

LAMBS GRAZED ON SALTBUSH ARE MORE HYDRATED AT SLAUGHTER

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Dehydration in livestock before slaughter not only compromises animal welfare, but reduces carcass yields and reduces profits to farmers and abattoir processors. Dehydration is attributed to a failure to drink in lairage. Strategic feeding with saltbush may prevent the dehydration of lambs before slaughter. Saltbush, which is widely used to revegetate saline land, has high concentrations of sodium chloride. Ingesting a high sodium diet is known to increase the ionic concentration of the extracellular fluid and stimulate the lamb's thirst. In this work, we tested the hypothesis that if the lambs maintain the high water requirement when they arrive in lairage, and consequently drink more water, they will be more hydrated and have less carcass shrinkage. Urine specific gravity, muscle dry matter percentage and urine weight are considered to be useful indicators of the hydration status of lambs (Pethick *et al.* 2003). High urine specific gravity (USG) occurs when the urine is concentrated. Concentrating the urine is a physiological mechanism used by an animal to conserve water when dehydrated.

This study was conducted 20 km from Goomalling, Western Australia. Fifty (2 x 25) 6 month old merino lambs (average liveweight of 38 kg) grazed either a saltbush-dominant saline pasture or a 'control' barley stubble/pasture plot. Both groups were supplemented with approximately 200 g/d of barley grain. Following 14 weeks of grazing, the lambs were commercially slaughtered after undergoing a 24 hour period in farm curfew, followed by transport to the abattoir and 24 hours in lairage. After slaughter, 2 g samples of the *m. semimembranosus* (SM) and the *m. semitendinosus* (ST) were taken and used to calculate muscle dry matter percentage. The bladder of each sheep was also collected after slaughter and the urine extracted, weighed and a sample taken to determine USG.

Table 1. USG, muscle dry matter % and urine weights for lambs fed saltbush or stubble diets.

Measurement	Diet		Significance
	Saltbush (n = 25)	Stubble (n = 25)	
Urine specific gravity	1.016±0.001	1.030±0.001	P<0.01
SM Muscle DM%	23.55±0.28	24.65±0.24	P<0.01
ST Muscle DM%	22.88±0.26	23.6±0.28	P<0.01
Urine weight (g)	73.05±14.6	30.06±6	P<0.01

Lambs that grazed the saltbush had a lower USG (P<0.01), lower muscle dry matter percentage (P<0.01) and higher urine weight in the bladder (P<0.01) than the lambs that grazed on stubble (Table 1). Whilst their USG was lower, the lambs eating saltbush would be excreting more sodium chloride than those eating stubble due to the high salt intake from saltbush ingestion. This indicates that the lambs eating saltbush were excreting more water, keeping the salts diluted, and USG value low. The more hydrated an animal is, the lower the muscle DM%. This means more water is being held in the muscle either as a direct result of the higher water intake or due to the retention of water within the muscle. This combination of results indicates that lambs grazing saltbush are more hydrated than those grazing stubble. As water intake during the lairage period was not measured, the high urine volume of the saltbush lambs cannot be conclusively attributed to a higher water intake in lairage. It is possible that these animals had not drunk in lairage, but were still in the process of excreting water that they drank prior to leaving the farm and had retained in their body.

In conclusion, strategic feeding of saltbush or a high salt diet prior to transportation and lairage will reduce carcass shrinkage and improve returns to processors.

PETHICK, D., JACOB, R. and CLARK, P. (2003). 'An Experimental Model of Dehydration in Fasted Lambs.' (Murdoch University: Murdoch.)

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