



CRC

for

Premium

Quality

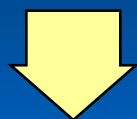
Wool

The Components of Clean Fleece Weight

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

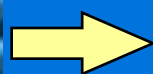


Clean fleece weight (CFW) is a function of:

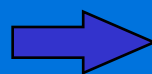


total wool-growing surface area

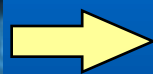
clean wool weight per unit area of skin



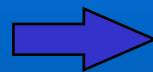
smooth body surface area



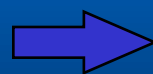
mean no. fibres per unit area smooth skin



wrinkling factor



mean fibre XS area



mean fibre length

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Clean fleece weight

Component trait:



Derived from:

Smooth body surface area

(Live weight)^{0.67}

Wrinkling factor

(Wrinkle score)^{0.2}

Mean no. fibres per unit area smooth skin

Total follicle density per unit area smooth skin

Mean fibre XS area

$\pi (\text{diameter}^2 + V^D)/4$

Mean fibre length

(Staple length) x h

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Economic importance of component traits

- **Live weight**
 - value of surplus animals vs feed intake
- **Wrinkle**
 - reduced capacity for thermoregulation of testicles in highly wrinkle rams
 - lower flock reproductive rate with high wrinkle
- **Fibre diameter**
 - increasing value with decreasing diameter
 - price differentials increase with decreasing diameter
- **Staple length**
 - optimum lengths: premiums and discounts
- **Follicle density**
 - no direct economic value

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Phenotypic correlations between CFW and its component traits

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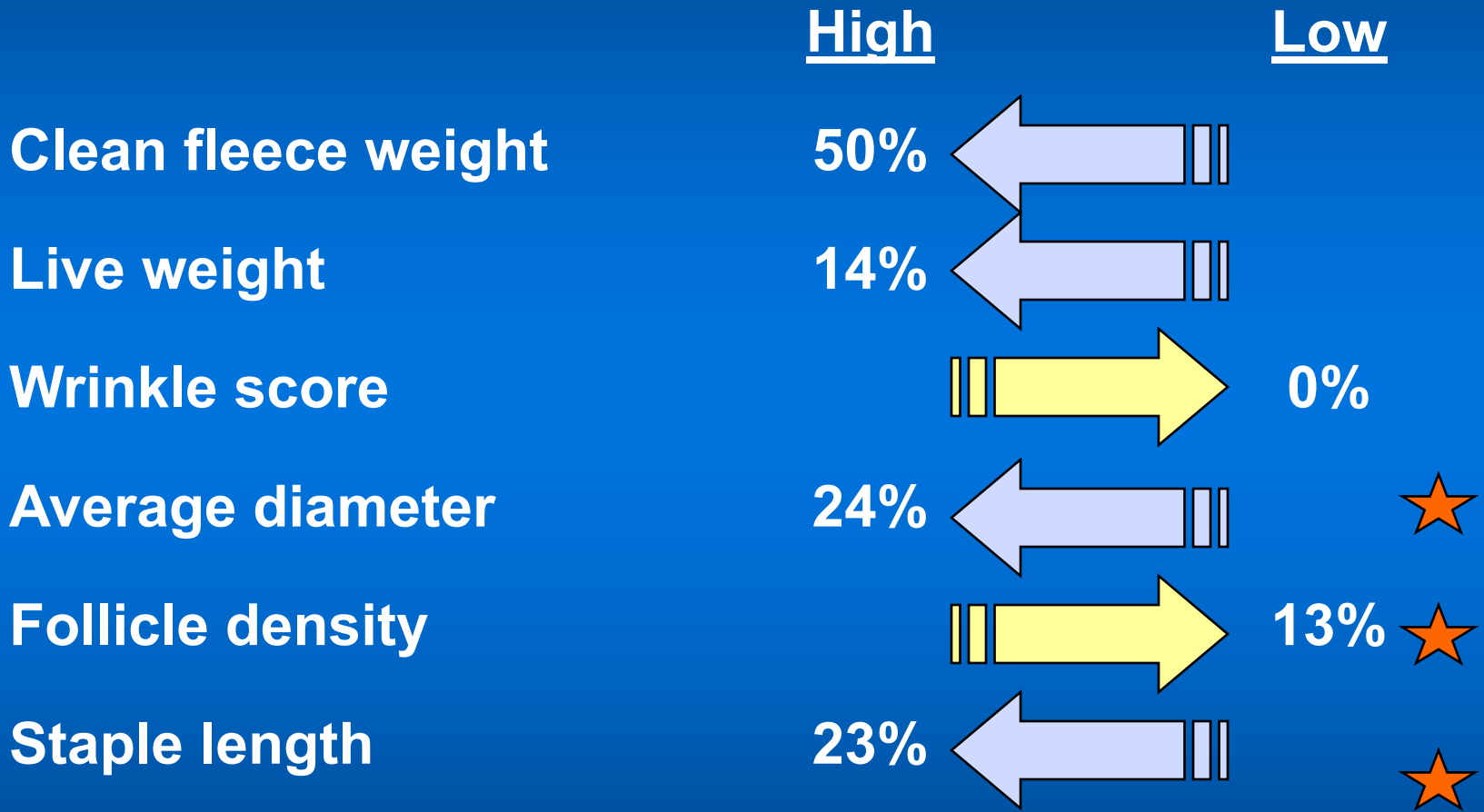
	Fine ¹ <12 mth	Medium ² ~16 mth	Broad ³ ~16mth
Live weight	0.44	0.23	0.36
Wrinkle score	-	0.12	0.20
Average diameter	0.26	0.14	0.13
Follicle density	0.04	0.16	0.09
Staple length	0.36	0.37	0.32

1. Swan et al. (1995), Purvis & Swan (1997); 2. Brown & Turner (1968); 3. Gregory (1982)



Level of nutrition: an example of the management group effect

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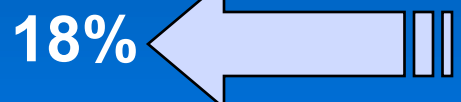


Selective breeding: changing the directions

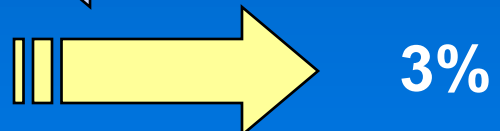
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Selected Control

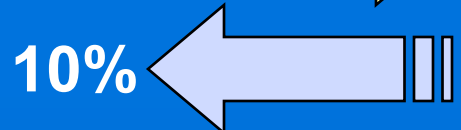
Clean fleece weight



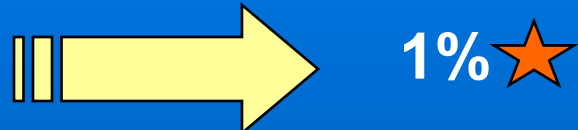
Live weight



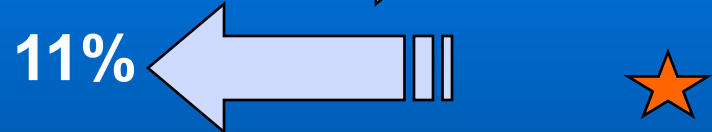
Wrinkle score



Average diameter



Follicle density



Staple length

