Progress in the utilization and promotion of South African indigenous goats for cashmere production

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Introduction

- **Consumers are increasingly moving towards more comfortable and easy care garments**
- **Manufacturers have had no alternative but to go for lighter fabrics with finer fibres**
- **Cashmere is the second finest animal fibre (14 to 18.5 micron) produced in fairly large quantities and is the worlds most sought after animal fibre today.**

South Africa's position and project objectives

- **South Africa has about 6 million indigenous goats**
- **80% are in possession of the poor**
- **Primarily kept for their meat, skin products and for other traditional purposes.**
- **Many of these goats have two coats, viz a fine down and coarse guard hair.**
- **CSIR, jointly with the Cradock Agriculture Experimental Station, embarked on establishing on a cashmere agro-industry utilizing the fine down of indigenous goats**
- **Exploiting this rich resource could lead to a viable cashmere industry in South Africa thereby adding value to existing animals**
- **A countrywide study was conducted to determine the ability of the indigenous goats to produce cashmere like fibre.**

Results

- **An accurate and rapid method, using an Optical Fibre Analyser (OFDA) instrument, was developed to simultaneously measure fibre fineness and yield without physical separation of fibre fractions**

Conclusions

- **A large number of indigenous goats posses two distinct coats, soft, fine undercoat (cashmere) and a coarse overcoat (guard hair**
- **The down fibre length and yield need to be improved by following an upgrading programme in order to lead to a viable cashmere industry in South Africa**
- **This could lead to the diversification of existing agriculture resources without a large capital outlay, creating additional income for small goat farmers and a opportunity for beneficiation and small agro- industries**

- **Utilization of the fibres as an addition source of income would make the goat flocks more profitable**
- **Cashmere production is labour intensive and ideally suited for farmers with small number of goats**
- **Supports rural and economic development**

Programme status

- **Poverty Alleviation funds provided by the Department of Science and Technology enabled the CSIR and the Cradock Agriculture Experimental Station to launch various upgrading programmes**
- **The increased yield of cashmere type of fibres as an additional source of income is being stimulated by crossbreeding high yielding cashmere bucks with indigenous does**
- **First offspring of the improved goats have been born and are now being assessed**
- **Goat farmers are being trained and encouraged to harvest present animals and to apply appropriate goat farming practices**
- **Processing facilities to dehair the fibres and to convert cashmere fibre into marketable products are being developed**
- **Technical and business related training is being provided to entrepreneurs**
- **Two pilot knitting SMEs have been set up to convert yarn into products for tourists**
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Table 1: Down fibre quality and quantity for South African double-coated goat breeds

	Boer goats	Savannah goats	Traditional goats	Gorno Altai goats
Down diameter (µm)	16.0 – 18.5	16.0 – 18.5	14.0 – 16.5	18.5 – 19.0
Down length (mm)	20-31	20-31	15 - 30	28 – 31
Down crimp	good	good	good	Poor
Down style	good	good	good	Poor
Down weight per goat (g)	10 - 50	10 - 50	5 - 15	100 – 500
Down yield (%) (Combed fleeces)	50 - 70	50 - 70	40 - 60	50 – 70
Down colour	white and white/colour	white	white and white/colour	Brown
Other comments	-	-	-	silky handle, very matted, intermediate fibres

Comments: down fibre length, crimp, style and other refer to the opinion of commercial dehairers and processors of cashmere hair.

- **Results have indicated that over 80 % of the ± 4000 indigenous (Boer) goat fleeces tested contain typical cashmere type down (18,5 micron and finer)**
- **Average down fibre weight for Boer and Savannah goats was 25 grams per goat and the Traditional goats averaged 12 grams per goat with a 55%coefficient of variation**
- **Average down fibre length was rather short**

Table 2: Down fibre diameter profiles of South African Boer Goat and Chinese cashmere.

Down fibre diameter class	Percentage of fibres per diameter class			
	S A Boer goat		Chinese Liaoning goat	
	Buck (%)	Does (%)	Buck (%)	Does (%)
<10 µm	2.1	2.9	4.3	8.4
10 - 20 µm	88.9	91.1	77.9	85.6
20 - 30 µm	8.8	5.9	17.3	5.7
>30 µm	0.2	0.1	0.6	0.3

Table 3: Proportion of animals (%) producing cashmere type down fibre (less than 18.5micron) in different yield classes

Animals	Yield					
	<10 g	10-50 g	50-100 g	100-150 g	150-200 g	>200 g
% Boer and Savannah goats	0.6	76.3	17.0	4.5	1.1	0.5
% Traditional goats	46.0	41.0	11.7	0.8	0.5	-
% Saffer goats	-	-	-	-	70.0	30.0
% Gorno Altai goats	-	-	-	-	5.0	95.0

The combed hair which was scoured/cleaned, dehaired and blended with wool processed successfully into yarn. Knitted garments with a soft handle were produced

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Herd of Indigenous goats

Combs for combing cashmere hair