

Using eID to efficiently collect data



Enterprise snapshot

Owners	Celia and Neville Kernick
Property name	Rangefield, Cold and Wet, Botanic and Tarrara
Location	Coonalpyn and Field, Upper South East, South Australia
Size	4,000 ha
Brief enterprise description	2,000 Dohne ewes and a cropping program comprising 3,000 ha of cereals, canola, beans and chickpeas and over 900 ha of lucerne for seed production and grazing.
Number of employees	4 full time
Average annual rainfall	460 mm
eID data being used	Pregnancy scanning of ewes, live weight gain, fleece weights and characteristics.

Background

Celia and Neville Kernick own four properties spread across a distance of approximately 17 km. Neville's parents began farming on Cold and Wet in 1963 and Neville purchased Rangefield in 1996. The purchase of Botanic formed part of their succession in 2020, and their most recent property, Tarrara, was purchased in 2023. There are a range of soil types across the properties; from red-brown loams of the Coonalpyn Flats to sand-over-clay and deep white sands. The heavier types are cropped while the sandy ground is used for growing lucerne. Some cereals are cut for hay which is kept on farm. The lucerne is multi-purpose, being used for seed production in good seasons, some hay production for their own use and grazing after harvest in February. Lambing occurs through a six week period from the end of March to early May on the lucerne paddocks. Sheep go onto cropping stubbles from November, until after the lucerne harvest.

The livestock enterprise is currently managed by Celia and comprises three main components. A 'first class' flock, made up of about 800 Dohne ewes with the best confirmation, wool and growth characteristics, is run on the Rangefield property, and joined to Dohne rams to produce future breeders. A 'second class' flock of Dohne ewes is run on the Cold and Wet property, and joined with White Suffolk rams to produce cross-bred lambs. A new flock of about 400 Merino Dohne crossbred ewes is currently being run on their Tarrara block. The latter flock will be expanded after completion of a lucerne renovation program on that property.

Celia and Neville began collecting data for growth rates from their first 150 ewes around 1998, using visual numbered tags. In approximately 2010 they began pregnancy scanning, initially just wet/dry for the first few years, then progressing to scanning for multiples, and this data was recorded against the visual tag numbers



Figure 1: Celia at the fleece weighing/sampling station at shearing

of ewes. Ewe lambs had their birth status recorded at marking after scanning for multiples was adopted. This early data collection enabled a profile of reproductive success and growth rate to be established for each ewe, making selection for future breeding a more data driven process. However, the manual collection and recording process was time consuming.

The Kernicks became interested in using electronic identification (eID) and collecting data for individual animals through participation in a Meat and Livestock Australia (MLA) Bred Well - Fed Well workshop and Australian Wool Innovation (AWI) Lifetime Ewe Management course in 2012.

What eID supported improvements were the Kernicks looking for?

- A faster, more efficient way to record individual animal data on reproductive success and lamb growth rates
- Wool data to support selection of breeding ewes
- Continuous steady improvement in growth rates, confirmation and fleece value

Using eID for data collection

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

- pregnancy scanning results - multiples, singles, drys
- live weight gain
- fleece weight
- fleece quality characteristics - such as average fibre diameter (micron), coefficient of variation (CV) of fibre diameter, comfort factor (% >30 micron), fibre curvature
- confirmation from visual classing
- some health data – such as occurrence of fly strike.

Data for ewe birth status, pregnancy scanning results and weight gain have been collected with the use of eID tags since 2018.

Fleece weight and wool testing data has been collected from ewe hoggets since 2021 using eID.

Side sampling of fleeces is undertaken at shearing 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 as assessment at this age is a good prediction of an individual's lifetime fleece productivity.

Data collection occurs during routine management activities to maximise efficiency. Key times being pregnancy scanning, weaning, post-weaning/pre-sale and shearing. Collection of data at shearing has not created an additional labour requirement to sample and weigh fleeces as the system they use makes it possible for existing labour to keep up with the shearers in their two-stand shed on Rangefield.

The Kernicks use equipment from multiple manufacturers to collect and use eID data including a Clipex Contractor autodrafter/handler with load bars,



Figure 2: Weigh indicator and wand



Figure 3: Layout of yards at Rangefield, showing satellite yard specifically designed to accommodate auto-drafter and contractors' equipment

Tru-Test XR5000 weigh scale indicator and a Tru-Test XRS2 wand (figure 2). A barcode printer system is not used for tracking fleece samples and weights, this is still done using a simple manual system of scanning ear tags with wand reader and writing the tag number and fleece weight on a label that is added to the sample bag.

The equipment the Kernicks chose was purchased on the basis of:

- ease of setup and portability for the autodrafter/handler to enable movement between properties
- getting advanced capability and features in an indicator and wand reader to give them a longer effective operational life as their needs evolved
- ease of use of indicator/wand
- they particularly liked the ability to enter detailed information (e.g. occurrence of fly-strike) directly into the wand.

A satellite yard (lefthand portion of figure 3) attached to the main sheep yards was built in order to make it easier to set up the autodrafter/handler as well as contractors' equipment for pregnancy scanning.

Data is managed using Excel spreadsheets as Celia finds this offers the best flexibility and functionality for their needs.

An example of the data format used is shown in figure 4.

Data is transferred from Excel back into the indicator when drafting lists are required.

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

Celia says the main advantage of eID is simplifying and speeding up the collection of pregnancy status, birth status and live weight gain data relative to their previous manual methods using visual tags.

Ewe hoggets are initially categorized into first and second class using the category averages for live weight gain and fleece characteristics to set a threshold. Above average individuals in each category, with additional preference for twin birth status, are placed in the 'first class' flock to create future breeders, while those below the average are assigned to the 'second class'

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
	EID	VID	BIRTH TRAIT	JOINED	ALERTS	WWT	WWT-SALE WT	WT GAIN	WOOL	2025 PREG SCA	2024 PREG SCA	2023 PREG SCA	2022 PREG SCA	2021 PREG SCA		
5	982 123727800028	20191442	MULTIPLE EWES	2		15	40.5	25.5	3	2	2	1	1	1		
5	982 123727800019	20191451	MULTIPLE EWES	1		16.5	51	34.5	2	2	2	1	1	2		
7	982 123727800018	20191452	MULTIPLE EWES	1		17.5	51	33.5	3	2	2	2	2	2		
8	982 123727800014	20191456	MULTIPLE EWES	1		15.5	40	24.5	3	2	2	2	2	2		
9	982 123727800008	20191462	MULTIPLE EWES	2		19.5	48	28.5	3	2	1	1	2	2		
9	982 123727800004	20191466	MULTIPLE EWES	1		15.5	42	26.5	3	2	2	1	1	1		
1	982 123727800000	20191470	MULTIPLE EWES	1		27	55	28.0	3	1	1	2	1	1		
2	982 123727799995	20191475	MULTIPLE EWES	1		26	49.5	23.5	2	2	1	2	2	2		
3	982 123727799991	20191479	MULTIPLE EWES	1		22	55	33.0	3	2	1	1	1	2		
4	982 123727799976	20191494	MULTIPLE EWES	1		12.5	42	29.5	3	2	1	2	2	2		
5	982 123727799971	20191499	MULTIPLE EWES	2		20.5	46.5	26.0	3	2	2	2	2	1		
5	982 123727799970	20191500	MULTIPLE EWES	1		15	42.5	27.5	3	1	2	2	2	2		
7	982 123727799968	20191502	MULTIPLE EWES	1		20	48	28.0	3	2	2	2	2	1		
8	982 123727799967	20191503	MULTIPLE EWES	1		19.5	47	27.5	3	2	1	2	1	1		

Figure 4: Data categories used to rank ewes for inclusion in first and second class flocks and culls

flock. The final procedure involves a visual assessment check in the yards for basic confirmation in the 'first class' flock. This process has resulted in continuous improvement in these productive traits over time.

Pregnancy scanning is used to identify and immediately remove dries from the flock leading to a steady improvement in conception and lambing percentages over time as individuals with low reproductive success are sold. Ewe hoggets may sometimes be given a second chance at times when the enterprise is building numbers.

Twin and single bearing ewes are also provided with nutrition tailored to their needs and mob sizes that improve lambing outcomes; 80 ewes per mob for twin bearing and 120 for single bearing ewes.

Hoggets are condition scored at weaning and low scorers are used as 'babysitters' to provide leadership in lamb mobs, and also get access to better feed to improve their weight gain.

Celia says they have achieved improvement in reproductive success, average daily weight gain and average fleece value by using data to inform their decision making.



Advice for producers commencing with eID

Celia's advice for starters is:

- Operation of the collection equipment is fairly easy; learning to manage the collected data and convert it into formats useful for decision making was a steep learning curve.
- Support from equipment manufacturers and data management courses are available and worth making full use of.
- Do your research on data management and consider if outsourcing to a consultant is a better option.
- Don't get overwhelmed. Keep it simple and don't collect data that you don't need.

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

