Assessing real time tracking technologies to integrate with identification methods and national traceability requirements

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Mud-map

• Introduction
• Why explore this?
• Lit Review results – what’s out there?
• Proposed future platforms, what could they be?
• Applications of the proposed systems to traceability functions
Who are we?

- CQUniversity Australia
- Institute for Future Farming Systems
- Precision Livestock Management Group
Why explore this?

- The developments in mobile technologies and human fitness tracking has developed interest
- "Smart tags" have been promoted widely in the industry
- There seems at face value to be an opportunity to leverage this technology into traceability schemes, but is it really likely???
Not about the applications used by producers

• Red-meat producers have a range of applications they want to use “smart-tags” for!

• This is about the potential uses in the current and future traceability scheme
Literature review -

- **Identification technologies**
  - Physical animal adjustments, visual tags, RFID, biometric…

- **Tracking technologies**
  - **Sensors**
    - Location (where is the animal): GPS, radio beacon triangulation
    - Attribute tracking (what is the animal doing, what state is it in?): motion, location, internal, physiological…
  - **Data communication**
    - Short, medium and long range options: Bluetooth to satellite!

- **Conclusion**: right now, a “smart ear tag” does look like the best option to deliver the required location and attribute data.
What could the future look like?

- Level 1 - Future platform that continues to use current RFID technology as the core identification platform along with more advanced tag and reader technologies
- Level 2 - Future platform that incorporates active RFID technology with ability to broadcast to greater distances
What could the future look like?

- **Level 3** - Future systems that incorporate basic animal activity monitoring technologies (e.g., accelerometer)

- **Level 4** - Future systems that incorporate advanced location and activity along with remote communication capabilities
But how would that actually create benefit?

For current traceability functions:

• Biosecurity
  – Notifiable diseases (FMD & BSE)
  – Significant diseases (Foot rot, three-day sickness)

• Food safety
  – Residues (pharmaceuticals and metals)
  – Product authenticity claims (e.g. Pasture-fed Cattle Assurance Scheme)

But how would that actually create benefit?

For future traceability functions?

• Sustainability
  – Environmental stewardship
  – Animal welfare

• Industry insights
  – The large data set would enable industry insights to further bolster traceability


The challenges...

- It seems so easy, just hang a mobile phone off a cow??! Buts it really difficult!
- Keeping a ear tag on the animal
- Long term testing is required
- Turn data into useful information
- But remember, we’ve only just begun!

We are here now!
Thanks!

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