



CRC

for

Premium

Quality

Wool

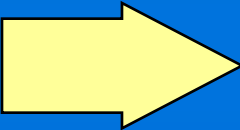
Prediction of Spinning Performance & Yarn Quality

Produced for the CRC for Premium Quality Wool undergraduate program by;
Dr. Peter Lamb, CSIRO Textile & Fibre Technology.



SIROLAN - YARNSPEC

The Prediction of Spinning Performance and Yarn Quality

- **wool top properties**
 - diameter
 - CV diameter
 - Hauteur
 - Curvature
 - bundle tenacity
 - **yarn parameters**
 - count (tex)
 - twist level
 - **processing parameters**
 - **Best Commercial Practice**
- 
- **yarn tenacity**
 - **yarn elongation**
 - **yarn evenness**
 - thick & thin places, neps
 - **ends-down in spinning**

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Best Commercial Practice

- random limit due to probability
 - mean number of fibres in yarn X-section
- no one beats spinning limit
 - determined by thin place breaks
 - ~35 fibres in X-section
- quality of yarn = quality of drafting
- similar machinery used in mills

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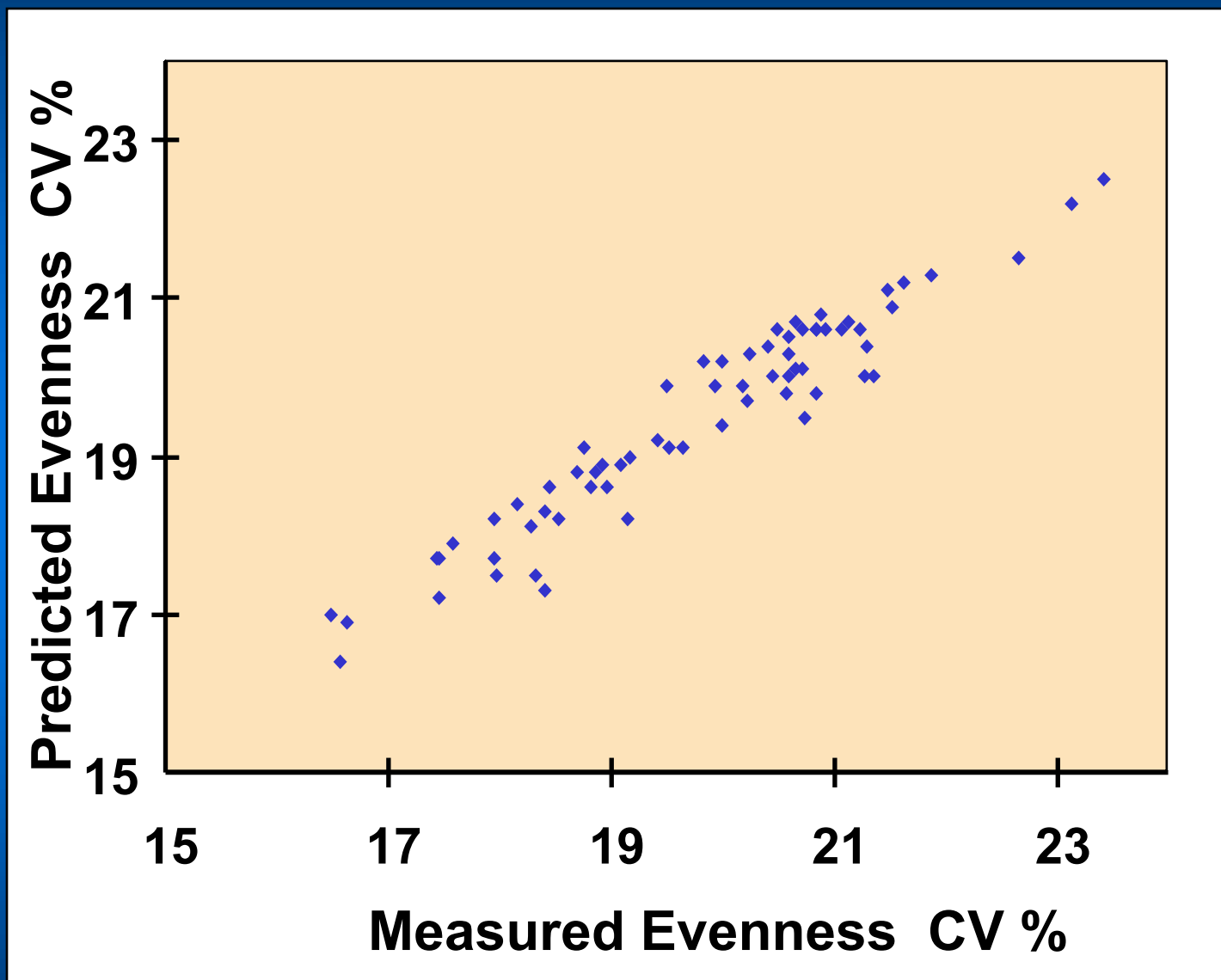
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Prediction of Yarn Evenness



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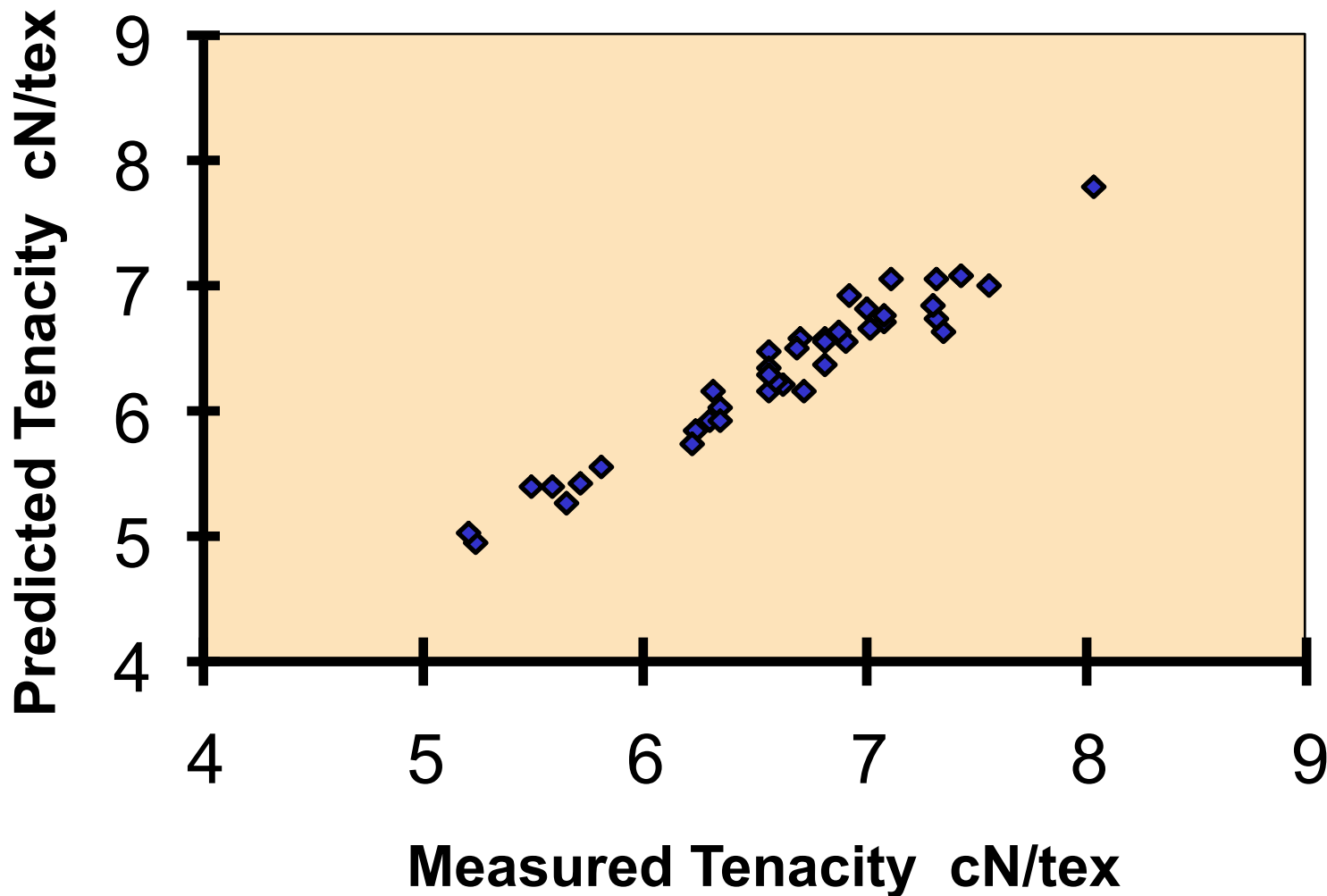
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Prediction of Yarn Tenacity



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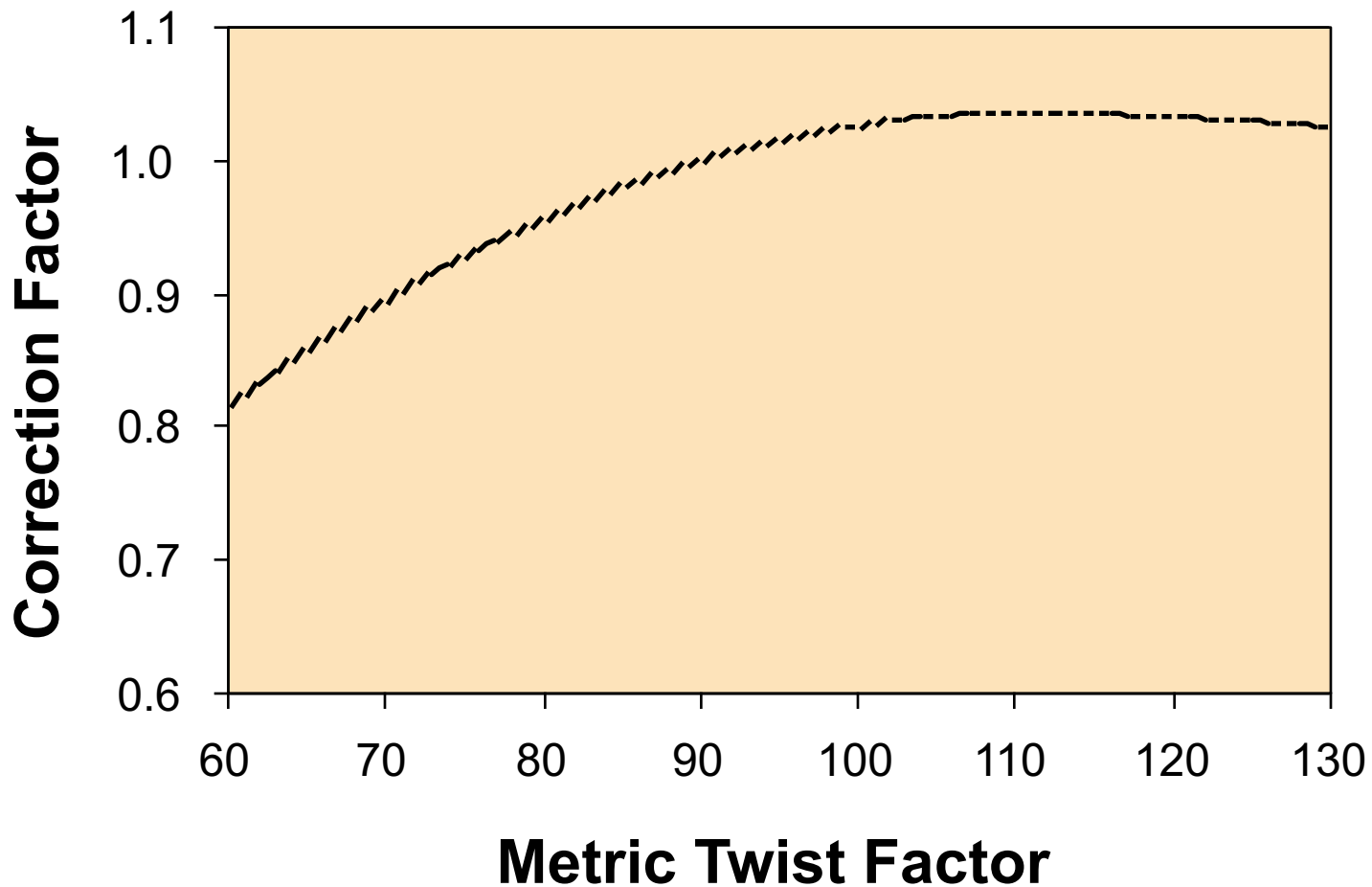
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Effect of Twist on Tenacity



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Fibre Bundle Strength

- **bundle strength $\neq$ staple strength**
 - better indicator of fibre strength
- **wool strength varies**
 - damaged by chemical treatments
 - dyeing (esp. at high temp.)
 - bleaching (not common)
- **affects spinning performance**
10% increase  reduces ends-down by 50%
- **SIROLAN - TENSOR**
 - measures bundle strength

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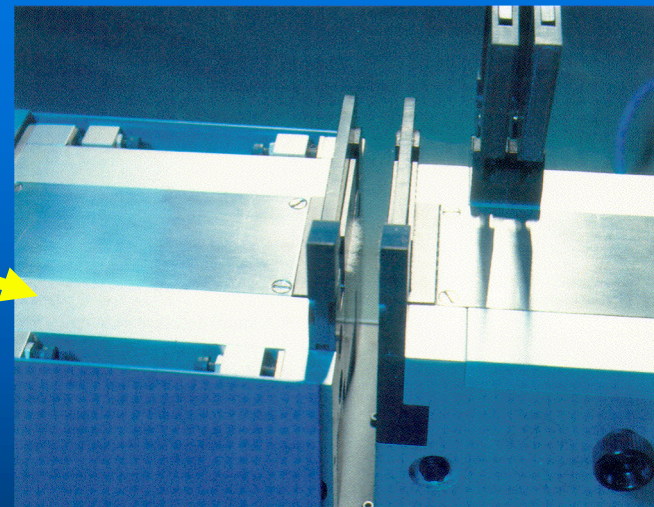
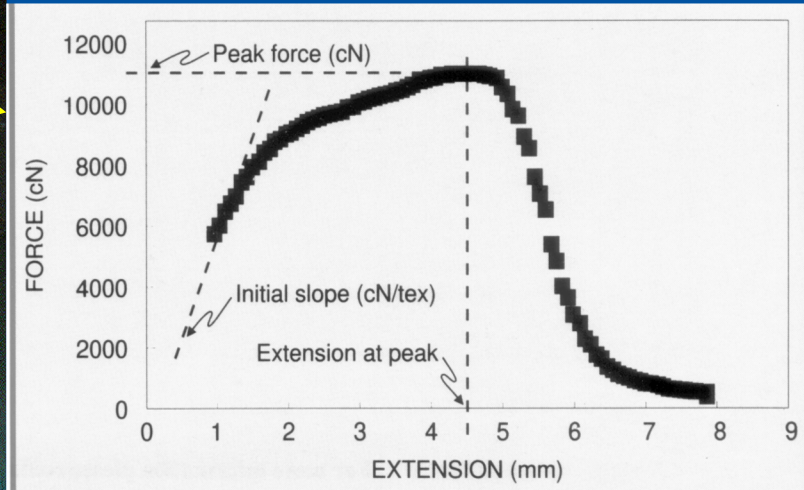
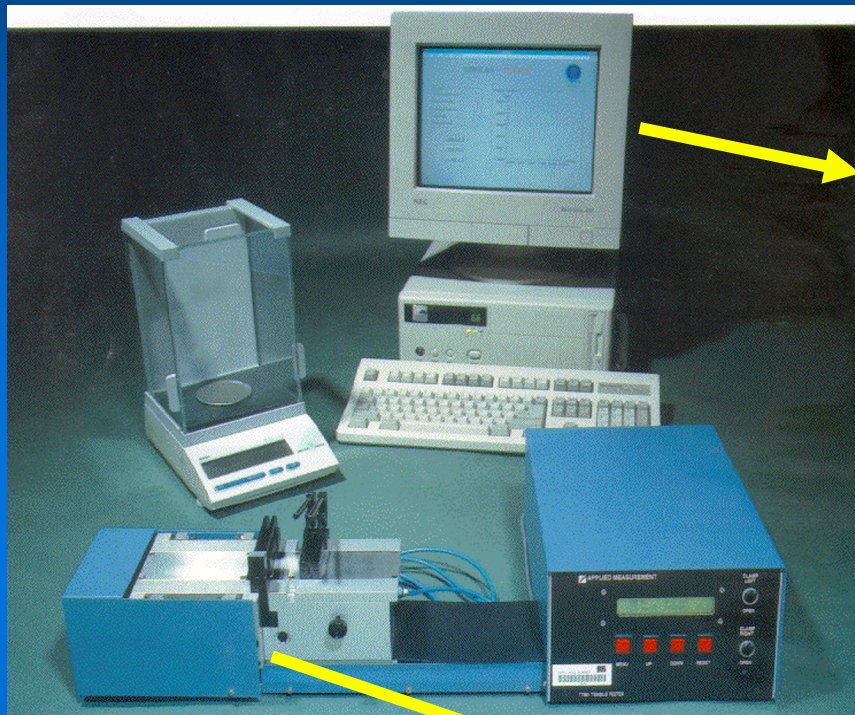
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