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Finewool Outwest

The Newsletter of The Condobolin Fine Wool Project

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The Condobolin Fine Wool Flock

Up to industry standards

When the Condobolin Fine Wool Wether Flock was established by sourcing sheep from CSIRO's Fine Wool Project, we were careful to ensure that the wethers were representative of the performance of each of the 11 bloodlines. Since then, we have strived to manage the flock in as close to 'normal' commercial conditions for the Condobolin area as possible.

So how does the performance of the Condobolin Fine Wool Wether Flock compare to industry?

The performance of the fine (bloodlines 2, 3 & 4) and medium (6 & 8) bloodlines in the Condobolin Fine Wool Wether flock is very close to the performance of their 'source' bloodlines in the Merino Bloodline Performance package. This indicates that the performance of the wethers at Condobolin ARAS is a good representation of the relative performance being achieved by commercial wool producers using these bloodlines in their flocks.

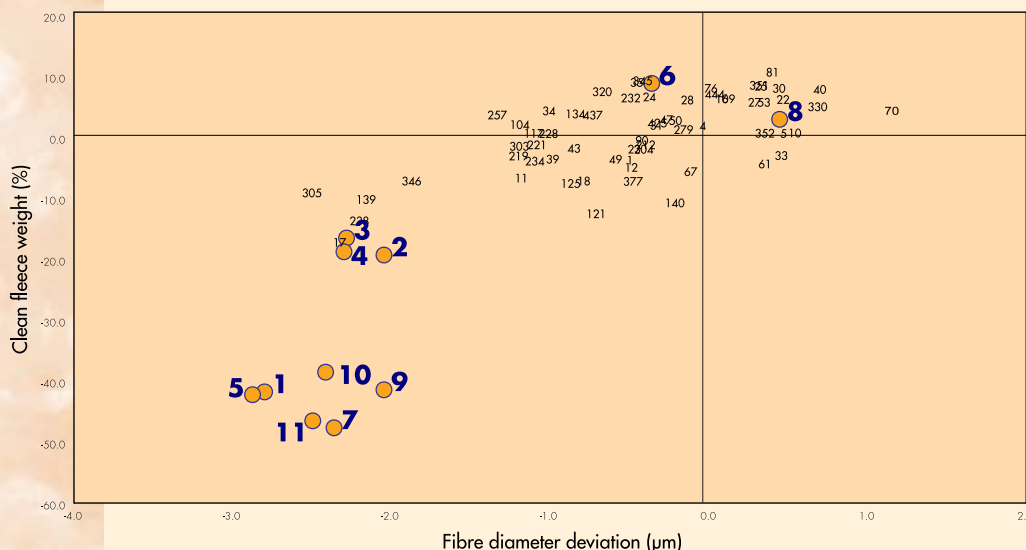


Figure 1. The bloodlines in the Condobolin Fine Wool flock are up to industry standards.

We used the past seven years of shearing and sampling data (fleece weight, fibre diameter, bodyweight, length, strength and style) to benchmark the performance of each of the 11 bloodlines in the Condobolin flock to the latest Australia-wide wether trial results contained in the Merino Bloodline Performance package (Figure 1).



NSW Agriculture

Fine wool further out west

Fine wool wethers shine west of Hay

Fine wool wethers run at Nap Nap Station west of Hay in NSW, have returned more than \$10 per head higher wool values than the 'traditional' medium wethers on the station. This on-farm comparison provides further evidence against the belief that fine wools are only suited to tablelands environments.

In response to the low prices received for his 22-24 micron wools, Tony Cullen-Ward at Nap Nap Station decided to investigate the potential to run finer wool type sheep in his western environment.

Wethers in the comparison

In October 1998, 100 wethers were purchased from the Yalgoo Merino Stud at Walcha in northern NSW. These were a random draft from the 1997 drop taken from the commercial section of the Yalgoo flock. These wethers were not castrated rams, nor were they 'selected' from the wether portion of the drop. A 10-15% cull had occurred in this flock to remove the obvious physical and severe wool faults. The wethers were bare shorn at the time of delivery.

At delivery, 100 wethers were randomly drafted from the 1997 drop Nap Nap flock which was based on the Willurah bloodline. This flock had been subjected to a similar culling, removing 10-12%.

The 'comparison mob', comprising the Yalgoo and Willurah wethers were shorn in early March 1999, during the general station

shearing. This was the 'even-up' shearing for the comparison and brought the Yalgoo wethers in line with the rest of the Nap Nap flock. The comparison group has been run as one mob from the time of arrival of the Yalgoo wethers to the present.

The Nap Nap environment

Nap Nap Station consists of approximately 36,000 hectares (89,000 acres) and is located approximately 70 km west of Hay in NSW. The soils are predominantly grey clays with vegetation ranging from timbered flooded country to open saltbush and grass plains. Sheep graze the plains country and cattle are run on the timbered river frontage and flooded country.

During the wool growing year from March 1999 to February 2000 there were strong contrasts in feed growth. The break of the season occurred in September 1999, with the period from March until then being particularly tough. However, following a very good spring, the remainder of the wool growing year was especially good.

The comparison mob is obviously much smaller than most of the mobs run on Nap Nap and they have been run separately from the main mobs on the station. However their stocking rate and the country they have been running on is not materially different from that of the rest of the sheep on Nap Nap.

Table 1. Results from the first comparison shearing.

Wool & Fleece Characters	Nap Nap	Yalgoo
Number of wethers at commencement of trial	100	100
Number present at shearing (February 2000)	95	95
Greasy Fleece Weight (kg/hd) (unskirted)	7.03	5.35
Fleece : pieces ratio	78%	73%
Bellies (kg / hd) (Ave 3 X 10 random)	0.42	0.35
Yield % (Sch Dry)	71.5	67.3
Clean Fleece Weight (kg/hd)	5.03	3.60
Fibre Diameter (micron)	24.6	19.9
Staple Length (mm)	98	94
CV% (Length)	16	15
Staple Strength (N/KT)	49	45
Greasy Price (c/kg) 'Spot' #	290	600
Clean Price (c/kg) 'Spot' #	405	892

NOTE: The spot prices were those realised at Melbourne sale number 31 on 6 April 2000.

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Results from the first shearing

One of the most important results of this trial to date is that the survival rate of both bloodlines was the same. Of the 100 wethers from each bloodline to commence the trial, 95 of each were present at the February 2000 shearing (Table 1). Despite the tough conditions for the first half of the wool growing year, the fine wool wethers had exactly the same survival rate as their broader wool counterparts. Clearly the 'survivability' of fine wool sheep is not an issue in western environments.

As we would all expect the greasy and clean fleece weights of the fine wool wethers were about 28% lower than those of the broader wool wethers. However when we consider the fleece weight fibre diameter trade-off (see Volume 1 Issue 3 of *'Finewool Outwest'*), the lower fleece weights of the fine wool wethers were accompanied by an average fibre diameter 4.7 µm finer than that of the broader wethers (19.9 µm versus 24.6 µm).

As a consequence, the price received for the finer wool at auction was more than double that of the broader line (892 c/kg clean versus 405 c/kg clean). On a fleece value per

head basis, the Yalgoo wethers made just over \$32 compared to just over \$20 for the Nap Nap wethers. There was very little difference between the two wether groups in the skirting ratio or other wool characters.

But what of the differences between the two groups in body weight and carcass characteristics? Both groups of wethers were weighed and fat scored off-shears.

Interestingly, there was less than 1 kilogram difference between the average of the two groups (Table 2). The fine wool wethers had both a higher fat score and estimated dressing percentage. However, their estimated carcass value was 5c per kilogram less than the medium types. This resulted in a lower estimated carcass value for the fine wool wethers (\$12.26 versus \$13.08).

It is important to remember that the lower estimated carcass value would be achieved only once in their lifetime, but the difference in wool value per head would be realised annually over the wool growing life of the fine wool wethers.

This article was prepared with the assistance of Ian Evans, NSW Agriculture's Livestock Officer (Sheep & Wool) at Deniliquin with data supplied by Tony Cullen Ward from Nap Nap Station.

Table 2. Bodyweight and carcass characteristics of the comparison mob.

Bodyweight and carcass characteristics	Nap Nap	Yalgoo
Body weight (kg/head)	55.3	54.5
Fat score (approx. 30 wethers per group)	3	4+
Estimated dressing percentage	43	45
Estimated carcass value (c/kg)	55	50
Estimated carcass value (\$/head)	13.08	12.26

Reducing fibre diameter does not affect wool production efficiency

But feed intake may decline

The provision of feed (pasture) is a major cost to the grazing industries. Therefore it was important to determine the genetic relationships between the major wool traits and feed intake. Once these relationships are established, a judgment of any potential benefits to be gained through selecting for feed intake can be made.

Measurements of pasture intake and production traits were conducted on approximately 900 weaners in each of two years from CSIRO's Fine Wool flock at Armidale, and approximately 1200 adult wethers over three years from the Fine Wool flock at Condobolin. All 11 bloodlines were represented in the research.

Differences in feed intake between bloodlines

Bloodline differences in feed intake were largely related to body size, and were consistent between the Armidale and Condobolin groups. That is, the largest animals tended to consume greater amounts of feed with the environment not playing a large part in these differences. In addition, the bloodlines that grew the heaviest fleeces were the most efficient at converting feed into wool.

Genetic relationships between intake and wool characteristics

The heritability of feed intake (or how much feed intake is governed by the animals genes) was relatively low at 0.1 (Table 3). In

Reducing fibre diameter does not affect wool production efficiency

But feed intake may decline

contrast, the efficiency of wool growth (measured in grams of clean wool grown per kilogram of intake) was moderately heritable, although lower than that for wool growth (0.25 versus 0.37). Therefore it is possible to influence both pasture intake and efficiency of wool growth through selective breeding.

But the value of including these traits into a breeding program depends on their relationship with other economically important traits.

There was a very strong genetic relationship (0.84) between wool growth and the efficiency of its production. As a result, selection to increase wool growth will increase the efficiency with which pasture is used for wool growth. Provided that liveweight does not also change, increasing wool production will have little effect on the amount of pasture eaten.

Reducing fibre diameter through selection should have no effect on the efficiency of wool production, although feed intake may

decline. Although selecting to increase liveweight is likely to lead to lower intakes per unit of liveweight, the efficiency of wool production would not be expected to change as fleece weight will not change substantially by selecting on liveweight.

Given the strong genetic relationship between wool growth and efficiency, little would be gained by including feed intake as a selection criterion if you already select animals based on fleece weight.

In conclusion, using genetics and selection to increase wool growth through selecting for increased fleece weight will produce animals with improved efficiency of wool production but will have very little effect on intake. Selection for fibre diameter should not affect the efficiency of wool production, although your animals may eat a little less.

This research outlined in this article was conducted by Greg Lee. For more information on genetic variation in feed efficiency and pasture intake, you can contact Greg by phone 02 6391 3851, fax 02 6391 3922 or email greg.lee@agric.nsw.gov.au.

Table 3. Heritabilities (in bold) and genetic correlations of feed intake(DOMI), liveweight, wool growth, wool growth efficiency and fibre diameter.

	DOMI	DOMI/LW	Livewt	Wool growth	Efficiency	Fibre diameter
DOMI	0.12					
DOMI/LW	ne	0.10				
Liveweight	0.57	-0.29	0.36			
Wool growth	-0.02	-0.23	0.24	0.37		
Efficiency g/kg DOMI	-0.63	-0.63	0.02	0.84	0.25	
Fibre diameter	0.40	0.31	0.20	0.18	-0.03	0.66

The new member of the team

Or "Why this issue is a month late!"

A new member of the 'Fine Wool' team finally arrived (a little late!) on the 25th October 2000. Baby Jack weighed in at a very healthy 4kg (or 8lbs 13ozs) and has been thriving ever since. Both of us are adapting well to each other, especially now that Jack sleeps through the night.

I have been on maternity leave since the 6th of October and will be returning to work, Mondays to Wednesdays, in mid-March. In the meantime, if needed, you can contact me using my email address listed at the end of this issue—just be patient if it takes me a while to reply!

For more information...

This is the fifth issue of the '**Finewool Outwest**' newsletter.

Do you have all five issues?

If not they can be accessed via NSW Agriculture's website (www.agric.nsw.gov.au), or you can contact me (see the contact details below) and I will send you a copy of the ones that you require.

For more information on any of the articles in '**Finewool Outwest**', please contact:

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