

# lifetimewool

more lambs, better wool, healthy ewes

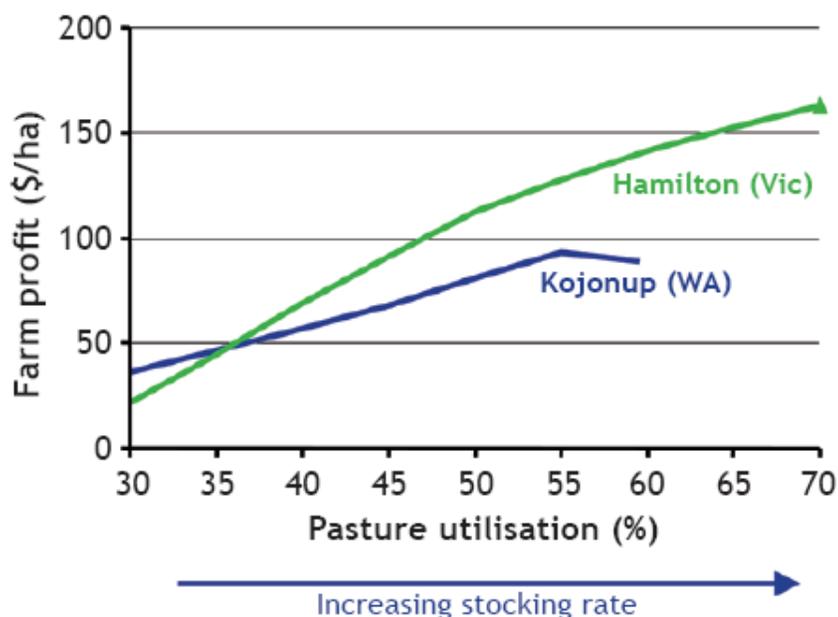
## Profitability in Merino enterprises

The quantity and quality of what sheep eat (nutrition or energy intake) controls their fatness (body condition), which in turn directly affects a number of production factors including lamb survival and the wool production of both the ewe and her progeny.

Pasture availability (largely driven by rainfall) and the nutritional needs of the breeding ewe due to advancing pregnancy both change throughout the year. The demand for energy by the ewe peaks in early lactation, hence matching the time of lambing to a time of high pasture availability, allowing the increased energy needs of the ewe to be met at a lower cost.

Late winter-spring lambing in the high rainfall zone provides the best match of pasture availability to the energy needs of the ewe and lamb. This match lifts pasture utilisation and allows stocking rate to be increased relative to lambing at other times of the year. Higher stocking rates will increase the production per hectare and profit per hectare, although 'optimum' stocking rate will vary season to season and farm to farm within and between regions. Profitability at Hamilton in Victoria is optimised when pasture utilisation is around 70%, due to the long growing season of the region and the prevalence of perennial pasture species. At Kojonup in Western Australia farm profit is optimal at 55% pasture utilisation, due to the increasing level of supplementary feeding needed to maintain the stocking rate over the dry season.

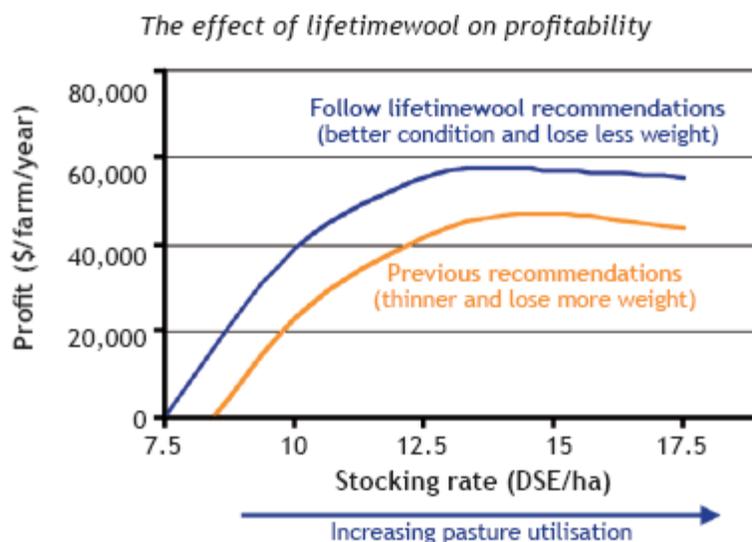
*Pasture utilisation and its relationship to farm profit*



### **Ewe condition has a significant effect on profitability at any stocking rate.**

Increasing stocking rate without adequate nutrition for ewes may reduce lamb survival and wool production, which in turn may limit profitability. Inadequate nutrition can limit profitability at any stocking rate.

Before fully understanding the effects of ewe condition on fleece production and lamb mortality, it was assumed that running ewes thinner and losing more weight over the autumn and during pregnancy meant more money through savings in feed costs. Extensive experiments and economic analysis have shown this belief to be false economy as there are substantial penalties for not having ewes in good condition by lambing, and smaller but significant penalties for not having ewes in good condition for joining. These impacts must be recognised when evaluating the financial implications of different management strategies for ewe flocks.



### **Condition during pregnancy affects the progeny's lifetime production.**

Ewe condition affects the lifetime performance of her progeny. Lamb birth weight and progeny fleece value are closely related to ewe condition, particularly at lambing. Lamb birth weight is a strong predictor of lamb survival and fleece value of the progeny.

During pregnancy, the effects of ewe condition on progeny wool production and birth weight (and survival) are generally additive. That is, the impacts of nutrition in early to mid pregnancy can be added to the impacts of nutrition in late pregnancy. Even though the impacts appear small at each phase, they can add up to a large impact on profitability for that lambing. The effects on fleece value are permanent for the lifetime of the lamb.

The table below shows the impacts of changes in condition score over a pregnancy. For example, the progeny of ewes maintained at CS 3.0 throughout pregnancy might cut 3.5 kg CFW (clean fleece weight) of 17 micron wool. If the same ewes were to lose condition so that they lambed in CS 2.0, their progeny would only cut 3.1 kg CFW of 17.4 micron wool (ie less wool that was broader).

Importantly, losing condition during early to mid pregnancy and then regaining that lost condition by lambing time gives the same net result as maintaining the ewe's nutrition over the whole of the pregnancy. For example, the progeny of ewes maintained at CS 3.0 over pregnancy might cut 3.5 kg CFW of 17 micron wool but if the same ewes lost condition by day 90 and then regained it to be CS 3.0 at lambing, the progeny would cut similar quantity and quality of wool.

It is important to note that the impact on progeny birth weight is greater in late pregnancy than in early to mid pregnancy. Lamb birth weight is strongly related to lamb survival, particularly in twins (due to their generally lower birth weight). Optimum birth weights are 4.5–6.0 kg and survival decreases rapidly if lambs are below 4.0 kg. Increasing lamb birth weight by 0.5 kg from 3.5 kg to 4.0 kg in twin lambs can mean an increased survival of 15%.

## *Effects on progeny production*

Effect on progeny production	Effect of losing one condition score in a period of pregnancy		Cumulative effect of losing half a condition score by day 90 then regaining that condition by lambing
	Early to mid (Day 0 to 90)	Mid to late (Day 90 to 150)	
Clean fleece weight (kg)	-0.19	-0.19	0.00
Fibre diameter(µm)	+0.31	+0.35	-0.04
Birth weight (kg)	-0.33	-0.45	+0.12