



CRC

for

Premium

Quality

Wool

Dark Fibre Contamination

Produced for the CRC for Premium Quality Wool undergraduate program by;
Dr. Brad Crook, The University of New England.



Dark fibre contamination

Critical limits for white and pastel shade fabrics:

- 100 dark fibres per kg wool top
- 4 staples per 160kg bale greasy wool
- ≤ 10 dark fibres per million white fibres

- discounts if exceeded:
 - 50 cents per kg top
 - 4-15% reduction in selling price

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Sources of dark fibres

- sheep-derived vs non-sheep
- types dark enough to cause problems in fabric are:
 - pigmented fibres (melanin)
 - repeated urine staining
- excluded types: canary stain, dag stain, water stain, fly-strike stain

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Sources of pigmented fibres

- Coloured sheep
- Coloured birth coat fibres (on white lambs)
- Pigmented skin spots *
- Isolated pigmented fibres (IPFs) *

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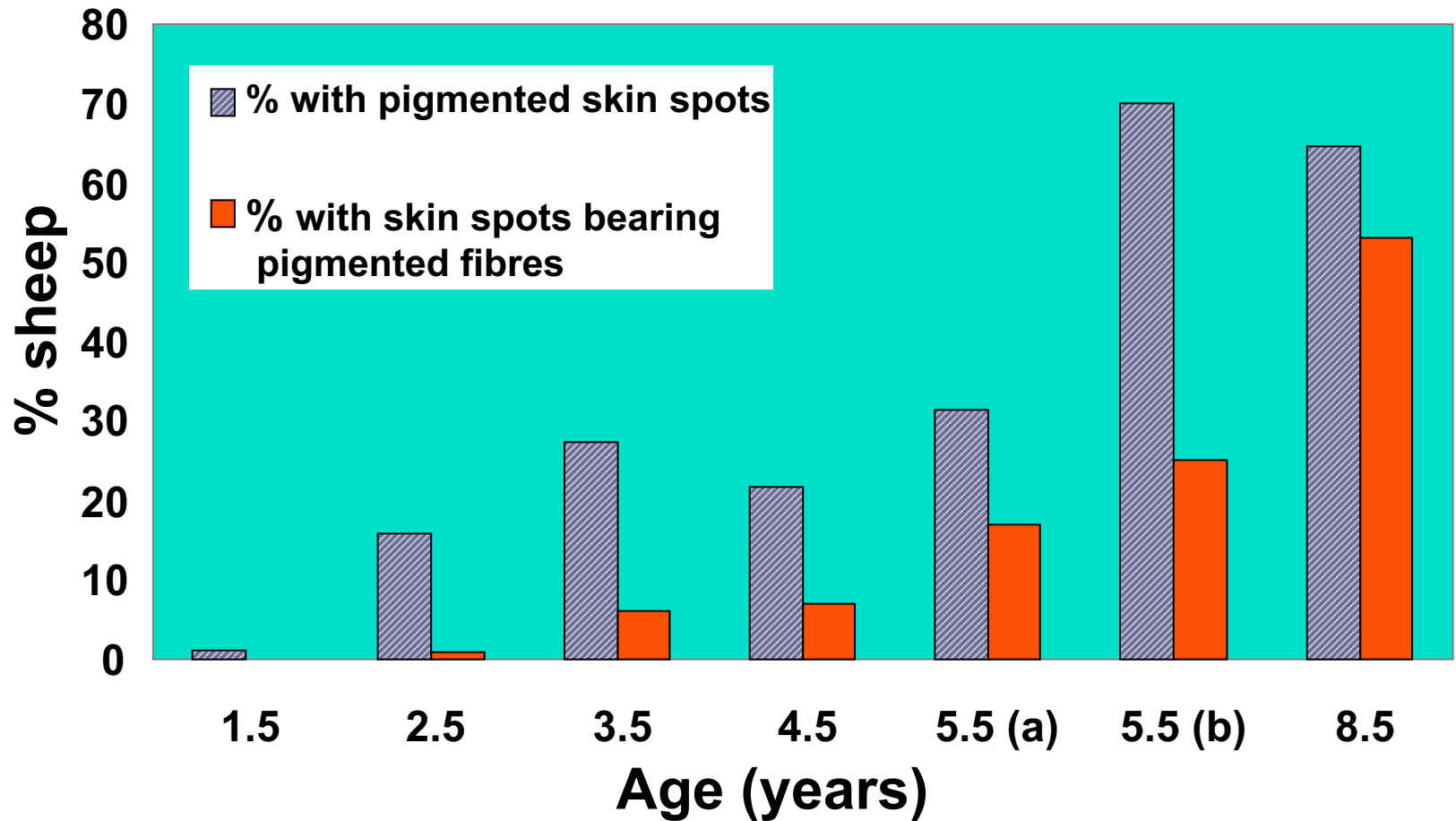
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The occurrence of pigmented skin spots and skin spots bearing pigmented fibres



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Isolated pigmented fibres (IPF's)

Breed	% with IPFs	% of affected with (no. IPFs per 10 grams):		
		< 1	1-10	>10
Merino (n=515)	42	48	43	9
C'dale (n=377)	32	45	43	12

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Age trends in isolated pigmented fibres (IPFs)

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Fleece wools	IPFs per kg		
	≤ 1 yr	1-2 yrs	≥ 2 yrs
Sheep	188	19	6
Sale lots (n=161)	204	44	23



Non-fleece pigmentation

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	<u>h²</u>
• birthcoat halo hairs	0.68
• pigmented kemp fibres: – face, legs, horn sites, ears	0.18 - 0.83
• eyelashes	0.50
• pigmented skin: – nose, mouth, eyes, ears	0.17 - 0.74
• hooves and horns	0.65



Non-fleece pigmentation vs isolated pigmented fibres (IPFs)

Breed	“Trait”	% sheep showing IPFs with “trait”:	
		Present (high)	Absent (low)
Merino (1)	Leg spots	64	22
Merino (2)	Leg spots	56	18
C'dale (3)	Horn sites	71	36
	Leg spots	57	36
	Nose colour	45	24

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Source: Fleet et al. (1987), (1991); Fleet (1985)



Non-fleece pigmentation vs Isolated pigmented fibres (IPFs)

Criteria for culling	Average IPF per kg:		% culled
	Criteria present	Criteria absent	
Birthcoat halo hair	460	147	28
Hogget (- eyelash)	413	115	na
Hogget (+ eyelash)	363	33	na
Hogget + Lamb	345	15	68

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Factors influencing urine stain:

- mulesing
- crutching (ewes) and ringing (wethers)
- pizzle dropping (wethers)
- shearing technique
- method of clip preparation

- breeding
- environment

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Sheep:
crutched,
mulesed

Stain
(% of clip)

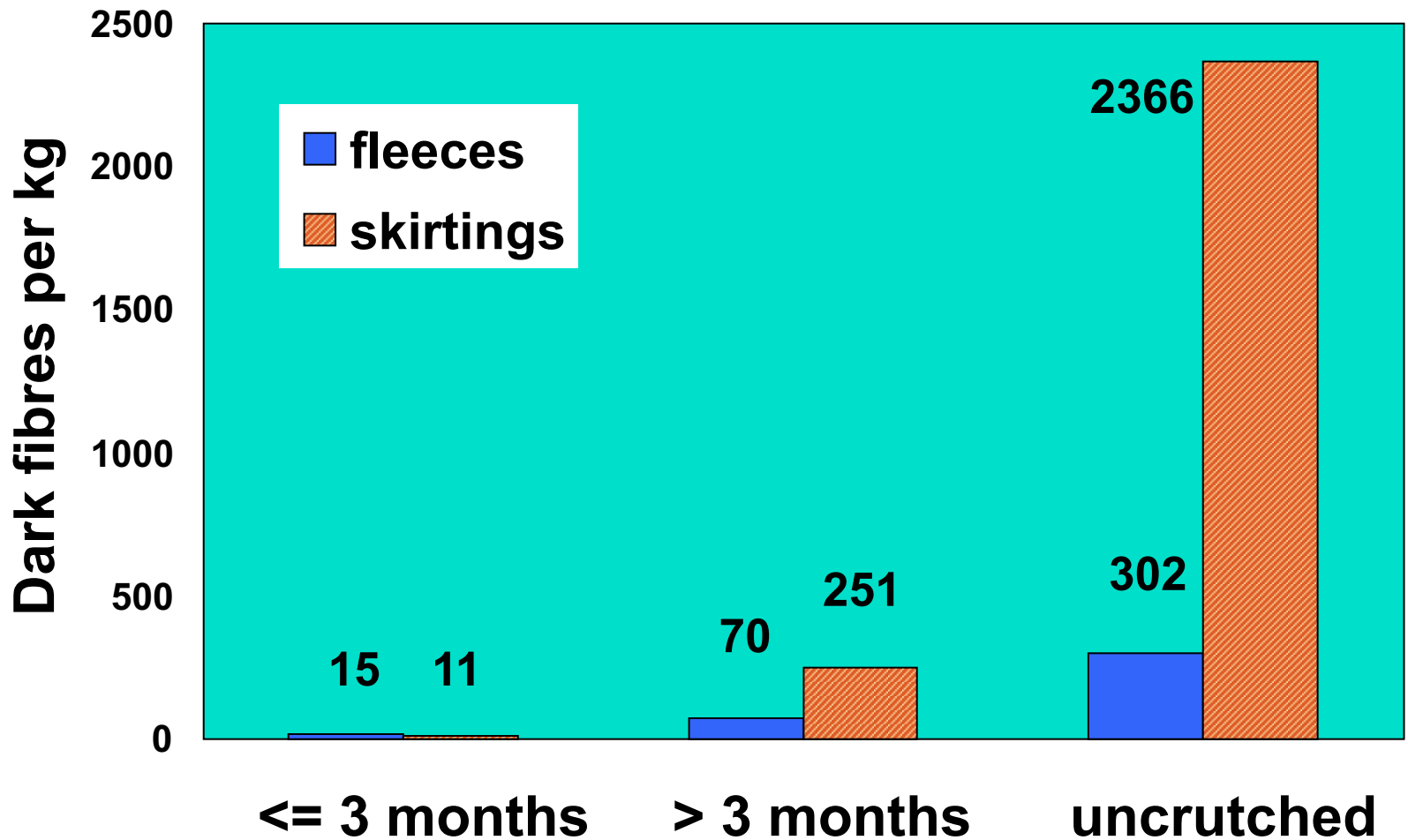
Dark fibre content
(no. per kg):

**Skirted
fleece** **Unskirted
fleece** **Bellies**

Wethers - c,m	1	150	300	42,700
Wethers - c,m	1	70	430	83,500
Ewes - nil	7	2650	4900	1000
Ewes - c	1	260	500	na
Ewes - c	1	280	410	4600



Influence of crutch-shear interval on dark fibre content in greasy wool



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