

CURRENT TOOLS AND TECHNOLOGIES FOR THE IDENTIFICATION AND TRACEABILITY OF SMALL RUMINANTS

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Animal identification (ID) is a key action for all systems that collect data for monitoring and performance recording of animals, and for tracing them and their products throughout the production and commercialization chains. Sheep and goats have been identified for many years with different tools and with varied results in the diverse and harsh environments in which they are typically produced. Because of anatomical and behaviour differences between sheep and goats, as well as other small ruminant species (including camelids and deer), the use of specific devices for each situation is warranted.

Conventional ID technologies, based on visual devices, have their place as a starting point in the identification of small ruminants in countries that are taking the first steps to implement ID systems. However, these systems have some shortcomings and are not efficient enough for dynamic and on-field reading. More reliable and automated ID reading systems are required in the modern livestock industry. Many systems based on imaging and radiofrequency technologies are currently available and have been implemented in practical situations. Automated bar code reading and tattoo artificial vision were inefficient and were discarded for live animals and carcass ID. Retinal imaging is now used as a reliable system for auditing sheep ID but there is little information on its use in other species. Moreover, its utility for harvested or dead animals has been questioned. Radiofrequency (low-frequency) by passive (no batteries) ISO standardized transponders was used early on for the electronic ID (e-ID) of sheep and goats and is the most common technology in current automated monitoring and performance recording equipment in livestock. Use of e-ID allows the automatic reading of an animal's ID without visual contact (or external devices) and, combined with sensors and positioning equipment, provides a reliable method for monitoring, performance recording, and traceability of animals and most of the animal products under field conditions. The e-ID (ear tag, bolus and injectable), is fully recognized for official sheep and goat ID in the European Union and provides a good basis for compliance with the international standards of the OIE. The e-ID system has been mandatory in Spain since 2006. A double system based on the joint use of e-ID and DNA markers has been tested recently for the traceability of lambs and meat. Finally, studies on e-ID implementation in the sheep and goat industry concluded that it is a cost-effective technology and recommended its use in practice. New developments in tools for livestock management (e.g. milk recording, oestrus detection...) will underline the benefits of using e-ID in small ruminants in the near future.

Key words: Electronic identification – Identification systems – Retinal imaging – Sheep and goat – Traceability.
