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An Update on the Australian Cashmere Industry

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Abstract

This paper gives an up-to-date overview on the Australian cashmere industry. It covers the development history of Australian cashmere industry, the characteristics of Australian cashmere fibres, cashmere processing and research and development in Australia.

Development History of the Australian Cashmere Industry

Australian cashmere industry is still relatively young. It began in 1972, when cashmere down-fibres were identified in the fleece of feral goats that were used to upgrade to produce mohair by the Australian mohair company (Smith et al. 1973). This discovery of fine cashmere fibres on the feral goats led to industry leaders approaching various international cashmere processors to be involved in the development of the Australian cashmere industry. The samples of cashmere hair were sent to the overseas processors to have them tested and the test results showed that Australian feral goats had good quality cashmere fibres on them (Smith 1985). During this period Chinese (world’s largest cashmere producer) was expanding its cashmere processing industry and was consuming more and more cashmere domestically. International cashmere processors were experiencing difficulty to obtain good quality raw white cashmere hair from China. This situation prompted Dawson International to become directly involved in supporting the development of an Australian cashmere industry in 1980. Dawson International bought a show farm in Adelong Australia and started growing cashmere and in 1981 set up a cashmere buying company called Kinross Cashmere Company.

Dawson International liked Australian cashmere due to its longer length, white colour, strength, freedom from lice eggs and handle (Smith 1985). Dawson International was very keen to develop the Australian cashmere industry and invested heavily in product development and testing of fibre samples. During this period various other European and American companies also got interested in Australian cashmere and Filati Biagioli Modesto
of Italy started buying Australian cashmere in 1982 through Henry B. Smith, a wool broker. Forte Cashmere Company of America bought and trialed Australian cashmere also. These processors agreed with Dawson that Australian cashmere is longer, stronger, cleaner and softer than the cashmere from traditional sources, and wanted larger quantities of it. This encouragement from the cashmere processors resulted in rapid development of the cashmere industry and by 1989 Australia produced almost 64 tonnes of raw cashmere as shown in Figure 1.

![Bar chart showing quantity of Australian raw cashmere offered for sale from 1986 to 2004](image)

**Figure 1** Australian raw cashmere offered for sale (Data provided by Australian Cashmere Marketing Corporation)

However, this momentum of rapid development did not last for long. In 1989 cashmere prices peaked and started declining (Figure 2) and at the same time Dawson International decided to withdraw its support and exited Australia and established joint-venture companies in China (McGregor 2001). Dawson’s pulling out and the fall in prices of the cashmere led to severe decline of the Australian cashmere industry. But the good outcome for the Australian cashmere industry was that it had good structure laid down by then, and Australian Cashmere Growers Association (ACGA) and Australian Cashmere Marketing Corporation (ACMC) have already been formed to take the industry forward. During these years Australian Wool Testing Authority (ATWA) developed objective test methods i.e. fibre diameter and yield test and raw cashmere was offered for sale on AWTA tests. Cashmere growers were also using AWTA to test fleeces from individual animals to upgrade their herds. Nevertheless, as Figure 2 shows, cashmere price fluctuations exerted a
lot of strain on the Australian cashmere industry to keep the momentum going.

![Graph showing the price of hosiery and weaving from 1986 to 2004](image)

Figure 2. Average down prices – Hosiery and weaving on yearly basis (data provided by ACMC).

During 1990s, Australian cashmere industry was facing difficulties to find outlets for the Australian cashmere. International cashmere processors liked the Australian cashmere but were reluctant to buy it at the international prices. In response to this, the Australian Cashmere Growers Association upgraded and tightened its fibre classing to produce good quality clean cashmere. The characteristics of Australian cashmere are discussed in the following section.

**Characteristics of Australian Cashmere**

Table 1 compares the yield and fineness of Australian cashmere against cashmere from China, Iran and Outer Mongolia.

Table 1 Comparative data on the cashmere produced in different countries

<table>
<thead>
<tr>
<th>Country/Origin</th>
<th>Average Scouring Yield (%)</th>
<th>Average Dehairing Yield (%)</th>
<th>Average Diameter Range (Micron)</th>
</tr>
</thead>
<tbody>
<tr>
<td>China (Blackburn 1990)</td>
<td>75</td>
<td>51</td>
<td>14 – 16</td>
</tr>
<tr>
<td>Outer Mongolia (Blackburn 1990)</td>
<td>75</td>
<td>51</td>
<td>16 – 17</td>
</tr>
<tr>
<td>Iran (Ekhtiyari et al 2000)</td>
<td>80</td>
<td>35</td>
<td>17 – 19</td>
</tr>
<tr>
<td>Australia (ACMC)</td>
<td>92</td>
<td>30</td>
<td>15.5 – 18.5</td>
</tr>
</tbody>
</table>

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Australian cashmere due to the different animal husbandry methods employed in Australia is different than the cashmere produced in the traditional countries. It is longer, stronger, softer and has lower fibre curvature than the other cashmere (McGregor 2001). It is the longer length that makes it more suitable for worsted processing (Nesti 1985). In the early days Dawson International made it into jumpers and blankets that had exceptional handle (Smith 1985).

McGregor examined properties of cashmere tops from different regions, and found that cashmere fibres from Australia, New Zealand and USA (the New Origins) had similar properties (McGregor 2002). One quite unique property of Australian cashmere is its low curvature and low resistance to compression, as indicated in Figure 3 (McGregor and Postle 2004). This is believed to be responsible for the unique softness of Australian cashmere (McGregor 2002).

Figure 3: Attributes of cashmere tops from different regions (McGregor and Postle 2004)

The other main feature of the Australian cashmere is the high percentage of white fibres as shown in Table 2
Table 2 Colour split of the total clip of year 2000 (data provided by ACMC)

<table>
<thead>
<tr>
<th>Colour</th>
<th>% of the total clip</th>
</tr>
</thead>
<tbody>
<tr>
<td>White</td>
<td>63.8</td>
</tr>
<tr>
<td>Grey</td>
<td>15.0</td>
</tr>
<tr>
<td>Brown</td>
<td>11.5</td>
</tr>
<tr>
<td>Cashgora and others</td>
<td>9.7</td>
</tr>
</tbody>
</table>

Cashmere Processing in Australia

Due to the harvesting method employed in Australia, Australian cashmere is different than the cashmere grown in the traditional countries. Different dehairing set-up is required to dehair Australian cashmere. International processors were experiencing difficulties in the dehairing of Australian cashmere and were realising low yields. Due to these difficulties, major international processors were reluctant to pay international prices even though the quality of Australian cashmere was recognised. In early 1990s, many in the industry believed that value adding was the answer to the problem (Skillcorn 1993). Five textile companies were established in Australia during the period 1992 to 1999 to process Australian cashmere (McGregor 2001). But the problem was lack of technical knowledge to help these companies to process cashmere. The other stumbling block was lack of dehairing equipment. Two of these companies Rosewell Cashmere and Belisa Cashmere had dehairing done overseas and both had considerable yield loss (Simmonds 1993). There were also quality problems with the cashmere dehaired overseas i.e. fibre damage, various product grades.

In April 2000, a dehairing unit was installed in Elite Fibre Australia P/L, and research on cashmere dehauling was conducted at Deakin University to optimise the machine settings. In 2003, Elite Fibre Australia P/L closed its operation, but the dehairing operation survived fortunately. The dehairing unit (Figure 3) has been running at the newly established company, Cashmere Connections P/L. Since 2003, Australian Cashmere Marketing Corporation has been using this unit to dehair Australian cashmere and then selling the
fibres in dehaired form. This has provided more flexibility to the Australian Cashmere Marketing Corporation in selling of cashmere.

Cashmere Connections P/L is a small dehairing and combing operation. In 2005, the company started buying Australian greasy cashmere and is now offering dehaired and combed cashmere top to the spinners worldwide. Some worsted spinners in Australia are currently trialling Australian cashmere top in blends. The samples of the dehaired and combed products have been well received by the Italian and UK spinners.

![Image of cashmere dehairing machine](image_url)

**Figure 3** Cashmere dehairing machine installed in Australia.

Figure 3 shows a photo of the dehairing unit installed at Cashmere Connections P/L. The dehairing machine has been specially designed and built to process shorn cashmere and dehairing targets achieved over the last two years are given in Table 3.

Table 3 Average dehairing targets achieved over the last two years. (Almeter length has been done in Italy and yield Figures have been provided by ACMC)

<table>
<thead>
<tr>
<th></th>
<th>Output (kg/hr)</th>
<th>Hair content (%)</th>
<th>Impurities content (%)</th>
<th>Nep count (No/g)</th>
<th>Length (mm, hand draw)</th>
<th>Length H (mm, Almeter)</th>
<th>Depairing yield %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Target achieved</td>
<td>2.15</td>
<td>0.18</td>
<td>0.1</td>
<td>28</td>
<td>40</td>
<td>26</td>
<td>30</td>
</tr>
</tbody>
</table>
With the installation of the dehauling machine, cashmere growers are realising true value of their fibre and getting better returns.

**Australian Cashmere Research and Development**

Australia has world class facilities for animal fibre research and product development, through organisations such as CSIRO, Department of Primary Industries and Deakin University. Cashmere and other rare animal fibre related research has been supported by Rural Industries Research and Development Corporation (RIRDC). RIRDC is funded by the Government and a levy from relevant industry sectors. It is a leading-edge, innovative and dynamic research manager investing industry and public funds to advance Australian rural industries. In addition to support from RIRDC, cashmere research in Australia has also been funded, on a competitive basis, by the Australian Research Council (ARC). The ARC is the peak research funding body in Australia, similar to the National Natural Science Foundation of China. Other organisations such as the International Fibre Centre (IFC) and cashmere Connections P/L have supported cashmere research and development also.

**Conclusion**

Australian cashmere industry has come a long way in the past 3 decades. It still has a long way to go. In this paper, the historical development of Australian cashmere industry has been described. Australian cashmere has some unique characteristics, such as low curvature and resistance to compression. Local cashmere dehauling and processing facilities have been established which will assist the further development of the cashmere industry. Cashmere related research is on-going, with the support of Rural Industries Research and Development Corporation and the Australian Research Council, in collaboration with local industry, such as Cashmere Connections P/L.

**References**


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Primary Industries, Victoria.


Curriculum Vitae

Mr Avtar Singh

Mr Avtar Singh received his Masters degree on cashmere dehauling at Deakin University. He is currently working as a Research Fellow on an ARC Linkage project on cashmere processing.

Dr Xungai Wang

Xungai Wang graduated in 1986 from Xi'an University of Engineering Science and Technology (previously know as Northwest Institute of Textile Science and Technology), with an Excellent Graduates Award. In 1988, he started his PhD research in the Textile Department at the University of New South Wales. After PhD completion in 1991, he received postdoctoral research fellowships at Otago University and then at the University of New South Wales. From Feb. 1993 to June 1998, he was a Lecturer and then Senior Lecturer at the University of South Wales. After that, he joined Deakin University's School of Engineering and Technology. He currently holds a Personal Chair and is the Associate Head of School (Research). He is the recipient of the 2005 American Fibre Society Distinguished Achievement Award in Fibre Science. He is a Fellow of the Textile Institute and also a Fellow of Institute of Nanotechnology (UK).

Dr Lijin Wang

Dr Wang received his PhD from the University of New South Wales (UNSW), Australia and his BEng and MEng degrees from Tianjin Polytechnic University (previously known as Tianjin Institute of Textile Science and Technology), China. Before joining Deakin University in 2000, he has worked as a postdoctoral research fellow at RMIT University, and a research officer at UNSW. His research interests include: Textile material science and engineering; Advanced composite materials; Technical and functional textiles; and Electrical testing techniques and instrumentation.