Fact sheet

Improving twin lamb survival through rumen-protected (RP) arginine supplementation

Need to increase twin lamb survival

High incidences of lamb mortality cost the industry approximately $450 million per year, with lambing difficulties (dystocia) resulting in oxygen deprivation is associated with up to 70% of these lamb deaths, particularly in twin lambs.

The objective of this study was to investigate the potential of using rumen- protected arginine (RP-arginine)supplemented pellets delivered via lick feeders to increase twin lamb survival under commercial conditions. A MLA funded collaborative project currently underway between SARDI and the University of Adelaide found supplementing twin-bearing ewes with RP-Arginine from day 90 of gestation resulted in a trend for 12% improvement in twin lamb survival under outdoor small containment research conditions, at SARDI's Turretfield Research Centre, Rosedale, SA.

Major findings

1. RP-Arginine did not significantly improve lamb survival at marking or weaning (control average 65% survival, RP-Arginine average 69% survival)
2. RP-arginine lambs were 1kg lighter at weaning compared to control lambs
3. Overall, a similar proportion of the flock visited the feeders for either the control or RP-Arginine paddocks, between 40 and 50%

Key results

	Control	RP-Arginine
Ewes selected	575	570
Total lambs expected	1172	1154
Lambs marked/lambs expected, % (n)	65 (763)	68 (789)
Lambs marked / 100 ewes, %	**133**	**138**

Key points to consider when using RP-arginine during pregnancy

- Pregnancy scan for pregnancy status and litter size, and differential management of energy requirements for twin bearing ewes
- Allow a 2–3 week training period for ewes that have not been exposed to a lick feeder
- Position lick feeders to encourage ewes to move around i.e. not alongside hay or water troughs

The protocol

- Supplemented pellet formulated at a local feed mill, using a commercially available rumen protected arginine was supplied to three producers (2 in Ararat, VIC and 1 in Waterloo, SA)
- All producers enrolled 400 twin-bearing ewes in the trial
- This feed was (and is best) delivered using a lick feeder, this ensures continual feed availability and control over intake for ewes throughout the lambing period
- As per MLA recommendations, pregnancy scanning for twin-bearing ewes was carried out, and was important to ensure the feed was only offered to twin-bearing ewes throughout the trial
- At lambing, ewes were separated into four paddocks of similar size and FOO, 2x control paddocks and 2x RP-Arginine paddocks
- At lamb marking and weaning, researchers were present to assist in the collection of ewe LW, BCS, wet/dry status and presence as well as lamb survival and weight

Outcomes

Stage 1 and 2 of this experiment a greater number of lambs born to RP-Arginine ewes present at marking compared to lambs born to control ewes. The results from both the commercial validation trial demonstrated that, overall, RP-Arginine did not improve lamb survival rate to marking nor influence lamb LW at marking (weaning data to be collected). The data collected from the eID readers mounted on the lick feeders demonstrated that the majority of the ewes accessed the pellets throughout the trial period, and there were no differences in the frequency of visits between the RP-Arginine or control ewes.

The data from Stage 3 indicates for particular application a negative economic advantage where the cost of RP-Arginine pellets outweighed a nil or negative benefit with no improvement in lamb survival to weaning and a slight decrease in lamb marking weight. Trialling RP-Arginine across another season, and in additional regions would be beneficial to further address potential on-farm application.

Resources

- MLA Final Report (L.LSM.0015)
- Producer Case Studies

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