FACT SHEET

PHYSI-TRACE®

Introduction

Currently Physi-Trace® is a scientific tool that can be employed to validate the traceability or label claim of a pork product. That is, in the case of fresh pork it is possible to trace the fresh pork back to a kill lot (tattoo code). For processed product, the Physi-Trace® tool can be used to provide an assessment of a label claim (e.g. PorkMark or Product of Australia). A PhD program is investigating the potential use of trace elements and stable isotopes in the traceability of pork offal and its relationship to the “Pork Meat Physi-Trace® Database.”

The Physi-Trace® validation tool works on the basis of comparing determined elemental distribution patterns with a database of reference patterns. This involves the regular collection of reference samples from selected kill lots. In the event of a food safety incident or any other incident where traceability is required, these samples can be used to quickly and accurately identify potential sources of ‘suspect’ product. This enables the rapid exclusion of unaffected product, producing areas and processors, therefore facilitating rapid re-entry to markets.

Minimising Disruption to Market Access

A trace back project was undertaken in Singapore in April 2010 in conjunction with the Singapore Agri-Food and Veterinary Authority, the Australian Government, Australian processors and a Singaporean importer and processor to demonstrate how the Physi-Trace® tool could be used to trace ‘suspect’ product in an export market.

A number of known origin pork products were sent to Singapore. These pork products were sampled at the distributor (as it entered Singapore) and at the retailer. The samples were then provided to TSW Analytical in Australia as unknowns. These samples were pre-processed in Singapore (to comply with biosecurity requirements) before being shipped back to TSW Analytical for analysis and traceability determined. The outcome of this trial was that the technology was able to correctly identify the source of 100% of all unknown samples taken.

The demonstration trial also provided the first indication of how fast a trace back could be undertaken.

Country of Origin Labelling Compliance in Singapore

A country of origin labelling investigation was undertaken of Australia label claims on pork products in Singaporean retail outlets. This investigation was designed to provide a snapshot of current label compliance in the Singapore market.

A large number of retail products were analysed to provide an indication of the validity of label claims. This exercise was successful with a classification model developed that facilitated the assessment of country of origin claims.

It is estimated that the state of origin of the unknown sample will be known within 36 hours of receipt at the laboratory. The tattoo identification will then take another 12-24 hours depending on what relevant reference samples are required and where these are currently located.
PorkMark Compliance

The roll out of the APL PorkMark program in combination with the success of the Country of Origin Labelling (CoOL) investigation undertaken in Singapore provided the opportunity to apply the Physi-Trace® technology as a compliance testing tool in Australia.

Sampled retail ham and bacon products (both pre-packed and deli) collected from around Australia were assessed using Physi-Trace®, with reference to their respective label claims. This enabled identification of potential mislabelling of products by either distributors or supermarkets and provides a snapshot of market compliance with CoOL laws and also a tool to promote honesty in labelling of pork products.

Trace Back Due to a Foreign Object Found in Fresh Pork Meat

In late 2011, a foreign object with the potential to cause serious injury was found embedded in a cut of fresh pork meat. The processor requested a trace back using Physi-Trace® technology to establish the origin of the tainted meat.

The tainted meat sample was classified with the pork meat profiles belonging to Farm B (100% correct classification), indicating that farm B is the most likely source.

The trace back result was available within 36 hours of receipt of the sample. The processor confirmed that animals from Farm B had been processed on the day that the sample was collected and was one of four most likely sources.

The conclusions of the investigation were firstly, the farm of origin was confidently identified and undisputed. Secondly, the trace back was completed in 36 hours, potentially saving the industry millions due to trade stoppages. Finally, it demonstrates to the public that the industry is in control of a situation where suspect pork is found.

National Livestock Traceability System (NLIS) – Pork

The Primary Industry Ministerial Council (PIMC) endorsed the National Livestock Identification System (NLIS) as the national system for livestock traceability (National Livestock Traceability Performance Standard).

NLIS for cattle was introduced in 1999. NLIS-Pork commenced implementation in 2006. NLIS-Pork comprises: property identification; pig identification and movement documentation. It is underpinned by an approved on-farm Quality Assurance program and managed by the PigPass database.

Weaknesses have been identified in NLIS-Pork, particularly for saleyard transactions, and in NLIS (Sheep & Goats). The Primary Industries Steering Committee has agreed to an implementation pathway for Radio Frequency Identification Devices (RFIDs) for sheep and goats in 2014. The Victorian Minister is reported as being supportive of RFIDs for sheep and goats and the option has been raised by Victorian regulators in the past of implementation of RFIDs for saleyard pigs in Victoria to address the weakness in NLIS-Pork. If this were to occur, there is the potential for ‘system creep’ of RFIDs to pigs other than saleyard pigs and to other States.

Physi-Trace® is being developed as an alternative traceability tool to RFID, at significantly lower cost (estimated 18 cents per carcase for Physi-Trace® compared to $2 per pig for RFID). Physi-Trace® will also provide traceability along the whole supply chain, not just farm to abattoir as for RFID.

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