AMPC/Sheep CRC/MLA Case Study

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LAMB WEIGHT AND GROWTH

Lamb Weight and Growth Rate

Several key production factors influence lamb weights, as found in the Sheep CRC Information Nucleus flocks.

Lamb factors include sex, birth type (single, twin or triplet) and sibling competition during rearing (rear type: single, twin or triplet), as well as the type of sire of the lamb (maternal, terminal or Merino).

The age and breed of the dam can also be influential. The same production factors that influence lamb weight also influence growth rate at key time points. The key findings of Sheep CRC studies into each of these factors are presented below, with the data shown over page (Table 1).

Sex

Wether (castrated male) lambs are heavier and faster growing.

- Wether lambs are were 5-–8 % heavier than female lambs between birth and 240 days.
- Wether lambs were also faster growing than female lambs between birth and 240 days
- The difference in growth rate between wether and female lambs increased over time, with male lambs growing faster by 1% at 100 days and 33% at 240 days.

Birth type and rear type

Single born lambs are heavier and grow faster initially, however triplets grow the fastest after weaning due to compensatory growth.

- Single born lambs were on average 22% heavier than twins at birth and 44% heavier than triplets.
- These weight differences reduced to 9% and 17% respectively at 240 days because twins and triplets gained proportionately more weight than singles.
- Within a birth type, lamb weight was increased with the loss of a sibling, as there was less competition for nutrition. For example, twin born lambs that are raised as single lambs are consistently heavier than lambs born and raised as twins.
- Lambs raised as singles initially grew the fastest. After weaning, lambs born as multiples experienced a period of compensatory growth, resulting in them growing faster than single born lambs, although they did not catch up completely.

Sire type

Progeny of terminal sires are heavier and faster growing.

- Progeny of terminal sires were 11% heavier than progeny of Merino sires and 8% heavier than progeny of maternal sires at birth.
- These weight differences increased to 42% and 16% respectively at 240 days.
- Progeny of terminal sires grew up to 150% faster than progeny of Merino sires, which caused these large differences in weight.

Dam age

Lambs born to 2-year old dams are lighter.

- At birth, lambs born to 2-year old dams were as much as 10% lighter than lambs born to older dams. This 10% difference in weight was also present at 240 days.
- At weaning, lambs born to 2-year old dams were the slowest growing, by up to 160%.
- Post weaning, lambs born to 2-year old dams experienced compensatory growth, although they did not achieve the same weights as lambs born to older ewes.

Dam breed

Terminal-sired lambs with Merino dams are lighter.

- Of lambs born to terminal sires, lambs with a Merino dam were between 10 and 16% lighter than those born to Border Leicester-Merino dams and grew up to 8% slower.

Table 1: Lamb weights at birth, 100, 150 and 240 days for different sexes, birth type-rear types, dam ages, sire types and dam breed within sire type combinations. (For birth type-rear type levels, birth type is listed first followed by rear type. For example, with level 32, the 3 indicates lambs born as triplets and the 2 indicates they were reared as twins.)

Variable	Level	Birth weight (kg)	Wt day 100 (kg)	Wt day 150 (kg)	Wt day 240 (kg)
Sex	F	4.56	26.63	32.52	40.61
	M	4.87	28.22	34.25	43.81
Birth type-rear type	11	5.62	31.89	37.50	45.46
	21	4.61	29.27	35.16	43.67
	22	-	26.75	32.61	41.80
	31	3.91	28.45	34.44	42.66
	32	-	25.09	31.20	40.81
	33	-	23.12	29.41	38.86
Dam age	2	4.41	27.57	31.82	39.00
	3	4.58	27.53	33.47	42.42
	4	4.77	27.83	34.13	42.97
	5	4.78	28.10	33.90	42.66
	6	4.81	28.76	33.82	42.45
	7	4.79	26.91	33.52	42.72
	8	4.86	25.28	33.05	43.25
Sire type	Maternal	4.62	27.13	33.62	42.46
	Merino	4.52	23.43	28.49	34.74
	Terminal	5.01	31.72	38.05	49.43
Dam breed (Sire type)	Terminal-Merino	4.78	29.40	35.63	47.08
	Terminal-XB	5.23	34.04	40.48	51.78

Summary

The most rapid growth and earliest turn off can be achieved by the combination of these factors:

- single lamb
- male lamb
- dam over 2 years old
- terminal sire
- terminal x merino dam

While this will produce the heaviest individual lambs, it will not produce the greatest kilograms of lamb per ewe or per hectare, therefore each enterprises must consider what is the most profitable combination to target.