Relationships between temperament, feeding behaviour and stress during feedlot adaptation in lambs

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Background
- Intensive lamb finishing systems
  - In 2007 approximately 14% of all lambs sold were finished in a feedlot (increase of 2% on previous year).
  - Reasons for finishing lambs in a feedlot:
    - Consistency of supply
    - Lack of pasture (drought conditions)
    - Strong export demand
  - Still a developing industry
  (Hallam, 2007)

Lambs introduced to a feedlot from pasture must contend with:
1. Transport
2. Change in diet and availability of food
3. Change in available floor space allowance
4. Mixing of unfamiliar animals
5. Novel environment
6. Higher degree of human-animal interaction
7. Disease

An estimated 5-20% of lambs do not adapt to the feedlot environment. – Jolly and Wallace 2007

Individual differences between lambs may help to explain why some animals adapt and others don’t.

Objective
To examine relationships between temperament, social behavior (agonistic behavior especially around the feeders), feeding, stress and growth performance of individual animals during the first 2 weeks (adaptation) in the feedlot.

Feedlot lay-out
- 4 Replicates (over 16 months)
- 40 lambs/pen
- Merino wethers (average entry weight 25-30Kg)
Measurements

Data on individual animals are based on the 15 focal animals within each pen for 3 replicates, n=180 lambs

Temperament test (isolation box test)
  • Jumps
  • 180 turns
  • Vocalisations
  • Steps

Growth
  • Weight at T-1 (prefeedlot), T0 (Feedlot entry), T1 (Week 1) and T2 (week 2)

Results

A parsimonious general linear model for the expected value of the square root of Neutrophil:Lymphocyte ratio at week 2 was developed using F-tests.

Factors included in the model were
  • Entry liveweight
  • Number of jumps in Temperament test
  • Number of times the lambs was displaced from the feeder

Relationship between N:L ratio and jumps during the temperament test

Response and points are adjusted for times displaced from feeder and entry live weight on square root scale, and then back transformed.

Relationship between N:L ratio and times displaced from feeder

Response and points are adjusted for entry live weight and jumps temperament test on square root scale, and then back transformed.

Relationship between N:L ratio and entry live weight

Response and points are adjusted for times displaced and jumps temperament test on square root scale, and then back transformed.
Conclusions

- The temperament test provides useful information which may be indicative of the lambs individual ability to successfully adapt to the feedlot environment.
- The increased N:L associated with increased displacements indicates that the displacements are a potential cause of stress.
  - Highlights the importance of reducing competition for feed by:
    - Increasing trough length
    - Increasing number of feeding points
- Smaller lambs may take longer to adapt or may be less successful in adapting to the feedlot environment than larger lambs.
  - Some lambs may already be smaller because they are less competitive, or less competitive because they are smaller
  - Increasing average entry weights may improve adaptation

Acknowledgements

- Project funded by Department of Environment and Primary Industries

Thanks to:
- Supervisors Prof Paul Hemsworth and Dr Ellen Jongman
- Samantha Borg, Frances Fitzpatrick, Lauren Hemsworth, Tracie Storey and staff/students of the Animal Welfare Science Centre