

Shade & Shelter Program: Shelter and lamb survival

Approximately 30% of lambs born will die before marking, costing the Australian sheep industry over \$1B annually (Kubeil 2017; Young et al. 2014a). Most lamb deaths occur within three days of birth and 30 – 50% of deaths are from starvation-mismothering-exposure. Hypothermia plays a major role in these deaths. Effective shelter can reduce lamb mortality by up to 50%, particularly in high chill environments and for twin-born lambs (Donnelly 1984; Bird et al. 1984).

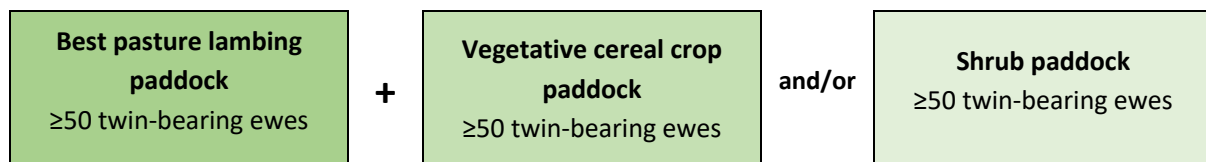
Previous studies have investigated the impacts of shelter on lamb survival, however, a limited number of shelter options were considered, such as shelterbelts or tall wheatgrass, and additional benefits to the productivity and profitability of the whole-farm enterprise have not been identified. Currently, there are knowledge gaps regarding (i) species of forages and shrubs that can provide shelter during lambing, (ii) interactions between shelter and nutritional benefits from ‘edible’ shelter, and (iii) the impact of ‘edible shelter’, i.e., palatable to sheep, compared to ‘non-edible shelter’, i.e., non-palatable to sheep, on ewe and lamb behaviour, thermoregulation and survival.

In the case of shrubs, producers are uncertain if they are better off using monocultures of relatively palatable shrubs, mixed plantations, or relatively unpalatable shrubs. There are questions regarding the design of shelter and the impact of using shrubs for lambing on feed-base utilisation across the enterprise. Anecdotal evidence from producers regarding lambing ewes on crop is conflicting, with some producers reporting reduced lamb survival due to possible metabolic disease in ewes, whilst other producers say improved survival is perceived to be the result of increased shelter and access to high-quality feed.

This experiment will compare the survival of twin lambs born in paddocks with shrubs and/or crop with lambs born in the pasture paddock, which traditionally provides the best lambing results for your farm. Twenty-eight on-farm research sites will be established across WA and NSW between 2023 and 2025.

Requirements of research sites

1. At least 150* twin-bearing adult ewes of the same breed: 50 ewes will be allocated into one of three paddock treatments at 130-140 days from the start of joining
 - Between 50 – 200 ewes per paddock (10% variation permitted)
 - *If only doing a two-way comparison, at least 100 twin-bearing adult ewes are required
2. One paddock with a vegetative cereal crop and/or one paddock with existing shrubs plus your best pasture lambing paddock, all of similar sizing (10% variation permitted)
 - Option to do two comparison or three comparisons
 - Crops to be sown and managed as per normal practice
 - Ewes will remain in these paddocks until one week after the last lamb is born
 - Mineral supplements will be provided and must be offered to the crop treatment mob



Data collected by the research team

- Ewe condition score ($n = 50$ ewes/paddock) and feed-on-offer at the start and end of lambing
- Forage samples will be collected for nutritive value
- Height, density and configuration of vegetation will be measured within each paddock
- Lambs will be counted at the end of lambing to determine survival per mob
- Faecal samples from ewes which grazed shrubs will be collected at marking to measure the amount of shrub consumed
- Temperature, rainfall and wind speed and direction will be recorded using weather stations to calculate the chill index during lambing

Expressions of interest

Please contact Serina, Georgia or Gordon or scan the QR code to express interest in participating in the 'Shelter and lamb survival'.



Serina Hancock	Georgia Welsh	Gordon Refshauge
Murdoch University, WA E: s.hancock@murdoch.edu.au M: 0403 570 823 X: @Serina Hancock	Murdoch University, WA E: georgia.welsh@murdoch.edu.au M: 0409 833 036 X: @GeorgiaWelsh10	NSW DPI E: gordon.refshauge@dpi.nsw.gov.au M: 0439 607 842 X: @GordonRefshauge