

CHAPTER 6: CASHMERE PRODUCT DEVELOPMENT

6.1 Introduction

In South Africa's rural areas, the primary purpose of goats is meat production for local consumption, emergency cash flow and traditional use. However, potential for development of other value-added products such as cashmere exists. This chapter investigates the quality characteristics of cashmere from South African indigenous goats and reports on the development of several cashmere products. It also reports on the results of a market survey carried out specifically regarding the products developed and investigates the viability of cashmere as a goat product for employment and income generation.

6.2 Quality characteristics of cashmere

Cashmere, or Pashmina as it is still called in India (Shelton, 1992), is the fine secondary follicle fibre, which grows under the coarse guard hair (which originates from primary follicles) of several goat breeds (Lupton, 1992). This fibre has no medulla and is grown as an insulating coat to protect the animal from extreme cold. This undercoat fibre is one of the 3 finest fibres in the world and has three times more insulating capacity than wool. In fact, the Siberian area from which Gorno Altai goats, in particular, originate, have temperatures which vary from 40°C in summer to as low as -40°C in winter. Fibre starts to grow in mid-summer (the longest day, 22 December) and starts to shed just after mid-winter (the shortest day, 22 June) to prepare the animals for the next hot summer, thus, cashmere is a seasonal product. Under practical farming conditions farmers comb the cashmere out of the primary coat as soon as it becomes loose from the skin (Lupton, 1992). The product is graded and sold, without processing, on the world market.

There is no specific goat that is classified as a cashmere goat. Instead, the term cashmere goat refers to any goat (except the Angora) from which commercial quantities of cashmere can be harvested (Lupton, 1992). The market requirement

stipulates that the fine down hair must be less than 18.5μ and at least 40 mm long. In South Africa, Boer goats, Savanna, Milch goats, Kalahari reds, Indigenous goats, Saffer goats and Gorno Altai goats produce cashmere, but it needs to be determined what the quality and quantities of their production would be.

As part of the Cashmere Working Group of South Africa, in collaboration with the CSIR-Textek (Mr Albie Braun) and the Eastern Cape Department of Agriculture (Cradock – Mr Joshua Roux), various aspects of a South African cashmere industry were investigated. The CSIR investigated the industrial spinning and processing characteristics of South African cashmere resources, as well as technologies to separate the cashmere from the guard hair. Their project is now purchasing raw cashmere from producers, exporting it to be cleaned and re-importing it for sale to the local hand spinning, knitting and weaving fraternity. Joshua Roux has imported various cashmere breeds and is cross-breeding and selecting the Boer goat for improved cashmere production. The idea has been to introduce these improved cashmere producing Boer goats to rural communities in the Eastern Cape (and elsewhere, in the longer term); this project is currently taking place in various areas on the ground in the Eastern Cape Province.

Basic research into the quality and quantity of cashmere production from indigenous goat types (Braker, 1997) were investigated as part of this study. These studies included investigations of the cashmere from the Boer goat and the indigenous goats owned mainly by non-commercialised farmers in rural areas. With this study it was determined that:

- Older animals produce proportionally less cashmere and more guard hair
- Older animals produce finer cashmere
- Indigenous goats produce finer cashmere than Boer goats
- Female cashmere is finer and female guard hair is coarser from indigenous goats than cashmere from indigenous male or Boer goats

In conclusion it was felt that the cashmere from indigenous goats is of good quality as far as fineness is concerned. However, the hair is rather short. Furthermore, the

minimum amount of cashmere need to justify combing is debatable. If the goats are handled every day and kraaled for the night, it would be very simple for the non-commercialised farmer to harvest the cashmere. Thus the management system would largely influence the viability of cashmere harvesting. Research to increase the production of cashmere from indigenous goats would thus increase the viability of combing.

Considering that all indigenous goats possess the ability to produce a double-coated fleece, and the great variation in cashmere weights, a domestic cashmere industry could be possible. However, if the industry were to become a significant employment generating industry, local cashmere production must be increased. This would entail special cashmere up-breeding programmes, involving the selection of high cashmere producing indigenous goats or crossing with available cashmere breeds. Such institutional arrangements would need to be established.

6.3 Cashmere product development

Whereas the CSIR Textek concentrated on the commercial processing potential of local cashmere of which the de-hairing process is a major factor, this project investigated products that could be made from combed hair i.e. cashmere that still contains guard hair. This would allow processing by small-scale rural processors with basic equipment thus adding to potential job-creation. In this respect, hand scouring (washing), carding, felting and spinning were tested with good results. With the spun fibre woven and knitted products were tested, but these, although beautiful and well-made, would not appeal to an up-market clientele.

A search for an up-market product, which did not require the removal of the guard hair led to the idea that guard hair may lend durability and strength to carpets. In January 2001, a medium-sized carpet manufacturer based in Midrand, Gauteng, was approached to develop a genuine, fully hand-made, hand-spun, hand-tufted, cashmere and wool carpet edged in goat leather. Cashmere sourced from both non-commercialised and commercial farmers and wool from the Ile de France sheep breed (that produces a very strong wool which is available at a low price), was used.

The wool and cashmere was washed, carded and spun by hand and sent to the carpet manufacturer to be processed into carpets. The carpets were edged in hand-stitched goat leather. A carpet range consisting of several indigenous designs were developed, of which some are shown in Appendix 4.

The unique characteristics of the carpets are:

- They are not being made elsewhere in the world
- They are a purely South African product
- They are completely hand made
- The expected life of a carpet with proper maintenance is 30 years
- The product is unique and exclusive
- The carpets are not dyed, only the natural colours are used in the designs

Estimate of production cost and selling price of carpets

In order to determine a fair price for the carpets, the cost of production must be known. Cashmere and wool were sourced from producers in South Africa. The raw materials were spun into yarn for the production of the carpets. The following processes were involved with the spinning of yarn:

- Washing and drying of raw fibre. This is not a time-consuming process.
- Brushing of washed fibre. This is a continuous process (A drum carder was obtained to make this process faster).
- Spinning of brushed fibre. A total of five spinners are needed to spin the fibre. It is assumed that a group of 15 could produce an average of 100 to 200 kg spun yarn per month.

The yarn is then used to produce the carpets at a fee per m². All the materials used in the production of the carpets are natural. The labour cost was calculated as R666 per spinner per month or R9 900 per month for a group of 15 spinners. If it is assumed

that a group of 15 can produce an average of 100 kg of spun yarn per month, which is sufficient to produce 13 carpets per month, the labour costs will then be R100 per kg yarn. The recommended price for raw cashmere fibre is approximately R70 per kg and R15 per kg is paid for wool. A total of 4 kg yarn is required to produce one m² carpet of which 2 kg will be cashmere and 2 kg wool. The production cost per m² carpet is shown in Table 6.1 (Costs of rental of a facility were not taken into account because this group does not pay for their facility or the water and lights they use – this is part of the support provided by a “business development hive” of which they are part).

The recommended wholesale price of the carpets including the manufacturing cost is approximately R 929 per m². The carpets can be made to any size to suite the clients' requirements, but the examples shown (Appendix 4) measure 170 cm x 112 cm. The areas of these carpets are therefore approximately 1.9 m², thus setting the current price of the existing carpets in the range of R 1 710. The carpet manufacturer will be requested to print the sizes and m² on the back of each carpet.

Table 6.1 Cost per m² to manufacture cashmere and wool carpets

COST ITEM	R PER M²
Yarn	584
Wool	30
Cashmere	140
Labour	400
Soap	4
Overhead Costs MWS	10
Other Materials	95
Backing	20
Leather	60
Glue And Other	15
Carpet Manufacturing (Vat Included)	250
Total	929

A sensitivity analyses to indicate the change in production costs per m² of carpet produced carpet at alternative yarn production rates and at different wage rates earned by the spinners is shown in Table 6.2.

Table 6.2 Changes in cost of carpets per m² if spun fibre production rate or wages of spinners changes

Yarn Production per month (kg)→	100	150	200
Wage per member per month (R)↓	Production Cost of Carpet (R per m ²)		
500	829	726	674
666	929	792	724
900	1 069	886	794

From the information above it is concluded that the production cost of carpets is sensitive to a change in wages and yarn production rate. The production cost per m² carpet will, for example, be R674 at a production of 200 kg yarn per month and a wage of R500 per member per month. Production costs will increase to R1 069 at a production rate of 100 kg yarn per month and a wage of R900 per month per employee. For these reasons it was decided that for the carpets shown in Appendix 4 the price per carpet would in all likelihood be in the region of R 2 000 per carpet (directly from the carpet makers, i.e. wholesale).

6.4 Market pilot study of Cashmere and Wool carpets

It was necessary to conduct a survey to determine whether there would be an interest in the carpets. This section deals with the methodology and results of the introductory effort. A number of potential buyers were visited and interviewed and the acceptability of the prototype cashmere carpets was tested.

Methodology of pilot survey

A number of individuals and institutions were visited to obtain their perceptions regarding the marketability and price of the carpets. These organisations included: a non-profit organisation involved in the marketing of hand-made curio, decor and art items from emerging artists and craftsman; an organisation that represents the interior decorators and designers of South Africa; game lodges; an organic flea-market; a government department which assists with export marketing for local PDI organisations; carpet shops; curio retailers; and exporters. One carpet was displayed and a portfolio of other available carpets was shown. Their interest in the carpets was obtained by means of discussions.

Pilot survey recommendations

The carpets were generally well received. The overall impression gained during the survey was that the product is acceptable in the market especially with interior decorators and designers, organic flea-markets, curio marketing organisations, and exporters. It is believed, judged on the reaction of these potential buyers interviewed, that the carpets will sell. The quality and price are acceptable and the fact that designers' own designs can be incorporated in the carpets was well received. A trend exists in the market place for earthy commodities, manufactured from natural raw materials. The carpets qualify according to these norms. Game lodges, large curio retailers and carpet shops were less impressed with the carpets because the carpets were considered too bulky for purchase by foreign tourists in transit and because the carpet shops were manufacturing their own product.

The following recommendations were made:

- The carpets should be displayed at organic markets. Enlarged photos of the spinning and manufacturing process must be displayed in the stall. Spinners can spin occasionally in the stall to introduce clients to the spinning process.
- Potential buyers must be introduced to the product. A brochure should be designed and sent to all interior decorators (and other potential markets to be identified). The following concepts must be included in the brochure. "Employment creation project, up-market carpets, wool, cashmere, designers own design, natural colours, carpets are sold at cost as it is a job creation project."
- Consider displaying at large interior decorating shows. A suitable designer should be found to share exhibit space.
- Consider exhibiting at foreign exhibitions. The Department of Trade and Industry can be very helpful in this respect.
- New designs must be introduced. Tertiary institutions with design faculties may be approached in this respect.

- Publish articles regarding the carpets in selected interior decorator magazines.
- The carpet manufacturer should be requested to print the sizes and m² on the back of each carpet.

6.5 Conclusions

Sub problem 3 questions whether products of indigenous goats can be utilised commercially. Are there products of value from indigenous South African goats? Do the products from the indigenous goats found in South Africa measure up to the market requirements? This chapter has demonstrated the development, pricing, screening and testing of a unique, hand-made, up-market product produced utilising indigenous goat cashmere in its raw form. Prices were found suitable and the product concept testing provided good recommendations on how the design of the carpets could be improved. The results of the pilot survey were encouraging showing that interest in the carpets is good, with excellent marketing opportunities.

However, the following limitations to the production of cashmere carpets should be taken into consideration. Indigenous goats produce very small quantities of cashmere, thus limiting the viability of a small farmer producing cashmere exclusively from his/her animals as the only means of income. Thus, whilst research organisations (such as the Cradock Experimental Farm) investigate the improvement of cashmere yields from local breeds, non-commercialised farmers should firstly concentrate on meat production and comb and store cashmere throughout the season if it fits into their current management practices. This may be feasible if one considers that non-commercialised farmers generally kraal their animals every evening, and let the animals out to graze in the late morning (Personal observation and discussions with non-commercialised farmers, 1996-2004). Combing cashmere may be introduced into the management system where a child or pensioner merely combs one or two of the animals just as they are being let out for grazing. The cashmere can then be stored in a plastic or paper bag until such time that a trip is made to a collection centre where the product can be sold (or the fibre collected from them; Joshua Roux, Cradock Experimental Farm, personal communication, 2004). The amount of cashmere will only elicit a small income, but could be seen as an extra bit of income for a child or

pensioner (Income for a cashmere group – with 32 participants - in the Whittlesea area of the Eastern Cape was R 7000 in 2003, Albie Braun, CSIR Textek, personal communication, 2004 – on a visit to the project by the author). Combing cashmere in no way negatively influences the animal and, in fact, the constant combing can be beneficial in making the animal familiar with handling and reducing the external parasite load of the animal (ticks and fleas). Once enough cashmere has been collected by the collection depot, this can be sold to a processing centre for further processing.

The small amount of cashmere expected nationally would also limit the viability of several carpet manufacturing operations. Thus, the carpets should be made exclusively by a small group who could produce a consistent and quality product. This will also add to its marketability as a hand-made, rare and exclusive product, which the market survey was clear to emphasise are important attributes of the product. Since the product is not perishable, vertical co-ordination of the supply chain would thus entail linking goat producers to several collection depots that would continuously accept the product, making long-term collection facilities available at several collection depots, linking the collection depots with the spinners and carpet manufacturers (so that a constant stream of cashmere could be sourced), and linking the carpet manufacturers with interior designers or taking advantage of export stimulation activities of the Department of Trade and Industry. Also important would be creating dialogue between the carpet manufacturers and designers to assist with the latest designs and trends. Thus, linkages should be between many goat producers, several collection depots and one or a limited amount of carpet manufacturers producing an exclusive, hand-made product of high quality. The design of these institutional arrangements will be further addressed in Part 3 of this thesis.