

## Physical traits of goat meat: a comparison between meat from castrated and entire Boer bucks

NMW Pratiwi, J Sumarmono, PJ Murray, DG Taylor

School of Animal Studies, University of Queensland, Gatton Campus, QLD, 4343

The Boer goat is a breed originally from South Africa and now is popular in many overseas countries including Australia. They have been presented as a compact, well proportioned and short haired goat with high growth (1) and reproductive rates when fed on a concentrate ration. Like most goats, their carcasses are low in fat when compared to cattle and sheep (2). Generally, castration influences the characteristic of meat at slaughter and the amount of intramuscular fat (3).

Ten Boer bucks were studied in the experiment. At the start of the experiment, their age was approximately six months and five were castrated. The ten bucks grazed pasture and had unlimited access to goat pellets and grassy lucerne hay. The animals were slaughtered at 30 kg liveweight and muscles from 3 different locations (*Longissimus dorsi* (LD), *Vastus* group (Vas), and *Triceps brachii* (TB)) were collected for cooking loss and shear force (WBS) assessment. A Minolta Chromameter was used to measure meat colour ( $L^*$ ,  $a^*$  and  $b^*$  values) and at the same time pH at 24 h was evaluated at the loin eye muscle area at rib 12/13th while fat colour was measured on the ventral abdomen subcutaneous fat.

Variable	Mean $\pm$ SEM	
	Castration	Entire
pH24	5.67 $\pm$ 0.04 <sup>a</sup>	5.74 $\pm$ 0.04 <sup>a</sup>
Cooking Loss LD (%)	45.9 $\pm$ 1.39 <sup>a</sup>	46.2 $\pm$ 1.39 <sup>a</sup>
Cooking Loss Vas (%)	40.9 $\pm$ 1.73 <sup>a</sup>	39.4 $\pm$ 1.73 <sup>a</sup>
Cooking Loss TB (%)	40.0 $\pm$ 1.74 <sup>a</sup>	39.4 $\pm$ 1.74 <sup>a</sup>
Shear force LD kg/cm <sup>2</sup>	6.64 $\pm$ 0.47 <sup>a</sup>	7.05 $\pm$ 0.47 <sup>a</sup>
Shear force Vas kg/cm <sup>2</sup>	5.45 $\pm$ 0.79 <sup>a</sup>	6.56 $\pm$ 0.79 <sup>a</sup>
Shear force TB kg/cm <sup>2</sup>	4.91 $\pm$ 0.34 <sup>a</sup>	4.35 $\pm$ 0.34 <sup>a</sup>
$a^*$ value	50.4 $\pm$ 1.02 <sup>a</sup>	42.2 $\pm$ 1.02 <sup>b</sup>
$b^*$ value	23.9 $\pm$ 0.76 <sup>a</sup>	15.7 $\pm$ 0.76 <sup>b</sup>
$L^*$ value	4.3 $\pm$ 0.48 <sup>a</sup>	3.9 $\pm$ 0.48 <sup>a</sup>
Fat colour	4 $\pm$ 0.33 <sup>a</sup>	3 $\pm$ 0.33 <sup>a</sup>

<sup>a,b</sup>means within the rows with different superscripts are significantly different ( $P < 0.01$ ).

Castration had no significant effect ( $P > 0.05$ ) on pH, fat colour, cooking loss and shear force for any muscles. However, it had a significant effect ( $P < 0.01$ ) on meat colour particularly on  $a^*$  and  $b^*$  values. Meat from castrated animals had a tendency to be higher (50.4) in redness compared to those meat from entire animals (42.2). It is likely that the redness has a tendency to increase in relation with the higher of total pigment in the meat. Castration did not affect  $L^*$  value (colour lightness).

1. Skinner JD. Utilisation of the Boer goat for intensive animal production. *Trop Anim Hlth Prod* 1972; 4 :120–128.
2. Schoeman SJ, Els JF, van Niekerk MM. Variance components of early growth traits in the Boer Goat. *Small Ruminant Res* 1997; 26: 15–20.
3. Lawrie RA. *Meat Science*. 6th ed. Cambridge: Woodhead Publishing Ltd; 1998. pp. 66–67.