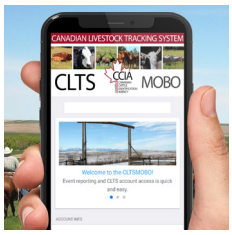
CCIA
canadaid.ca
CANADIAN CATTLE IDENTIFICATION AGENCY

ULTRA HIGH FREQUENCY







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What is UHF?

Ultra-High Frequency (UHF) is the band of frequencies on the electromagnetic spectrum between 860-960Mhz.

UHF technologies transmit data between the transceiver and the transponder. The robustness of the technology allows fast, efficient data transfer of information, primarily in the supply chain now. UHF ear tags utilize this technology to communicate unique information between the animal and the equipment collecting the data. UHF is faster and has additional benefits not found with Low Frequency technology (LF – what is available now).

Why all the interest?

Rapid collection of tag data allowing animals to move at the speed of commerce is driving interest.

Segments of the livestock production sector are eyeing performance benefits that are available with advanced technologies such as UHF. Faster read-rates for livestock, longer read-ranges of ear tags, group scans of animals, and higher read rates of tags at critical junctures (processing and auction markets).

Who are the key players?

- Tag and technology manufacturers
- International Organization of Standardization (ISO)
- Registration Authorities (ICAR)
- Competent Authority (CFIA)
- Responsible Administrators (i.e., CCIA)

Key players generally bring identification products and technologies to the market. These components must work in unison to support markets and governments who build and manage traceability systems for the benefit of everyone. Without this cooperation, there would be incompatible systems that wouldn't mesh.

When could it be implemented?

- Non-official UHF tags/equipment is available for use by specific sectors of industry including cattle feeding, bison, swine, dairy, and processing. Optimization of UHF is difficult without specific standardization, but it can be used to provide speed and efficiency in select market channels.
- Software has been developed/ adapted to cross-reference official LF tags with UHF tag numbers in concurrent system.
- Reader/antenna options and cost analysis for co-mingling sites could begin.
- Modifications to CLTS data field for UHF tag number sequence (24-digit vs 15-digit)

Moving to a UHF technology platform will be a significant change for the livestock industry. There is no real way to transition from LF technology. It will need to pivot to the new platform and run concurrently if deemed advantageous overall. Current ISO standards keeps our tags compatible with other systems in the world. Working within the global standard is important for industry.

1st year:
UHF tag retention studies could be completed using modified LF tests in the National Identification and Methodology Advisory Committee (NIDMAC) testing Framework:

- provision of matched pairs (LF+UHF) and/or custom marked UHF tags
- dual technology tag available for cattle

2nd year:
UHF tag longevity data will be available on tags in use:

- readers adapted for use in transport and high-capacity co-mingling sites

3rd year:
UHF animal numbering scheme and testing standards will be in place and supported by ISO countries and trading partners:

- approved UHF tags available meeting Canadian standards
- ISO Standardized UHF tags approved in USA

How is CCIA involved?

UHF has evolved from its introduction to livestock over 15 years ago. Lack of standards for the livestock sector have prevented the widespread introduction and adoption of system-wide UHF transponders as identifiers for livestock. The traditional path for a new technology approval is convoluted, but the CCIA Board of Directors had identified the merit of exploring the technology a few years ago.

- CCIA research team traveled to Scotland for consultation on traceability and UHF technology in 2017
- UHF technology investigation initiated 2018 (back-tags, deadstock tags, dual-ear tags)
- UHF research project: *Literature review and technology readiness assessment of ultra-high frequency radio frequency identification to Canadian livestock applications completed in early 2021*

  Recommended next steps include gap analysis and implementation plan for Canada
- Development of technology implementation pathway for CCIA board to assess (work plan)
- Ongoing consultations with governments on mutually beneficial options
- CCIA supporting work on ISO Standards development, NIDMAC Framework adaptation, and field testing
- CCIA conversing and sharing learnings with other UHF supportive countries