

Transponder frequency and electronic National Livestock Identification System (NLIS) tags

AGRICULTURE VICTORIA

There are no alternative transponder technologies currently available that provide better value-for-money than the technology currently used in electronic NLIS (Sheep) and NLIS (Cattle) tags.

BACKGROUND

The current interest of government and industry in sheep and goat identification is driven principally by the need to reliably track animals from property of birth to slaughter for disease containment, food safety and market access purposes.

The NLIS Standards Committee is the national body responsible for overseeing the performance of NLIS (Cattle) and NLIS (Sheep) tags throughout Australia. Many transponder technologies have been assessed by the NLIS Standards Committee since the commencement of the NLIS (Cattle) system in Victoria in 1999, including high frequency (HF) and Ultra-high Frequency (UHF) technology.

Reliability

No technology currently offers better value-for-money, or works as reliably in livestock applications, as ISO-compliant half duplex (HDX) technology.

UHF technology has not been demonstrated to work reliably at all points of the sheep supply chain, and would need to do so before it could be considered for inclusion in NLIS tags. Predictions on the likely performance of UHF technology on farms and in Victorian sheep saleyards and abattoirs would need to be tested and confirmed.

Companies interested in incorporating new technology into NLIS tags are welcome to engage with the NLIS Standards Committee and arrange to demonstrate their tags and readers on farms, and in saleyards and abattoirs.

Electronic NLIS (Sheep) and NLIS (Cattle) tags contain low HDX transponders. Readers used on farm and in saleyards and abattoirs are able to read both NLIS (Cattle) tags and electronic NLIS (Sheep) tags.

Standards

There are two international and two equivalent Australian standards covering the HDX technology used in NLIS (Cattle) and electronic NLIS (Sheep) tags. The international standards are ISO 11784 and ISO 11785. The Australian Standards are AS 5018-2001 and AS 5019-2001.

There are no international standards in place to support the use of UHF for livestock identification purposes. Work on a numbering standard for UHF technology used in livestock tags has only just begun.

Price

There is no convincing evidence that UHF technology, if it was shown to work reliably along the supply chain, would be cheaper than HDX technology.

Readers

There has been a considerable investment in recent years across all industry sectors, reflected in the impressive increase in electronic NLIS (Sheep) tag sales throughout Australia, to acquire reading equipment and software.

Most Victorian sheep abattoirs, for example, already have readers for the reading of electronic NLIS (Sheep) tags.

Industry software and the NLIS database are based on the ISO-compliant electronic number encoded on the transponder used in NLIS tags. Potentially the numbering used in UHF transponders would be different, leading to a need to modify industry software and the NLIS database at considerable expense.

Overseas identification systems

The legally mandated sheep identification systems operating in the European Union and the United Kingdom are based on ISO-compliant technology, not UHF.

The cattle identification systems in Canada and New Zealand are also based on ISO-compliant technology.

The introduction of identification systems in many countries based on ISO-compliant technology has resulted in efficiencies in the production of tags that in recent years has

placed considerable downward pressure on tag price. This trend is expected to continue, benefiting Victorian producers.

Government and emergency response needs

To address government and industry response needs, electronic tags must comply with each of the following requirements:

- Field retention, with losses in NLIS Standards Committee supervised trials not exceeding 1 per cent per annum over three years, with NLIS tags expected to facilitate 'whole of life' identification
- Transponder reliability, with transponder failures in trials not exceeding 0.5 per cent over three years
- Conform with other elements of the *NLIS Standard for radio-frequency identification devices*
- Price, with tags for sheep and goats ideally costing less than \$1 per tag
- Supported by internationally recognized transponder standards applicable to livestock applications
- Free from patent constraints allowing for competition between reader and tag suppliers
- Able to be accommodated by industry systems and the NLIS database without the need for major expenditure to modify or duplicate existing software and hardware platforms.