



Spring 2016

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Dog training with Jenny Parsons at the Sheep Easy field day

The Sheep's Back Sheep Benchmarking Survey

This year the Sheep's Back have benchmarked 307 of our member's sheep enterprises.

We would like to thank those of you who filled the survey in and congratulate Geoff Cosgrove of Mingenew, Jeremy Lefroy of Moora and Damian Ryan of Morawa who each won a \$100 Myer voucher.

We plan for this to be an annual event so we will send out another sheep survey for the 2016/17 season early next year.

The key message from The Sheep's Back

benchmarking survey is that there's a very large range in production outputs per unit of rainfall. This survey was for the 2015/16 season and included

- 6.95 million kg of wool sold
- 759 000 lambs marked
- 875 000 ewes mated, of which 69% were mated to a Merino.

For those of you who opted to receive individual results this is a great way to benchmark your sheep enterprise. The individual data will follow this newsletter. This means

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benchmarking not only against enterprises in your rainfall area but also against the rest of the state in terms of output per unit of rainfall.

Key outputs:

- Huge range in stocking rate per unit of rainfall
- 0.5 dse/WGHa/100mm GSR - 5 dse/WGHa/100mm GSR
- Huge range in wool production per unit of rainfall
- 1.2 kg/WGHa/100mm GSR – 20.6 kg/WGHa/100mm GSR
- Huge range in wool production per dse
- 1.5 kg/dse – 8.5 kg/dse
- Lambing rates from 54% to 154%
- Huge range in lambs per ewe ha per unit of rainfall
- 0.22 - 3.52 lambs/ewe ha/100mm GSR

Stocking Rates

The range of stocking rates is expected to be extremely diverse due to the geographical difference of The Sheep’s Back members. However, when plotting stocking rate per winter grazed hectare (WGHa), there is a huge variation at any given rainfall for the 2015/16 season. The stocking rate per unit of rainfall ranges from 0.5 dse/WGHa/100mm GSR to 5 dse/WGHa/100mm (Figure 1). This is a 10 fold difference for the same unit of rainfall.

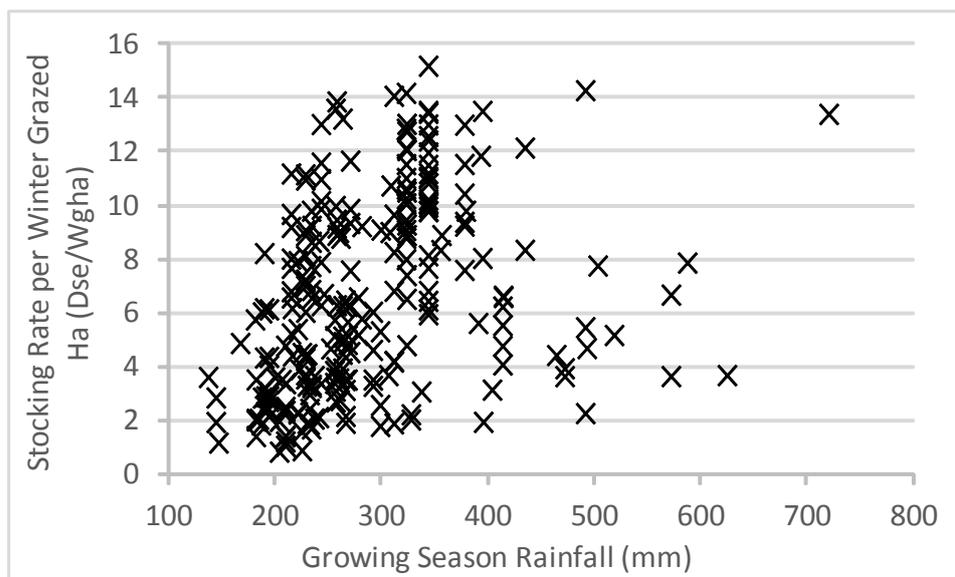


Figure 1: Stocking rate against growing season rainfall for the 2015/16 season.

The stocking rate range is also demonstrated across similar geographical areas. An example is shown in the 100km square around Brookton to Northam where the stocking rate ranges from 1.7 to 9.8 dse/WGHa (Figure 2). The rainfall and soil type do vary across the region but not by 500% as the stocking rate suggests.

There are many reasons why there is such a large range in stocking rates given similar rainfall. Some of these reasons are valid but many are not. Listed below are some of the potential reasons:

- | | |
|------------------------|---------------------|
| • Soil type | • Lambing time |
| • Sheep type | • Flock composition |
| • Business debt levels | • Age of operator |
| • Enterprise mix | • Mindset |

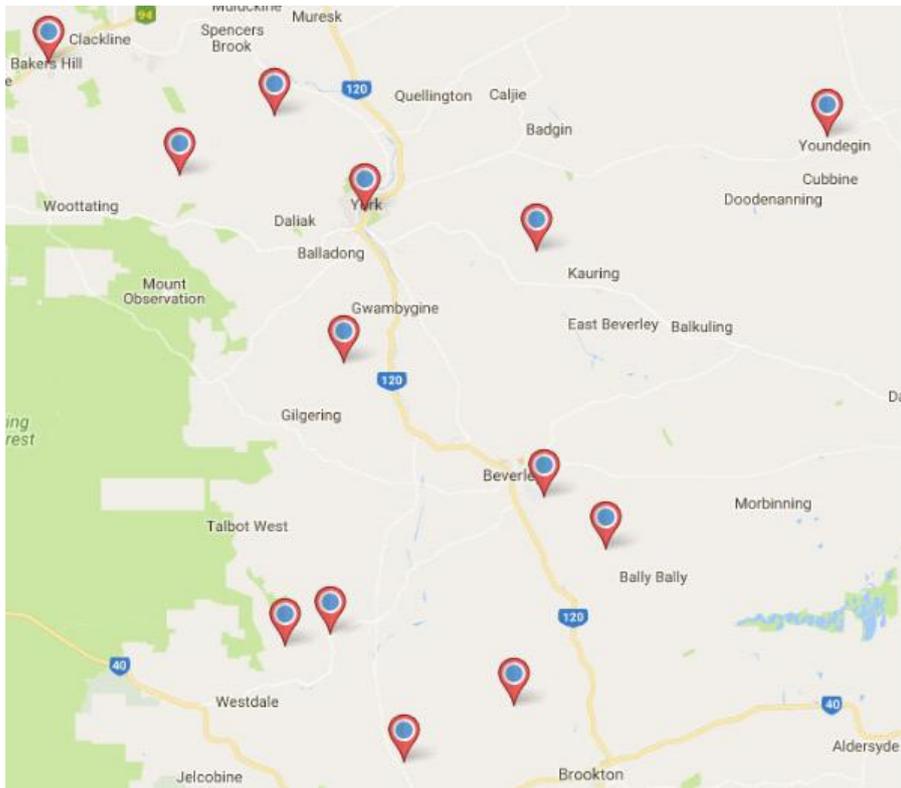
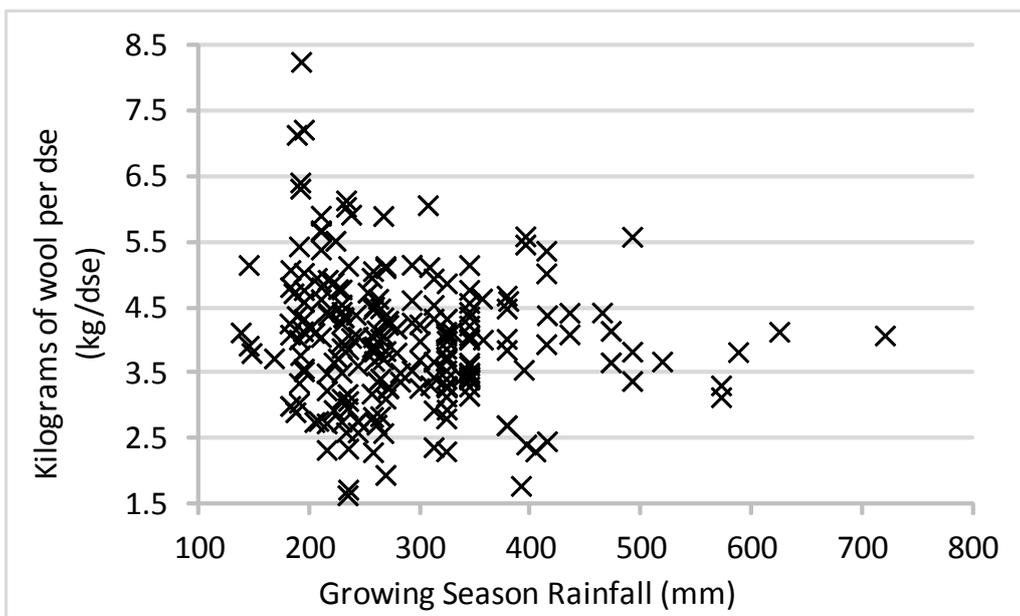


Figure 2: Stocking rate of The Sheep’s Back members in 100km² from Brookton to Northam ranges from 1.7 to 9.8 dse/WGHa

It is unlikely that any of these reasons result in a 300-500% reduction in potential stocking rate as both Figures 1 and 2 denote. Even the combination of several of these is unlikely to cause this scale of reduction to potential stocking rate. If your sheep enterprise is on the lower end of the potential stocking rate, do you know the reasons for this? With current sheep and wool prices it is worth a lot to your business if you can work out how to sustainably improve your stocking rate.



Wool Production

There is a huge range in wool production per head and also wool production per unit of rainfall. The average wool cut was 4 kg/dse but the range was from 1.5 kg/dse to 8.5 kg/dse (Figure 3). This is a large difference in production per head and when multiplied by the current wool price is a significant amount of money.

Figure 3: Wool production per dse across different rainfall zones

The wool production per ha is driven by the stocking rate and to a lesser extent the wool production per dse. The range of wool production is 75kg/WGHa to 5kg/WGHa which is expected given the geographical differences. However what is surprising is that wool production per unit of rainfall ranges from 1.2kg/WGHa/100 mm GSR to 20.6kg/WGHa/100 mm (Figure 4).

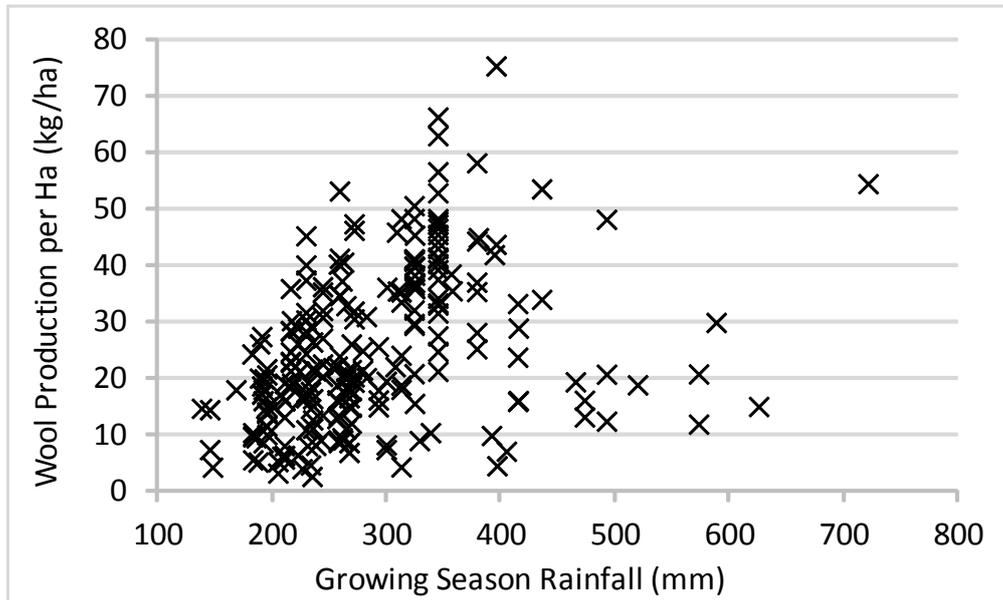


Figure 4: Wool production (kg/ha) against growing season rainfall for the 2015/16 season.

There is a 17 fold difference between the highest wool production per unit of rainfall and the lowest. A proportion of these differences are expected due to different flock composition between members. Examples of this are keeping wethers to an older age compared to selling them as lambs or mating a higher proportion of ewes to prime lamb sires meaning less Merino lambs and hoggets to shear.

Lamb Production

Continuing with the same theme, there is also a huge range in lambing rates from 54% to 154% over various rainfall zones and stocking rates (Figure 5). The majority of lambing rates fell between 70% and 110% but this is very significant given the range exists at similar stocking rates. If two sheep systems are running at 6 dse/WGHa but have lambing rates of 70% and 110% then the system with the higher lambing rate will produce an extra 1.6 lambs/ewe ha. At a lambing rate of 70% this is 2.8 lambs/ewe ha and at a lambing rate of 110% this is 4.4 lambs per/ha.

The bigger driver of sheep margins is not lambing percentage, it is lambs/ewe ha per unit of rainfall. The range is from 0.22 - 3.52 lambs/ewe ha/100mm GSR. This is a 16 fold difference in lambs produced per unit of rainfall. This is demonstrated in Figure 6 as at any given GSR there is a large range in lambs/ewe ha.

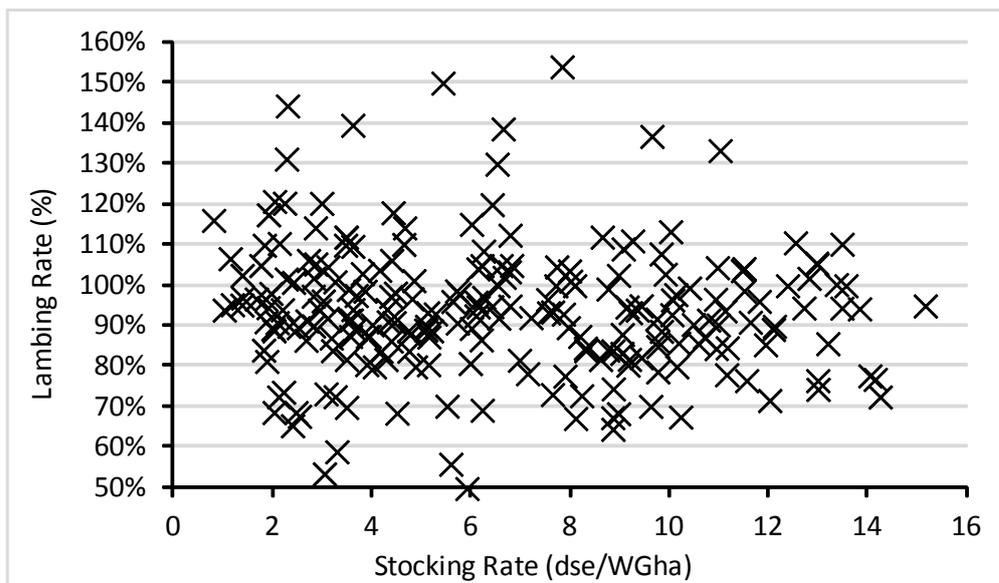


Figure 5: Lambing rates against stocking rate (dse/WGHa) for the 2015/16 season.

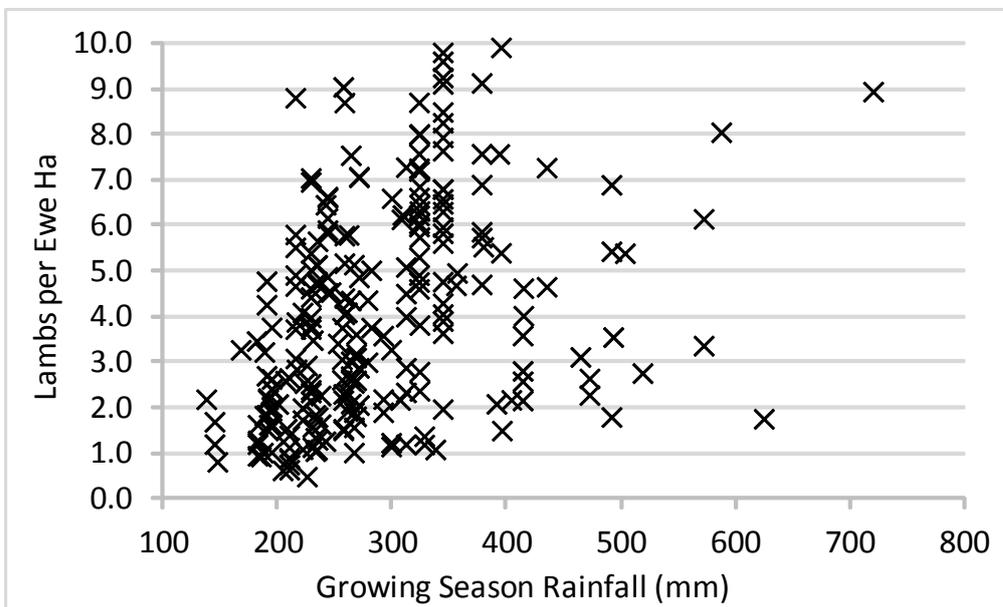


Figure 6: Lambs per ewe ha against growing season rainfall for the 2015/16 season.

Conclusions

For many sheep enterprises it is unrealistic to aim at the top outputs per unit of rainfall. However, it is very realistic for your system to produce above average type numbers. Below are the average outputs per unit of rainfall from across The Sheep's Back membership.

- Stocking rate per unit of rainfall - 2.3 dse/WGHa/100mm GSR
- Wool production per unit of rainfall - 8.6 kg/WGHa/100 mm GSR
- Lambs per ewe ha per unit of rainfall - 1.4 lambs/Ewe ha/100mm GSR

If your outputs are below these numbers and you would like to improve them, start by trying to identify small areas that you may be able to improve on. Secondly, ask your neighbours what they might be doing to increase production. Thirdly, joining a lifetime ewe group will give you access to both a group of like-minded farmers but also someone with the skill to guide you through the process. You could also consider seeking professional help, just as you would an agronomist.

AWI National Wool R & D Update Breech Flystrike Prevention

The Sheep's Back PAP members Tim Watts, Alex Coole, Bob Hall and Ed Riggall attended the AWI National Wool Research & Development Update in Sydney in July this year. This article forms part of their report.

Flies and flystrike were the area of discussion at the AWI National Wool and Research & Development Update. Topics included:

- the mapping of the fly genome and its practical applications for reducing flystrike
- the pros and cons of mulesing alternatives and methods of pain relief
- sheep genetics and flystrike susceptibility
- the ParaBoss website for information and discussion of parasites including flies
- demographic changes in the Australian sheep flock in the last ten years.

Dr Trent Parry, from the University of Melbourne, presented an update on the mapping of the fly genome, *Lucinda Caprina*, where 14,554 genes have been identified so far. Practical objectives for this work include understanding the genetic makeup of the olfactory system (sense of smell) of the fly, to improve baiting and understand how the females find sheep. Comprehension of fly immune responses and the genes that are vital for survival and development of larvae on sheep will enable the use of vaccines and development of insecticides. The possibility of the use of a parasite to flies as control is also being investigated. Different populations of flies across Australia are being compared in order to determine the best methods of fly control over all.

Geoff Lindon, from AWI, discussed the pros and cons of mulesing alternatives as well as pain relief available for mulesing, castration and tailing.

- Skintraction (SKT), is an interdermal alternative to mulesing, where sodium lauryl sulphate is applied onto the skin around the breach of sheep as a sclerosing agent, shrinking the blood vessels that supply the wool, preventing the wool from growing. Product developers

have decided not to commercialise this tool due to the limitations on use, which make it unviable. These include: sheep must be at least 30kg and CS 2.5 so it can't be used on lambs; sheep must not be dehydrated so not penned up before application; it doesn't work if there is any urine staining or faecal contamination and the wool must be less than 8mm but with no skin cuts, so it can't be applied straight after crutching. Subcutaneous injections may be a more practical alternative but limitations and welfare issues have stalled research into this method at the moment.

- A new idea involving the use of liquid Nitrogen is being trialled by a private research company in Victoria. Blood flow to the breech is prevented with a mechanical device (like mulesing clips), then liquid N is applied to the area. Treated skin dies and the remaining skin is tightened by the healing process. The technique is being considered in terms of efficacy, practicality, cost and animal welfare and initial reviews are promising.

Trials have been carried out to assess the efficacy of different methods of pain relief during mulesing and castration, measured by observing behaviour, stress indicators (cortisol and haptoglobin in blood) and production traits (bodyweight). Geoff Lindon discussed four drugs that can be used.

- Trisolfen, which is sprayed onto lambs after mulesing, is now easier to get hold of as it can now be purchased off the shelf from rural merchants. 73% of Merino lambs are now mulesed with Trisolfen, which has a withholding period and export slaughter interval of 90 days. Plans are being developed to extend use to castration wounds and shearing cuts, to improve animal welfare and sheep recovery.
- Metacam 20 (meloxicam) has recently been approved to reduce pain, swelling, fever and the effects of toxæmia (blood poisoning) in sheep. It can be applied to mulesed lambs by subcutaneous injection, by a vet. It does not contain steroids, being similar to paracetamol, aspirin and ibuprofen.
- Buccalgesc (meloxicam) is being developed

as an oral pain killer, applied to the mouth mucous membranes. It takes 10 minutes to work and lasts for 24 hours.

- The aptly named 'NumNuts' incorporates an elastrator with an injection mechanism to administer a local anaesthetic (lignocaine) into the spermatic cord, alleviating some of the pain of ring castration. This product is still in the research and development stage (funded by MLA) and is likely to be vet only application initially, with potential for farmer application in time.

Drs Johan Greef and Jen Smith brought the results of trials carried out to determine the genetic susceptibility of non-mulesed sheep to fly strike. They found that selection for breech factors is linked to overall fly strike susceptibility. Ram selection makes the most difference (Estimated Breeding Values (EBVs) include susceptibility) and culling out dirty ewes is also important. They compared sheep in WA (winter rainfall) with sheep in the east (summer rainfall) and found that the order of importance in WA is breeding against dags, for lessor breech cover and for lower breech wrinkle, whilst wrinkle is the most important factor for fine/superfine types with summer rainfall.

Further work is being carried out regarding genetics and sheep odour, which is the fly attractant. Trained sniffer dogs can detect susceptibility to strike from wool samples, which appears to be linked to certain fatty acids. Work continues on practical testing for susceptibility linked to odour as well as solutions in terms of selection.

Dr Lewis Kahn presented an update of the next phase of ParaBoss, which is a suite of three websites; WormBoss, FlyBoss and LiceBoss, giving detailed management information and regional programs as a decision making tool to provide guidelines and treatment options. Technical committees and workshops meet to try and synchronise current advice and also upskill professionals, resellers, advisors and farmers in the field. A ParaBoss community is

being developed, where people can discuss issues and areas of contention can be reviewed. The awareness and uptake of ParaBoss has increased and it is hoped, with these changes, that this will continue.

Dr Paul Swan presented the differences in data collected regarding the sheep industry over the last ten years. The sheep population has halved, due to competition from cropping and cattle, and the gender balance has changed to 87% ewes as wethers are no longer kept for their wool. Gross production value for wool has increased by 4.5%/annum and meat by 5.3%/annum.

Using limited data, from the 25% of Merino studs that are registered with MerinoSelect, Dr Swan indicated that Merino breeding has started to focus on reduced wrinkles and lambs that do not need mulesing, due to pressure from animal activist groups and farmers disliking the procedure. 60% of lambs marked are now not mulesed; that is 25% of Merino lambs and 95% of non-Merino. Of those, pain relief is applied to 75%, as previously discussed by Geoff Lindon.

Merino breeding value has trended towards heavier cutting sheep, higher body weight, increased staple length and strength and increased focus on key indexes. Less focus has been placed on fibre diameter, muscle, fat, wrinkle, breech cover and dags, worm egg counting and resistance. Unfortunately dags have low heritability and the cost of getting tests done on faecal samples for worm resistance has reduced the focus on these features, which would make sheep production easier.

Concluding Thoughts from Alex Coole

The drop in sheep numbers is disappointing but may have been an influence on strong demand of the product which has resulted in good prices for the remaining sheep and wool producers. Sheep play a very important role in a mixed farming enterprise in a Mediterranean climate so this is probably the main rea-

son why producers have kept their flock, even if it's a smaller number to the last decade. Unfortunately the physical work load foreseen in running sheep compared to cropping (along with the rise of grain prices & markets, and the advancement in cropping technology) has possibly driven the younger generation of farmers away from sheep.

The desire to 'stop mulesing' is evidently high on the priority list for Merino producers for a few reasons: the animal's welfare, the unpleasantness of the procedure (farmers want to avoid having to mules but at this stage, still need to do it), pressure from animal activists groups and the cost of the procedure. Thankfully, the introduction of pain relief has been a huge step forward and relieves some of the concerns mulesing causes. It's pleasing to see 75% of Merino lambs mulesed are being given pain relief but ideally, 100% of the flock should be treated. The lack of viable alternatives is unfortunate and limits producers to make any plans to stop mulesing. Most believe they will be faced with more of an animal welfare issue with fly strike if they were to cease mulesing immediately.

Using the MerinoSelect database is a great way to compare each individual flock's objectives to the rest of the Australian flock. ASBV's are an ideal tool to further the progress of breeding objectives, to keep up with the trends and

ensure the animal being produced meets the requirements of clients. It is clear that a focus has been aimed towards breeding a plainer bodied sheep, to increase wool cut, body weight, staple strength and length as these are all important factors in driving profit, but also have strong correlations with the desire to breed an 'easy care sheep.'

It's somewhat disappointing to see the lack in focus on worm resistance and dags as these are crucial traits to run an 'easy care animal', especially in a Mediterranean or high rainfall climate. Unfortunately dags have a low heritability but focusing on minimising dags by culling animals with more than a score of 2-2.5 has proven to reduce dags in many stud breeding systems. In relation to worm resistance, the process of collecting the faecal samples and the cost of getting them tested seems to be the reason for ram producers to avoid this focus. This is unfortunate as internal parasites, like dags are a major issue in high rainfall areas. By putting a higher focus on worm resistance, breeders are well on the way to achieving the 'easy care animal' that is proving to be the ideal sheep for producers now and in the future. A focus on alternative worm resistance tests like looking at the different ways the immune system works may be a well worth investment for the near future if the current system isn't appealing to some stud breeders.

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