AMPC/Sheep CRC/MLA Case Study

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Fact sheet – Lamb Carcase Composition

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Carcase Components

Lean meat yield is a key profit driver within lamb supply chains, driving on-farm efficiency, reducing wastage and new product development at processing.

Lean meat yield percentage (LMY%) is the amount of lean meat that can be boned out from a carcase and is represented as a percentage of carcase weight.

Lamb carcasses with more lean, less bone and less fat will have a higher LMY%.

Effect of weight on carcase composition and dressing percentage

As lambs get heavier in weight their proportion of lean decreases and their fat proportion increases. This can be seen in the Computed Tomography (CT) scan measurements of fat, lean meat and bone percentage (Table 1). As lambs get heavier their dressing percentage increases.

Table 1 Carcase component weights for progeny from a terminal sire over merino dam.

	Sire Carcase Plus Index Value = 171			
Hot Carcase Weight (kg)	**18**	**20**	**24**	**28**
CT Lean %	60.7	59.8	58.2	56.9
CT Fat %	22.0	23.3	25.5	27.5
CT Bone %	17.4	16.9	16.2	15.6
C-site Eye Muscle Area (mm^2)	13	14	15	17
GR Tissue Depth (mm)	9	11	14	17
Dressing Percentage	45.6	45.8	46.2	46.7
Pre-Slaughter Live Weight (kg)	39.5	43.7	51.9	60.0

Effect of the Carcase Plus Index on composition and dressing percentage

Carcase Plus Index is a desired gains index, that selects for rapid growth, increased eye muscle depth and reduced back-fat depth.

Indexes can be used to assist in balanced selection using a range of Australian Sheep Breeding Values (ASBVs).

Using the Carcase Plus Index when selecting breeding stock, will focus on animals with high weaning weight (WWT), post-weaning growth (PWWT) and eye muscle depth (EMD), leading to faster lamb turnoff. It also puts a small emphasis on fat depth (PFAT) to maintain the level of leanness (Table 2).

Table 2 Carcase Plus Index Effects

Carcase Plus Trait Name	ASBV	Relative emphasis	Contribution to economic gain	Predicted 10 year response
Weaning Weight	WWT	30%	15%	2.2 kg
Post Weaning Weight	PWWT	35%	38%	3.4 kg
Fat Depth	PFAT	5%	-2%	0.2mm
Muscle Eye Depth	PEMD	30%	45%	1.2mm

As the Carcase Plus Index increases, CT lean% increases. This effect is reflected through increased weights of the shortloin, the topside and the round, when compared at the same carcase weight (Table 3, over page).

As the Carcase Plus Index increases, dressing percentage increases and CT fat% decreases, as does the GR tissue depth when compared at the same carcase weight.

Table 3 Carcase components for 20kg progeny of terminal sire x merino dam, with different sire Carcase Plus index values.

Sire Carcase Plus Index Value	130	171	210
CT Lean %	58.7	59.8	60.8
CT Fat %	24.2	23.3	22.4
CT Bone %	17.1	16.9	16.8
Eye of Shortloin Weight (g)	291	317	341
Topside Weight (g)	535	543	551
Round Weight (g)	398	415	413
C-site Eye Muscle Area (mm2)	13	14	15
GR Tissue Depth (mm)	11	11	11
Dressing Percentage	44.9	45.8	46.6
Pre-Slaughter Weight (kg)	44.5	43.7	42.9

Summary

LMY% can be increased by altering carcase composition towards more lean, less bone and less fat.

The Carcase Plus Index is a useful tool to identify animals with high growth and muscularity, while maintaining carcase leanness.

Selecting stock with Carcase Plus Index Data can provide higher yielding, more valuable carcasses.

Further information

Refer to the New Breeding Values for Yield and Eating Quality fact sheet.

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