

eID to achieve fleece improvement in self-replacing Merinos



Enterprise snapshot

Owners	David and Julia, Ray and Annette Andriske
Property name	Andriske Farms
Location	Galga, Murray Mallee, South Australia
Size	4,000 ha
Brief enterprise description	A self-replacing merino flock based on 1,000 ewes, and a cropping program comprising 2,500 ha of cereals and legumes and 500 - 600 ha of sown pasture. There are also 890 ha of natural pastures.
Number of employees	2 full time
Average annual rainfall	275 mm
eID data being used	Pregnancy scanning of all ewes for multiples as well as fleece weights and characteristics.

Background

The Andriskes own two properties about 10 km apart near Galga, in dry mallee country approximately 60 km south east of Loxton. David and Julia run the property in partnership with David's parents, Ray and Annette.

Sheep are joined on natural scrub pasture in January or February, with lambing in one mob in June or July. Weaning takes place at shearing time in September. Ewes are containment fed in late summer and early autumn depending on conditions, until pasture becomes established and there is sufficient biomass to be grazed.

Participation in the Wunkar Ag Bureau Annual Hogget Competition over a number of years enabled the Andriskes to benchmark their fleece weights against other local producers. They found that their sheep were among the lighter fleece weights when they first entered the competition, and this prompted a desire for improvement.

They became interested in using electronic identification (eID) and collecting data for individual animals after David completed an Australian Wool Innovation (AWI) Lifetime Ewe Management course. Further insight into the use of eID was attained by attending a Livestock Technology Expo and joining a Livestock Producer AgTech Group, both organised by the South Australian Government's Red Meat and Wool Growth Program.

David says these activities were very important in the lead up to adopting eID because they provided access to expert guidance and exposure to other producers using the technology. This exposure assisted him to:

- identify what type of eID tags would be most suitable for their needs
- understand how the overall tag and scanning technology works
- learn what is required to set up different types of drafting, weighing and scanning equipment and get it working reliably



Figure 1: Ray and David Andriske with fleece scale

- work out costing for tag reading equipment and data collection.

This case study gives insight into the way the Andriskes are using eID technology to improve fleece weights and characteristics while maintaining reproductive efficiency.

What eID supported improvements were the Andriskes looking for?

- Higher fleece weights
- Efficient use of available feed
- Handling efficiency through use of an autodrafter
- Improved lamb survival

David had set specific goals for his sheep enterprise during a planning process in 2021, to:

- improve fleece weight by 1.2 kg by 2024
- increase lambing rate from 100% to 120% by 2023
- increase wool cut from 66 - 68 bales per year to 80 bales per year by 2023.

Using eID for data collection

eID tags were first applied to ewes in 2020, and fleece weight data collected from ewe hoggets using borrowed equipment. Side sampling of fleeces was also undertaken and sent to a wool testing laboratory to measure a range of quality parameters which contribute to overall fleece value for individual animals. Data is only collected from ewe hoggets in order to keep collection and management of the data simple, and assessment at this age is a good prediction of an individual's lifetime fleece productivity.



Figure 2: Stick reader and barcode printer

The types of eID related data being collected by the Andriskes are:

- pregnancy scanning results - multiples, singles
- fleece weights
- fleece quality characteristics - such as average fibre diameter (micron), coefficient of variation (CV) of fibre diameter, comfort factor (% >30 micron), fibre curvature
- identification of animals that present 'behavioural difficulties' at shearing.

David purchased a full set of equipment from BreedElite including an autodrafter with loadbars and indicator (figure 3), fleece weighing scales (figure 1), and a stick reader, barcode printer and a software package to store and manage data (figure 2).

The equipment was purchased on the basis of:

- getting all the features they wanted packaged in an integrated system with simple, reliable Bluetooth connectivity between components including software for data management
- getting good advice and supplier responsiveness in the pre-purchase planning stage.

The yards required some modification to get the autodrafter installed and to enable a smooth flow of sheep through it. Early on, David encountered a problem with the eID panel reader picking up tag signals from outside the drafter and sometimes misdirecting sheep moving through it. This has been resolved by placing a 200 litre drum next to one of the panel antennas on the autodrafter to prevent sheep outside the drafter getting close enough for it to read the tag.

At this stage data collection occurs only at pregnancy scanning and shearing. Collection of data at shearing has created an additional labour requirement to sample and weigh fleeces, but the system they use makes this an easy job for unskilled labour. Fleece weight data



Figure 3: BreedElite autodrafter set up in yards

and sample numbers are automatically transferred by Bluetooth to BreedElite software on a laptop for storage and subsequent use.

Wool test results are provided by the testing laboratory in an excel spreadsheet showing the range of variation from higher and lower performing individuals in the flock (table 1). This data is then transferred into BreedElite software to be managed for decision making and preparing drafting lists.

David is not currently collecting and recording weight gain data for individual animals, only using the weighing capability of his equipment for drafting purposes when animals are being sorted prior to sale.

How has eID technology helped them to achieve their livestock goals?

David says, “We always use visual classing first, to identify obvious culls, and then use eID related data to sort through what is left.”

The data used to guide culling includes pregnancy scanning and lamb rearing results and fleece characteristics such as weight, micron, and comfort factor. Poor performers in any of these areas are removed rather than focusing on a single trait to make choices.

While they use threshold values for each of the fleece characteristics as part of the assessment process for selecting culls, the thresholds change from year to year, to account for seasonal conditions and to balance maintaining breeder numbers against culling to improve the genetic base.

Data managed within the BreedElite software is used to produce drafting lists derived from the combination of fleece weight data collected on farm and fleece data provided by the wool testing laboratory. Fleece data is currently not differentiated by birth status of ewes from which it is collected. Monitoring of scanning and lambing rates is important to ensure that these are not being negatively affected by selecting ewes for heavier clean fleece weights.

Pregnancy scanning has been used to identify and remove twice dries from the flock. Ewes are also visually assessed at weaning to see if they have raised a lamb, and any that fail twice are removed, irrespective of age.

David has achieved at least a 10% increase in average fleece weight since commencing use of eID related data, and his sheep are showing a clear visual difference as well.

Tag	Greasy wt kg	GWT% index	Clean wt kg	CWT% index	Micron	Mic. dev*	CV**	SD	CF(% >30u)	c/kg Clean	\$ Fleece value*	Spinning fineness	Curvature
Flock avg	6.8		4.06		18.7		16.7	3.1	0.4				83.5
...4660	8.8	131	5.28	130	17.5	-1.2	22.1	3.9	0.4	2375	125.40	17.2	81.9
...4456	9	134	5.4	133	20.7	2.0	14.6	3.0	0.0	2264	122.26	19.2	76.0
...4789	8.3	123	5.31	131	19	0.3	19.3	3.7	0.6	2290	121.6	18.2	74.9
...4571	8.3	123	5.15	127	18.2	-0.5	20.9	3.8	1.2	2318	119.38	17.7	82.4
...4457	8.4	125	5.21	128	19.1	0.4	16.4	3.1	0.4	2288	119.20	18	71.8
...4471	5.6	83	3.25	80	18	-0.7	18.9	3.4	0.2	2325	75.56	17.2	80.2
...4431	5.8	86	3.25	80	18.5	-0.2	16	3.0	0	2308	75.01	17.3	99.4

Table 1: Example of fleece data collected from samples sent to a wool testing laboratory (*based on auction pricing for wool of similar characteristics)

A recently completed flock profile for his 2023 drop ewes shows that his clean fleece weight is now in the top 15% of the MerinoSelect database while maintaining a weaning rate in the top 20%.

While focusing on a couple of key areas of improvement, David has been monitoring the overall 'big picture' to pick up any problems or changes that may present, such as those caused by negative trait correlation - where two genetic traits are correlated and an improvement in one can cause a decline in the other. In this case, selecting breeders for increased fleece weight can lead to increase in wrinkle score and ewes with lower reproductive efficiency. David selects rams with specific traits, using Australian Sheep Breeding Values (ASBVs) that are matched to different classes of ewes to introduce genetics that offset these type of problems.



Advice for producers commencing with eID

David's advice for starters is:

- When setting up new panel reader equipped handlers or autodrafters, take the time to test run your sheep through it a few times. It helps the sheep get used to the equipment and flow better when actual data collection happens.
- Create laminated 'cheat sheets' of instructions for use of each item of equipment and keep them where the equipment is being used.
- Be comfortable talking with your reseller or support service. There is no such thing as a dumb question.



Future plans

A longer term goal is to improve lamb survival by separating and applying different management to ewes with twins and singles. This is dependent on completing new fencing to create smaller lambing paddocks to be able to better manage feed resources.

David would also like to improve the conversion rate of scanned foetuses to lambs marked. eID data will be useful in tracking the results of changes to management of ewes and lambs.

Recording weaning weight and post weaning weights against birth status may also be undertaken in future to better assess feed conversion efficiency.

Selection pressure for eye muscle depth and fat to improve stock resilience.

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More information

This case study is an initiative of eID Advantage Program from the Government of South Australia, supported by Meat and Livestock Australia and AWI Extension SA.

For more information visit pir.sa.gov.au/eid

