

# Evaluation of cashmere production of the meat producing Boer goat

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## Introduction

South Africa does not produce cashmere commercially and presently there is no local cashmere industry. The Boer goat is well known for its meat production and is an established farming enterprise in South Africa. The aim of this study was to evaluate the cashmere production of the experimental Boer goat flock at the Adelaide Experimental Station.

## Material and Methods

The goats were kept on natural pastures (False Thornveld of the Eastern Cape) without any supplementary feeding. The cashmere was harvested through combing and each goat was combed three times at two week intervals from 15 July each year. Cashmere fibre length was measured on the shoulder, rib and hind leg. Fibre diameter distribution was measured by means of the Optical Fibre Diameter Analyser (OFDA), which was used to calculate the cashmere and guard hair diameters, as well as the cashmere yield.

Data collected on the Adelaide Boer goat flock from 1996 to 2000 were used for the study and analysed with SAS statistical software. The traits included in the analysis were cashmere length on the shoulder (SL), rib (RL) and hind leg (HL), cashmere production (CP), fibre diameter of cashmere and guard hair, cashmere yield and fibre diameter classes. The fixed effects included in the models were year of birth and age at measurement in years.

## Results and Discussion

It is evident from Figure 1 that the down of the Boer goats fall within the definition of cashmere ( $<18.5\mu\text{m}$ ) for all age groups. The fleece weight of the Boer goats was  $18.83 \pm 0.59$  g with a yield of  $80.91 \pm 0.44$  % and a cashmere weight of  $15.23 \pm 0.48$  g. Such a low cashmere production is not economically worth while to harvest. It is evident from the table that with two combings more than 80 % of the total fleece weight could be harvested; this implies that in practice a farmer only have to do two combings and not three or more.

The average fibre diameter of the cashmere was  $16.93 \pm 0.06$   $\mu\text{m}$ , ranging from  $15.64 \pm 0.08$   $\mu\text{m}$  to  $18.30 \pm 0.16$   $\mu\text{m}$  with age (Figure 1). The corresponding values for guard hair was  $82.90 \pm 0.90$   $\mu\text{m}$  ranging from  $75.03 \pm 3.26$   $\mu\text{m}$  to  $91.38 \pm 1.59$   $\mu\text{m}$  (Figure 1). It is interesting to note that the fibre diameter of cashmere increased with age, as expected, while the guard hair decreased. It is evident from Figure 2 that almost 88 % of the cashmere was finer than 20  $\mu\text{m}$ .

The cashmere length increases over the body from the front to the back, but is still shorter than the 40 mm required by the industry.

Table 1. Cashmere production traits of the Boer goat does

Trait	Mean
Raw cashmere weight	
1 <sup>st</sup> comb (g)	$10.87 \pm 0.41$
2 <sup>nd</sup> comb (g)	$5.46 \pm 0.28$
3 <sup>rd</sup> comb (g)	$2.70 \pm 0.12$
Total (g)	$18.83 \pm 0.59$
Yield (%)	$80.91 \pm 0.44$
Cashmere production (g)	$15.23 \pm 0.48$
Fibre diameter ( $\mu\text{m}$ ) – Cashmere	$16.93 \pm 0.06$
Fibre diameter ( $\mu\text{m}$ ) – Guard hair	$82.90 \pm 0.90$
Cashmere length	
shoulder (mm)	$20.25 \pm 0.39$
rib (mm)	$21.34 \pm 0.38$
hind leg (mm)	$24.18 \pm 0.33$

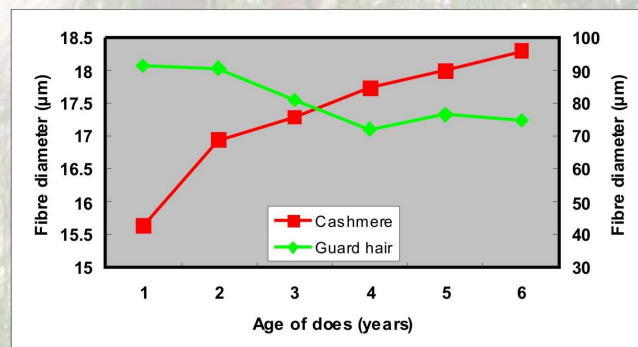


Figure 1. Fibre diameter of cashmere and guard hair

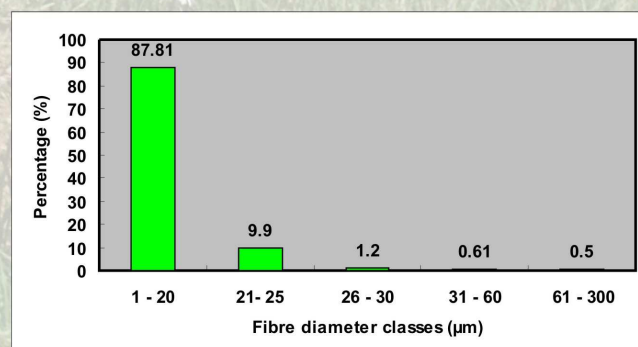


Figure 2. Percentage of fibres within the different fibre diameter classes

## Conclusion

Initiating a cashmere industry with pure Boer goats does not seem to be viable option. However, the production per goat can be increased through crossbreeding with a known cashmere producing breed.