

Using EID+DNA traceability system for tracing pigs under commercial farm conditions

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With the aim of validating the EID+DNA traceability system a total of 2,108 Duroc male piglets were used. The system was based on the use of electronic identification (EID) by injectable transponders and DNA fingerprinting by analysis of a set of porcine microsatellites (n=12). Piglets were identified (9±3 d of age) using 32 mm half-duplex ISO transponders injected intraperitoneally (IP) in commercial farm conditions. Piglets were ear tagged and biopsied at the moment of IP injection, using 2 types of biopsying button ear tags (E1, n=979; and, E2, n=1,129). Grow-fattening up to 120 kg BW (7 mo of age) was conducted under intensive conditions. Harvesting was done in a high throughput abattoir (500 pigs/h) and pig EID was automatically transferred to the corresponding carcass, using a high frequency inlay label (45 × 76 mm; Tag-it, Tiris, Almelo, Holland). Samples were taken from carcasses using biopsying tubes and stored frozen until DNA analysis. On-farm losses of IP transponders were 0.6% (58.3% of them during wk 1 post-injection) and ear tag losses were 0.7 and 0.4% for E1 and E2, respectively. On-farm traceability results of alive pigs were: E1 (99.3%), E2 (99.6%) and IP (99.4%). Ear tag losses during harvesting (E1, 35.3%; E2, 37.6%) indicated their use for traceability was unsuitable in the slaughtering line. No losses of IP were reported during harvesting. Automatic transfer of EID to carcasses was 95.1% successful. Final pig traceability from birth to slaughter was 94.5% for IP transponders. A total of 100 pairs of samples (5%) were analyzed for DNA auditing. Results did not match in 4 pairs of samples, showing 96% traceability. In conclusion, the use of IP transponders improved pig traceability. Nevertheless, automatic transfer of EID to carcasses needs to be improved to provide a more reliable technique for the pig industry.

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Economic analysis in relation with electronic identification of small ruminants

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Regulation (EC) 21/2004 requires individual identification of small ruminants in the EU Member States, and for animals born after 31 December 2009, electronic identification (EID) will become mandatory when sheep and goat population is >600,000 heads. This study calculated the costs of EID equipment, tagging and reading at national level for 4 case studies characterising different sheep production systems present in the EU. The costs and possible advantages of 4 different options for implementing EID were also compared. The results indicated that the major cost impact comes from reading and data processing equipment, and that the vast majority of the costs occurred on farm side. While holdings on which the animals were born supported the main EID costs, clear cost savings for reading were seen at market, assembly center and slaughterhouse levels. Even EID of traditional flocks should result in substantial cost savings when farm holdings delegated readings in connection with movements to control points. Although the slaughter derogation would reduce costs for farm holdings, it would also reduce traceability, in particular of frequent movements and batches of animals from different holdings of origin. This option would not unfold full advantage of automatic readings, confronting markets, assembly centers and slaughterhouses with 2 different identification systems (visual and EID) permanently. Additionally, EID is not only a cost, and its multi-purpose use may produce also benefits at farm and administrative level, as well as downstream in the production chain. Finally, for its primary aim regarding official identification and recording, EID will increase reading accuracy and, when fully implemented, will reduce time needed for movement and tracing quering and research, which benefits were not quantified in this study.