Increasing accuracy in on-animal spatio-temporal monitoring and management for the livestock industry

SBAS testbed project: agriculture

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Who are we?

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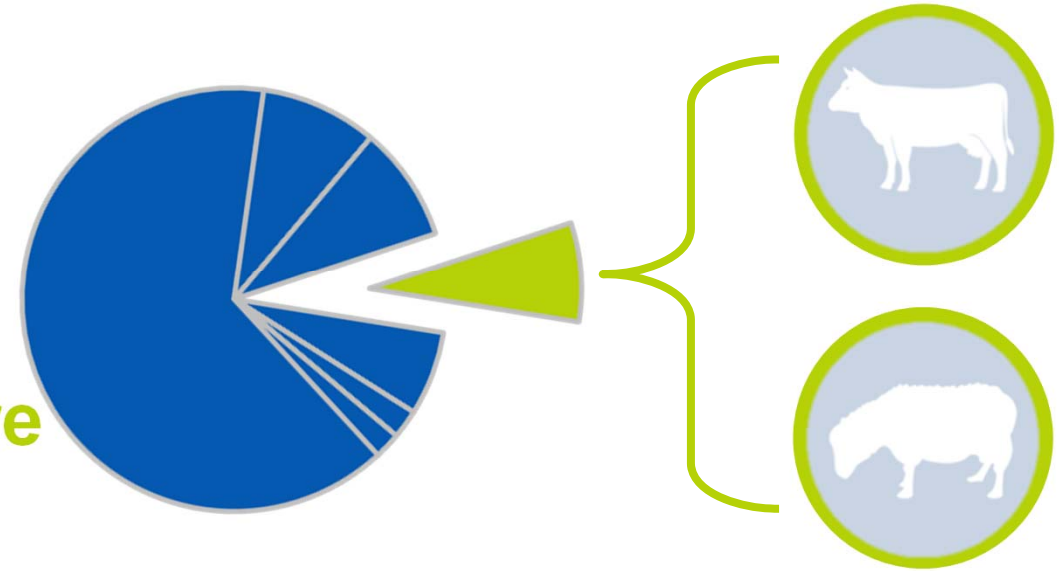
Agriculture

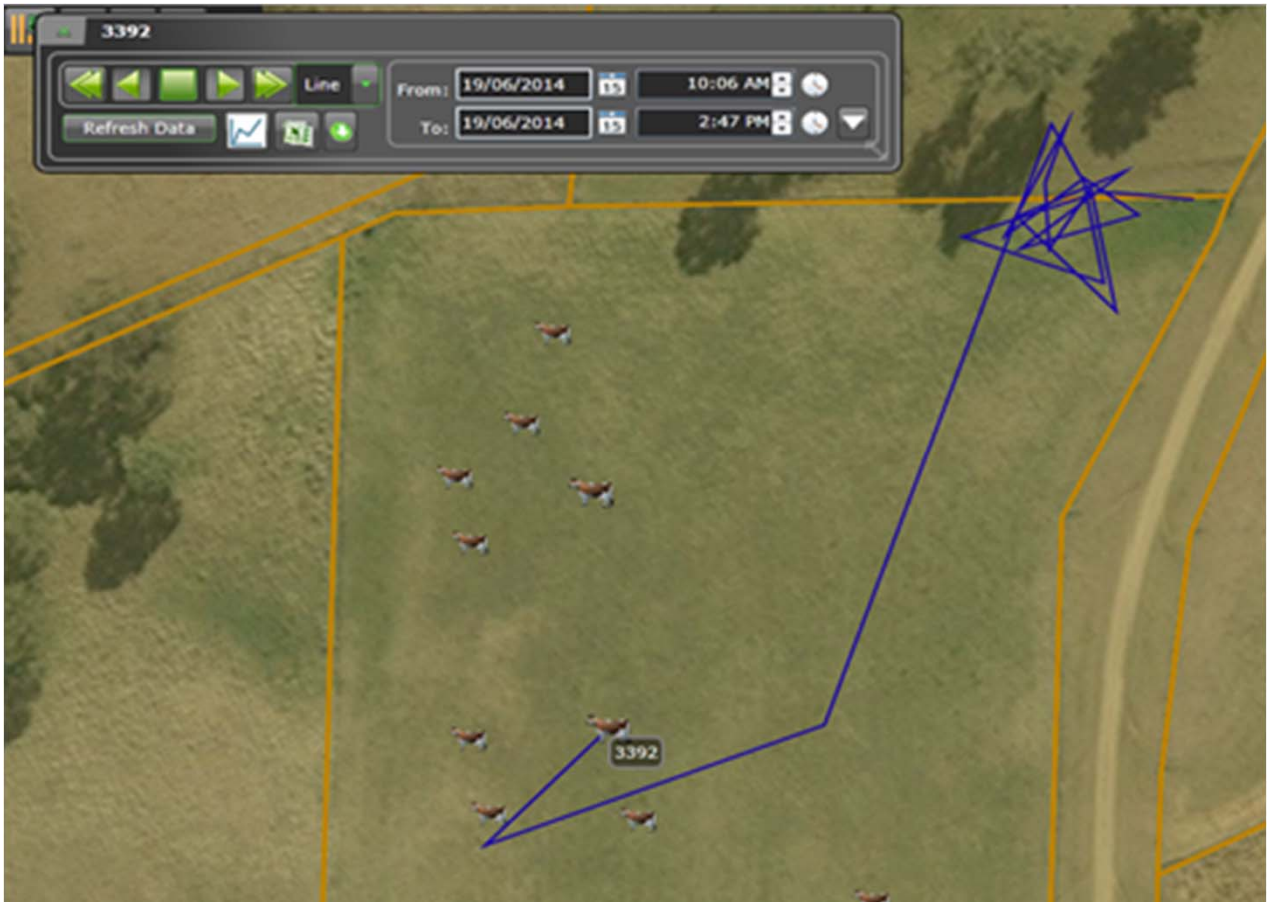
48% of Australia is used for farming

Top 3 agricultural exports

4th largest export is **agriculture**



But what has GNSS got to do with farming livestock?

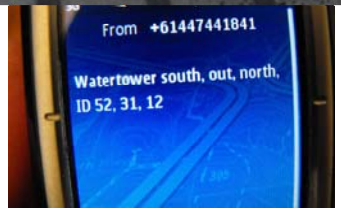


Simple stuff, are my cows actually on the farm?

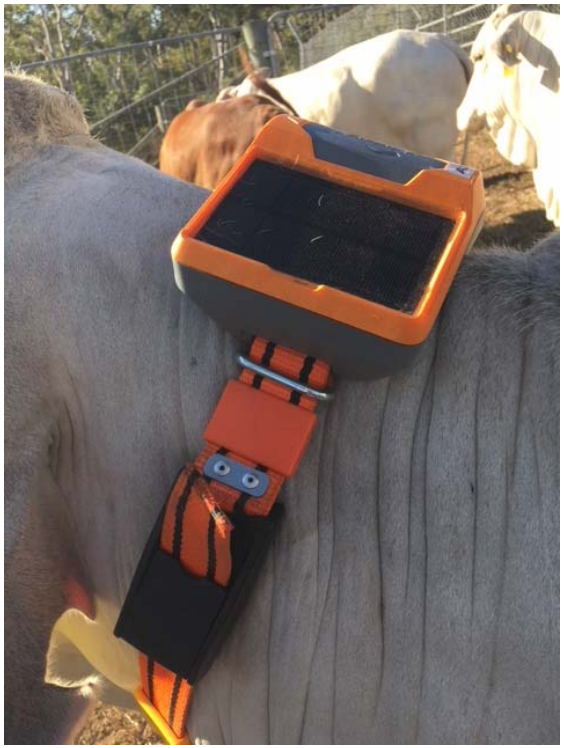
Hmm, they were here this morning???

Meanwhile 2km down the road

Detecting interference with anir



Autonomous Animal Location Management (Virtual Fencing) there's even more…



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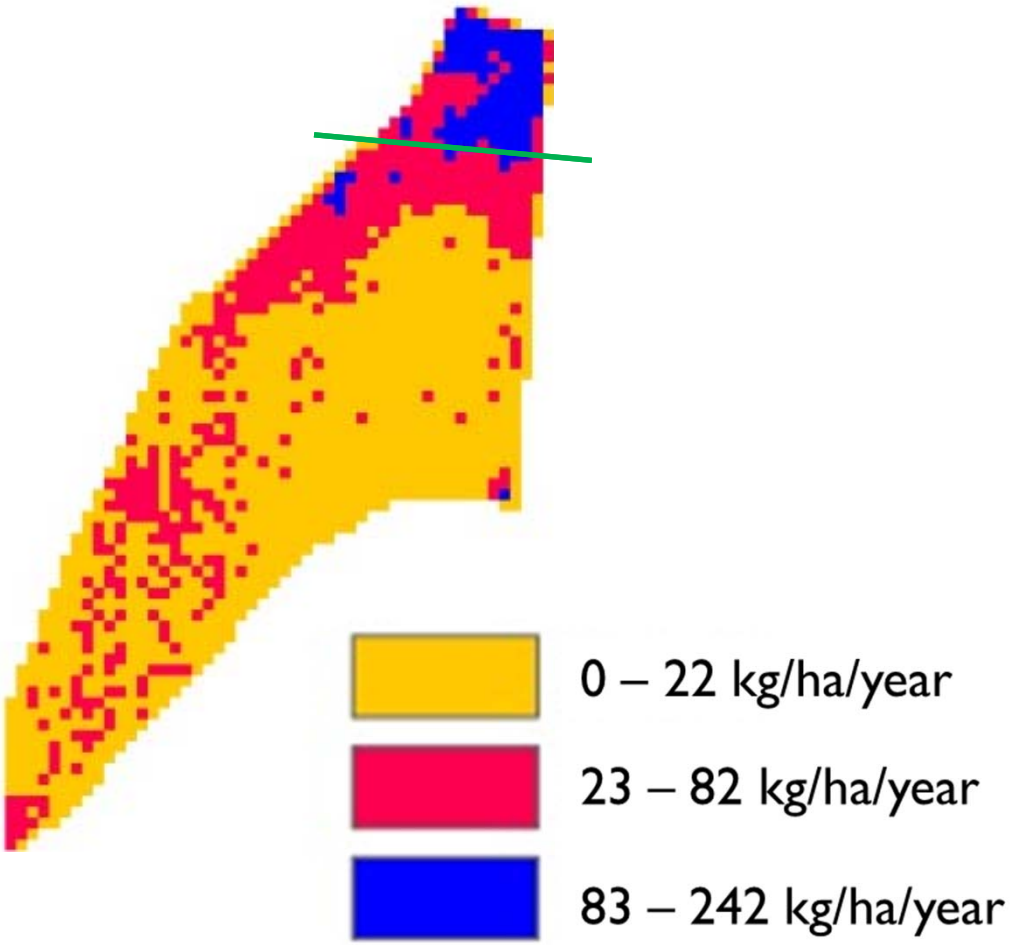
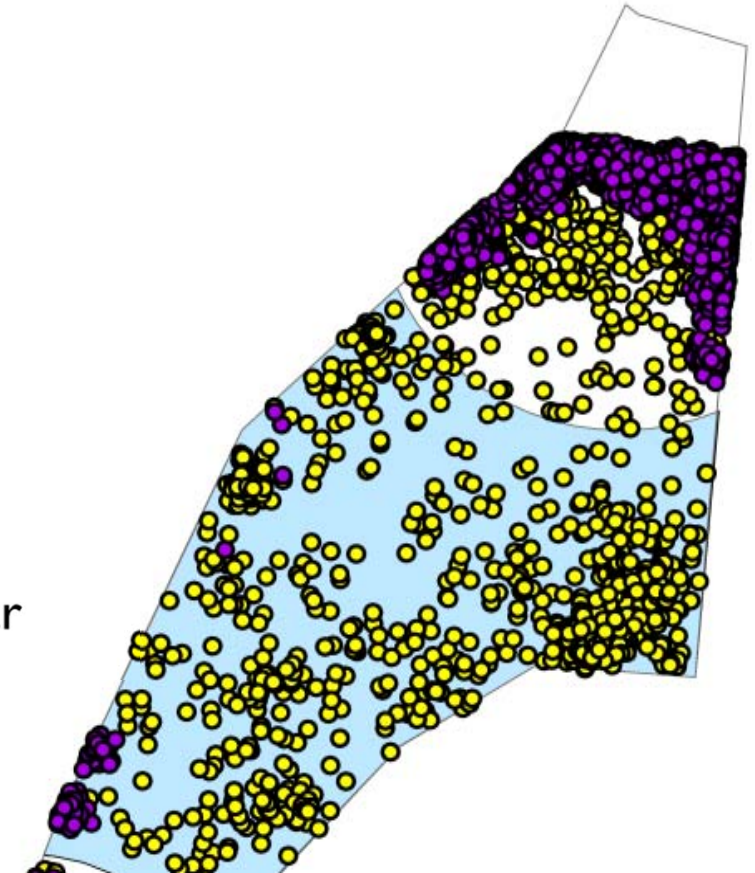
Controlling landscape utilisation





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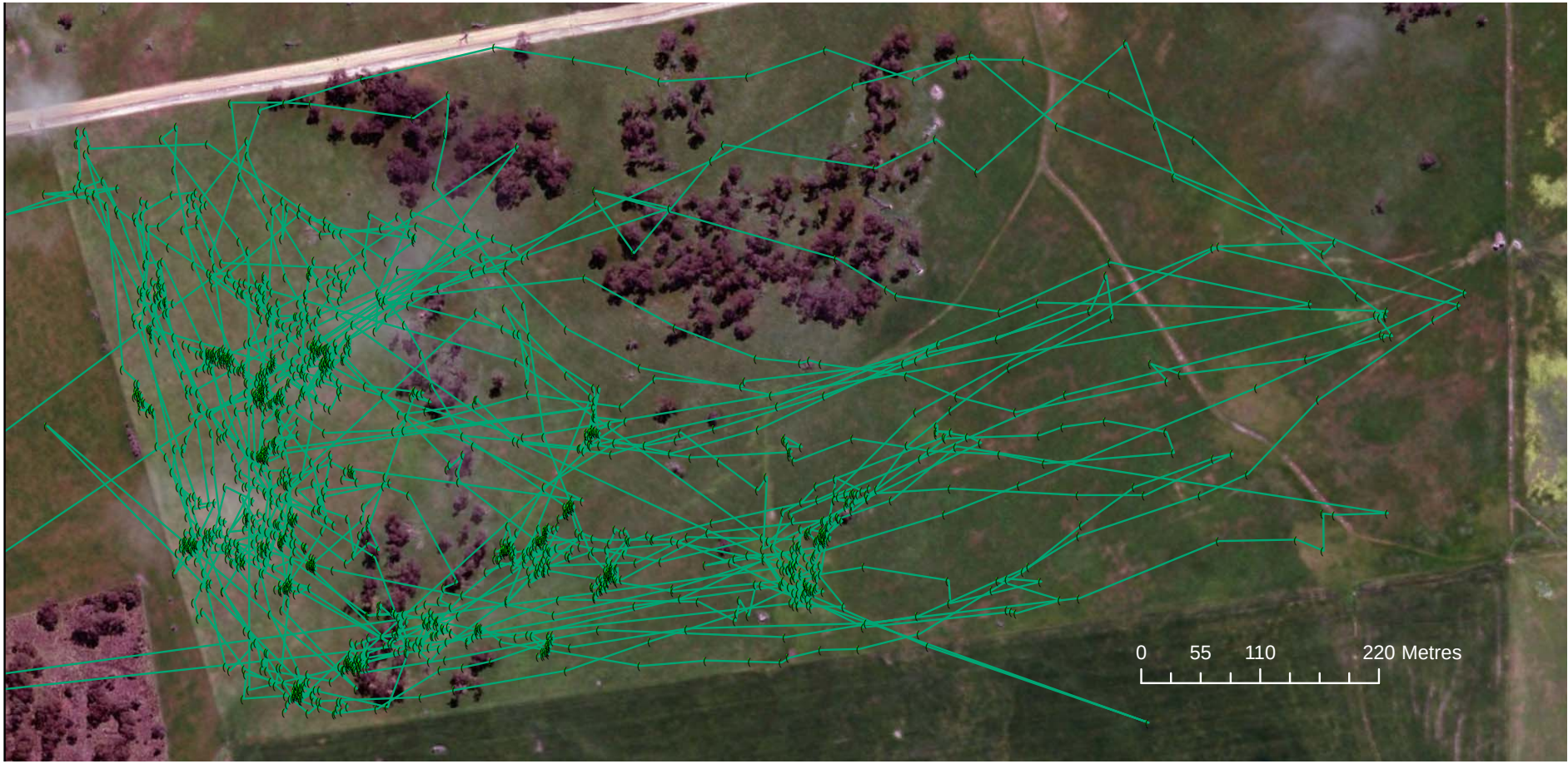
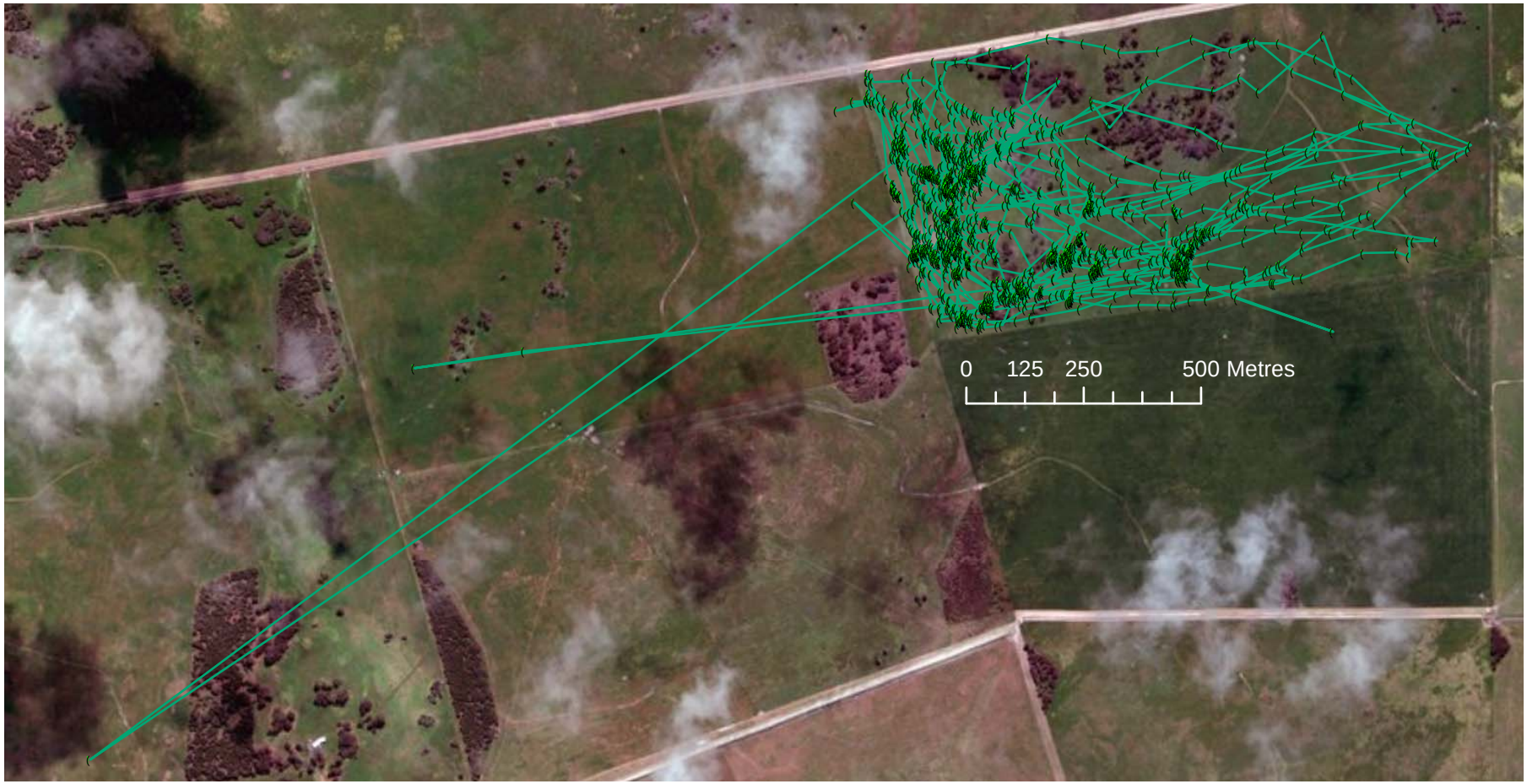
But do we really need SBAS level accuracy?

What does GNSS data look like at the moment?



Ok but why do we need SBAS accuracy?

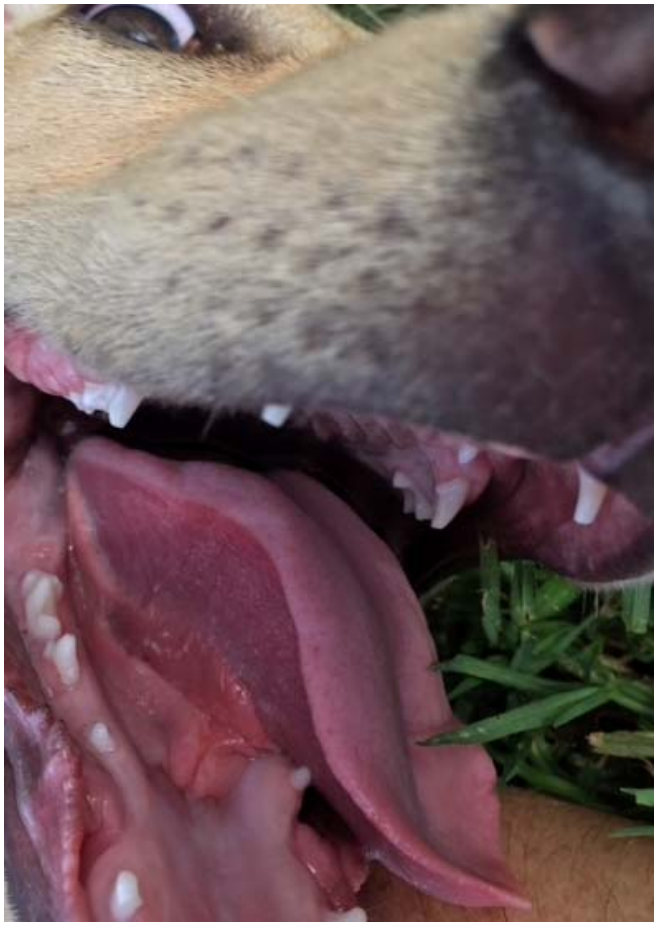


We model this out but it does mean we lose data!

Is this sheep grazing or standing still or both?

Where could SBAS help?

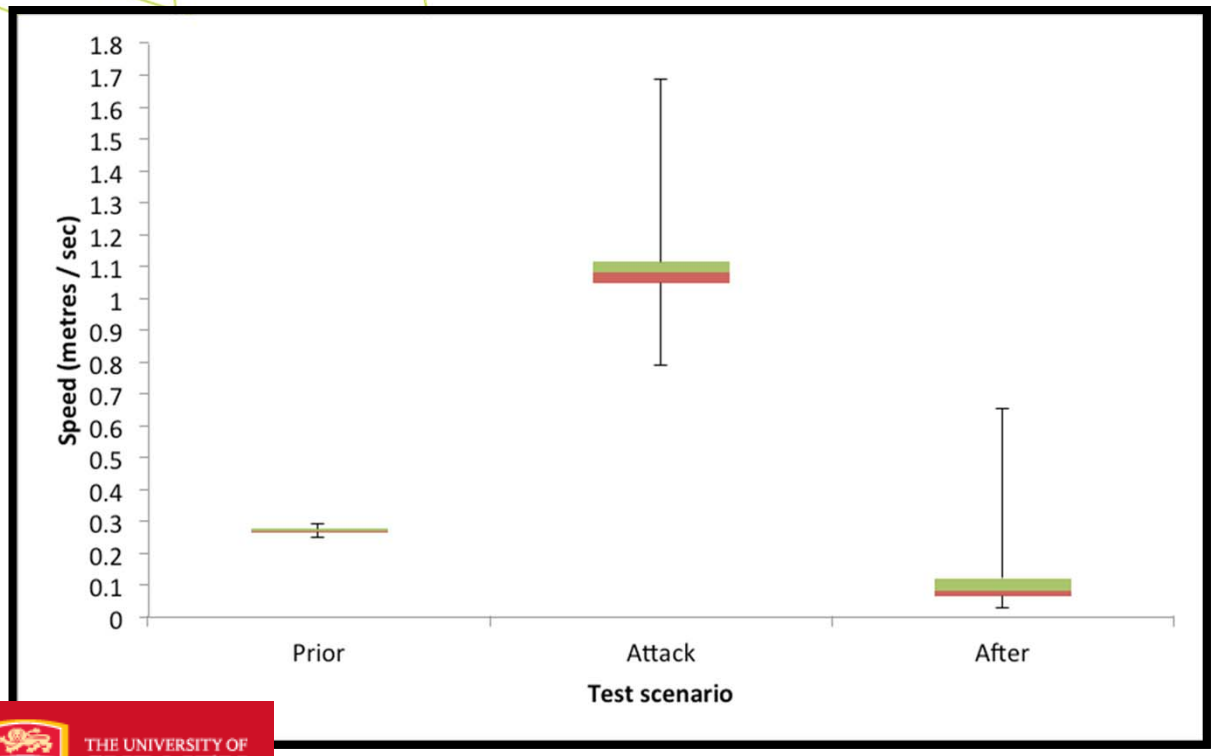
Predation of livestock

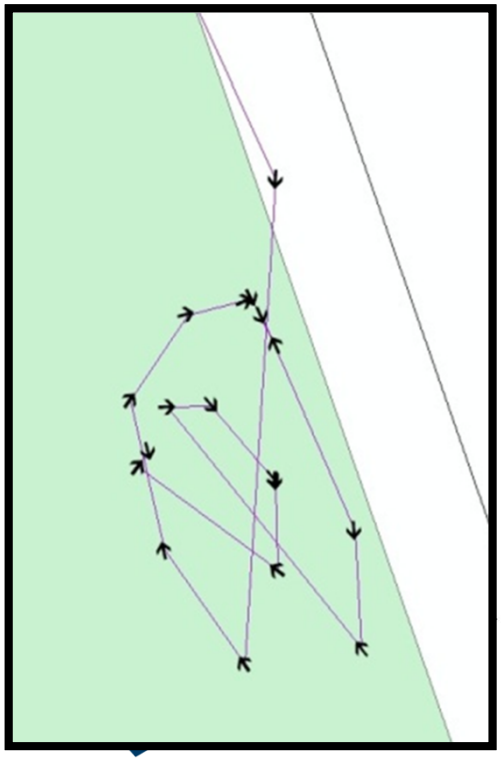


$65million

(Meat & Livestock Australia)

GNSS based detection of dog predation events





Manning, J, Fogarty, E, Trotter, M, Schneider, D, Thomson, P, Bush, R, Cronin, G (2014) A pilot study into the use of GNSS technology to quantify the behavioural responses of sheep during simulated dog predation events. *Animal Production Science* **54**, 1676-1681.

The next generation of virtual fencing…

Value to the dairy industry…

$63,000 to $158,000 per year for a 500 cow herd (Dairy Australia)

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Summary

Importance of SBAS/ improved accuracy for livestock:

- Definite value for Virtual Fencing applications
- Potentially useful for behavioural monitoring

Challenges

- This is still early days for the industry!
- We need this in a small form factor
- We need this with very low power consumption

Acknowledgments