designations employed and the presentation of material in this information product do not imply the expression of opinion whatsoever on the part of the Food and Agriculture Organization of the United Nations concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries. Content and errors are exclusively the responsibility of the authors.

Keywords: Animal identification – Capacity building – Food and Agriculture Organization of the United Nations (FAO) – Performance recording – Traceability.

Animal identification for recording (I&R) has a key role to play in addressing global demands for food security and poverty alleviation. Animal I&R has many uses. It is necessary for better farm management, theft control, maintenance of herd books, delivery of health certificates, and for implementing agricultural policies (such as subsidies). It is fundamental to the establishment and maintenance of breed improvement programmes.

The growing socio-economic importance of livestock, and trends in livestock production, directly or indirectly influence the development and organisation of animal I&R and traceability programmes. Increasing demand for foods of animal origin has favoured the intensification of animal production and the emergence of an industrial private sector for dairy, pig and poultry production in many developing countries and countries with economies in transition. The forces driving this so-called livestock revolution are not only shifting the location of consumption and production, they are also affecting the way in which livestock products are produced and marketed. The process involves globalisation of animal production and trade in animals and animal products, as transportation costs and tariff barriers are reduced. Related trends include the increasing scale of operations, and the geographic concentration and vertical integration of production systems, all of which are leading to longer food chains.

In recent decades, developing countries have overtaken developed countries in total production of meat and eggs, while the gap in milk production is rapidly narrowing. Monogastric production is increasing relative to ruminant production. Worldwide, animal production is moving closer to the sources of feed – either to feed-producing countries or close to ports. At the same time, animal production and animal product consumption has moved also from rural to urban and periurban areas. There is also growing awareness among consumers about food safety, quality, animal welfare and the environmental impact of livestock production.

There is now increasing interest worldwide in animal I&R and traceability systems, including in developing countries and countries with economies in transition. The main driving force for implementing traceability systems is the protection of human health and food safety. Past food and health scares such as those caused by bovine spongiform encephalopathy (BSE), avian influenza and several chemical contaminations (dioxin, melamine, etc.) have increased concerns about veterinary public health, food safety and the need to trace products from 'farm to fork'. Since the beginning of the 1990s, animal identification and traceability systems have been used mainly to protect human health through *i)* identification of animals and tracing and controlling their movements, *ii)* identification, tracing and recalling of contaminated foods (and feeds) at any stage of the food production and distribution chain, and *iii)* risk management.

A second aspect of traceability is ensuring fair practices in the food trade, as traceability provides protection against deceptive practices and fraud in the market place and unsubstantiated product claims (e.g. geographic indication or food quality). Awareness among consumers about food safety, quality, animal welfare and environmental impact of livestock production, and consumers' demand to be better informed, have also pushed the competent authorities and private sector towards traceability of animals and their products. Private standards stand alongside the international ones.

Animal I&R and traceability are addressed by various international agreements and standards, such as the WTO Agreement on the Application of Sanitary and Phytosanitary Measures and

its Agreement on Technical Barriers to Trade, the OIE *Terrestrial Animal Health Code* and the Codex Alimentarius under the Joint FAO/WHO Food Standards Programme. Other organisations such as ICAR and various private stakeholders also play a role. International standards are set by standard-setting bodies, private standards by large corporations. In most cases, compliance with standards is certified by an independent body such as the ISO.

At national level, governments are responsible for incorporating international standards into national legislation, while other competent authorities (e.g. ministries of agriculture and livestock, Veterinary Services, ministries of health and national bureaux of standards) ensure that legislation is applied and enforced. Audit and certification bodies should then certify compliance with legislation or standards. Finally, breeders' organisations and the livestock and food industry are also relevant players at national level. While the role of national competent authorities is fully recognised, the multipurpose implications of animal identification, recording and traceability systems need to be considered and discussed with all relevant stakeholders, to increase their acceptance and the equitable distribution of the costs among them.

Capacity building is at the heart of FAO's mandate, including to enable countries to adequately apply standards and schemes. Taking account of the multipurpose nature of animal identification and traceability, FAO's capacity-building activities rely on an integrated approach that involves all relevant partners and stakeholders.

FAO's Technical Cooperation Programme (TCP) was established in 1976 to assist member countries to address their priorities (more information is available at: www.fao.org/tc/tcp, accessed on 15 June 2009).

Such programmes supported the drafting of animal identification and recording legislation, and the design of national identification systems, in several countries including Chile, Lesotho, Malawi, Nepal, Uganda and Ukraine. Animal identification and traceability have been components of technical cooperation projects in the fields of veterinary public health and food safety and quality (e.g. prevention and control of BSE and other zoonoses). The Programme on Food Quality Linked to Geographical Origin and Traditions has included regional seminars (Chile, Morocco, Serbia and Thailand), technical cooperation projects (Bhutan, Morocco, Tunisia and the Latin America and the Caribbean region), ten case studies in Latin America and six in Asia. A guide on how to establish specific quality schemes linked to geographical origin is in preparation, as is a regional project in the Mediterranean.

FAO actively works in partnership with relevant players to strengthen the national capacities of its members and of a broad spectrum of actors. In this regard, FAO, in collaboration with ICAR, has organised several workshops on development of animal identification, traceability and performance recording in developing countries, which have taken place, for example, in India (1997) (5), Poland (1998) (6), Slovenia (2000) (7), Switzerland (2002) (8), Tunisia (2004) (9, 10) and Finland (2006) (11). In 2007, the FAO Animal Production and Health Commission for Asia and the Pacific, jointly with OIE, organised a workshop in Sri Lanka on animal identification and traceability. In May 2008, FAO organised a regional workshop on development of animal identification and recording systems for veterinary surveillance and livestock development in countries of Central and Eastern Europe, in Budapest, Hungary. In March 2009, a workshop on 'Animal Identification, Traceability and Performance Recording in Countries of the Near East and North Africa' was organised in the Syrian Arab Republic, in collaboration with the International Center for Agricultural Research in the Dry Areas.

In 1998, FAO developed the first guidelines on animal recording for medium-input production environments (1). Currently, decision-support guidelines for setting up sustainable animal

identification and recording systems are being developed in collaboration with the ICAR Task Force for developing countries, which is chaired by an FAO officer. These guidelines are based on existing standards and guidelines, and draw on lessons learned from current and past experiences.

The Task Force is conducting a survey on the current state of animal identification and recording programmes in Africa, Asia, Central and Eastern Europe, and Latin America. So far, 38 countries have answered the questionnaire. The preliminary results show no regional specificity. Animal identification systems and their implementation vary widely from country to country. Different animal I&R systems addressing different needs coexist and are run by different institutions, which generally do not communicate with each other. Many of these programmes have failed, particularly those targeted at low- to medium-input systems. The survey shows that the motivation for setting up animal I&R programmes varies widely among countries and among programmes within the same country. In some countries (e.g. Argentina and Uruguay), the requirements of lucrative export markets such as the European Union (EU) have prompted the establishment of mandatory and/or voluntary identification and traceability systems. Countries in Central and Eastern Europe that have lately joined the European Union (e.g. Hungary and Slovakia) reported that 'they have been obliged to comply with EU regulations'. In many countries (e.g. Kenya and South Africa), breed societies have spearheaded identification and pedigree recording programmes since the early twentieth century. Such programmes are characterised by voluntary nationwide participation of breeders, and are aimed at perpetuating breed purity. Pedigree recording has subsequently been merged with performance and conformation recording for the purpose of genetic improvement. Control of diseases by monitoring the movement of animals is the main purpose of animal identification and recording in countries such as Malaysia and Thailand; these are mandatory national programmes.

The FAO has included animal identification and traceability considerations among its activities in support of the implementation of Codex Alimentarius standards and guidelines, such as the manuals and training workshops related to the Codex Alimentarius Code of Hygienic Practice for Meat, Code of Hygienic Practice for Milk and Milk Products and Code of Practice on Good Animal Feeding. One example is the FAO manual of Good practices for the meat industry (2). More information on all the above is available on the website of FAO's Animal Production and Health Division: www.fao.org/ag/aga/html (accessed on 15 June 2009).

The Joint FAO/International Atomic Energy Agency programme on nuclear techniques in food and agriculture also addresses animal identification and traceability through technical cooperation programmes, research networks, coordinated research projects, and agriculture and biotechnology laboratory training courses. More information is available at: www-naweb.iaea.org/nafa/index.html (accessed on 15 June 2009).

Finally, the FAO Legal Office, in close collaboration with its technical services (for instance the Animal Production and Animal Health Services) provides relevant assistance to member countries wishing to develop or upgrade specific legislation addressing animal identification and traceability, and gathers information on existing legislation worldwide in its database FAOLEX (4). Relevant information on existing legislation is also available via the International Portal on Food Safety, Animal and Plant Health (12).

Lessons on implementing animal I&R programmes in developing countries and countries with economies in transition can be drawn from past and present experiences. Failure to implement sustainable I&R programmes in these countries has mainly resulted from a combined lack of financial resources, lack of capacity in implementing institutions and lack of participation by breeders or other stakeholders. The high costs of infrastructure

for animal I&R systems (e.g. computer hardware and software, equipment and transport) and operational expenses (e.g. ear tags and field staff travel) have been insurmountable hurdles for many developing countries. Governments have generally failed to commit adequate resources to I&R programmes because of a lack of awareness of their importance. Government financial support, particularly at the implementation stage, is vital to the success of national I&R programmes. The flow of benefits from animal identification, recording and traceability to the different stakeholders in the value chain must relate to the costs that are incurred at each level. In the case of voluntary I&R programmes, poor adoption by farmers is one of the main reasons for failure. Farmers may feel that their privacy is being intruded upon and that the confidentiality of their information is not being respected, and may therefore not participate.

These lessons present a sound basis for identifying the requirements for sustainable animal I&R systems. Enabling policy and legislative frameworks are necessary. Adequate governmental support, both technical and financial, is another prerequisite. An I&R system should be run efficiently and professionally, be matched to the available infrastructure, and take relevant cultural and traditional factors into consideration. It should operate at a low cost and be no more complex than is necessary to ensure its accuracy and integrity. Its implementation should be phased, and implementing institutions should ensure that they have adequate capacity before they embark on the programme. Specialist skills in areas such as information technology, animal identification, recording and technology transfer are vital to its success. Farmers and livestock keepers will participate in the programme only if it demonstrates real and direct benefits to them. It is therefore important that the implementing institutions develop systems that provide feedback and demonstrate the direct benefits. This may be achieved by streamlining I&R systems serving different purposes and incorporating them into a service package.

References

1. Food and Agriculture Organization of the United Nations (FAO) (1998). – Secondary guidelines for development of national farm animal genetic resources management plans. Animal recording for medium input production environment. FAO, Rome.
2. Food and Agriculture Organization of the United Nations (FAO) (2004). – Good practices for the meat industry. FAO Manual No 2. FAO, Rome.
3. Food and Agriculture Organization of the United Nations (FAO). – Animal Production and Health Division. Website: www.fao.org/ag/aga/html (accessed on 15 June 2009).
4. Food and Agriculture Organization of the United Nations (FAO). – Legal office, FAOLEX. Website: www.fao.org/legal (accessed on 15 June 2009).
5. International Committee for Animal Recording (ICAR) (1997). – International Workshop on Animal Recording for Smallholders in developing Countries, Anand, India, 20–23 October 1997, jointly organized with FAO and the India National Dairy Development Board, ICAR Technical Series No. 1. ICAR, Rome.
6. International Committee for Animal Recording (ICAR) (1998). – Workshop on Cattle Identification and Milk Recording in Central and European countries, Warsaw, Poland, 23 August 1998 jointly organized with FAO, EAAP and the Polish Animal Breeding Service, ICAR Technical Series No. 2. ICAR, Rome.
7. International Committee for Animal Recording (ICAR) (2000). – Animal Recording for Improved Breeding and Management Strategies for Buffaloes, Bled, Slovenia, 16-17 May 2000, jointly organized with FAO, ICAR Technical Series No 4. ICAR, Rome.

Session 6: Capacity building to assist implementation of standards worldwide

8. International Committee for Animal Recording (ICAR) (2002). – Development of Successful Animal Recording Systems for Transition and Developing Countries, Interlaken, Switzerland, 27 May 2002, jointly organized with FAO, ICAR Technical Series No. 8. ICAR, Rome.
9. International Committee for Animal Recording (ICAR) (2004). – Development of animal identification and recording systems for developing countries, Proceedings of the ICAR/FAO Seminar held in Sousse, Tunisia, 29 May 2004, jointly organized with FAO, ICAR Technical Series No. 9. ICAR, Rome.
10. International Committee for Animal Recording (ICAR) (2004). – Current status of genetic resources, recording and production systems in African, Asian and American Camelids. Proceedings of the ICAR/FAO Seminar held in Sousse, Tunisia, 30 May 2004, ICAR Technical Series No. 11. ICAR, Rome.
11. International Committee for Animal Recording (ICAR) (2006). – Development of animal identification and recording systems for veterinary surveillance and livestock development in countries of Eastern Europe. Proceedings of the ICAR/FAO Seminar held in Kuopio, Finland, 6 June 2006, ICAR Technical Series No. 12. ICAR, Rome.
12. International Portal on Food Safety, Animal and Plant Health. Website: www.ipfsaph.org/En/default.jsp (accessed on 15 June 2009).