Project summary V.RDA.0002 - Assessing the feasibility of an implantable ID for cattle

Integrity Systems Company (ISC) has been working to improve tracking and tracing of Australian cattle. This project revealed a significant cost is borne by the supply chain in replacing lost tags (~$10m per year), with a high value at risk through potentially compromised biosecurity (avoided cost of ~$2b to industry). A number of concepts were proposed in this project as alternatives to the current NLIS tags, including implantable RFIDs.

The project sought to validate assumptions related to the technical and adoption challenges for an implantable ID in cattle, as well as testing improvements of the implantable ID concept in line with test results. Using human centred design, innovation methods and applying commercialisation expertise, the project used a critical thinking approach to prototype development and testing and identified changes that need to be made to the prototype to improve the chances of widespread adoption including answering questions such as:

- How can we accelerate robustness testing of NLIS compliant devices in a standard and repeatable way?
- How can we manufacture/access this new device reliably at a desirable price point?
- How can we influence behaviours that lead to greater industry adoption of the benefits of this new device?
- What business model innovations can we wrap around the device in order to improve its desirability and viability?

The project focussed on the validation of assumptions related to technical, regulatory and adoption challenges as well as testing improvements for the implantable RFID. Each of these assumptions were categories into one of four aspects:

- Technical feasibility,
- Economic Viability,
- Stakeholder desirability, and
- Scalability.

The project team then conducted a series of laboratory trials and in-depth stakeholder interviews to (in)validate the assumptions within these categories and bring down any remaining adoption hurdles of the device. Having validated the assumptions, there is a high level of confidence that an implantable ID would reduce tag loss, increase data quality and reduce friction in the traceability system, if broadly adopted.

Australian beef is a major part of the Australian economy. Australia's reputation for producing clean and safe red meat products relies on lifetime traceability of its cattle. Lifetime traceability losses are a result of tag problems (losses, non-reconciled breeder tags and tag damage) and not scanning between PICs. Improvements in the lifetime retention and traceability of devices have the potential to deliver approximately $10m in direct costs to the industry per year as well as over $2b in increased biosecurity risks.

It is recommended that injectable devices are further explored as an alternative to NLIS ear tags. Early adopters are likely to be those producers who are experiencing high levels of tag loss, are seeking to improve farm management practices, or are affected by stock theft. This segment will adopt the injectable solution because they are not currently satisfied by the NLIS ear tag solution, due to fundamental limitations of the technology option.

An alternative solution will produce measurable improvement in tag retention in the longer term and is a critical requirement in maintaining a world class livestock integrity system. There is however

likely to be significant push back from other supply chain participants, most notably processors. Key activities following this project should be targeted at addressing these stakeholders' concerns and facilitating pathways to adoption that work for everyone in the supply chain.