

## Staple Length & Strength Measurement for Crossbred Wool

### Background

Within broad fibre diameter ranges, the staple length of crossbred wool has a significant influence on its processing capability, and hence end-use. Consequently staple length is a major determining factor in establishing wool's value at the time of sale.

Like other tested characteristics (eg micron, colour, yield and vegetable matter) determining staple characteristics accurately is also important for maximising value of wool. Objective testing of staple length and strength is common practice for Merino wool. The same principles can be applied to Crossbred wool. Independent objective assessment gives all sectors of the industry greater confidence to value wool to its true potential.

### Objectives

The industry uses objective information to provide confidence in meeting specifications for trading and the end-product. Staple characteristics of length and strength are currently assessed subjectively (visual and touch). The inherent risk involved is reflected in the valuation. Consequently the key objective of the introduction of staple length and strength measurement is to reduce this risk, thereby maximising wool's value.

### The Process of Length and Strength Measurement



In valuing Crossbred wool, the grab sample is used to allow buyers to view a representative sample of any sale lot. This sample is also used for length and strength testing. Further sampling is conducted to ensure a random and accurate sample is drawn. A minimum of 63 tufts (hand-size samples) are mechanically extracted from the grab sample ('tuft-sampling'). One staple from each tuft then randomly drawn by a series of trained operators.

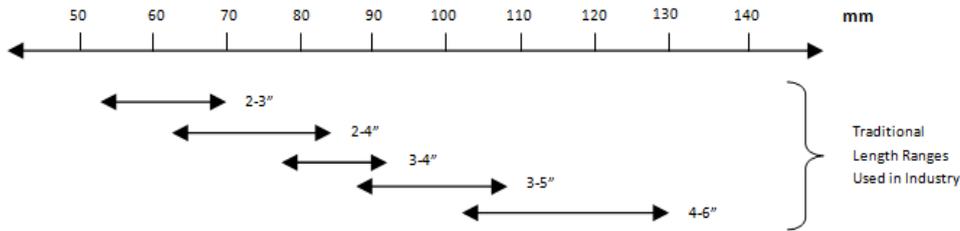
These staples are then measured on automated equipment ('ATLAS' – Automatic Tester of Length And Strength) specifically designed for measuring staple characteristics.

### What Measurements are Provided?

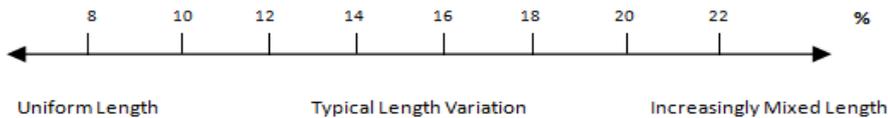
Characteristic & Abbrev	Unit	Definition
Staple Length (SL)	mm	The average staple length over all measured staples.
Co-efficient of Variation of Staple Length (CVL)	%	A measure of the uniformity of the length of all measured staples.
Staple Strength (SS)	N/kTex	The average staple strength over all measured staples.
Position of Break (POB)	%	The percentage of staples breaking at the Tip, Middle, and Base regions.

## What do the Results Mean?

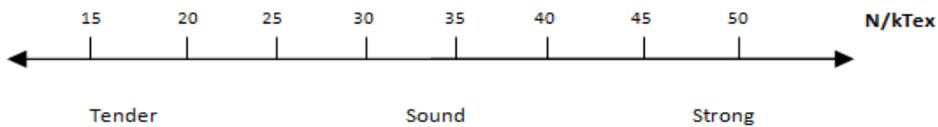
**Staple Length** - Test results will be presented as an average value rather than a broad range.



**CV Staple Length** - The higher the CVL%, the greater variability in lengths between individual staples measured.



**Staple Strength** – Staple strength is determined by three parameters, the **force** required to break the staple (in Newtons), the **length** of the staple (mm), and the **mass** of the staple (g). Low staple strength would indicate tenderness in the wool. This may lead to fibre breakage and loss during processing.



**Position of Break** – An indication of where staples/fibres will likely break during processing. While all staples are broken during the testing process, this is not the case during normal wool processing. Hence Position of Break information becomes less important for high-strength wool.

## Benefits of Staple Length & Strength Measurement

The benefits of objective testing of staple characteristics of Crossbred wool are spread throughout the pipeline. Processors know exactly what they are purchasing, enabling them to optimise their processing and output. The risk of disputes based on quality parameters is reduced, allowing easier trade. The wool exporter can value the wool with greater confidence as the risk of appraisal errors is reduced. This also allows clearer market signals to be gained, assisting growers in making informed farm management decisions to maximise the return for their wool.

<p><b>Benefits to Wool Growers</b></p> <ul style="list-style-type: none"> <li>• Provides confidence that the buyers assessments are accurate</li> <li>• Reduces the need for a risk margin</li> <li>• Gives equity in pricing</li> <li>• Provides information for farm management decisions</li> <li>• Increases competition from buyers</li> <li>• Captures the real value which can be lost if characteristics are underestimated</li> </ul>	<p><b>Benefits to Processors</b></p> <ul style="list-style-type: none"> <li>• Allows the specification of the raw materials in precise, objective terms</li> <li>• Enables processing performance to be predicted</li> <li>• Enables machinery settings and processing performance to be maximised</li> <li>• Reduces the potential for disputes and claims</li> </ul>
<p><b>Benefits to Brokers</b></p> <ul style="list-style-type: none"> <li>• Provides sound data for giving shearing and wool handling advice</li> <li>• Enables clear market signals to be established</li> <li>• Ensures maximum value for wool grower customers</li> </ul>	<p><b>Benefits to Wool Exporters</b></p> <ul style="list-style-type: none"> <li>• Enables confidence in bidding</li> <li>• Allows for accurate prediction of processing performance</li> <li>• Reduces the risk of appraisal errors</li> <li>• Reduces the risk of claims</li> </ul>

***“All subjective assessments produce RISK. These risks are usually mitigated by PRICE”***