



Managing impact on other traits when selecting for high flystrike resistance - A wool market perspective

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Context

An industry objective:

evolution of the genes and management practices conferring immunity to flies, within suitably ethical wool sheep production systems.

Some industrial challenges:

- *Address unfavourable associations (real or perceived) between production traits.*
- *meeting product market needs to ensure high prices*
- *widespread adoption*

Hypothetical genetic picture

1. Early Breech Wrinkle is the primary focus for developing immunity to breech strike, and has the following genetic associations (yearling and adult):
 - a) Positive correlation with clean fleece wt and negative with micron
 - b) None with staple strength, since negative with staple length and positive with coeff of variation of diameter
 - c) Variable association with no. lambs weaned and weak negative with yearling body weight.
2. Dag score is the second most important target, and has only a weak negative association with SL, but no other significant associations

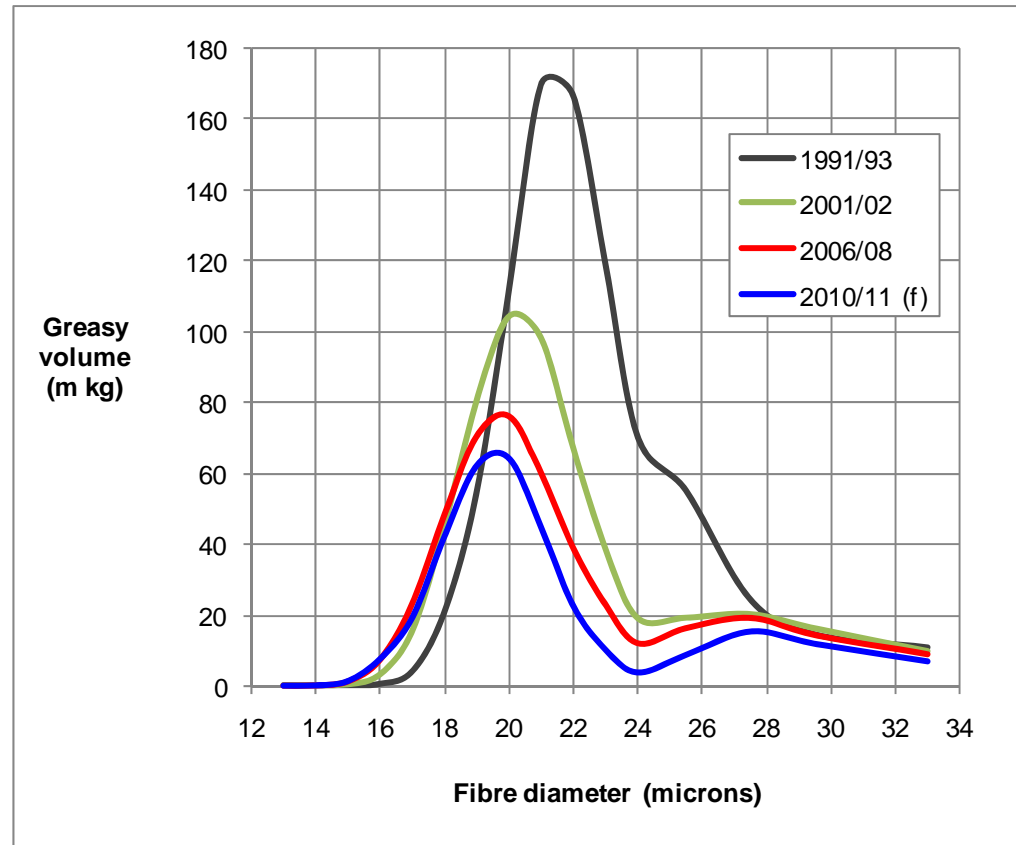
Hypothesis: Selection toward natural immunity may substantially reduce lifetime fleece value.

A real economic and adoption challenge!

Two wool clips in one

In less than 20 years, our wool clip has halved in volume, and split in two:

- 200 m kg of fine apparel wool (2008 avg: 20.0 μm)
- 40 m kg of non-apparel wool (2008 avg: 28.3 μm)



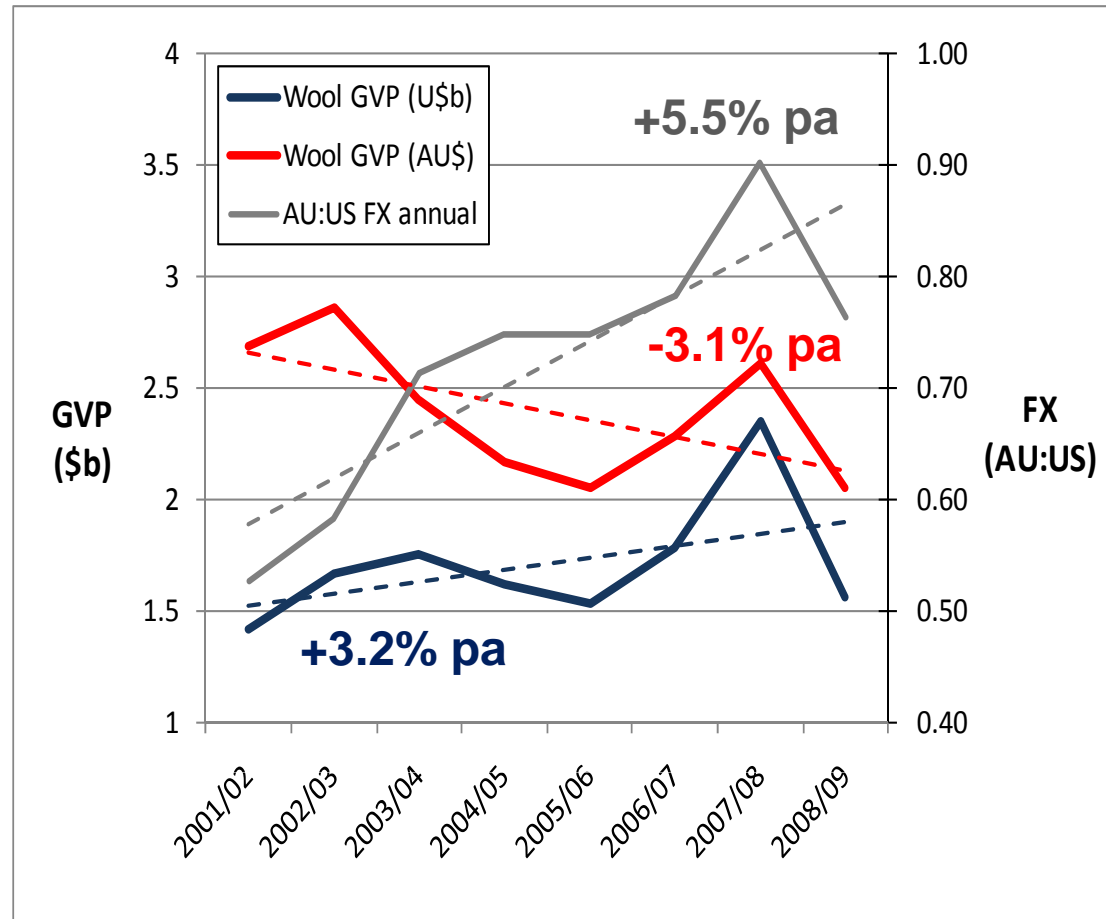
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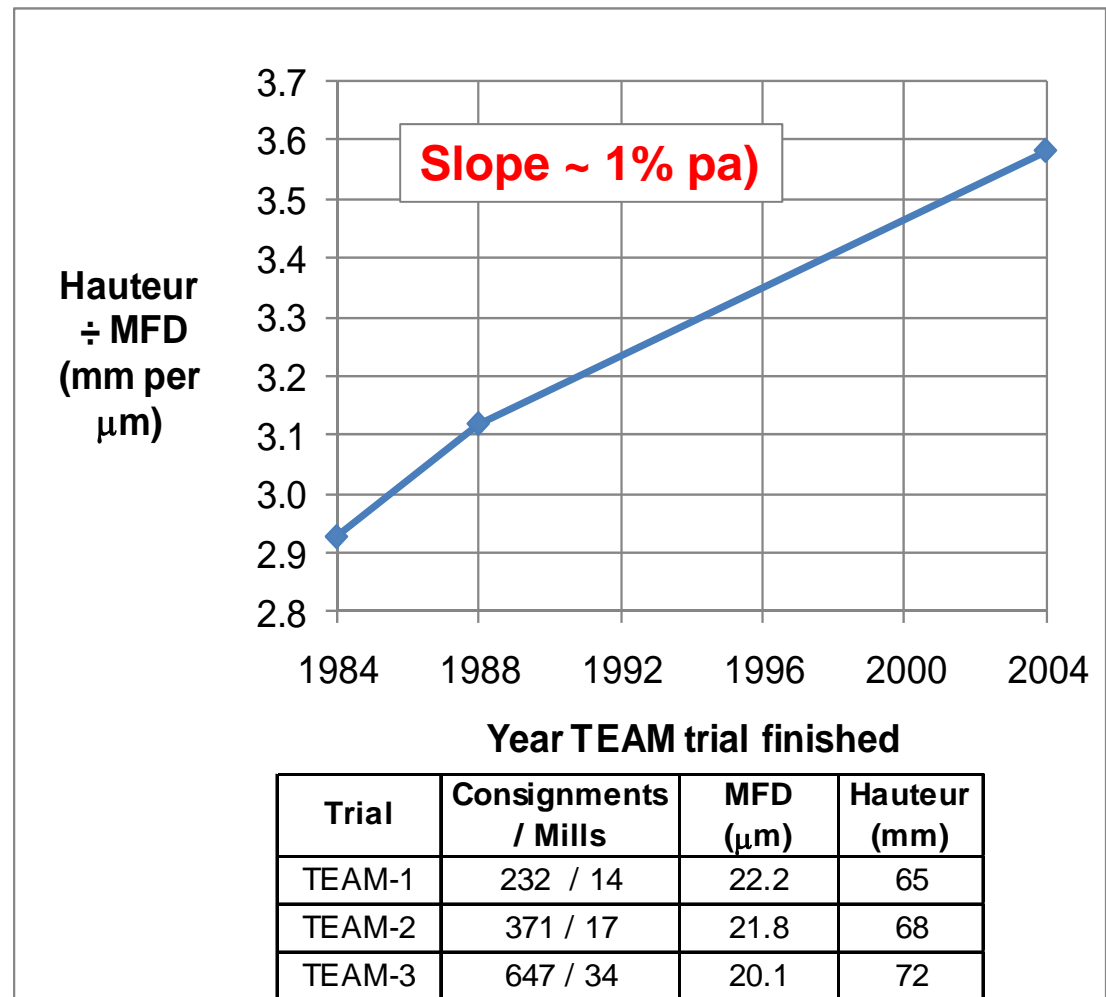
Despite volume decline at ~5% pa since 2001/02, US\$ value has grown at ~3% pa.

US:AUD rates have risen at 5.5% hiding the otherwise strong demand signal for our fine wool!



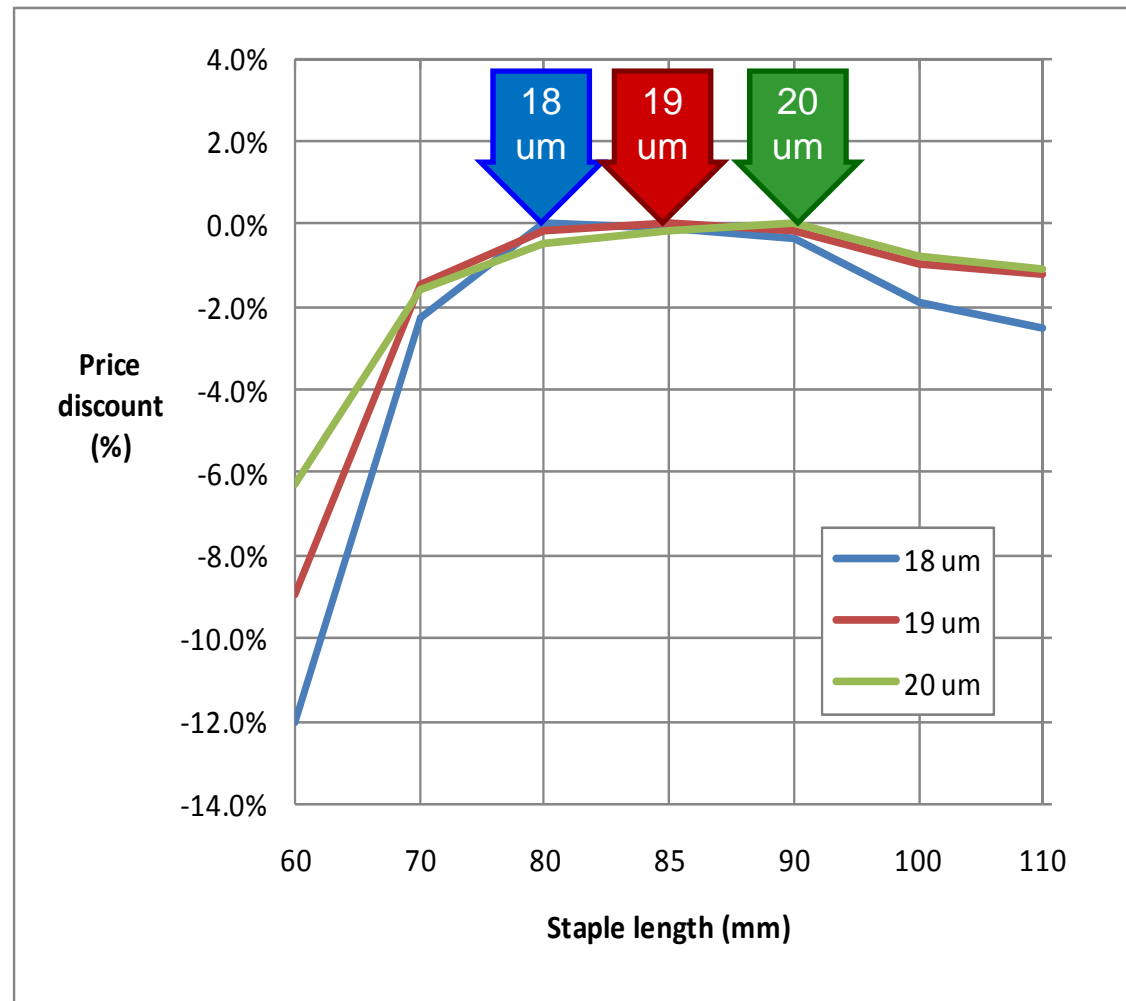
Over-long or under-strong?

- Tops are trending longer and finer – reflecting ongoing trends to lighten fabrics, and produce them more efficiently.
- At present, wool processors generally prefer staples to be around 4.5 mm/ μm . We should expect this to rise.



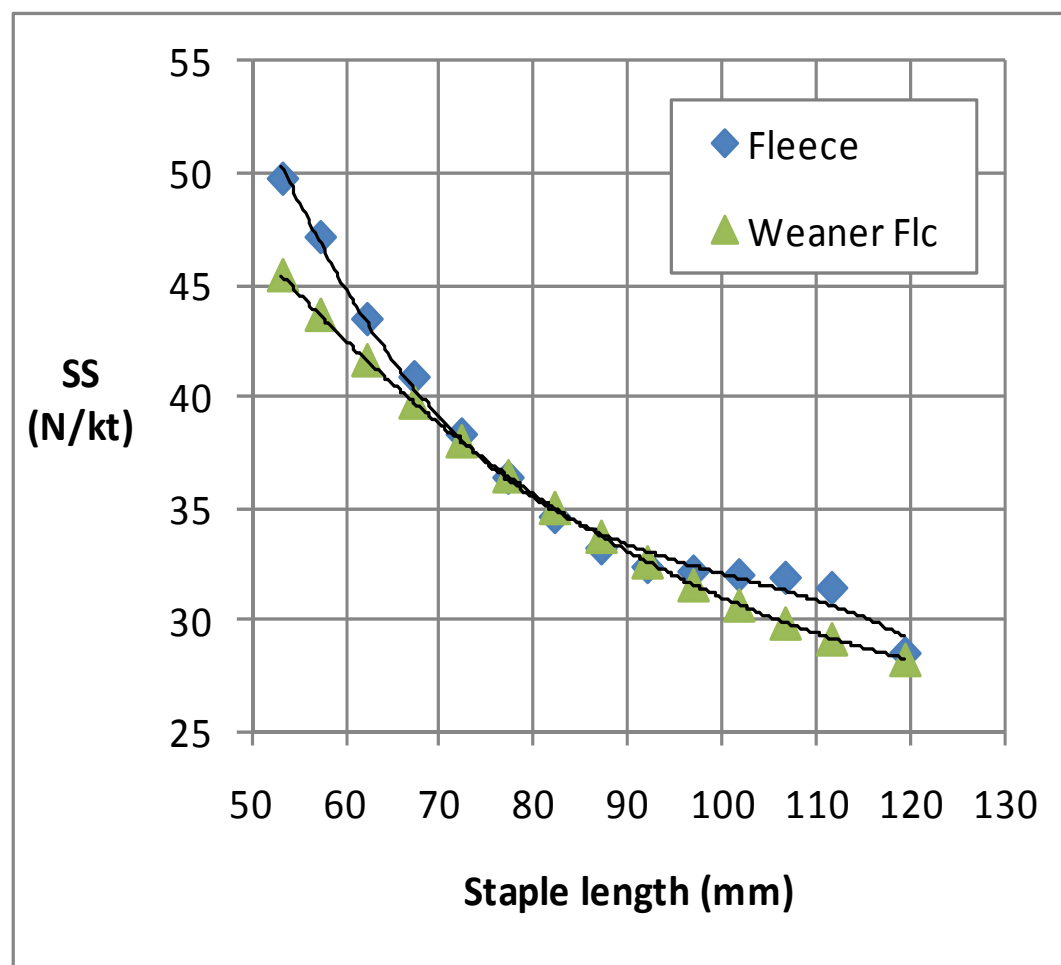
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- Discounts for under-length can be large, while over-length discounts are comparatively small and often overstated.



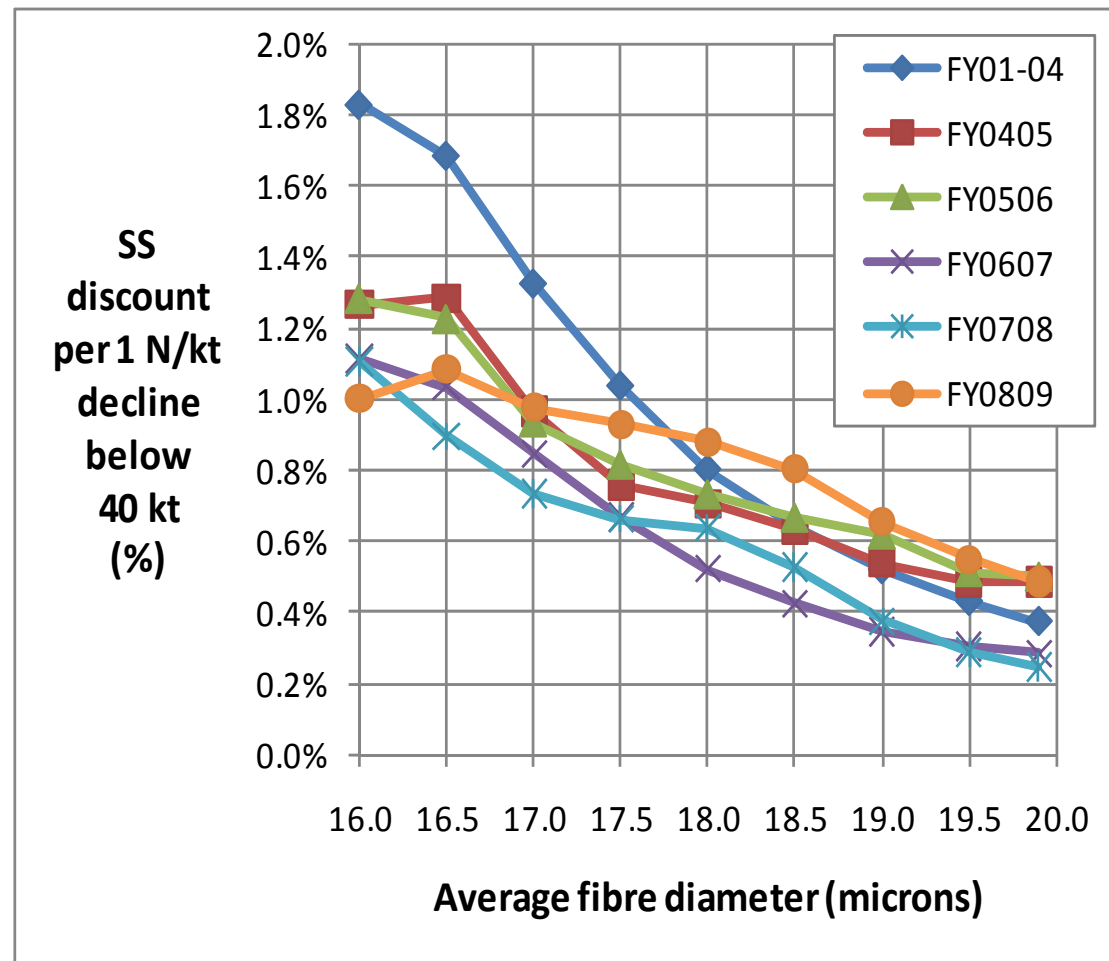
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- However, the real significance of over-long lies in the interaction of length and staple strength – mostly due to the chosen units of strength measurement (peak force instead of work to break).
- The impact on SS is dramatic, as is the impact of SS on price.
- Thus, simply relying on increased length to maintain CFW when breeding for low EBWR may have serious consequences for SS – and thus price – unless efforts are made to increase SS



Issues

What are the practical selection systems advice we provide to breeders, especially fine and ultrafine growers when breeding to reduce wrinkle?

Should fine wool breeders place greater emphasis on CFW and SS if selecting toward a non-mules type?

Should we develop sheep and wool market 'type' specificity to our general recommendations?

Is it a reasonable goal to produce 16-18 micron ewes capable of being successfully joined at 8-10 months of age, and being shorn every 8-10 months of growth?

Given the incredible adaptability of the Merino, informed breeders will strike their own optimal balance between wool and sheep meat income, when selecting for flystrike resistance in their sheep in their environment.



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