Factors influencing the optimum mob size of ewes at lambing and the economic benefit of lambing ewes in smaller mobs to increase lamb survival across southern Australia

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Reducing mob size at lambing by 100 ewes increases lamb survival by 0.3-0.8% for singles and 1.1-3.5% for twins, regardless of ewe breed and stocking rate (Hancock *et al.* 2019; Lockwood *et al.* 2019). Managing mob size at lambing is therefore a strategy which producers can use to improve lamb survival. This paper tests the hypothesis that there is an optimum mob size for lambing ewes based on the profitability of paddock subdivision.

The analysis reported in this paper evaluated the cost of subdividing paddocks compared with the benefit of reducing mob size to improve lamb survival. It also considers the effect of reducing paddock size on pasture utilisation and potential stocking rate based on the finding of Saul and Kearney (2002). The analyses were based on an average increase in lamb survival of 0.8% for singles and 2.2% for twins when reducing mob size at lambing by 100 ewes (Hancock *et al.* 2019). A whole-farm analysis using the MIDAS model quantified the increase in income achieved by improving lamb survival (Young *et al.* 2014). An investment analysis calculated the benefits and costs of halving paddock and mob size. The optimum or breakeven mob size is when the increase in annual income is equal to the sum of the annual maintenance costs and the annuity of the capital costs.

Table 1. Optimum mob sizes for Merino and non-Merino ewes scanned as single- or twin-bearing where mobs are subdivided using permanent fencing or temporary fencing with or without supply of a water trough. The scenarios are with lamb price at $6/kg carcass weight, the impacts of subdivision on pasture utilisation excluded and a return on investment of 5%[1].

		Merino		Non-Merino	
Stocking rate (DSE/ha)[2]	Subdivision type	Single	Twin	Single	Twin
1.8	Permanent	247	108	255	93
3.6	Permanent	209	94	216	81
7.2	Permanent	181	83	185	72
7.2	Temporary with water	119	54	122	48
7.2	Temporary without water	67	28	69	25
14.4	Permanent	164	76	168	66
14.4	Temporary with water	106	50	109	44
14.4	Temporary without water	53	23	55	19

1 Optimum mob size at a return on investment of 10%, 20% and 50% can be estimated using scalars of 1.2, 1.5 and 2.5.
2 Single- and twin-bearing ewes were rated at 1.5 and 1.8 DSE/hd for Merinos and 1.6 and 1.9 DSE/hd for non-Merinos.

Optimum mob sizes are most sensitive to the costs of subdivision, whether ewes are single- or twin-bearing, whether the impacts of pasture utilisation are included and the target return on investment. Optimum mob sizes are approximately 35% smaller when paddocks are subdivided temporarily compared with being permanently fenced due to the reduced cost of fencing ($600/km vs $3000/km; Table). This is reduced by a further 45-55% if a water supply is not required. When run at the same stocking rate, the optimum mob size for twin-bearing ewes is 55% smaller than single-bearing ewes for Merinos and 62% smaller for non-Merinos (Table). Optimum mob sizes are about 60% smaller if the impacts of pasture utilisation are included and this effect is greater at lower stocking rates. The return on investment is greater when subdividing larger mobs. Optimum mob size is reduced by, but less sensitive to, higher stocking rate, scanning percentage and lamb price.

Our hypothesis was supported as there is an optimum mob size for lambing ewes. The profitability of subdivision is influenced by several enterprise-specific factors. Most producers in southern Australia could profitably subdivide paddocks to lamb ewes in smaller mobs based on current average mob sizes at lambing (Hancock *et al.* 2019; Lockwood *et al.* 2019). Producers could increase profitability by prioritising smaller mobs for twin-bearing ewes at lambing. This presents a further benefit of pregnancy scanning for multiples and differential management of single- and twin-bearing ewes to improve lamb survival and profitability.

References

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This work was funded by Meat & Livestock Australian and Australian Wool Innovation.