

USING PARTIAL RECORDS TO IDENTIFY PRODUCTIVE OLDER EWES TO RETAIN IN THE BREEDING FLOCK

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BACKGROUND

Variation exists between ewes over their lifetime in net reproduction rate (NRR). Retaining the top 50% of older ewes for 1 - 2 additional lambings combined with early culling of the poorest performing ewes can significantly lift overall flock NRR.

Lifetime NRR (2 - 6 years of age) is the best estimate of a ewe's merit as it accounts for lifetime genetic and environmental influences on performance. Combined NRR at 2 & 3 years of age can reliably predicted a ewe's performance at later ages. But it is difficult and costly for sheep producers to obtain fertility, fecundity and rearing ability data of their ewes as lambing rounds are required to associate each ewe to her lamb/s as well as a roll call at weaning.

This study compared the use of pregnancy scanning data, which provides both fertility and fecundity information, early (2 & 3 years) and later (4 & 5 years) in life with lifetime NRR to identify productive older ewes to retain in the breeding flock.

METHODS

Lifetime reproduction data, from 2 - 6 years of age, from at least 5 joinings of 7,286 Merino ewes from the NSW DPI D-, C- and QPLU\$ flocks was used to calculate the number of lambs born per ewe joining (LB/EJ), the number of lambs weaned per ewe joined (LW/EJ) at 2 & 3, 4 & 5 and 2 - 6 years (lifetime) using the repeatability of NRR and its components.

Each ewe was allocated to a quartile for each trait, according to her individual ranking (adjusted for flock, genotype & year of birth) and the relative NRR of each quartile estimated on the basis of LB/EJ, LW/EJ and lifetime LB/EJ for 3 base flock reproduction rates and varying proportions of retained older ewes.

RESULTS

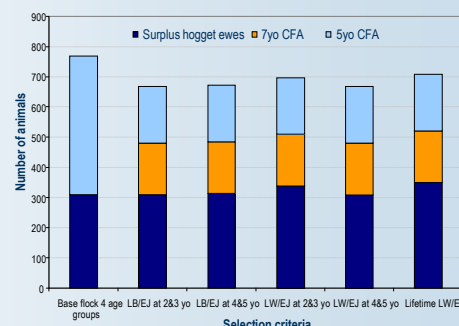
- Pregnancy scanning data as the selection criteria can generate improvements in NRR of 2% with early life records or 2.5% with later records.

Selection criteria	Net reproduction rate (base flock)		
	75%	80%	90%
	<i>LB/EJ</i>		
Lambs scanned at 2 & 3 years	77.0	82.0	92.0
Lambs scanned at 4 & 5 years	77.5	82.5	92.5
	<i>LW/EJ</i>		
Lambs weaned at 2 & 3 years	80.1	85.1	95.1
Lambs weaned at 4 & 5 years	76.9	81.9	91.9
	<i>Lifetime LW/EJ</i>		
Lambs scanned – lifetime (2 - 6 years)	81.2	86.2	96.2

- Retaining the top 50% of old ewes produced the greatest change in flock NRR.

Retained ewes (%)	Proportion of older ewes	Net reproduction rate (base flock)		
		75%	80%	90%
25	0.102	80.4	85.4	95.4
50	0.184	81.2	86.2	96.2
75	0.253	79.6	84.6	94.6

- Increasing the number of age groups means more higher value surplus animals for sale.



CONCLUSIONS

- Lifetime NRR is the best estimate of a ewe's reproductive performance.
- Pregnancy scanning data can be used to predict lifetime performance, although there will be some reduction in accuracy of selection and improvement in flock productivity.
- Selection based on pregnancy scanning at 2 & 3 years of age also provides scope to cull the twice-dry ewes early in life.
- Combining pregnancy scanning information with a simple udder examination at marking will improve the accuracy of identification of non-performing ewes to cull from the breeding flock and ensure that the selected older ewes have sound udders for their additional lambing opportunities.

