

A DNA technology trial to enhance the identity and traceability in Swine Production

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Statement of problem

Regulatory agencies and the public alike all have a vested interest in ensuring that livestock and food chains are properly monitored to reduce the potential of hazards in the food production system. Maintaining an identification trail from farm to retail will significantly improve current methods of risk mitigation and recall capability. Using advances in biotechnology, such a DNA traceability system is possible and could go far to further ensure public confidence.

Objective

The aim of this study was to test the viability of the use of DNA identification technology as a means of tracing pigs within a real time swine production system from farm to retail tray pack.

Methods and Materials

The methodology employed the use of specialized DNA sampling eartags supplied by *IdentiGEN* on 300 commercial pigs on three separate farms shipping to one packer. Further samples were also obtained in the following locations in the pork production chain

- ? Hot carcass on the slaughter line
- ? Primal loin cut from the cutting room
- ? Retail tray pack in the supermarket

DNA analysis of the samples was performed by *IdentiGEN*, Institute of Genetics, Trinity College Dublin, Ireland.

Results

Traceability levels were found to be:

- ? 100% from farm to slaughter (n=300)
- ? 97.5% from slaughter to primal cuts(n=40)
- ? 96.9% from farm to supermarket (n=32)

In addition the DNA analysis successfully identified a deliberately introduced a rogue sample from outside the study population. The study correctly linked meat products sampled along the supply chain with the source carcasses and farms.

Significance

Such significant results indicate the value and suitability of DNA traceability to enhance operational capacity of tracking and monitoring of animals and their products. This study demonstrates the potential for DNA identification technology to be used to trace back meat products from the retail level to the source animal enhancing the currently existing livestock identification systems.