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for

Premium

Quality

Wool

The Processing Performance of Raw Wool: Introduction to Prediction

Produced for the CRC for Premium Quality Wool undergraduate program by;
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Fibre length in Top

- **Dependent on:**
 - Greasy wool Fibre length
 - Amount of Fibre breakage
 - Location of breakage along Fibre
 - short fibre is combed out
- **Can be estimated (predicted) by raw wool properties**
 - Staple Length (SL)
 - Staple Strength (SS)
 - Position of break (POB)

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TEAM

- **Trials Evaluating Additional Measurement**
 - **PREDICTION based on Objective Measurements**
- **used simple regression techniques**
- **603 consignments (88,000 bales)**
- **28 mills in 12 countries**
- **managed by industry committee**

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TEAM formula for Hauteur

$$H = 0.52L + 0.47S + 0.95D - 0.19M^* - 0.45V - 3.5$$

H = Hauteur (mm)

L = Staple Length (mm)

S = Staple Strength (N/ktex)

D = Fibre Diameter (μm)

M* = Adjusted % mid breaks (%)

V = Vegetable Matter Base (%)

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Relative Importance of Properties

STAPLE LENGTH	100
STAPLE STRENGTH	88
DIAMETER	46
M*	40
VM	19

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Further TEAM formulas

Noil% (N%)

$$N = - 0.11L - 0.14S - 0.35D + 0.94V + 27.7$$

Coefficient of Variation of Hauteur (CVH)

$$CVH = 0.12L - 0.41S - 0.35D + 0.2M^* + 49.3$$

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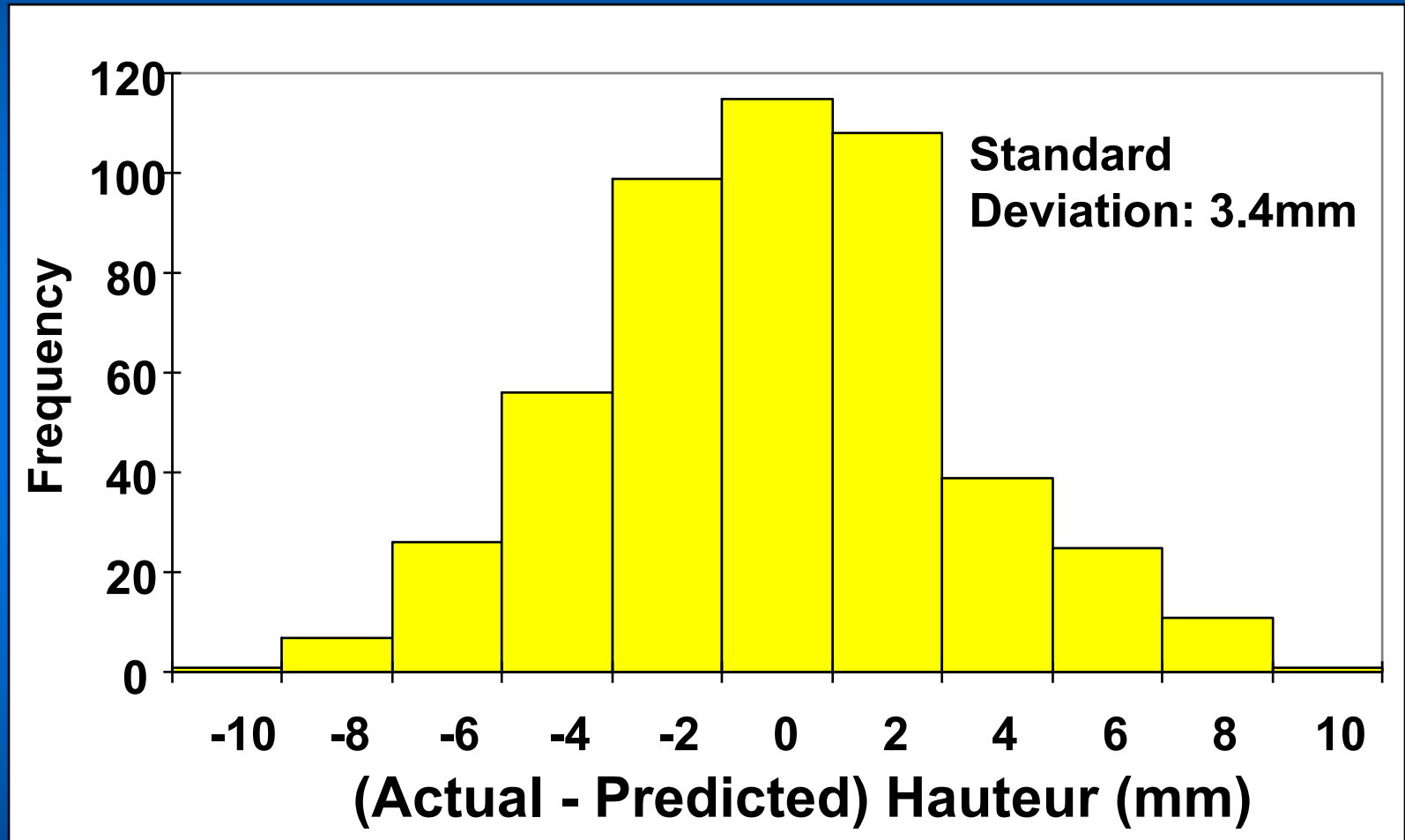
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Accuracy of TEAM predictions



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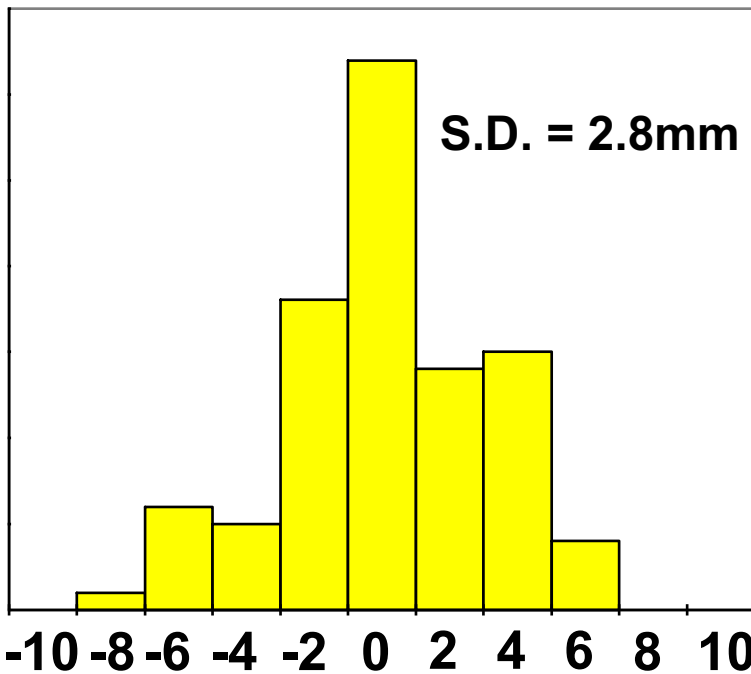
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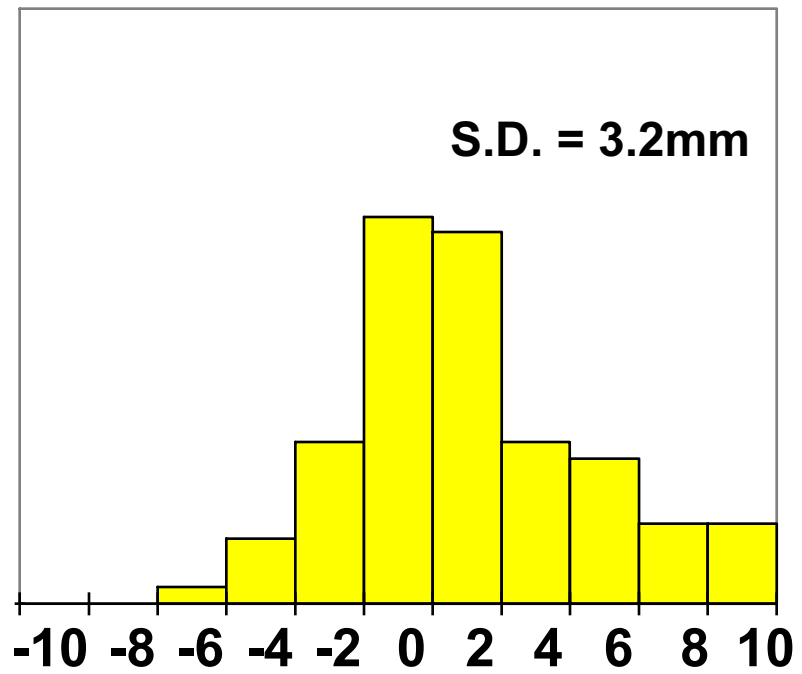


Objective vs Subjective

Accuracy of TEAM - 4 mills



Accuracy of Topmakers - 4 Mills



(Actual - Predicted) Hauteur (mm)

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Recommendations

- **Formulas**
- **Mill specific activities**
- **Encourage additional measurements**
- **Improve wool metrology**
- **Improve processing knowledge**
- **Harmonise testing**

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