Technologies in Cattle Identification and Tracking

Rikki Ruiz and Shanna Hamilton
University of Idaho Extension

Cattle identification is important to cattle producers for a variety of reasons. Livestock need permanent identification to aid in record keeping and to establish ownership. Traditional forms of cattle identification include: hot iron brands, freeze brands, tattoos, ear marks, waddles, neck chains or straps, and ear tags (see fact sheet 710). Although the majority of these methods are still used today, emerging technologies in cattle identification have developed in recent years. Consumer demands have made source and age verification, as well as disease prevention and traceability, key factors in implementing these new identification technologies that can establish ownership for the producer.

Farm and ranch operations are complex in the fact that they deal with a variety of management tasks to improve their herd. Cattle producers look at genetic enhancement, animal health, nutrition, data gathering, and account and pasture management with sharp eyes in order to enhance and improve their operations. Some producers develop refined management systems, while others keep simple written diaries or log data books. Utilization of new technologies and software aids and improves the accuracy of keeping records on vaccinations, calving, bull testing, pregnancy checks, weaning, weight gains, carcass information, and much more.

Research proves that using recent advances in livestock identification technology will add value when marketing your cattle through certification of Country of Origin Labeling (COOL), as well as source and age verification.

The three main technologies that will be discussed in this fact sheet are radio frequency identification (RFID), which is also referred to as electronic identification (EID), retinal imaging, and deoxyribonucleic acid (DNA) fingerprinting. When these technologies are incorporated into data software or programs, records can be gathered on animals with a high degree of accuracy. These ongoing record systems can be used to make management decisions, which could also give producers the opportunity to look into greater, more lucrative markets.

Radio Frequency Identification or Electronic Identification

A basic EID system requires a transponder, a transceiver/reader/interrogator, a data accumulator, and a software data system to upload it (Fig. 1). While the system should include this equipment, the transponder can come in several different forms. These can be ear tags, neck chains, implantable chips, or rumen boluses.
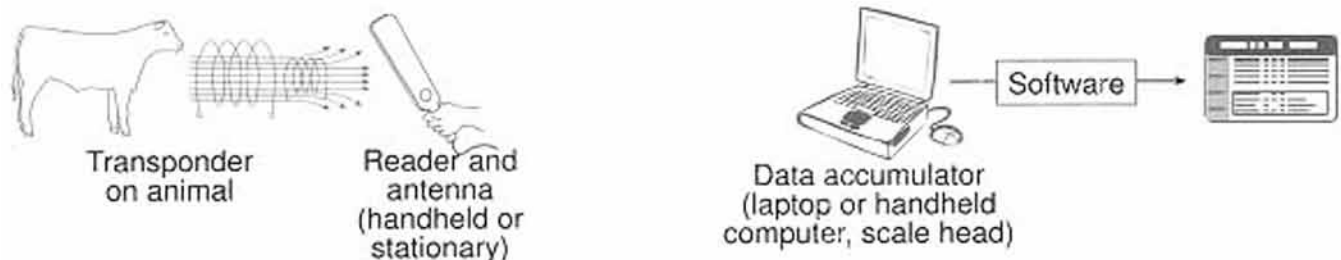

Fig. 1. Basic components of an RFID system (Blasi 2005).