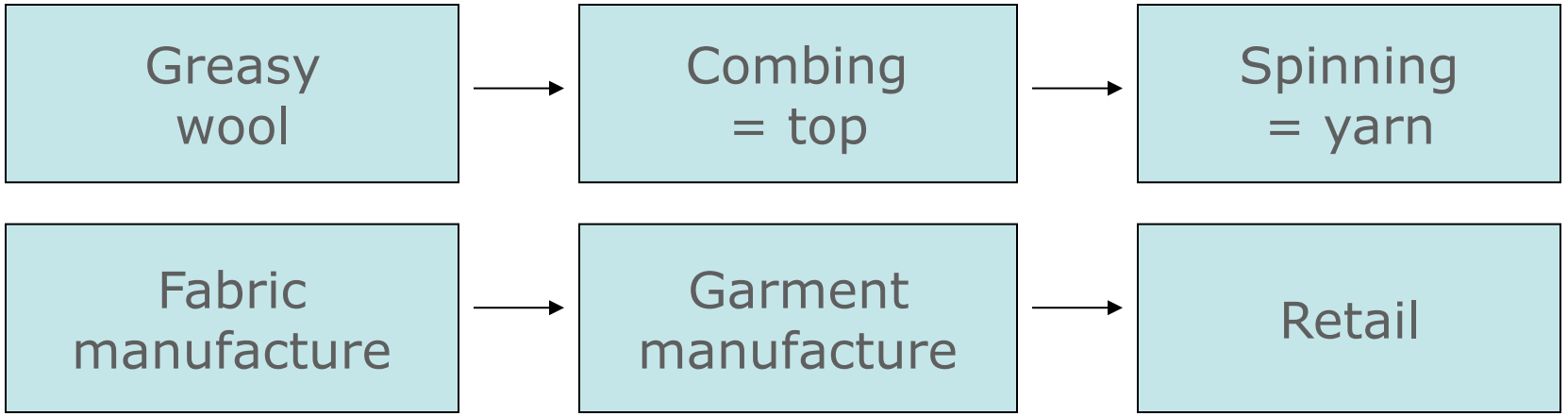
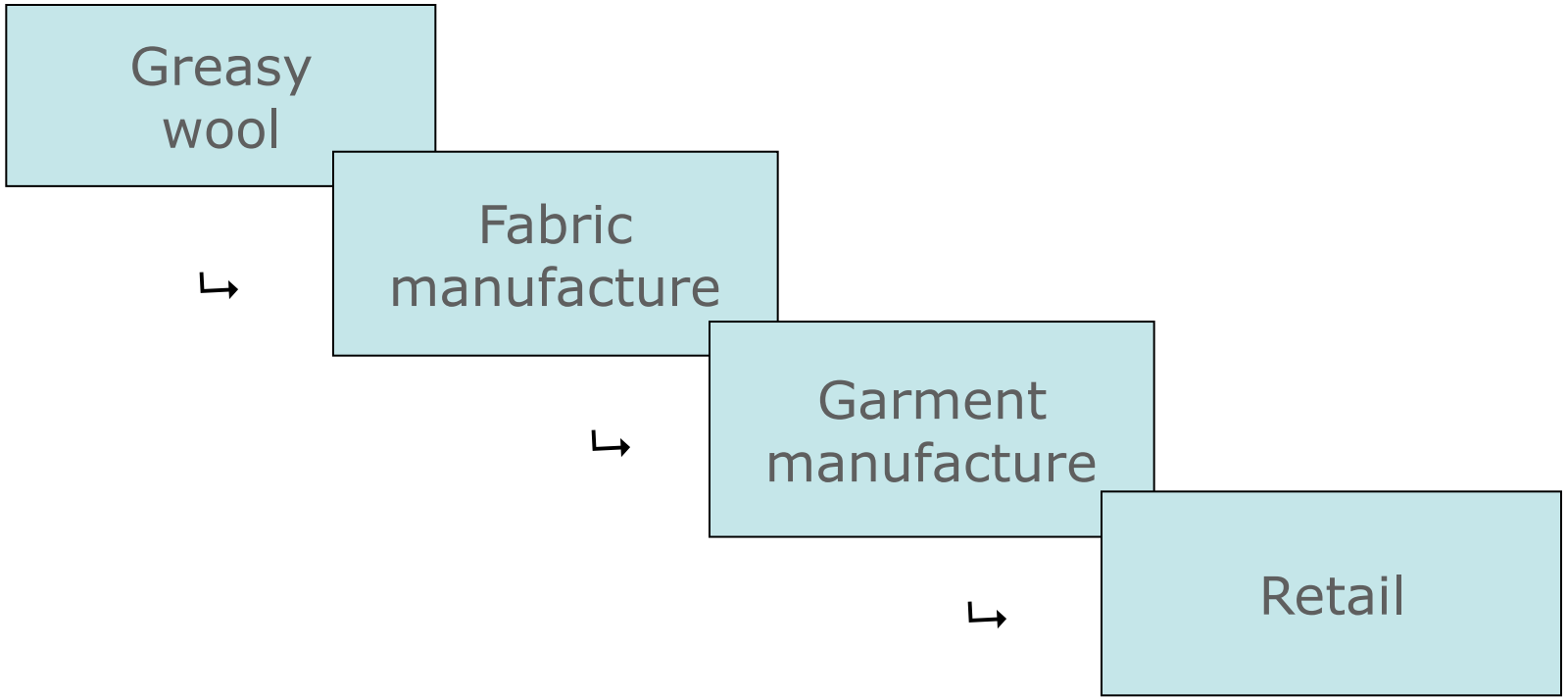
What the spinner looks for

Mr Gary Robinson
Manager, Processing Technologies
Australian Wool Innovation

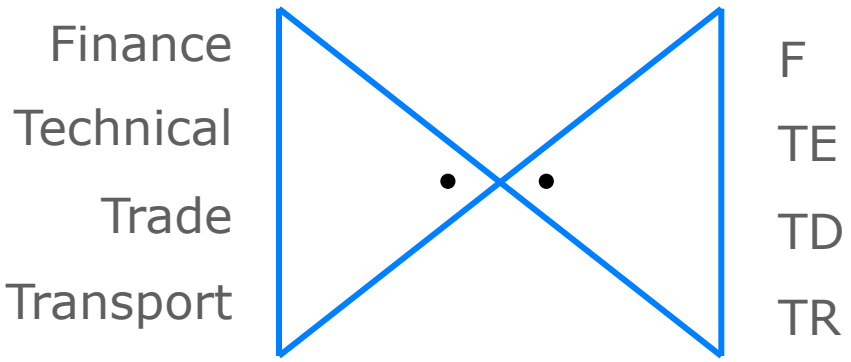
Western Europe: horizontal structure

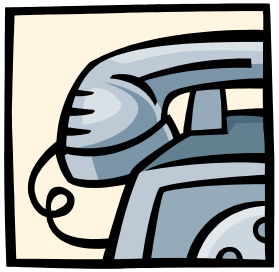


Vertical structure

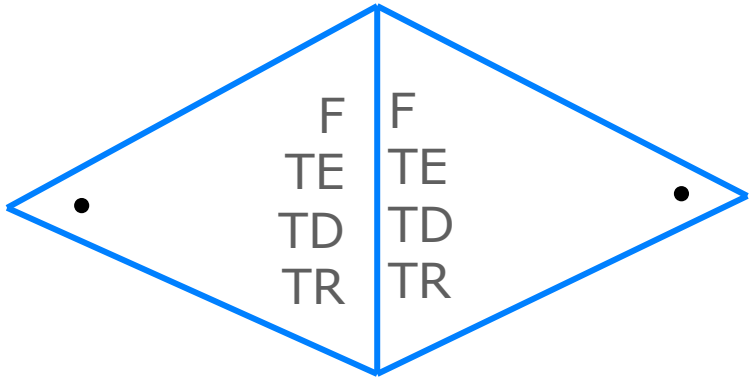


Communication gates



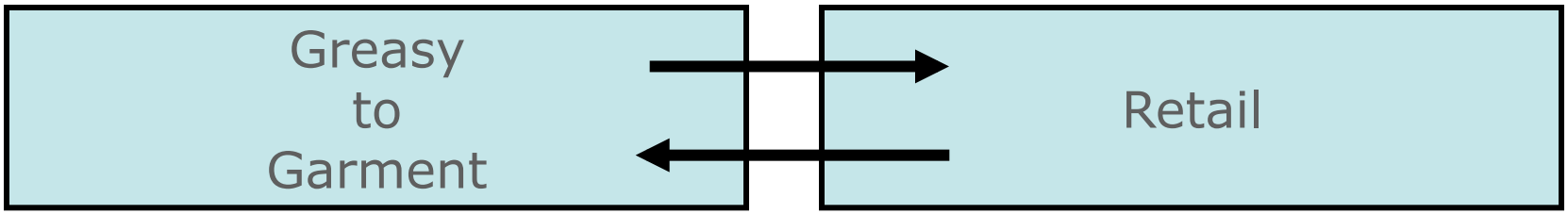


- Company buyers



- Process managers

New model?

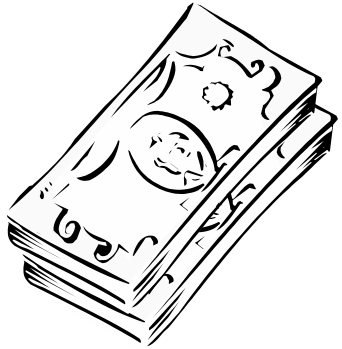


Problem: expertise in all areas

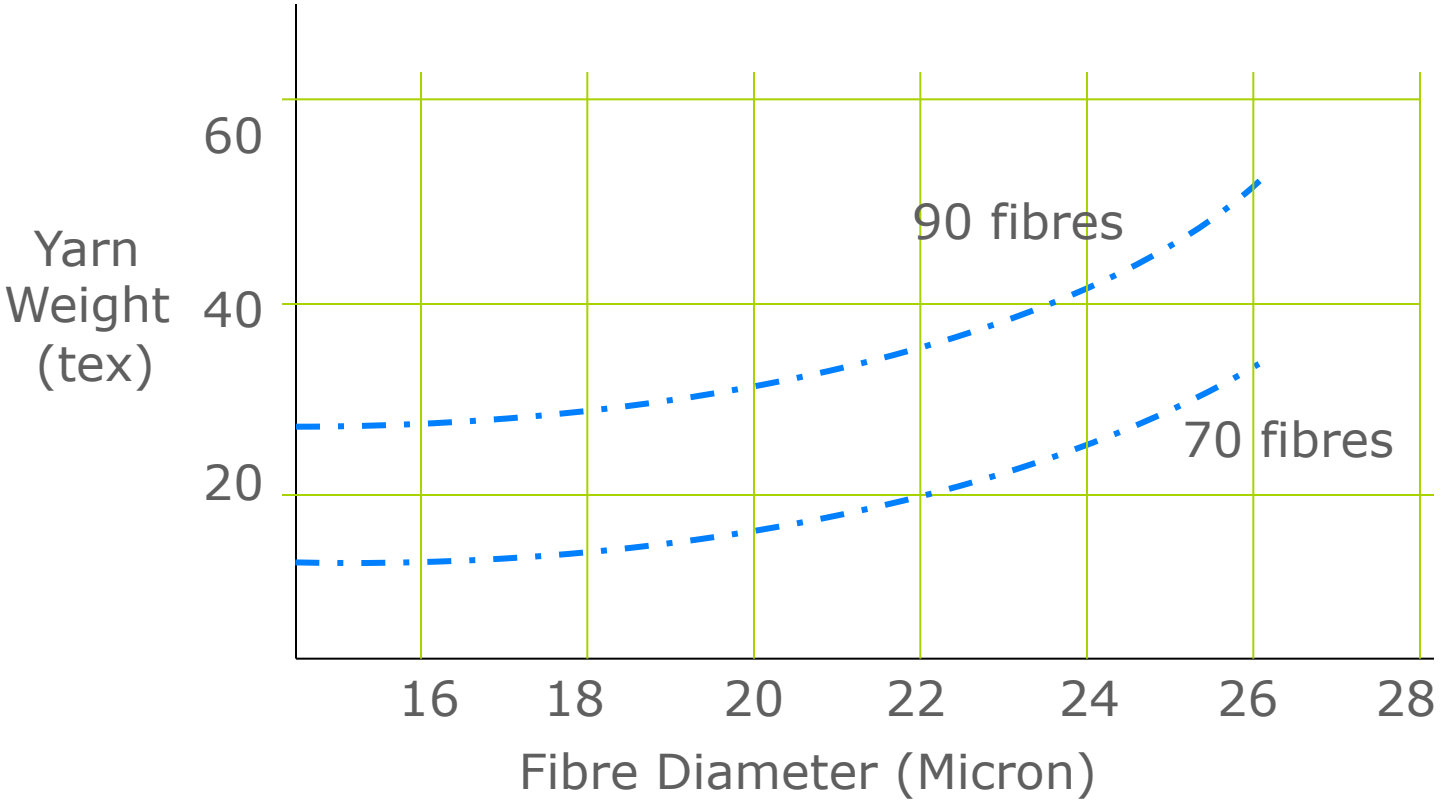
Solution: communication (managed teams)

Fibre and wool growing

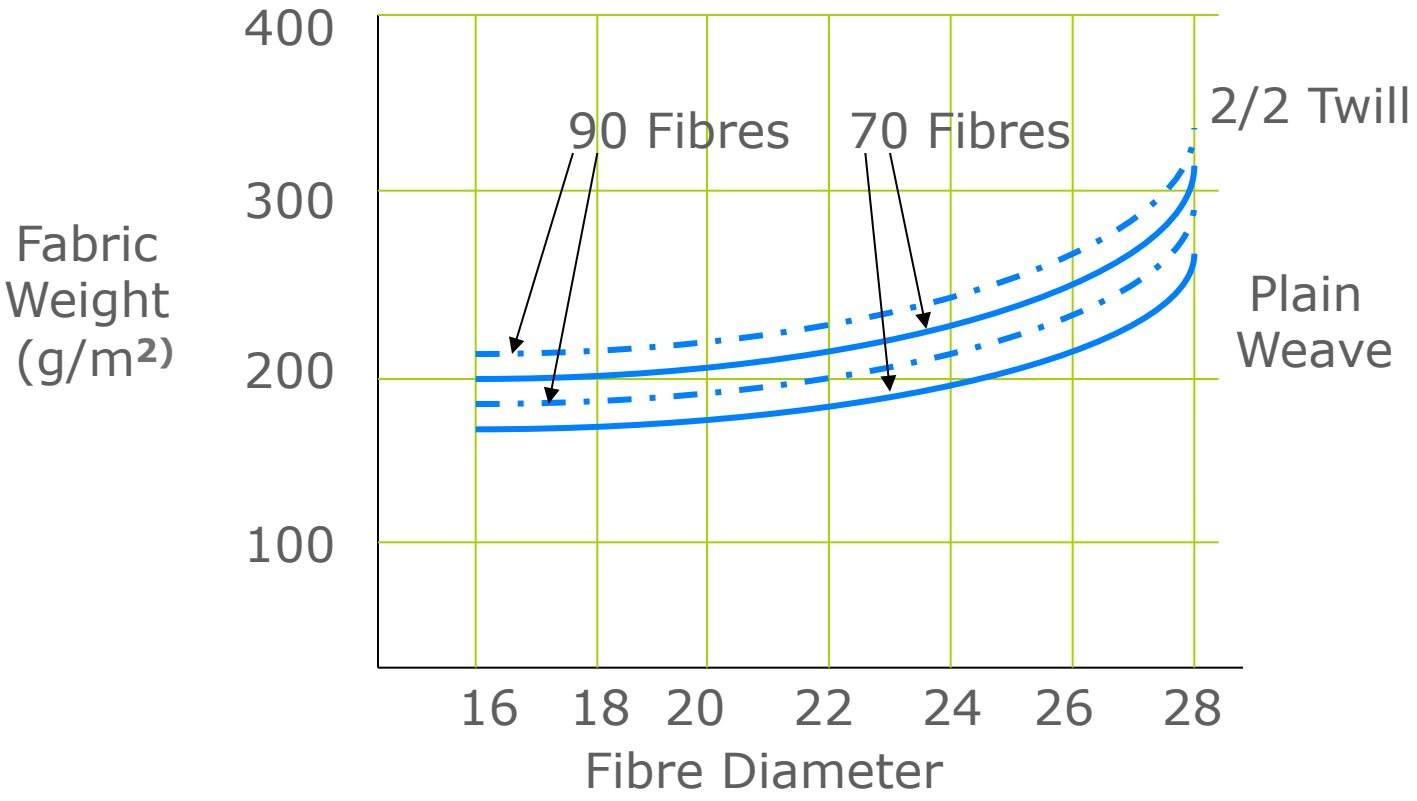
- Make money
- Finer wool
- Increase fleece weight (changes crimp)



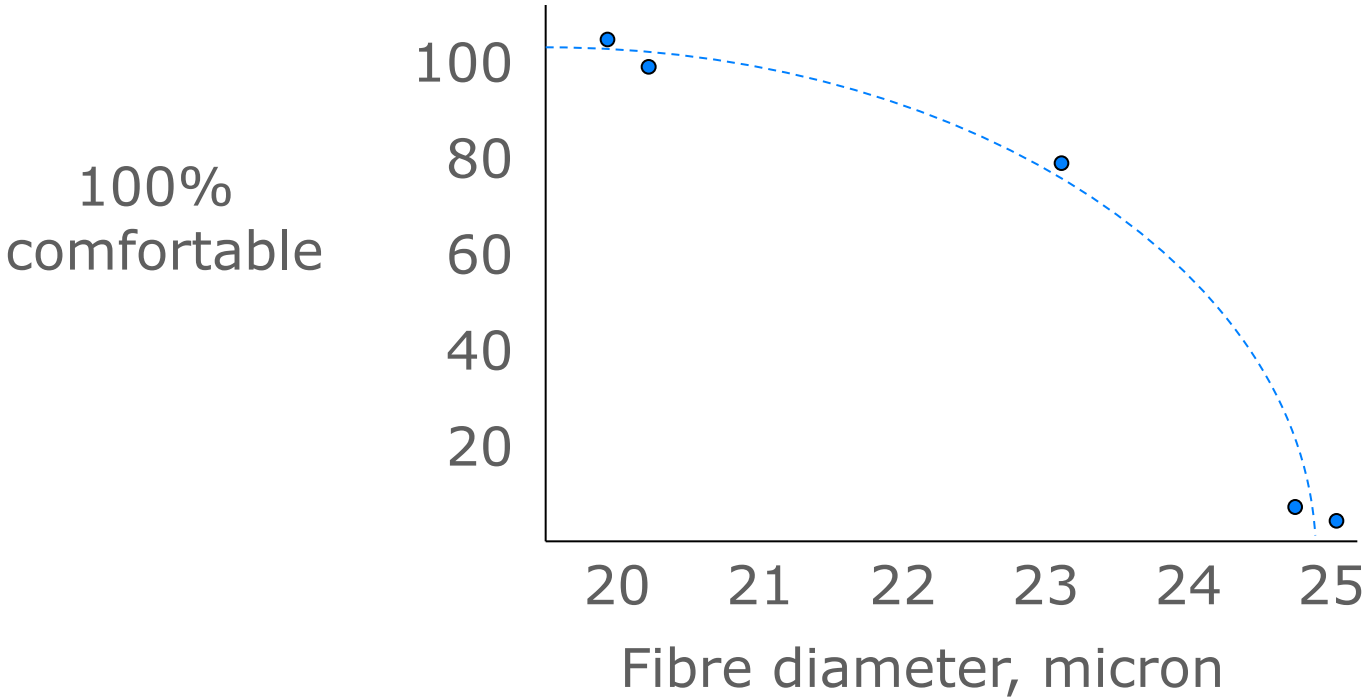
Yarn linear density, g/km and fibre diameter



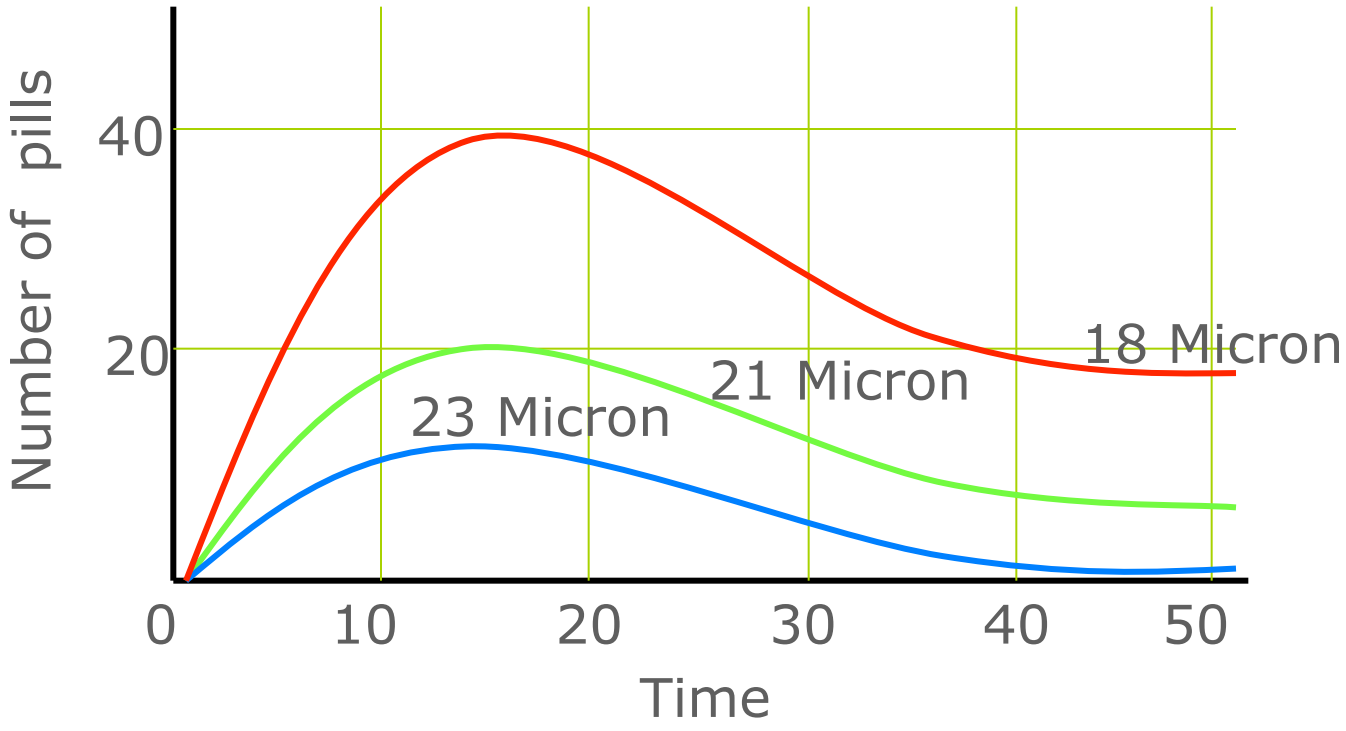
Fabric weight, fibre diameter and weave



Fibre diameter and comfort (knitwear)



Fibre diameter and pilling



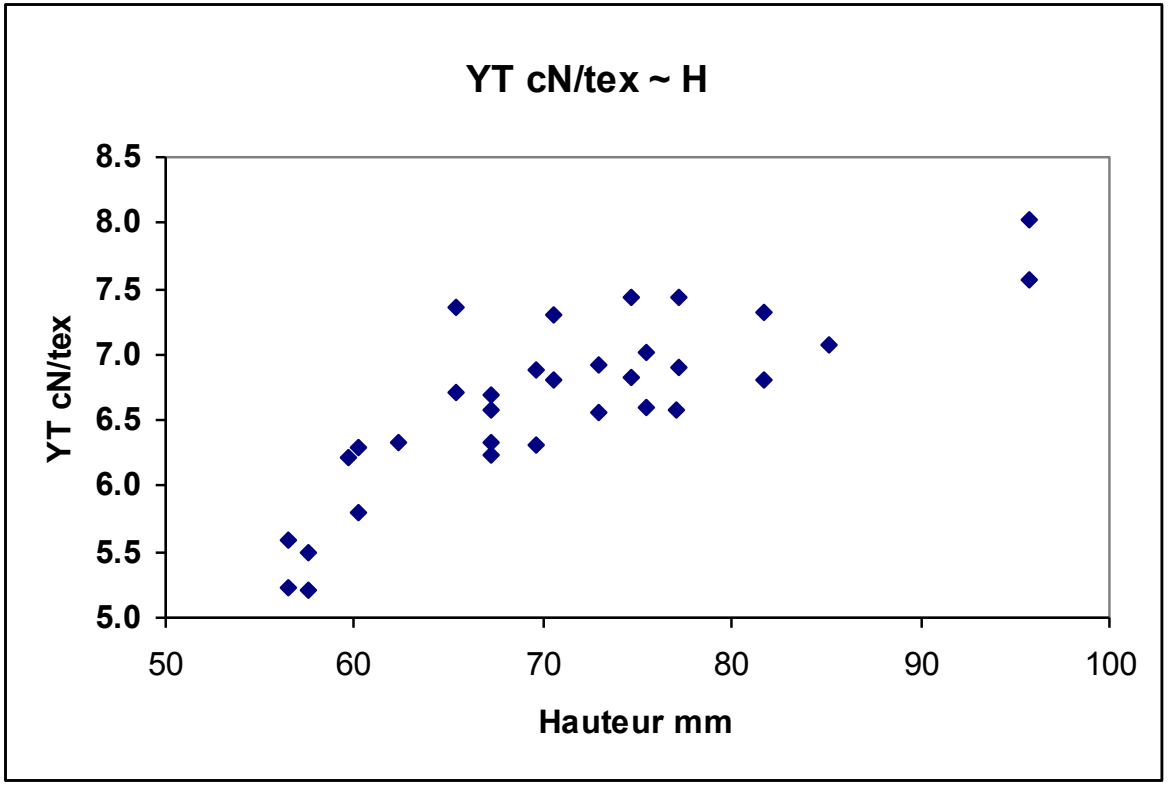
Coefficient of variation in fibre diameter (CVD)

- Smaller effect than fibre diameter
- Need a change of 6% in CVD
  = small change in handle

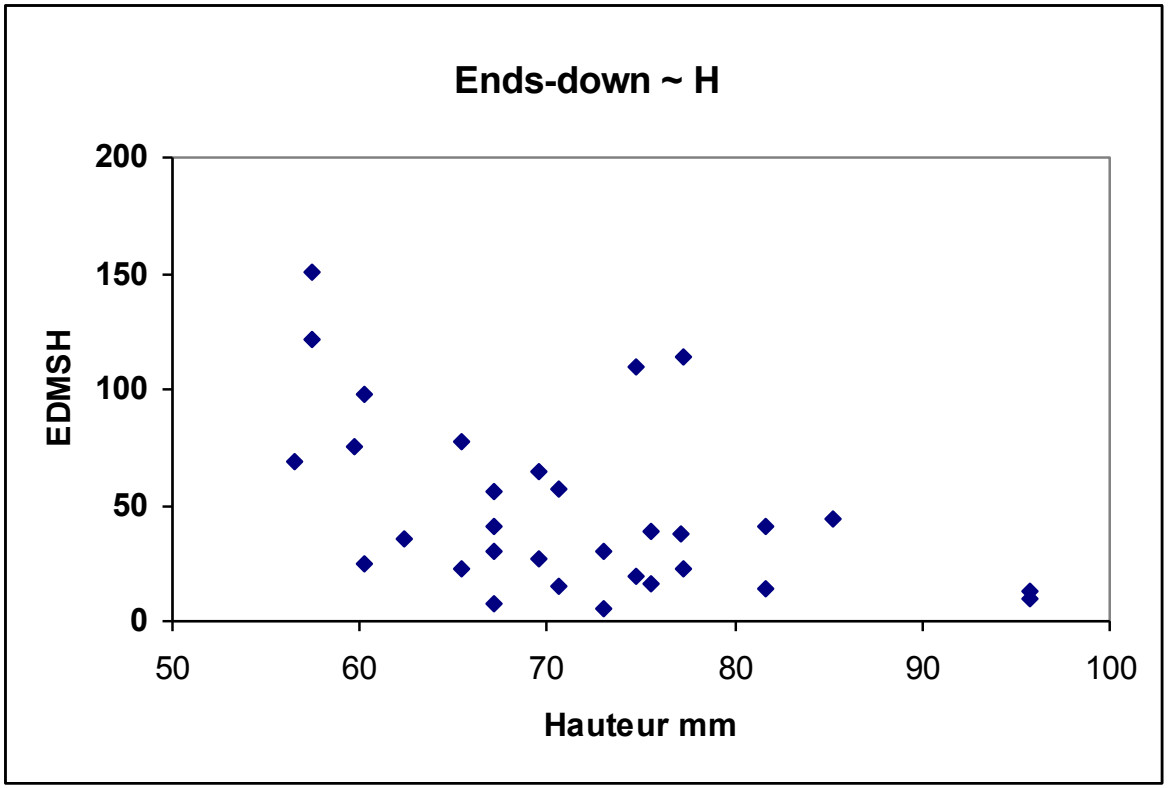
Mean fibre diameter

- Significant effect on handle/softness/ performance
- Significant effect on fabric weight
- Affects process variations

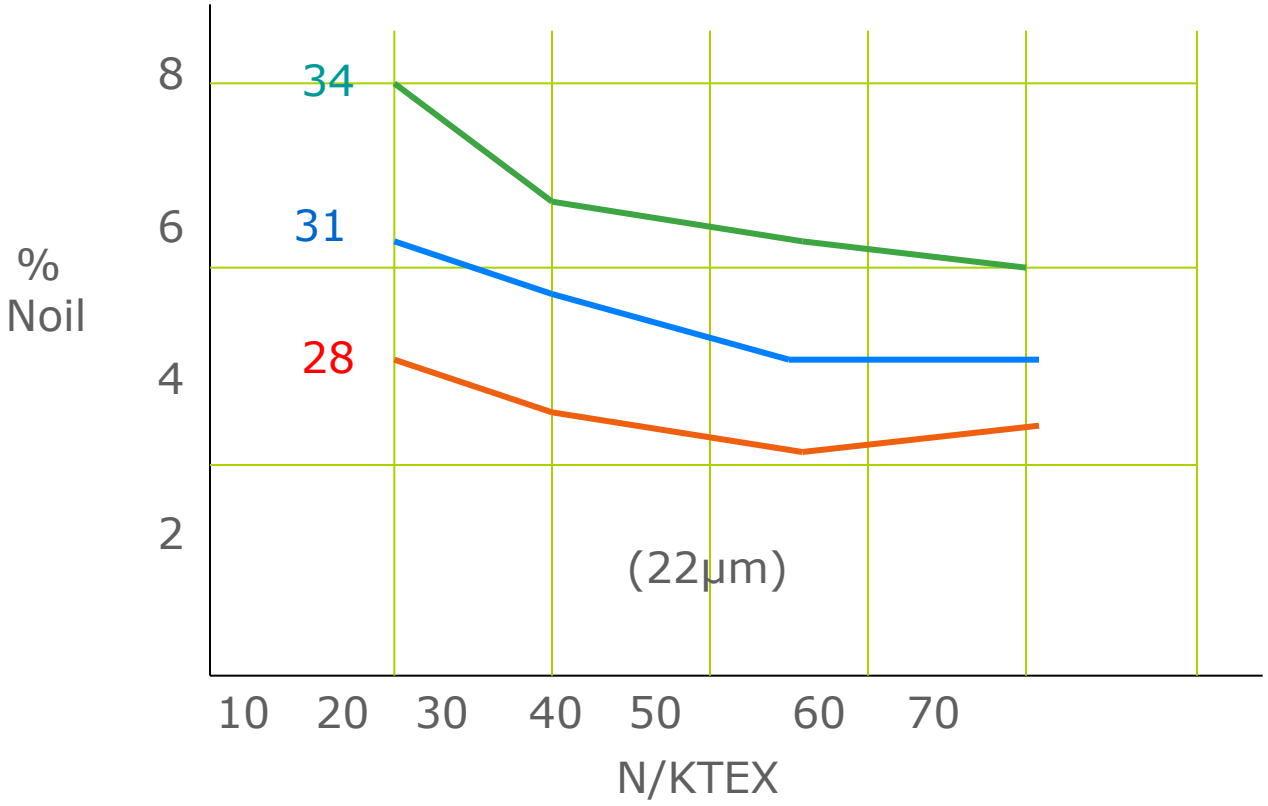
Fibre length and yarn tenacity



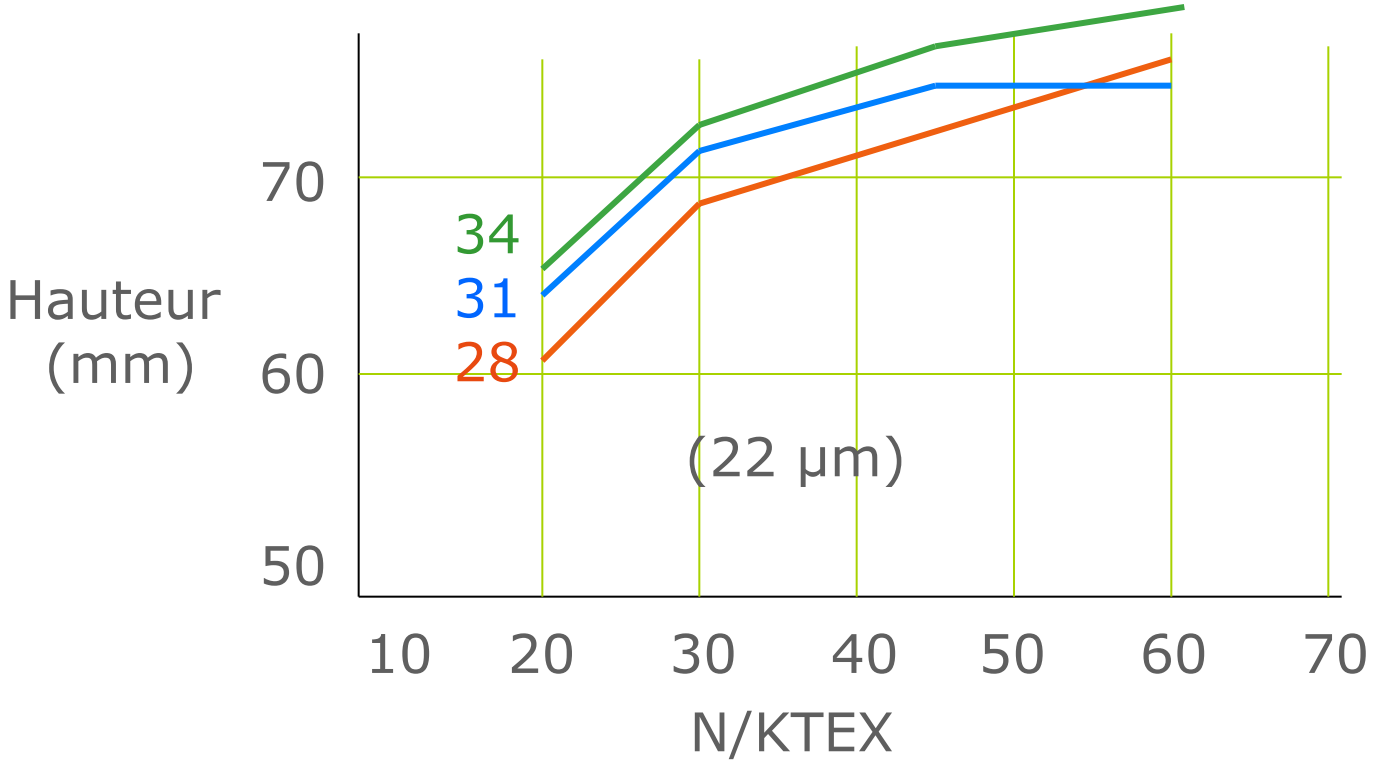
Fibre length and spinning



Combing noil, comb setting and staple strength



Hauteur, comb setting and staple strength



Vegetable matter (VM)

Line	VM base %	VM top (per kg) >3mm	>10mm	Holes in fabric (per kg) Total due to VM	
B, AAA	2.7	14	1.0	2.4	0
B, Pcs	10.7	83	13.2	4.5	1.0
K, AAA	2.8	5.2	0.4	0.7	0
K, Pcs	10.3	5.8	0.6	3.9	0.1

Fibre crimp

1. Problems with measurements
2. Affects process variation
   - Yield (?) – small
   - Fabric dimensions
   - Fabric weight
3. Affects product quality
   - Pilling
   - Bulk
   - Softness/warmth(?)

Consumer needs/preferences

	Preference share %
Softness next to skin*	19
Machine washing	13
Shape retention	12
Softness to handle*	11
Light weight*	11
Resistance to pilling	10
Crease resistance	9
Ease of ironing	9
Tumble drying	6

*41% - Fibre diameter related

Comfort

Property	Importance
Fibre diameter	10
CVD (>27 micron)	3
Fibre length	2
Yarn count	0
Cover factor (knit)	4
Finishing	10

Wrinkle recovery (WR)

WR	- depends on relaxing stress
	- lesser extent, fibre-fibre friction
Finer wools	– worse (small)
Fibre crimp	– higher crimp better (small)

Pilling

Property	Relative effect
Fabric tightness	10
Yarn twist	5
Fibre diameter	5
Fibre crimp	?

Colour

White, bright, pastel (ladies' wear)
- Need white wool

Dark shades
- Colour is less important
- Repeatability of colour

Fibre and processing

Greasy wool property	Top making	Fabric
Fibre diameter	XXXX	XXXX
Yield	XXXX	X
Staple length	XXX	X
Staple strength/POB	XXX	X
Vegetable matter	XXX	X
Clean colour	XXX	XX
Dark fibres	XX	XX
Fibre diam. variation	XX	X
Crimp/curvature	XX	XX
Tip	X	X
Horizontal	✓	?
Vertical	✓	✓

XXXX (Most important)

X (Least important)

Specification Number: 1

Specification: 17.00 µ

PROPERTY	A.C.S. PARAMETERS	
Micron: Laser Scan	17.0 +0.3	
Micron: CV (D)%	19 %	
Curvature (degrees per millimetre)		
Fibre Length: Mean (Hauteur) (Minimum)		64 mm
% Fibres < 25 mm (Maximum)	9.0 %	
% Fibres < 40 mm (Maximum)	25.0 %	
CV H % (Maximum)	45.0 %	
Sliver Evenness (as received & tested at A.C.S.)	4.0 % CV (Max)	
Regain	Treated	8 - 10 %
	Untreated	14 - 16 %
Oil Content (WIRA Plunger)	Treated	0.5 - 0.7 %
	Untreated	0.8 - 1.0 %
Sliver Weight		20 gm/m
Bump Dimensions	Width x Diameter	40 cm X 25 cm
	Weight	10.5 kg
Top Dimensions (as received at A.C.S.)	Width	28 cm (Max)
	Weight14.0 kg (Max)	
	Diameter43 cm (Max)	
Super wash Standards (AWC TM31 for both)		
Super wash – 5 x 5A cycles		± 10 %
Machine wash – 2 x 5A cycles		± 8 %
Colour		TBA

Specification Number: 1 (CONT.)

Fault Content Table

			Per 100 grams
Neps:			
	(ASTM D1770 – 1,2,3)	**Small Neps**	65
	(ASTM D1770 – 4,5)	**Large Neps**	6
Vegetable Matter:			
	(ASTM D1770 – A=1, B=2)		Small 18
	(ASTM D 1770 – C=7, D=17, E=25)		Large 0
Rubber Waste:			Small 5
			Large 1
Burrs:	**(3 – 10) / >10mm**		3/0
Kemp:			0
Pigmented Fibres:			
	(Commercially Free)		0

Specification Number: 14

Specification: 29.00 µ

PROPERTY	A.C.S. PARAMETERS
Micron: Laser Scan	29.0 +0.3
Micron: CV (D)%	25.0 %
Curvature (degrees per millimetre)	
Fibre Length: Mean (Hauteur) (Minimum)	80 mm
% Fibres < 25 mm (Maximum)	6.0 %
% Fibres < 40 mm (Maximum)	18.0 %
CV H % (Maximum)	49.0 %
Sliver Evenness (as received & tested at A.C.S.)	4.5 % CV (Max)
Regain	Treated 8 - 10 % Untreated 14 - 16 %
Oil Content (WIRA Plunger)	Treated 0.5 - 0.7 % Untreated 0.8 - 1.0 %
Sliver	Weight 20 gm/m
Bump Dimensions	Width x Diameter 40 cm X 25 cm Weight 10.5 kg
Top Dimensions (as received at A.C.S.)	Width 28 cm (Max) Weight 14.0 kg (Max) Diameter 43 cm (Max)
Super wash Standards (AWC TM31 for both)	
Super wash – 5 x 5A cycles	± 10 %
Machine wash – 2 x 5A cycles	± 8 %
Colour	TBA

40 cm X 25 cm

Specification Number: 14 (CONT.)

Fault Content Table

		Per 100 grams
Neps:		
	(ASTM D1770 – 1,2,3) Small Neps	
	25(ASTM D1770 – 4,5) Large Neps	1
Vegetable Matter:		
	(ASTM D1770 – A=1, B=2)	Small 12
	(ASTM D 1770 – C=7, D=17, E=25)	Large 0
Rubber Waste:		Small 2
		Large 1
Burrs:	(3 – 10) / >10mm	2/0
Kemp:		20
Pigmented Fibres:	(Commercially Free)	50