

FinewoolOutwest

The Newsletter of The Condobolin Fine Wool Project

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Sheep coats

A management tool to economically improve the style of western fine wool

Sheep coats can be successfully used to improve the style of wool in western environments. A 12-month trial of sheep coats at Condobolin produced an improvement in wool style of about one style grade, which was largely the result of the coated wool being whiter with less tip weathering and a low level of dust penetration.

In addition the increase in the value of the coated superfine and fine wool was enough to compensate for the additional costs associated with coating the sheep. However, despite the sheep coats improving the quality of the fleeces of the medium wool sheep, it was not economically viable to coat the medium wool bloodlines.

Sheep coats and wool production

Coating sheep did not increase the amount of clean wool grown per head. There was no difference between the coated and control sheep in clean fleece weight. Although the greasy fleece weights of the coated wethers were about 0.2 kg less than the control group, this difference was more than offset by the coated sheep having 4% higher yields across the flock.

The coated wethers also had slightly longer staple lengths than the uncoated sheep (87 versus 83 μm), however this was a result of the sheep coats protecting the fleece from the effects of the environment rather than any increase in wool production.

We put dyebands in the fleece of the sheep at Condobolin specifically to look at the effect of weathering on the fleece. We found that the staple tip as a proportion of the total staple length of the coated sheep was nearly 2% greater than the uncoated sheep, indicating less weathering of the staple tip of the fleece grown under the coats (Figure 1).

Sheep coats and wool quality

Sheep coats improved the style of the coated wool by about one style grade (Figure 2). The fleeces of the coated sheep tended to be in the range of MF3 to MF4 or spinners to best topmaking compared with the control sheep, whose fleeces were in the range of MF4 to MF5 (best to good topmaking).

The coated sheep had fleeces which were whiter, with thinner 'pencil-like' staples and less dust penetration. Dust penetrated 18% further into the fleeces of the control group when compared to the coated sheep (Figure 3). The difference in dust penetration between the two groups was not as large as we expected. The coated sheep themselves contained a reasonable proportion of dust in the staple tips.

This was the result of our inability to dip and hence coat the wethers in the trial until mid-October due to problems experienced

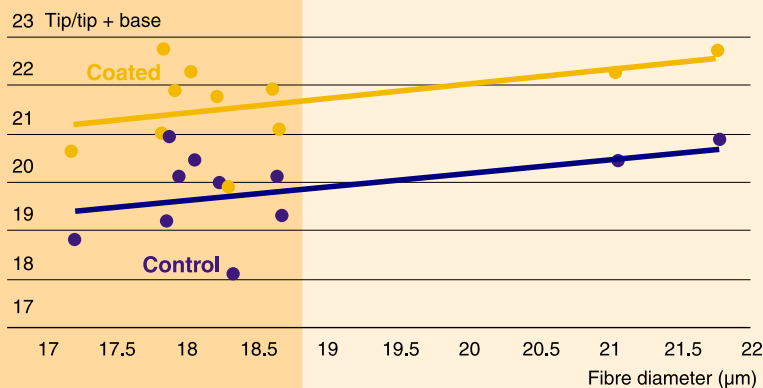


Figure 1: The staple tips of the coated sheep were less weathered.



Sheep coats

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with the water supply to the dip at Condobolin. This was nearly 8 weeks post-shearing. By this time the wethers in the coated treatment group had already been exposed to some degree of dust contamination and tip weathering. Coating the sheep immediately post shearing would have led to less dust penetration and tip weathering in the coated group and perhaps even greater improvements in style.

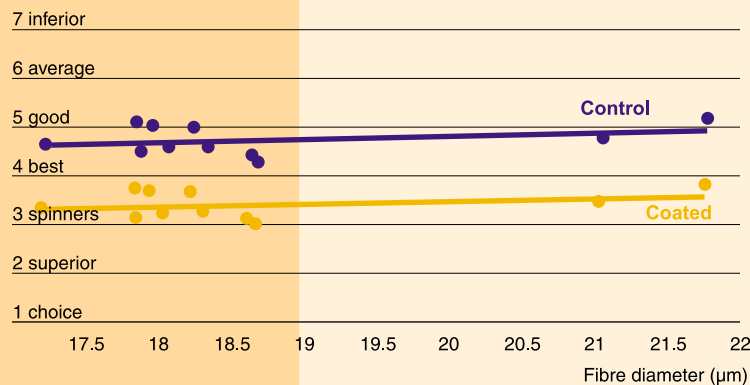


Figure 2: Sheep coats improved style by about one style grade.

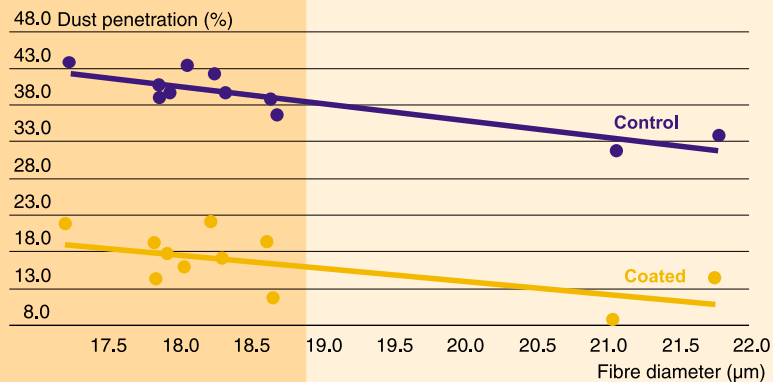


Figure 3: The fleeces of the coated sheep were less dusty.

There was no difference between the coated and uncoated wethers in fibre diameter, staple strength or resistance to compression. Comparison of the vegetable matter level from the coated versus uncoated sale lots indicated that the coated lines had about 0.5% less vegetable matter contamination than the uncoated lines.

The economics of using sheep coats

The cost of coating the wethers at Condobolin was \$3.03 per head. This included the initial cost of the coat (which was halved as the coats could be used for

two years), the labour cost of mustering, fitting and removal of the coats as well as four checks of the coated sheep during the year.

Wool prices from the last two wool selling seasons (1999/00 and 2000/01) were used to value the wool from this trial. Averaged across the 11 bloodlines in the flock, the fleece of the coated wethers would have received 1,508 c/kg clean compared with 1,409 c/kg clean for the control group. This represents a difference of 98 c/kg clean. When the fleece weights of the wethers were considered, the coated sheep would have yielded \$50.83/head compared with \$47.12/head for the uncoated wethers, a difference of \$3.71 per head.

Grouping the bloodlines into their micron categories makes it clear that the benefits of coating wool were greater for the finer bloodlines (Table 1). Despite the sheep coats improving the quality of the fleeces of the medium wool sheep, it was not economically viable to coat the medium wool bloodlines. The extra value of the medium wool fleeces was not enough to counteract the additional costs of coating.

Most importantly, a sensitivity analysis in which the wool prices were increased and decreased by both 10 and 20% found that the returns from coating superfine and fine bloodlines were always enough to compensate for the additional costs associated with coating the sheep (Table 2). In contrast, the cost of coating the medium bloodlines was always greater than any benefit received from coating.

What else did we discover?

At Condobolin there was no significant difference between the coated and uncoated sheep in weight gain over the 12-month period nor in the incidence of flystrike or fleece rot. Of the small number of incidences of flystrike occurring in the coated sheep at Condobolin none of sites of the initial strike were under the coats, the initial strike site tended to be around the pizzle of the wethers.

Regular monitoring of coated animals was necessary as fly strikes could be initiated on the rear legs where the elasticised edges and rear legs band may chaff the skin and/or cott

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the wool. This was the case with the medium wool wethers wearing coats at Condobolin. The medium wool wethers were the largest animals in the trial in terms of body size and they also grew the heaviest fleeces.

These two factors combined to make this group of sheep particularly susceptible to the leg straps of the coats chafing and even cutting into the skin around the hind legs. Increased management of coated sheep in the form of periodic checks of coat fitting is required, particularly if the coated sheep are growing in size throughout the time they are wearing coats.

Table 1. The differences in clean price and wool value were greater for the finer bloodlines.

	Superfine	Fine	Medium
Clean price (c/kg clean)			
Uncoated	1,678	1,445	550
Coated	1,816	1,521	564
Difference	138	76	14
Wool value (\$/hd)			
Uncoated	48.22	57.44	28.37
Coated	52.50	61.46	29.90
Difference	4.28	4.02	1.54

Table 2: Coating superfine and fine bloodlines compensated for the cost involved.

Sensitivity of wool value per head to changing wool prices					
%	-20	-10	actual	10	20
Superfine	3.42	3.85	4.28	4.71	5.14
Fine	3.22	3.62	4.02	4.42	4.82
Medium	1.23	1.39	1.54	1.69	1.85

What does this mean for wool producers

It is important to realise that the effect of sheep coats on the quality of the fleece will vary from season to season. More severe environments or seasonal conditions than those at Condobolin between August 1998 and August 1999 would produce different degrees of damage to the fleece, from either direct UV damage or abrasion of individual wool fibres both within and between staples by dust and vegetable matter contaminants.

Strategic coating of the sheep during times of high potential for fleece weathering and dust and vegetable matter contamination, such as

the summer autumn periods, may be a viable option for producers. If for example, coating sheep for shorter periods of time had the same impact in terms of wool quality as coating for the entire 12-month period the need for periodic checks of the coated animals would be reduced. This would reduce the labour required to monitor coated sheep and also reduce the cost of the coats themselves by reducing wear and tear and extending their useful life.

Strategic coating of sheep for various times after shearing has been the subject of a second trial of sheep coats at Condobolin. The results will be included in a future edition of 'Finewool Outwest'.

The economic calculations in this study were all made on a per head basis.

Depending upon the size of the mob of sheep being coated significant savings could be made as a result of economies of scale. For instance it may be possible to negotiate discounts for the purchase of a large number of sheep coats and the cost of mustering would be spread over a larger number of animals thus reducing the per head cost.

Coating larger numbers of sheep would also lead to the development of more efficient methods of fitting and removal of coats, thus reducing the time and labour inputs required. At Condobolin we tried a number of methods of fitting and removal of coats. These included the use of a VE machine sheep handler and simply filling a race and fitting coats while moving through the race. The latter method proved the most effective under our conditions.

The finding that sheep coats seemed to provide a physical barrier which prevents flystrike may reduce, or even completely remove, the need to use chemicals to prevent flystrike on coated sheep. This would provide opportunities to reduce the costs associated with coating sheep and may even provide producers with an opportunity to market their coated lines of wool as 'chemical free'.

Conclusion

- Sheep coats can be used economically to improve the style of fine wool grown in western environments.

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- Both the wool quality and economic benefits of using coats will depend on the environment in which the sheep are run and the prevailing seasonal conditions.
- Sheep coats can be an effective management tool to add value to a proportion of a sheep flock in

conjunction with other activities such as fleece testing. For example, identification of the finest portion of a flock, drafting this group of sheep off the main mob, coating them and running them separately is likely to lead to improved returns for wool producers.

The end of an era at Condobolin

An opportunity for more on-farm comparisons

An era ends

In mid-September the research activities associated with the Condobolin Fine Wool Project were wound up. This decision was the result of on-going problems with the resourcing of the breeding flock at Condobolin, which were unable to be resolved.

Although coming to a disappointing end, the 10 years of fine wool research at Condobolin ARAS, has been highly successful and has captured the imagination of many wool producers Australia-wide. We now know that the environment is not a barrier to fine wool production and that quality fine wool can be profitably grown in western environments.

The success of the Condobolin Fine Wool Project owes much to the efforts of the various research and technical staff associated with the project since the early 1990's. The dedication, enthusiasm and participation the Merino Breeding Group (Kevin Atkins, Allan Casey, Kathy Coelli, Kelly Lees, Anne Ramsay and Steve Semple)

as well as CSIRO Staff (Lindsay Brash, Dick Farrell, Ian Purvis, Andrew Swan and Grant Uphill) have made the work of sampling and shearing enjoyable.

In particular both Laurie Barwick and Kevin Thornberry have made outstanding contributions to management and data collection of the flock despite at times some rather difficult circumstances.

An opportunity

The focus of the fine wool in non-traditional environments research will now move to on-farm breeding flock comparisons. Two of these are now under way, one at Hay and the other at Wentworth in western NSW. Moving to on-farm comparisons will allow us to include the data in the national Merino Bloodline Comparisons analysis as well as investigate the performance of fine wool sheep in a wider range of non-traditional environments.

If you are interested in running an on-farm comparison, please contact me for further information.

For more information...

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