BESTPRAC

Case study series – No. 7

EWE TURN: USING GENETICS TO TACKLE FLYSTRIKE

BACKGROUND:

David Thompson runs 'Moojepin', a 2000 hectare property near Katanning in Western Australia, with his wife Sue and son Hamish. The Thompsons have a 2,700 head breeding flock and produce seedstock Multi-Purpose Merino (MPM) rams.

Having faced a few years of particularly bad breech and bodystrike on his property, David decided to take a radical approach to protect both his flock and the long term profitability of his business.

"The tipping point for us was in 1994 when warm, humid weather in autumn saw a large number of our sheep get bodystrike, including younger ones in good condition. We were lambing at the time and every day we'd find more flyblown ewes. This made managing the problem even more difficult and stressful than it normally would have."

David decided to tackle the problem by removing the wrinkle in his sheep that make them susceptible to flystrike. Using both visual selection methods and genetic tools, and prioritising key traits, he has achieved some impressive results.

THE CHALLENGE:

In the mid-90s David's sheep had heavy, tight wrinkle, an average micron of 22.8, and fleece weight of 6.5kg. In addition to being at higher risk of flystrike, they were a challenge to shear.

FAST FACTS:

- David Thompson and his family run a 2,700 head breeding flock and produce seedstock multipurpose merinos.
- By using objective and subjective genetic tools, and a zero tolerance for wrinkle, David has bred the wrinkle out of his merinos.
- Prioritising key traits of growth, muscle and fat, has enabled David to lift his lambing percentage from around 85 to 110 per cent.
- At the same time he has reduced the average micron of his flock from 22.8 to 18.6, maintaining fleece value.
- These factors have seen David maintain business profitability and resulted in high performing sheep that are healthy, in great condition and don't need mulesing.

"I looked at the cost to the business in terms of flock management, labour, other inputs and the stress on both the sheep and ourselves, and made the decision to de-wrinkle the flock.

"We didn't have any objective genetic tools at our disposal at the time, so our decisions were based solely on visual selection. We culled sheep with the heaviest wrinkle. Since then we've had a zero-tolerance approach to wrinkle."

In 1995 the Thompsons culled heavily, selling around 50 per cent of the flock and putting in more crops to make up the difference in income.

The next step was to search for the 'right' genetics to re-build the flock. At the time this was much more difficult as there were far fewer sheep around with minimal wrinkle to choose from.

DAVID'S STORY:

The first priority was getting the wrinkle off. However it wasn't as simple as just selecting plainer bodied sheep. David knew there would be trade-offs, especially in fleece weight, and had to decide what to prioritise.

Yet profitability in the sheep and wool business isn't based on micron and fleece weight alone. David looked at the numbers and to maintain business profitability, would have to lift lambing and weaning rates, and retain fleece quality.

David enlisted the help of a Victorian classer, Ben Duxson, and in 1995 they secured the first lot of new genetics, with the first mating in 1996.

While David did notice an immediate change in the sheep, the process was pretty slow going in the first few years.

"We brought in semen from a range of bloodlines across the country, and some worked for us and some didn't. By the 2001-02 season we'd learnt a few valuable lessons.

"Focusing on very long, soft white wool and disregarding crimp as a priority for selection was probably the hardest decision for us to make. But this decision enabled us to make the breakthrough in eliminating wrinkle from the flock."

He also noted that the plainer bodied sheep tended to be more robust and appeared to have better muscling.

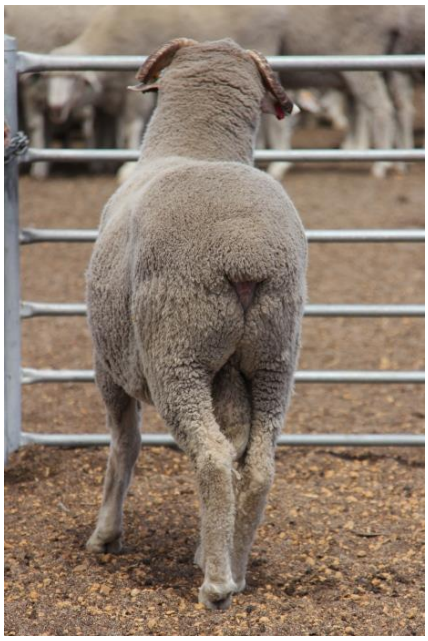
"Around the same time we unearthed two rams with very strong genetics that laid the foundation for the future of our flock. It was from that point that we really started to make the progress we wanted."

In 2003 David received a letter from the Sheep Genetics Merino Validation Project, offering free entry into the Australian Sheep Breeding Values (ASBVs) system. He wasn't sure how much value there would be in it, but decided that more information could only be a good thing. David has always kept good records and had full pedigrees, which helped the process.

"ASBVs provided us with a way to benchmark the genetics in our flock and track our progress. We were also keen to find out where we stood compared to other producers. 2004 was our benchmarking year, and in 2005 we started muscle scanning and post weaning weights.

In 2005 David was contacted by sheep researcher, Dr Mark Ferguson, who saw how Moojepin's genetics measured up in MerinoSelect - particularly for their consistent, high performance in terms of growth rates, muscle and fat. Dr Ferguson was researching how these traits impact profitability of a sheep flock, with some compelling results.

"Muscle and fat are particularly important in tougher conditions, and when feed is poorer. The fat acts like a haystack on their backs; and ewes with more fat on them are better able to rear their lambs. This is a big plus for our pastoral zone clients. We knew these were valuable traits, but didn't fully appreciate their importance until we were contacted by Dr Ferguson.



"Up until that point all our selection decisions were based on purely visual traits, with the primary goal of removing wrinkle from the flock. Based on what we learnt from Dr Ferguson and our own observations, we were able to refine our plan and set some new targets. Using visual scores, supported by ASBVs, we have been able to build a higher performing and more profitable flock."

RESULTS:

While David's primary motivation was flystrike management, the other trait improvements are shown in the genetic trend graphs below.

"By prioritising muscling, fat and growth rates, we've been able to lift our lambing percentages by 20 to 25 per cent, to sit at 110 per cent (lambs weaned to ewes mated). This is a huge profit driver and has had a big impact on our business.

"We've also looked for early maturity and now mate ewes at seven to eight months of age, with lambing down at 12 months of age. Our lambing percentages include these maiden ewes.

"While we did take a hit on fleece weight, we've been able to drop our average micron from 22.8 to 18.6, thus maintaining our average fleece value".

By 2004 David had made significant progress removing wrinkle from the flock and knew he was in a good position to stop mulesing.

"There was a lot of debate in the industry about mulesing and we wanted to be able to provide our commercial clients with some guidance if they decided to take a different approach to flystrike management.

"Probably the biggest difficulty we had that first year (2005) was with the tails. We used elastrator rings for the first time and left the length the same as if we were mulesing. The problem was that wool still grew out the end of the tail, which meant that dags became a problem and caused some difficulty come shearing and crutching."

David says they learnt a great deal in that first year, and hasn't had any problems with shearing or crutching since. He now uses a Te Pari Patesco docking iron and has found the ideal tail length to be around 4cm just below the third palpable joint or to the tip of the vulva in ewes.

The flock is much easier to manage and the reduction in workload has been considerable.

"We no longer jet and don't get any bodystrike. There is still a little breech strike, but we have fewer strikes now than when we were mulesing.

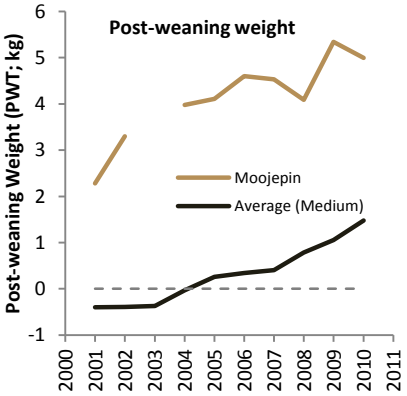
"The other benefit is that we no longer see any vulva or tail cancers as the skin is naturally protected against the sun with a short layer of wool, compared to the more exposed surface that results following mulesing. Previously we'd have around 10 cases per year and some of our clients in harsher conditions would get quite a number of these kinds of cancers."

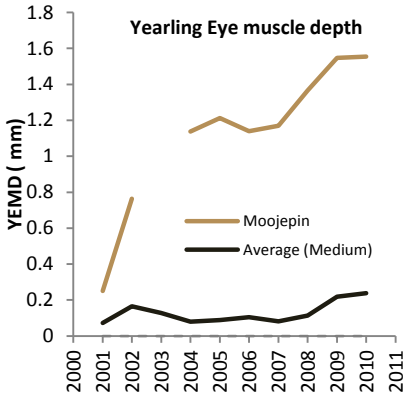
David's rams and genetics have been utilised in diverse locations around Western Australia - from Northampton (800km north) to Mukinbudin (450km northeast) and Esperance (600km southeast). His genetics have been also used throughout Australia and further afield to New Zealand, South Africa and South America.

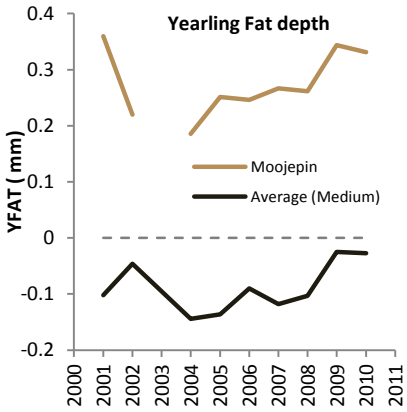
Growers and commercial buyers have responded to David's program, with the average price for rams sold at the on property sale consistently at the top of the state averages since they started selling at auction in 2003.

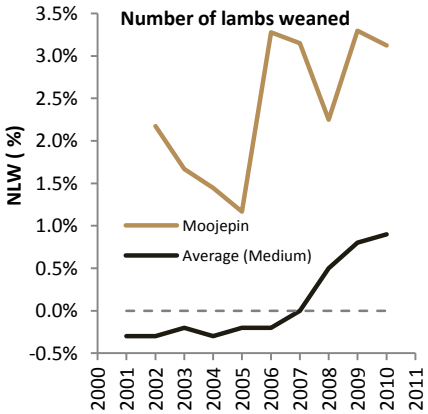
"At the end of the day we have high performing sheep that are healthy, in great condition and don't need mulesing."

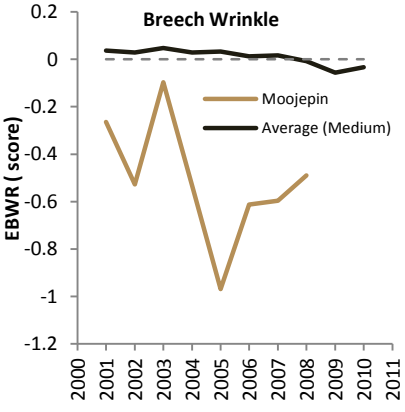
The graphs below show ASBVs along the Y axis and years along the X axis. The medium trend represents the average for medium type merinos in MERINOESELECT.

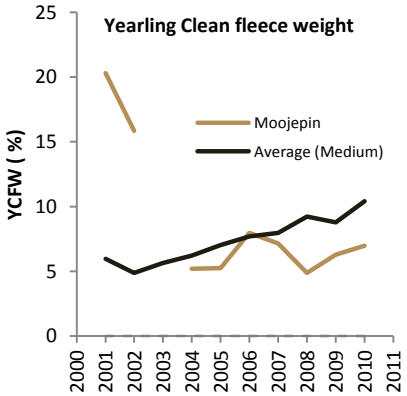


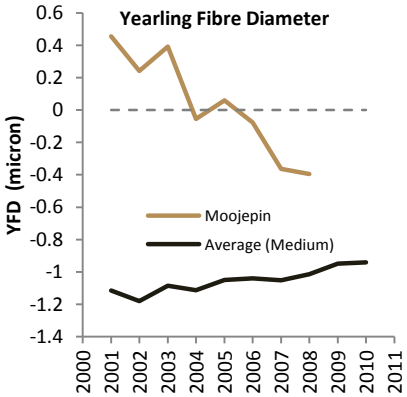












DAVID'S APPROACH:

In recent years David, along with classer Ken Duxson (Ben's father), has worked with 35 clients to de-wrinkle their flocks. David says many of these producers had a 'tipping point' moment with flystrike, much like he did in the 1990s.

While the time it takes to de-wrinkle a flock depends on the flock itself and ability to bring in new genetics, what is surprising is how fast big changes can be made. For producers in pastoral zones, where dags aren't often a high risk for flystrike, it's possible to reduce wrinkle in a relatively short time. It does take longer to strike a balance between reducing wrinkle and maintaining fleece weight.

David does caution against stopping mulesing too early.

"You can't stop mulesing until the sheep are 'right'. This means no wrinkle anywhere on the sheep.

David's approach can be adapted and applied by pastoral sheep and wool producers across the country. It is also applicable in higher rainfall zones; however additional consideration needs to be given where dags are the major flystrike risk.

Around a third of wool producers are based in high dag risk zones, where dry summers and wetter winters result in a build-up in worms over the higher rainfall periods.

While dags aren't a problem for David, having clients and customers in higher dag risk zones has made them an important consideration.

"The key factors for us in reducing dag risk are a wrinkle free breech area, getting the wool off the legs, and having a bare end of the tail.

"Keeping the udders bare and free of any dag build up is hugely important in helping to reduce the transfer of worms to lambs. We also want to avoid dags as they can make shearing and crutching a real challenge.

There are ASBVs for dag and faecal egg count that can assist producers to benchmark and select for lower dag risk sheep. However, this increases the number of traits that producers could pursue if wanting to decrease flystrike risk in their sheep. This can lengthen the process to breed lower risk sheep, depending on the geographic location and other considerations.

David uses both traditional selection methods and ASBVs to inform his decision making.

"Figures alone won't breed you better sheep. All our ewe and ram selections are done visually; we then go back and look at the figures.

"With the sire selection we look at everything from feet to body shape, structure and wrinkle. We might select 30 or 40 rams visually, and then overlay the ASBV information to help us make the final cut. In the end we keep around a dozen rams a year for AI and breeding."

THE FUTURE:

David has now turned his attention to fleece weight, which he says is a much more difficult process.

“Generally, rams with body wrinkle tend to have higher fleece weights. Over the last 2 years we’ve been able to breed plain bodied rams that have fleece weights with ASBVs of up to +18 (the industry average is +8) so we’re making good progress."

David is also working with students from Murdoch University on fertility of ewe lambs.

“We have a responsibility to continue to challenge the way we do things and drive progress in the sheep and wool industry. And while it’s certainly been rewarding, it hasn’t been an easy journey.

“As is usually the case, education is critical. Programs such BESTWOOL/BESTLAMB and Making More from Sheep (both funded by AWI and MLA) are invaluable in this regard. We also host agents, classers and clients on our property. We take them through our approach and show them the results we get with our sheep.

WHAT YOU CAN DO:

1. The first step is benchmarking. This allows you to establish where your genetics are at. It also enables you to measure progress and be aware that ASBV data doesn’t have to be made public, so it’s a worry free exercise that can only benefit the business in the long run.
2. Be strict. To see real change, you need to be committed to your breeding strategy, don't get side-tracked, it will only slow you down.

3. Divide your ewes into mating groups - using visual and objective assessment
4. Only select (buy) rams that have clear trait advantages that will deliver the change you want most rapidly through your flock.
5. Visually select your top 30 or 40 rams (or whatever number is most appropriate for your operation) then overlay objective data to help decide which to keep.
6. Figures alone won't breed better sheep, but ASBVs are very important in helping to discover the best sheep when using a large number of often antagonistic traits.

RESOURCES:

AWI: Managing Breech Flystrike manual - http://images.wool.com/pub/Managing_Breech_Flystrike_June_2011.pdf

Merino Select: http://www.sheepgenetics.org.au/Breeding-services/MERINOSELECT-Home

Multi Purpose Merinos website: www.mpmsheep.com