

Lambs go under cover to boost survival rates

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ABOVE: Various forms of shelter belts can reduce wind speed and the subsequent chilling of lambs during adverse weather conditions. (Photo: DPI Victoria)

The use of perennial grass hedgerows on the *EverGraze*® Proof Site at Hamilton, Victoria reduced twin lamb mortality by close to 40 per cent in both Merino and Coopworth ewes during 2009.

Hedgerows of tall wheat grass cv Tyrell 1.0-1.2 metres wide were established 10 m apart during 2004. The bays in between rows were sown to a range of perennial pasture mixtures to supply a sufficient amount of quality feed for ewes during lambing.

According to *EverGraze* researcher Fiona Cameron, Department of Primary Industries, Victoria (DPI Vic) the ability of tall wheatgrass to grow to more than one metre, with sturdy, springy stems of about 5-7 millimetres diameter made it a logical choice as a hedge species.

“The height and resilience of the tall wheatgrass stems means they remain upright after animals move through the hedge,” Fiona said.

“Also, when overgrown and rank, the species is relatively unpalatable meaning stock will eat the inter-row forage leaving the hedges relatively intact.”

It is important to note that producers need to manage tall wheatgrass to ensure it does not invade other areas. Tall wheatgrass has been assessed as a high weed risk in Western Australia, New South Wales and South Australia and a very high weed risk in Victoria by the Future Farm Industries CRC. Developing this shelter belt option must be accompanied by advice on managing its weed risk (see guidelines on page 7).

NSW *EverGraze* Site Leader, Dr Michael Friend, Charles Sturt University concurs with Fiona’s findings.

“Data from our Wagga Wagga lamb survival trials, supports the findings from Hamilton,” Dr Friend said.

“Phalaris hedgerows are not that robust when sheep walk through them, and with recent failed springs they have had no opportunity to regenerate each year.

“Even in better years regenerated phalaris hedgerows would probably need fencing off between late spring to lambing if the paddocks were to be grazed during this period – which is impractical.

“In our environment we have had success with acacia shrubs as windbreaks. Given their greater height (3-4 m) these have been placed 50 m apart.”

Fiona explained that the hedgerow configuration at the Hamilton Proof Site was determined by calculating that for every metre of hedge height, there would be a 10 m benefit in reduced wind speed.

“The logic behind the set-up is that the high-quality forage between the hedgerows provides lambing ewes with a micro-climate that encourages them to stay close to the shelter of the hedge,” Fiona said.

“If ewes do not have to graze far away to meet their nutritional requirements, they can stay close to newborn lambs sheltering next to the hedgerows.”

Rewarding results

It seems the theory behind the strategy has merit. During 2009, ewes on the Proof Site were lambing down in either the hedgerow shelter areas or on open areas of the Site – in traditional pasture paddocks.

key points

- Perennial grass shelter belts could have a significant impact on lamb survival rates – particularly for multiple offspring
- When compared with open areas, the chill index between hedgerows was reduced
- Unpalatable and structurally resilient perennial species are most likely to remain intact, providing ongoing shelter during lambing.

FIGURE 1 Chill index – as the chill index exceeds 1000 MJ/m²/h, the probability of lamb survival decreases

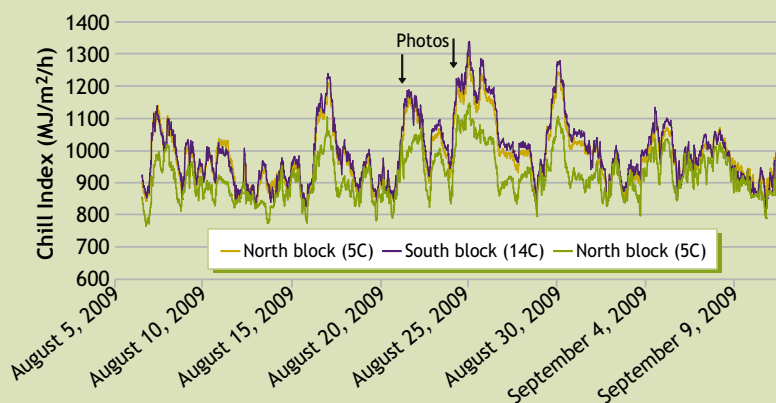


FIGURE 2 Lamb mortality for shelter versus non-shelter

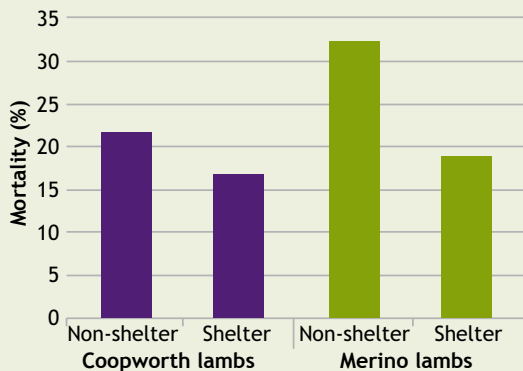
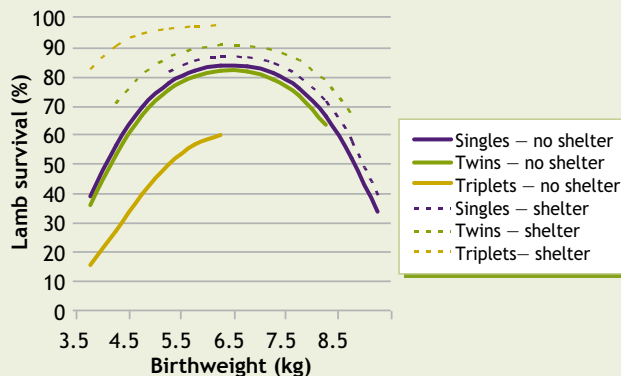


FIGURE 3 Lamb survival for a range of birth weights in singles, twins and triplets



Wind speed measurements were taken at locations across the open paddocks at lamb height (400 mm) at 10-minute intervals throughout the lambing period and at a distance of 200 mm from the hedgerow in shelter areas.

An on-site weather station measured temperature, wind speed and rainfall at regular intervals. These readings were used to develop a ‘chill index’ (see Figure 1).

Previous research suggests that as the chill index exceeds 1000 megajoules per square metre per hour, the probability of lamb survival decreases.

“During our August 2009 lambing, there was nearly twice as much time when the chill index exceeded 1000 MJ/m²/h, as in other years,” Fiona said.

“However, the wind chill adjacent to the hedges was less than the open areas.”

Most lamb losses (>95%) and births (>90%) occurred in the period between August 9, 2009 and August 31, 2009.

“During this period the days where the average daily chill index peaked six times at more than 1100 MJ/m²/h were associated with 40% of all lamb deaths, while only 30% of lambs were actually born on those days,” Fiona said.

“This indicates that lambs born on the days before each weather event were also affected.”

Increased survival

Lamb survival was better in sheltered areas for both Merino and Coopworth ewes (see Figure 2). However Merinos gained a 42% reduction in mortality from shelter, while the gains for Coopworth lambs amounted to a 23% reduction in mortality.

This data incorporates results for both singles and multiples, but there was a significant shelter by birth type interaction (p<0.05) where single lambs gained least from the provision of shelter and twins and triplets gained most. At the average birth weight

survival for each of the birth type categories was:

- Singles 82% (shelter) vs. 78% (open pasture)
- Twins 87% (shelter) vs 76% (open pasture)
- Triplets 96% (shelter) vs 50% (open pasture).

The relationship for each of the above and birth weight is shown in Figure 3. It should be noted that as the numbers of triplets being born in the experiment was low, the improvement in survival due to shelter is overestimated, but the effect is still significant.

The total financial benefits for the reduction in mortality in twin lambs as seen during 2009 are equivalent to about \$5.00/ewe, with a breakeven period of three years on the cost of establishment of the shelter belts and use.

Field days at the Hamilton Proof Site continue to provide opportunities for producers to investigate the benefits and establishment of shelter belts for their own grazing systems.

The *EverGraze* website, www.evergraze.com.au has several *EverGraze* Action fact sheets including; ‘Perennial grass hedges provide shelter at lambing’ and ‘Improving survival of lambs’. *EverGraze – More livestock from perennials* is a Future Farm Industries CRC, MLA and AWI research and delivery partnership. 🌱

➡ **More information**

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RIGHT: Throughout lambing, photographic evidence clearly showed both ewes and lambs, but particularly lambs, using the hedgerows. (Photo: DPI Victoria)

Tall wheatgrass weed risk management guidelines:

To reduce the weed risk posed by tall wheatgrass, Future Farm Industries CRC recommends following the guidelines below.

- Graze hedgerows during January-February to remove immature seed heads reducing the risk of off-site invasion
- Locate tall wheatgrass hedgerows well away from waterways
- As seedlings will not compete with established ryegrass or phalaris pastures, use competitive species around hedgerow areas to reduce the chance of spread outside the sown area
- Other species, such as phalaris, tall fescue or Rhodes grass have been trialled, but they tend not to stand up to stock as well as tall wheatgrass.

