CRC for Premium Quality Wool

Top Testing

Produced for the CRC for Premium Quality Wool undergraduate program by;
Dr. Peter Auer, The University of New South Wales.

Top Specification (example)

Specification	Standard	Allowance
Diameter (μm)	21.0	+/- 0.6
Length (mm)	68 AH	+/- 2
CV Length (%)	50	
Oil Content (%)	0.8	
Moisture (%)	18.25	
Sliver Wt. (ktex)	20	
Top Wt. (kg)	10	
Top size	360mm x 400mm	
Evenness (% Uster)	3	+/- 1
Neps large	1 per 10g	Max
Neps small	10 per 10g	Max
Slubs	1 per kg	Max
Vegetable Matter (VM) Seed	15 per 250g	Max
VM Burr	1 per 250g	Max
Coloured Fibre	1 per 10g	Max
Other Fibres	1 per 250g	Max
Colour	as per sample	

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Source: Ascough, S. (1994)

Regain & Invoice Mass

- Regain
  - standards applied
  - 18.25%
    - (65% r.h., 20 oC)
    - IWTO dry combed standard
  - 16-17%
    - IWTO scoured wool
- Invoice Mass
  - scoured / carbonised
    - IWTO- 33- 88(E)
  - tops
    - IWTO- 34- 85(E)
  - capacitance
    - IWTO- 41- 92(E)
  - Near Infra-Red
    - NIRS sensors

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Diameter of Top

- slight increase (1%)
  - raw wool to top
    - fine, short fibres combed out
- diameter
  - µm
    - mean
    - variation
  - % fibres >30µm
    - comfort factor
    - prickle factor
- measurement
  - Projection Microscope
  - Airflow
  - SIROLAN-Laserscan
  - OFDA

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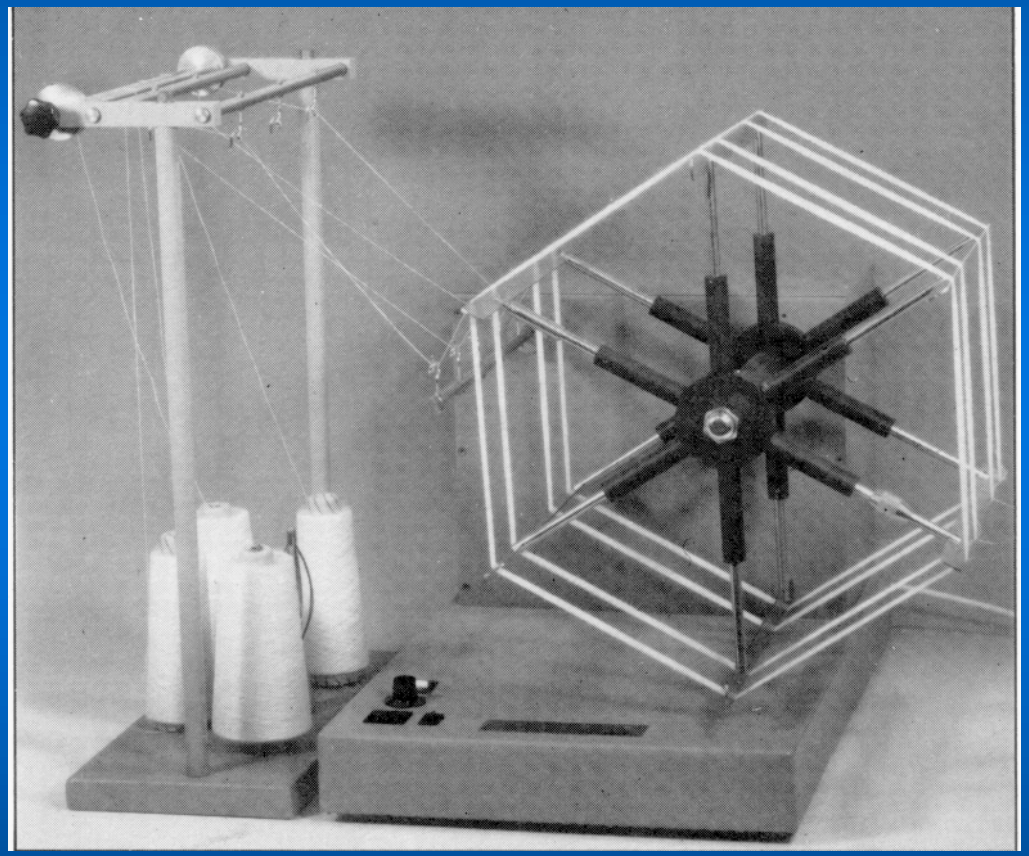
Linear Density

- top
  - weigh bobbins
  - length counted during finisher gilling
- sliver
  - interim product
    - "in-house"
  - ruler
  - tensioned sliver
- roving
  - wrap roller
- yarn
  - wrap reel



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Colour

- Standard
  - IWTO- 35- 87(E)
  - Degree of Whiteness
  - whole spectrum (X,Y and Z used)
- Measurement
  - visual standards
  - Instruments
    - Colorimeter
    - Spectrophotometer
    - calibration
      - reference wool & cream tile

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Fault Content (VM & Nep)

- Standard
  - IWTO- 24- 73(E)

- definition
- diversity
- variable frequency

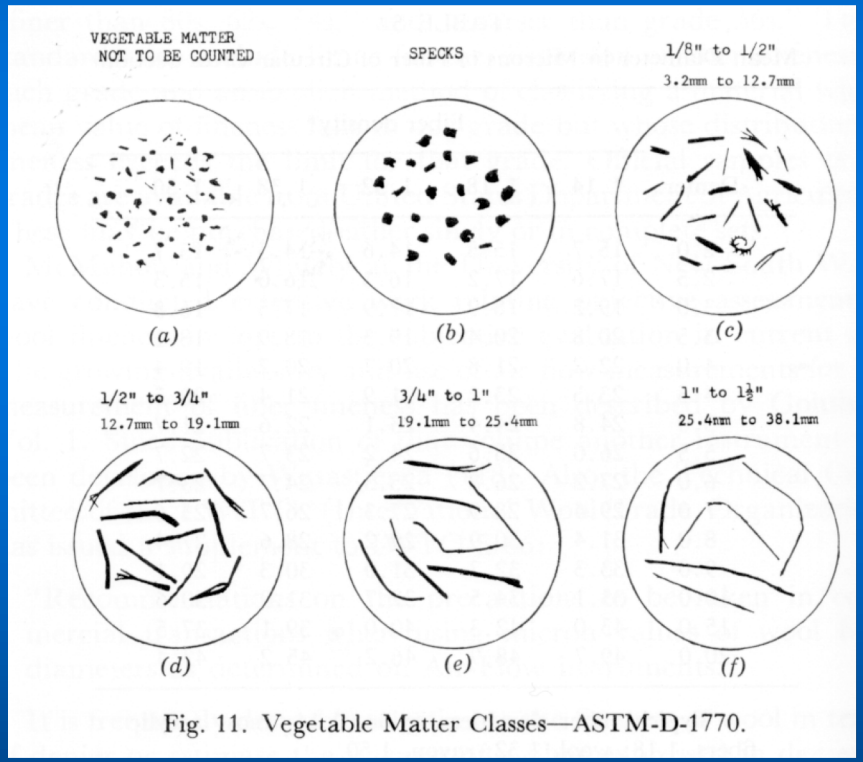

Fig. 11. Vegetable Matter Classes—ASTM-D-1770.

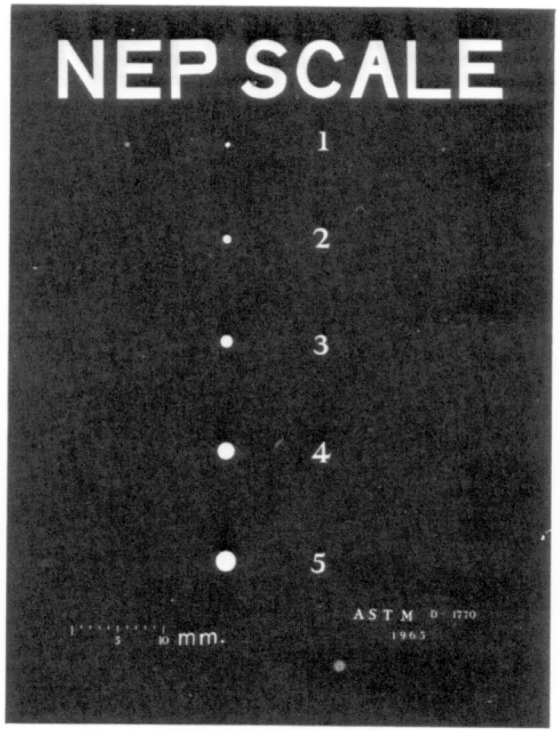

Fig. 12. Nep Scale—ASTM-D-1770.

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Source; ASTM-D-1770

Top Fault Measurement

- mechanical opening device
  - manual counting

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pH

- Standard
  - IWTO- 2- 86(E)
- isoelectric point
  - pH 4.8
- processing history
  - affects pH
  - alkaline scouring
  - suint content
- pH limits vary
  - important for dyeing & Superwash

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Oil Content

- spinning oils added
- measurement
  - residual fatty matter content
    - base level
  - Soxhlet extraction

Delivery Configuration

- Bobbins
- Bumps
- Hanks

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References

- Barker, S.G.(1931), "Wool Quality", WIRA, HM Stationery Office, London
- Morton, W.E. and Hearle, J.W.S., (1962), "Physical Properties of Textile Fibres", The Textile Institute, Butterworths, London
- Ascough, S., (1994), "Practical Hints to Improve the Quality and Performance of Australian Wool during Early Stage Processing", AWRAP, Melbourne

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