



Sheep CRC Practical Wisdom Notes

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'Wool Comfort Factor' does not predict garment comfort

By David Tester, Sheep CRC

Key points

- The Wool Comfort Factor test has limited value in predicting final garment comfort.
- Fabric and garment comfort can be predicted by testing yarns with the Wool ComfortMeter.
- Wools less than 18 microns should be chosen for next-to-skin wear.

Introduction

Until recently, the spinner and knitter have had no direct measure of the potential for their products to be suitable for next-to-skin applications. Early stage processors had one measurement to indicate the comfort potential for wool: the 'Wool Comfort Factor', however, Sheep CRC research has shown this measure of fibre diameter distribution poorly predicts whether knitted fabric made from wool is likely to prickle.

The opportunity for an accurate comfort measurement on raw wool or yarn would offer more certainty for spinners, knitters and garment makers producing next-to-skin apparel.

Can raw wool or yarn measurements indicate fabric comfort?

The Wool Comfort Factor test is carried out on raw wool or wool top during the measurement of the mean fibre diameter. The Wool Comfort Factor is the proportion of the measured fibre snippets that are less than 30 microns in diameter.

The Sheep CRC tested the comfort of wool fabrics (using wearer trials) and compared these with their Wool Comfort Factor results to see their relationship. Figure 1 shows that finished garments made from wool with a Wool Comfort Factor above 99.5% were associated with a Wearer Prickle Rating of less than 2 (prickle is below a threshold detection value). However, when wools with Wool Comfort Factors below 99.5% were used they were associated with a wide variety of wearer prickle ratings from 2 to nearly 4.

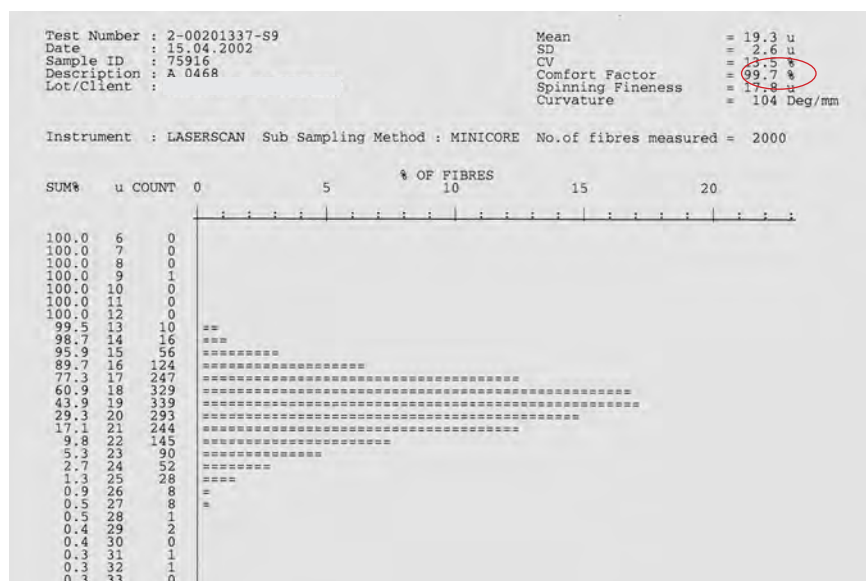


Figure 1. Mid-side sample test showing a Wool Comfort Factor result.

As such, the Wool Comfort Factor test has limited value in predicting the final garment comfort.

Fortunately, the Sheep CRC has extended the application of the Wool ComfortMeter (initially developed to test wool fabrics) to be able to measure yarn and from the yarn values to predict the potential fabric values.

This has extended the application of the measurement from knitters and retailers to also include spinners that wish to predict the comfort of fabric based on their yarn. The advantage of the test occurring earlier in the supply chain is that it saves the cost and time associated with preparing the fabric sample for testing and can be done prior to spinning the whole consignment. Alternatively, finished yarns can be tested to determine their predicted next-to-skin comfort and therefore their suitability for lightweight knitwear.

Sheep CRC research has shown that by choosing raw wools with a mean fibre diameter of less than 18 microns was the first step in ensuring the fabrics would be comfortable for next-to-skin wear.

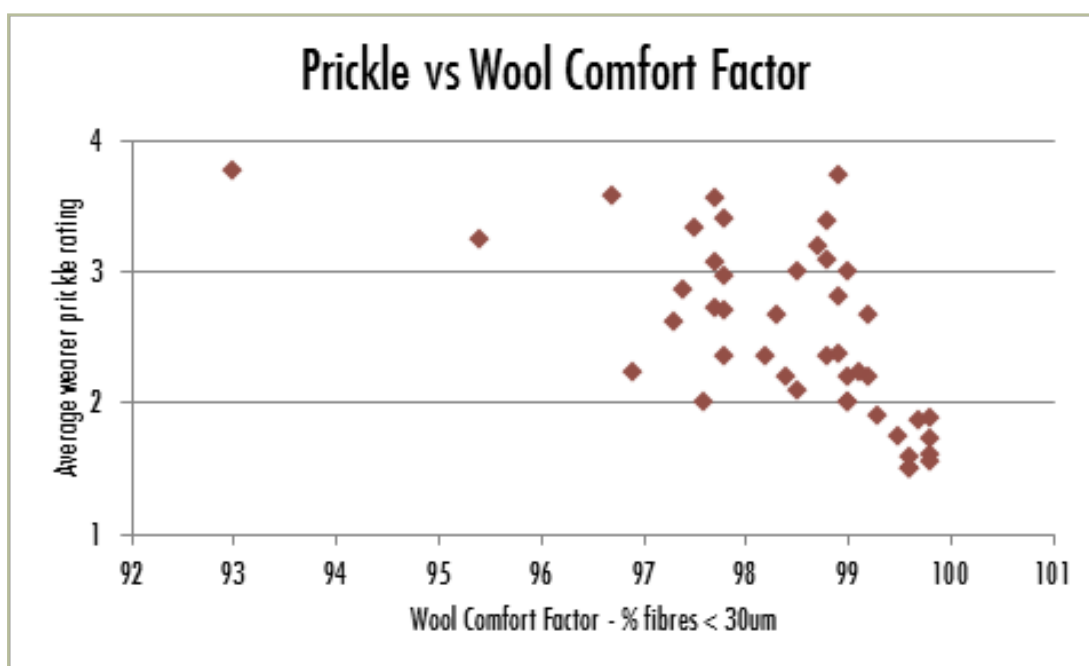


Figure 2. Wearer Prickle rating of knitted wool fabrics from the wearer trial and the corresponding wool comfort factor results.

Take home messages

- Early stage processors should identify the end-product and ensure consignments of wool destined for spinners of yarn for next-to-skin knitwear are below a mean fibre diameter of 18 microns, rather than use the Wool Comfort Factor test as an indicator of fabric comfort.
- Spinners can prepare a yarn sample and test this with the Wool ComfortMeter to gain an early determination of the suitability of yarns for next-to-skin applications.
- Wool producers already supply suitable wool for immediate needs, but the new technology and the expected demand increase for lightweight knitwear may require greater production in the ultrafine range.

Further information

- www.woolcomfortandhandle.com
- Australian Wool Testing Authority: <http://www.awtawooltesting.com.au/index.php/en/contact>

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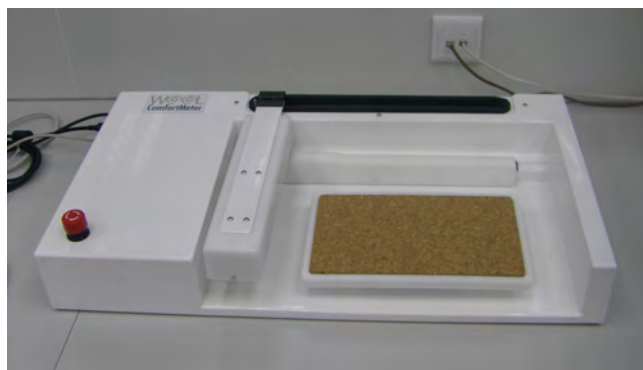


Figure 3. Wool ComfortMeter.