Trina Jorre de St Jorre

Profile

Trina grew up in Perth and never expected to end up working with livestock. But the world works in mysterious ways and Trina, having always surrounded herself with animals, began a Bachelor of Science in Animal Science in 2002. She found that she really enjoyed applied science and working hands on with large animals. Thus for her 4th year project she studied the effect of temperament on the reproductive capacity of rams. Loving research and enjoying working with sheep and agricultural systems, she began her PhD research in 2007. She is studying the role of male novelty in the response of ewes to the ram effect and is now in the 3rd year of her PhD.
Non-hormonal control of ovulation in sheep

Trina Jorre de St Jorre

Supervisors
Prof. Graeme Martin and Dr. Penny Hawken
Acknowledgements

Supervisors
Prof. Graeme Martin
Dr. Penny Hawken

Funding
Australian Research Council
Meat & Livestock Australia

All of the volunteers who have assisted with my field work
Consumers want:

- Clean: Hormones
- Green: Impact on environment
- Ethical: Animal welfare

Marked as approved: Ethical Animal welfare
The ram effect

- LH Blood Concentration
- Preovulatory Surge of LH
- Ovulation
The ram effect

- Time ovulation, mating, lambing
  - Use food on offer
  - Out of season lambs
- Synchronise ewe flock
  - Focus feeding
  - Artificial insemination
- Cheap and efficient
What is left to learn?

- Ewes become habituated to the same ram
- Month separation is standard practise
- Respond to sight, smell and sound of rams
- Logistically difficult
- Separation may not be necessary
  - Novel rams
Research aims

• Determine whether ewes respond to novel rams without separation
• Determine minimum period of separation required for response to familiar rams
• Identify regions of the brain involved in:
  – Memory recall familiar rams
  – Memory formation novel rams
Hypothesis

“Ewes will respond to novel rams with an increase in LH pulsatility characteristic of the ram effect, after removal of familiar rams”
Methods

- Habituated ewes to familiar rams
- Treated with progesterone - endogenous LH
- Two treatments
  - Ewes re-exposed to familiar rams (n=10).
  - Ewes exposed to novel rams following removal of familiar rams (n=10).

-6 hr 0 6 hr
15 min samples 15 min samples
Results

Familiar ram

- LH concentration (P<0.001)
- Basal LH (P<0.001)
- Number of pulses (P<0.001)

Novel ram

- LH concentration (P<0.001)
- Basal LH (P<0.001)
- Number of pulses (P<0.001)

No change
Is separation of ewes from rams necessary if rams used are novel?
Unanswered Questions

• Is exposure to novel rams as effective as exposure to familiar rams following separation?
• Does separation improve ewes response to novel rams?
• Have we been misled by the literature?
  – Will ewes respond to familiar rams following separation for a month?
Methods

• Habituated ewes to familiar rams
• Treated with progesterone - endogenous LH
Methods

• 5 treatments
  – Ewes exposed to novel wethers after 15 mins
  – Ewes exposed to novel rams after 15 mins
  – Ewes exposed to novel rams after a month
  – Ewes exposed to familiar rams after 15 mins
  – Ewes exposed to familiar rams after a month
Results

Exposure to novel wethers after 15 mins

Exposure to familiar ram after 15 mins

No response

No response
Results

Exposure to **novel ram** after 15 mins

Exposure to **novel rams** after month

Response

Response
Results

Exposure to familiar ram after month

- 2 ewes – no response
- Reduced response?
Separation of ewes from rams is not necessary if rams are novel!