



## Sheep CRC Practical Wisdom Notes

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## Knitted wool fabrics can have soft handle but still prickle

By David Tester, Sheep CRC

### Key points

- Wool fabric softness and next-to-skin comfort are poorly related characteristics.
- A move away from using subjectively measured softness to indicate next-to-skin comfort is required.

### Introduction

Processors and wearers still often judge the comfort of lightweight wool knitwear by squeezing the fabric to gauge how 'soft' it is, believing a softer feel or 'handle' will provide an excellent wearing experience and not prickle or irritate the skin. However, Sheep CRC research has shown this relationship to be unreliable.

Reliance on this relationship means that uncomfortable wool knitwear is being produced and sold, which continues to reinforce the notion that wool is a prickly fibre.

New objective testing devices for comfort and handle provide the opportunity to ensure all wool garments are fit for purpose and positively reinforce the exceptional comfort properties of wool.

### How are fabric handle and comfort measured?

Handle describes the feel or softness of a fabric and is mainly influenced by fabric weight, thickness and density; there is little effect from the mean fibre diameter of the wool.

The Sheep CRC has developed and commercialised the Wool HandleMeter, a device that measures the softness of a finished fabric by the force required to push the fabric through a nozzle in the instrument. Handle is quite different from how comfortable the fabric will be when it is worn next to the skin.

Comfort (or the level of prickle) is measured with a different device, the Wool ComfortMeter (also developed by the Sheep CRC). The device primarily measures the resistance to bending of the fibre ends protruding from the fabric.

Comfort is strongly related to mean fibre diameter, with wools having an average fibre diameter of less than 18 microns being very comfortable, and as the wool becomes broader, it becomes less comfortable.

### How are fabric handle and comfort related?

The objective measurement of both handle and comfort on fabrics, with the two Sheep CRC-developed meters, demonstrated that fabric softness and prickle are two unrelated fabric attributes.

Figure 1 shows the measured relationship between the level of prickle and the softness of each knitted fabric from the wearer trials. There is a broad scatter of results showing four extremes: soft

handle/high prickle; soft handle/low prickle; hard handle/high prickle; hard handle/low prickle, as well as combinations in between.

If the industry-accepted relationship was true then the graph should have the points concentrated in a band from top left (hard handle and high prickle rating) to the bottom right (very soft handle and no prickle).

However, the graph shows no strong relationship between the fabric softness and the wearer assessed prickle rating. Some of the softest fabrics (values above 7) are also the fabrics with the lowest prickle rating; these fabrics conform to the general industry understanding. However, there are fabrics that are still very soft (values above 6.5) that have quite high prickle ratings. Similarly, there are fabrics with very low prickle ratings (values less than 2) that are not very soft.

The introduction and widespread use of the Wool ComfortMeter and the Wool HandleMeter will replace the subjective appraisal of fabric comfort and softness with accurate, objective measures of the prickle propensity and the softness of wool fabric or garments.

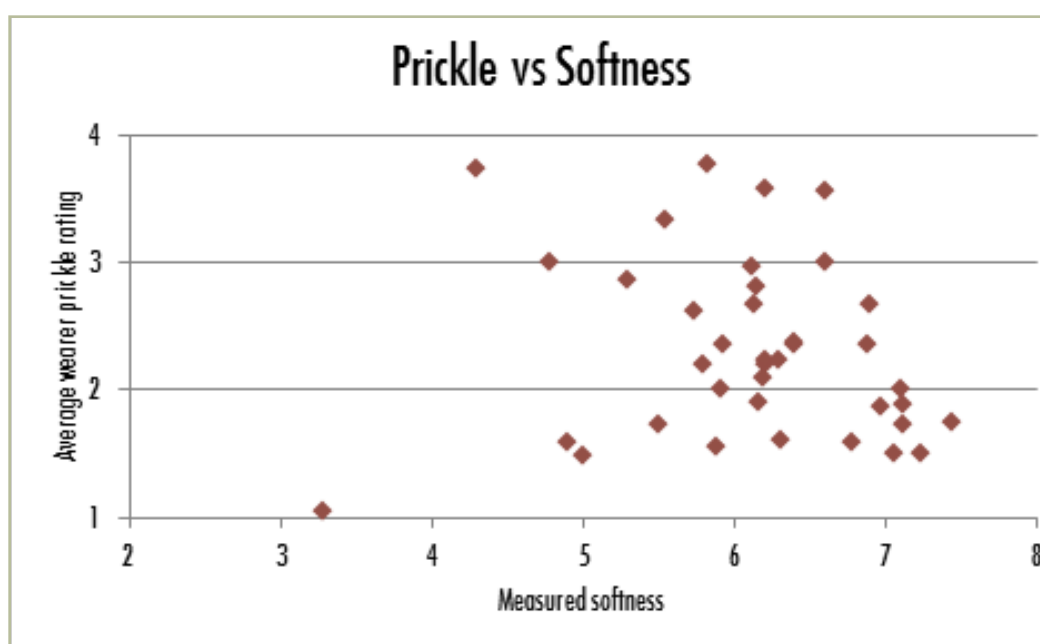


Figure 1. Measures of prickle and softness for selected knitted wool fabrics.

### Take home messages

- Knitters (sourcing yarns) and garment makers and retailers (sourcing fabrics) can assure comfort directly using objective measurement with the Wool ComfortMeter, rather than indirect subjective assessment of comfort based on the softness of the yarn and fabric.
- Knitters, garment makers and retailers can achieve the combination of comfort and handle to meet all retail and consumer requirements by specifying desired values and limits from tests using the Wool ComfortMeter and Wool HandleMeter.
- Wool producers should be prepared for increased future demand for high comfort ultrafine wools, but current production of good quality fine wool is available to meet the immediate needs.

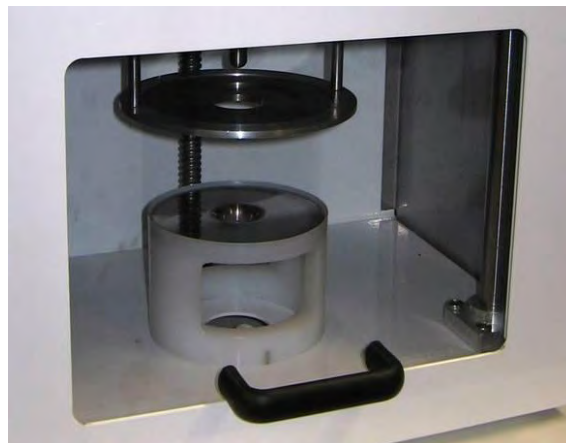


Figure 2. Wool HandleMeter.

### Further information

- The Wool ComfortMeter: [www.woolcomfortmeter.com.au](http://www.woolcomfortmeter.com.au)
- The Wool HandleMeter: [www.woolhandlemeter.com.au](http://www.woolhandlemeter.com.au)
- Australian Wool Testing Authority: <http://www.awtawooltesting.com.au/index.php/en/contact>

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