



Sheep CRC Wool Industry Case Studies

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REAL MEASURES OF WOOL KNITWEAR HANDLE



Australian researchers have developed a system to specify fabric handle in next-to-skin knitted fabrics. Using specially-developed software, results from a Phabrometer instrument test are used to predict the overall handle, smoothness, softness, warm feel, dry feel, hairiness, tightness and weight of a fabric. The 'Handle Meter' is currently undergoing commercial trialing to evaluate its performance.

Goal

The research program's ultimate goal is to take the market for casual, lightweight, next-to-skin products to new levels. In conjunction with its sister project to measure next-to-skin fabric comfort, the fabric handle project will provide tools to take advantage of wool's inherent quality as a textile fibre and build on wool's position of being natural and sustainable, and its advantages in moisture, heat and odour management



Image courtesy of AWI

Background

The knitwear market represents near 60% of consumer expenditure on wool apparel. There are opportunities to improve wool market share in next-to-skin knitwear through emphasis on high quality products of superior fabric handle and comfort. Specifically we can ensure next-to-skin knitwear has achieves minimum standards of fabric handle and comfort through fabric specification systems.

To address these opportunities, rigorous and reliable fabric and fibre specifications are required together with measuring devices for quality assurance. Australian researchers in the Sheep CRC are well on the way to delivering them.

Delivering measurable and predictable quality

Information is everything in a supply-chain. Retailers and manufacturers will be able to specify a value for fabric handle and comfort in their buying orders; this in turn will generate specifications for wool types and processing procedures to meet these requirements.

Phabrometer handle meter with special CRC software for knitted fabric". Image courtesy of AWTA.



Transforming wool, meat and the sheep that produce them

The instrument

The 'Handle Meter' was developed by the Sheep CRC based on a commercially available instrument, the PhabrOmeter, which measures the force required to extract a fabric through an orifice. The test mirrors a traditional technique used for centuries whereby a woman will assess the quality of a fabric by passing it through her wedding ring – the easier the fabric passed through the softer the fabric handle. This force measured by the PhabrOmeter is related to the fabric extensibility, stiffness, and surface roughness and friction.

Researchers have assembled a range of over 70 next-to-skin knitted fabrics which have been measured on the PhabrOmeter and been assessed by a panel of experienced judges for overall handle, smoothness, softness, warm feel, dry feel, hairiness, tightness and weight of a fabric. We have been able to predict the judges ratings for these fabric handle attributes based on the PhabrOmeter test results – an objective, repeatable series of ratings which encapsulate fabric handle.

Commercialisation

The Sheep CRC is undertaking commercial trials with key supply chain companies over the next 12 months using the equipment and research information for fabric development and quality assessment to evaluate the value of the Handle Meter.

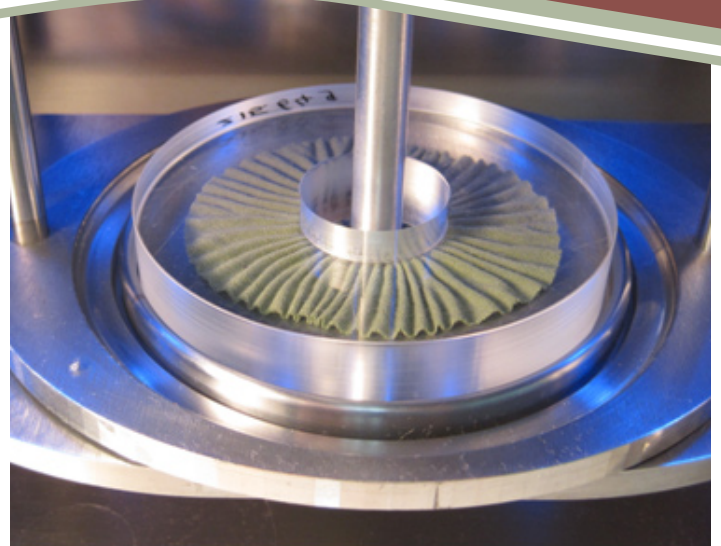


Image showing the pattern of fabric deformation during a Handlemeter test

“This technology has been developed in conjunction with experienced judges from supply chain companies. The research demonstrates that while these judges had similar ratings over a wide range of fabrics, there were also individual differences in handle preference. The technology provides a consistent, objective value for attributes of aesthetic fabric quality which are important in the marketplace.” — Trevor Mahar, Leader of the Australian Sheep CRC Fabric Handle Project.

Image courtesy of AWI.



ABOUT THE SHEEP CRC

The Australian Sheep Industry Cooperative Research Centre (Sheep CRC) is a partnership of the country's key industry bodies working with researchers to turn innovations into successful new products, services and technologies.

The Sheep CRC's work involves a collaboration including Australian Wool Innovation (AWI), The Merino Company, Australian Wool Testing Authority (AWTA) and other Australian and overseas supply chain companies that provide products for testing and evaluation, technical expertise, and commercial focus.

More information is available via:

<http://www.sheepcrc.org.au/research/wool-quality.php>

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