

## Edible Shelter Increases Survival of Twin but not Single Lambs Born to Merino Ewes in Winter in Western Australia

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Shelter at lambing in winter can increase survival of single lambs by 10% and twins by up to 30% (Alexander *et al.* 1980). However, ewes are reluctant to use shelter (Lynch and Alexander 1980). Hence, a successful lambing system must provide cost-effective shelter that is used by the ewes. In an experiment conducted in July 1984, I Gede Putu studied the maternal behaviour of maiden Merino ewes and the survival of their lambs. The paddock chosen was sown to Saia oats for early feed and was to be subsequently cut for hay. Putu's supervisor, Prof David Lindsay (pers. com.) recalled that:

- the crop was approximately 30 cm high by the beginning of lambing in mid-July,
- there were 270 single and 130 twin-bearing ewes in the study and
- high survival rates of single (>90%) and twin (~80%) lambs were associated with the ewes 'nesting' in the crop and remaining on the birthsite for up to 12 h compared with 3 to 4 h for Merino ewes at pasture.

In 2004 we conducted an experiment to test the hypothesis that lambing single and twin-bearing, adult Merino ewes in a crop of Saia oats as edible shelter will increase the survival of their lambs compared to controls lambing on pasture with adequate green feed on offer (FOO, 1500 kg DM/ha) and stocked at the same rate. The experiment was a randomised block design with 4 treatments; (lambing environment, Pasture or Saia oats) x (single or twin-bearing ewes) x 3 replicates each of 20 ewes. Each plot was 1 ha and on 5 July 240 adult Merino ewes fitted with numbered ear tags, of known litter size and to start lambing on 10 July were randomly allocated to one of the 12 plots after stratification on age, live weight and condition score (mean condition score 3.5). Based on the size of the fetuses at scanning all ewes were assumed to have conceived in the first 10 days of joining. On 5 July the Saia oats was approximately 30 cm high with an understorey of capeweed and clover. Sixty pasture cuts (Saia oats) and calibrated visual estimates (pasture) were used to measure FOO (Thompson *et al.* 1994). From 9 to 26 July the ewes in all plots were inspected twice daily using binoculars to avoid disturbing ewes that had lambed since the last inspection and were still on the birthsite. The number of live lambs with the ewe was recorded and any dead lambs were removed from the plots. The temperature (min and max), rainfall and windspeed at ground level and 1 m above ground were recorded daily at 9 AM. When the ewes were removed from the plots on 27 July the presence of plugs in their teats was used to determine which ewes had not lambed during the study. Only 80% of single and 70% of twin-bearing ewes lambed during the 18 days of observations, but the mean lambing date of 18 July was similar for all plots. The weather during the study was very mild (Temperature mean max 20°, min 6° with little wind and only 2 wet days with 9 and 6 mm of rain. As expected more twin lambs died than singles (Table 1, P<0.05) but there was a significant interaction (P=0.006) with lambing environment. More twins survived in the edible shelter but more singles died in this environment. Lamb birth weights were not recorded as we did not want to disturb the ewes while on the birthsite. However, it is reasonable to speculate that some single-bearing ewes in the edible shelter, being in very good body condition at day 145 of pregnancy, ate themselves into dystocia while the edible shelter increased the birth weight and/or provided sufficient shelter to almost halve the mortality amongst twins - from low on pasture to very low.

**Table 1. The mortality within 72 hours of birth for single or twin lambs born to Merino ewes grazing on either 1500 kg DM/ha of green pasture or 2500 kg DM/ha of Saia oats in July 2004 at Wundowie**

| Replicate   | Pasture (ryegrass/sub-clover)           |                                       | Saia oats (edible shelter)              |                                       |
|-------------|---|---------------------------------------|---|---------------------------------------|
|             | Single % mortality<br>(number of lambs) | Twin % mortality<br>(number of lambs) | Single % mortality<br>(number of lambs) | Twin % mortality<br>(number of lambs) |
| 1           | 5.6 (18)                                | 23.3 (30)                             | 11.1 (16)                               | 13.8 (30)                             |
| 2           | 0.0 (19)                                | 19.4 (32)                             | 10.0 (10)                               | 7.4 (28)                              |
| 3           | 6.3 (16)                                | 12.5 (24)                             | 16.6 (12)                               | 8.3 (24)                              |
| <b>Mean</b> | <b>4</b>                                | <b>18</b>                             | <b>13</b>                               | <b>10</b>                             |

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