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# Breeding for Breech Strike Resistance Project

WA Issue 1

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This project is a collaborative effort with research performed by the Dept. of Agriculture and Food WA and CSIRO with funding provided by AWI.

## **Introduction to WA Edition**

*Bindi Murray, DAFWA Katanning*

This project has certainly kept us busy over the last 12 months. So it is with great relief that the first edition of our project newsletter goes to print. The seasonal conditions have been trying to say the least but we have still managed to achieve some great results.

The 2005 drop animals provided us with a breakthrough by demonstrating that selecting for the indicator traits was as effective as mulesing in protecting sheep from breech strike.

We have now finished lambing from our second mating within the project. These progeny will give us much more information about the traits that affect resistance to breech strike.

We have been, and will continue to work closely with CSIRO in Armidale to adapt the project aims to the different climates and to make sure our measurements and records are consistent across the two sites.

WA results will be on display at the Mount Barker Research Station Field Day on the 23<sup>rd</sup> October. You are invited to come along and talk to us about this exciting and promising project.

## **Overall project outline**

*Bindi Murray, DAFWA Katanning*

*John Karlsson, DAFWA Katanning*

There are traits that are already believed to affect how susceptible a sheep is to breech strike. These traits include, wrinkles, bare area in the breech, dags, urine stain, wool colour and worm egg

count. Fleece rot and dermo are known to increase the risk of body strike. We are studying these traits in mulesed and unmulesed merino sheep to find out which traits are the most relevant and how the traits interact.

To do this we have created three lines of sheep. The Intense Selection (IS) line uses rams and ewes selected for the indicator traits and the Commercial Selection (CS) line uses selected rams but the ewes are not selected for the indicator traits. The aim is to compare these two lines to the unselected control line to gauge the rate of progress towards resistance in ram breeding and commercial flocks.

We have 600 breeding ewes at each site. The 2 sites are Mount Barker Research Station in WA and Chiswick Research Station in Armidale NSW

## **WA outline**

In 2005 we sourced 600 ewe lambs from 10 sheep producers and 600 adult ewes from DAFWA flocks to start this project. We scored the lambs for indicator traits at lamb marking to allocate them to one of three lines.

***Project objectives***  
***To evaluate the effect of breeding animals for traits known to indicate resistance to breech strike over a range of environments.***

***To study the inheritance and genetic relationships between indicator traits and breech strike incidence to develop tools to estimate breeding values for Sheep Genetics***



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Those with high bare scores and low wrinkle scores were allocated to the Intense Selection (IS) line. Animals with dags or urine staining were not used in this line. Ewe lambs that tended towards the average of the whole flock were allocated to the control line and ewe lambs taken at random, to demonstrate the full variation of the flock, were allocated to the Commercial Selection (CS) line. We took a total of 60 lambs from each of the 10 properties and used 20 in each of the selection lines.

The lambs were marked on the property of origin between late July and late September, 50% of each line was mulesed with the other 50% left un-mulesed. All the tails were docked. They were moved to the Mt. Barker Research Station after weaning and run as one mob.

The weaners are scored for the indicator traits at different times during the year and the adult ewes are scored once a year after shearing. We measure greasy fleece weight, yield, clean fleece weight, fibre diameter, coefficient of variation of fibre diameter, staple strength, staple length and fibre curvature at shearing.

We do not apply any blanket treatment to protect the sheep from breech strike, such as jetting or crutching. We monitor the sheep regularly, especially when fly strike is expected. We treat any animals that are identified with eggs or maggots present immediately, using a short acting fly treatment and we remove any infested dags and wool. We also trap flies during the year to monitor the fly challenge.

### **Sires for 2007 Mating WA**

*Bindi Murray, DAFWA Katanning*

A number of ram breeders responded to our call to industry for suitable sires. Thank you to all those producers who contacted us with potential sires and also to those that took the time to look through their rams to assess the resistance traits.

Of all those who responded, we selected sires from Calcookara, Centre Plus WA, Margan, Majuba, Rylington Merino, Walinar and Yeendalong Farm for Mount Barker.

As the project progresses we will use more rams generated from within the Mt. Barker flock. One or preferably two sires will be used in both flocks to generate genetic links.

### **WA Achieves great results in 2006**

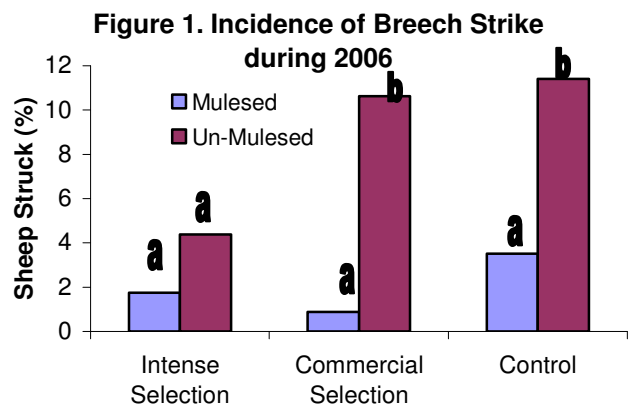
*Bindi Murray, DAFWA Katanning*

*John Karlsson, DAFWA Katanning*

*Johan Greeff, DAFWA Perth*

The WA team are very excited about the results we have been able to achieve with the weaners during 2006. The breakthrough came when we found that using the indicator traits to select lambs produced a line of un-mulesed sheep with the same level of breech strike as sheep that were surgically mulesed. The design of the project is detailed earlier in the newsletter.

In the mulesed sheep, 3.5 % of the Control line was struck compared with 4.4 % of the un-mulesed sheep in the Intense Selection line. In the Control line 11.4 % of the un-mulesed sheep were struck. This means that there was the same level of breech strike in the un-mulesed selected animals as the mulesed control animals (Figure 1).



We anticipated good results, but after only one year, these results are

exceptional and very exciting. It was also pleasing to see the line selected for resistance were heavier throughout 2006, and did not appear to produce any less clean wool, however there was an interaction between the lines and the source properties.

By going out to commercial properties and screening the animals, we were able to create a very high selection pressure. Now that we are in the second stage of the project, the challenge is to see if we can generate the same results through breeding from extreme sires and ewes, rather than screening in lines based on the indicator traits.

#### Conclusions so far:

1. All flocks have got animals that are already resistant to breech strike
2. Plain bodied sheep are less prone to breech strike
3. Plain bodied sheep are productive sheep
4. Dags are a serious contributing factor to breech strike even in mulesed animals

#### Recommendations to increase your flocks' resistance to breech strike.

1. Cull animals that become struck
2. Cull overly wrinkled sheep.
3. Select plain bodied ewe hoggets as replacements.
4. Cull animals with lots of dags
5. Use plain bodied rams in your breeding program
6. Reduce treatments that mask susceptible animals without compromising welfare

#### How will you manage after 2010?

*John Karlsson, DAFWA Katanning*

The 'Sheep Industry' has given an undertaking that surgical mulesing will not be used after 2010. Leaving it for others to debate the relative merit of this

decision, what are the short and longer term options to achieve a reduction in breech strike of the sheep flock?

#### Short Term Management Factors:-

- Timing of crutching and shearing
- Preventative chemical fly control
- Reduce scouring
- Monitoring
- Reduce local fly population

#### Permanent individual sheep treatments:-

- Clips that cause localized skin death and contraction on healing
- Chemicals that cause local skin scaring and contraction
- Chemicals that shut down wool follicles
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#### Breeding to make the flock:-

- more resistant to the blowfly larvae
- less attractive to blowflies

What seems clear is that 2010 will mean we have to move away from "silver bullet" solutions like mulesing and look at a more integrated approach. Of the options listed above, the first five are available now. The last five are being investigated at the moment and are in various stages of research and development. Producers need to think about which of these options are going to work in their sheep enterprise as there is no one size fits all solution on the near horizon.

#### 2006 Mount Barker FD Report

*Bindi Murray, DAFWA Katanning*

Last year the Mount Barker Research Station Field day was held on the 18<sup>th</sup> of October 2006. The Breeding for Breech Strike Resistance and Rylington Merino Flocks played a prominent part of the day's activities.

Johan Greeff welcomed the visitors and introduced John Karlsson who gave an overview of the Sheep Genetics projects

research on ‘Easy Care’ and ‘Fitness Traits’ including some background information on the Breech Strike project. Bindi Thomson presented some of the results for the 2005 weaners.

After the formal presentations we demonstrated the Lucitrap fly traps and the Bioclip wool harvesting system. The sheep on which we demonstrated the Bioclip removal had been selected as extreme animals and divided into two groups Intense Selection line animals that were plain and bare and Select B and control animals that were wrinkled and had high wool coverage as shown below.



Intense Selection Line sheep on the left and Commercial Selection & Control on the right.

**Performance of the industry flocks**

*Bindi Murray, DAFWA Katanning*

There was a big difference in the source flock performance from weaning to selection into the adult ewe flock at hogget age. The two following table show the averages of the source property groups for the production and indicator traits. The best & worst ranked properties are shaded and the scores are on a scale of 1-5 with 5 being more expression and 1 less expression of the trait.

**Acknowledgment**

We would like to acknowledge the immense support given to this project by the staff at the Mount Barker Research Station

**Table 1. Production and indicator trait averages for the contributor properties.**

Prop.	CFW (kg)	FD (mic.)	SS (N/kt)	BW (kg)	CS
1	1.8	17.0	24.3	44.4	2.8
2	2.0	17.2	23.5	46.4	2.9
3	2.0	16.9	27.2	46.4	3.1
4	2.4	17.8	23.5	47.6	2.9
5	1.9	16.3	24.3	39.0	2.7
6	2.3	17.4	24.3	44.8	2.8
7	2.2	16.7	21.5	42.4	2.6
8	2.5	16.2	21.2	43.4	2.6
9	2.6	17.7	22.1	43.1	2.7
10	2.5	18.2	22.7	50.0	2.9

**Table 2. Production and indicator trait averages for the contributor properties**

Prop.	Total WEC	Dag Score	Wool Col. Score	Breech Wrinkle Score	Breech Bare-ness	No. Breech strikes
1	86	4.0	1.8	1.7	2.6	0
2	173	4.3	1.9	1.9	2.3	2
3	325	4.7	2.2	1.7	1.8	4
4	324	4.8	1.9	2.1	2.3	5
5	422	3.8	2.2	1.9	1.8	1
6	459	4.7	2.0	2.1	2.2	5
7	775	4.4	2.0	2.3	2.1	4
8	914	4.5	2.3	2.5	1.9	6
9	445	4.5	2.4	2.6	1.9	8
10	532	4.5	2.3	2.2	2.3	5

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