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Opportunities using EID – Tahara Case Study

DPIRD-115

Starting from 2025, Electronic Identification (EID) will become mandatory in Western Australia. This requirement might cause some farmers to focus solely on the increased costs, potentially overlooking the opportunities these systems can bring to their farms. Clayton South, who manages his property 'Tahara' near Wagin in the Great Southern region of WA, operates a farm with approximately 4,000 Dohne ewes. They started using EID in 2014.

Farmer: Clayton South

Tahara's primary aim: Optimise lamb production

Strategies: Pregnancy scanning, EID, nutritional management

The farm's primary aim is to optimize lamb production, and they had been working toward this goal before looking at EID. They used pregnancy scans to determine the ewes' status and began using a micron disk to identify ewes carrying twins. Over time, Clayton noticed that many of these marked twinning ewes continued to produce twins in subsequent years. Coupled with the scanning process, this led to a rise in lambing rates. In 2008, the average lambing rate was 88%, but by 2014, it had increased to 101%.

EID played a crucial role in helping the farm achieve its objectives. While they knew what they wanted to accomplish, manual record-keeping was becoming difficult and unmanageable. Looking back, Clayton realized how EID facilitated the progress, "EID is a tool that empowers you to record your flock's data and achieve your desired outcomes. It allows you to capture data when you're busy and act on it when you have more time." For those considering EID adoption today, the key is to define their objectives, and EID can assist in achieving them, whether it's enhancing wool quality, assessing dag scores, monitoring lambing weights, or tracking ewe pregnancy status.

EID provided an opportunity to make the problem of unmanageable record keeping, manageable. In 2014, they invested in a fully automatic sheep handler on the farm, enabling automatic weighing, three-stage drafting, and EID reading. They also purchased a stick reader to streamline flock management. The total cost was around \$40,000, consistent with today's expenses. EID tags were initially acquired only for ewe lambs, costing approximately \$1.40 each. Presently, the cost has risen to \$1.90 per tag, less a government subsidy of 75 cents. Although there is currently a subsidy in place, this will not last forever and tag costs are expected to revert back to \$1.90 per tag.

Initially, the plan was to study lifetime lambing rates, lamb weights throughout the season, fleece weights, and wool micron. Over time, the focus shifted to lambing percentages, while maintaining stable monitoring of total wool production and micron levels across the flock. EID is used to collect data on pregnancy status, aiding in nutritional management and seasonal lamb weighing. The sheep handler allows for easy separation of the flock into three groups during lambing.



Was the investment in EID worthwhile?

The farm's emphasis on lambing rates resulted in a doubling of the improvement rate, from a 2.5% annual increase to 5.1%, after EID adoption. Pre-EID, the farm produced an average of 75 more lambs per year, which increased to 154 additional lambs annually after EID implementation. The investment in EID has aided in the annual increase to 5.1%, however the change in management to keep lambs alive and use of sires with a high weaning rate breeding value are also important factors that contributed to the doubling of the improvement rate.

Summing up, the investment of \$40,200 over the years yielded a positive net present value (NPV) of \$121,000 over a decade. This indicates that for every dollar invested, the return was \$4, with payback occurring in the fifth year. If EID ear tags had been used for all lambs, the NPV would have been slightly lower at \$110,000, with a benefit-cost ratio of \$3.70 for each dollar invested.

Benefits of higher lambing rates

By focussing on lambing rates and managing the flock to maximise lambs produced, the lambing rates have improved significantly with the adult ewes now scanning at 179% while the ewe lambs are now scanning at 91% and total lambing rate has increased to 137% (figure 1).

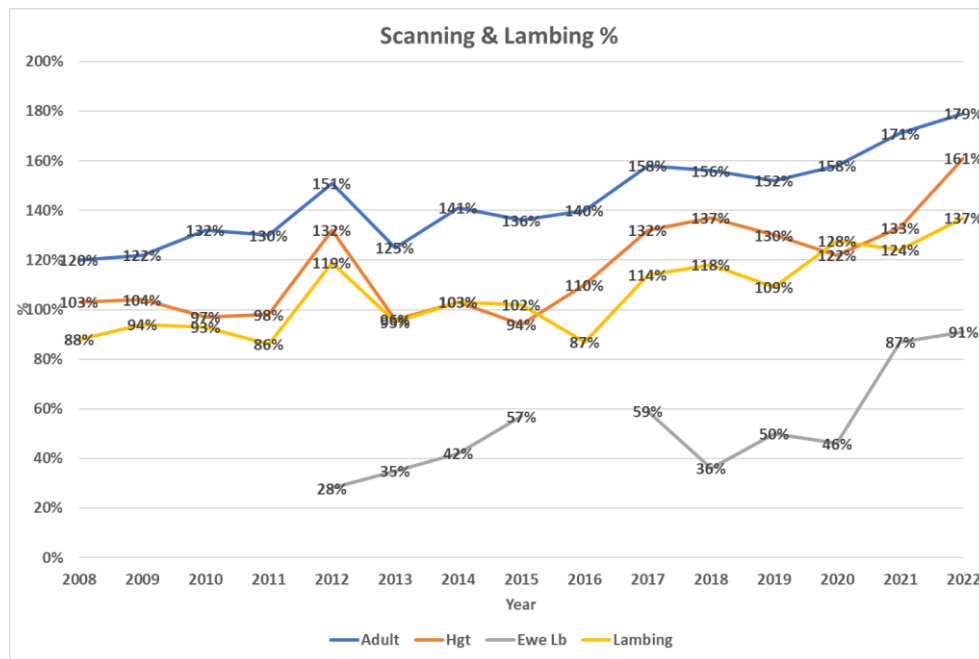


Figure 1: Tahara's lambing and scanning percentage over time.

To look at the benefits of producing more lambs, before introducing EID the farm was lambing at 97% with 36% of ewes scanning for twins. With no ewe lambs being mated the farm produced 2900 lambs on a sustainable year in year out basis. With improved management and monitoring they are now producing 4,800 lambs on the same area, an extra 1,700 lambs. The new approach has now changed the way the manage the flock based on scanning results.

Table 1: Tahara's management practices before and after implementing EID

	Before EID		After 10 years of EID
	Core flock	Terminal flock	
Dry ewes	Into terminal flock if they have done well in the past or are culled from the farm	Sold straight away	All sold immediately after scanning.
Early twin ewes	Core of the dohne flock going forward. All stay in the main flock.	These ewes stay in the terminal flock provided they are sound the following year.	Core of the flock. retained

Late twin ewes	Retained in the dohne flock but early twinning ewes are more important than late twinning ewes. Data is being collected for use in the future around fleece weight and progeny performance.	Late twin ewes in the terminal flock don't move back to the dohne flock	Managed to retain but sold if other characteristics undesirable
Early single ewes	Retained in the dohne flock at this stage, lower performing sheep moved to the terminal flock depending on how many others have gone.	Retained in the terminal flock only if enough sheep haven't moved from the dohne flock.	Sold after lambing
Late single ewes	From 2018 any late single ewes from the year before will be moved to the terminal flock or potentially culled if they aren't performing	Ewes most likely to leave the farm after the dry terminal ewes are sold.	Sold after lambing
Ewe lambs			Retained if scanned in lamb. Drys sold depending on how ewe lamb results.

High quality ewes will be retained to 6 or 7 years provided they continue to perform.

Benefits associated with using EID

There are numerous advantages linked to the utilization of EID (Electronic Identification):

Enhanced Flock Decision Making

All ewes on the farm are now categorized from 1 to 4,000. Instead of culling entire age groups, individual ewes can now be selected for culling, facilitating better decision making. This process is streamlined by running the ewes through a sheep handler. The farm retains higher-quality older sheep while easily selling younger sheep with lower potential, leaving the best genetics on the farm.

Efficient Data Management

EID enhances the capture and recording of data. During activities like crutching, dag scoring can be done and acted upon later. This eliminates the need to immediately address issues and allows information to be collected and processed at a later time. Improved data management has been pivotal in achieving the current lambing rate on the farm.

Simplified Flock Management

The sheep handler enables one-pass pregnancy scanning. Following scanning, the flock is separated into groups based on drys, singles, and twins, allowing for tailored nutritional management.

Streamlined Cull Management

Identification of problematic ewes for culling is straightforward with EID. Ewes of concern can be earmarked for removal in a cull file, to be drafted out of the flock at a later time.

Why should sheep farmers anticipate benefits from EID?

According to Clayton South, the primary advantages of EID revolve around decision making. Data can be collected during specific tasks and acted upon later, leading to improved decision-making processes. EID doesn't instantly make one a better farmer, but it facilitates better decision-making. While the focus has been on improving lambing rates, diverse farmers can leverage EID for various purposes such as enhancing wool quality or volume, meat production, or other aspects. Effective management using EID enables efficient recording and eventual benefits.

How much does entry into EID costs beyond the purchase of the ear tags, farmers aiming to reap the benefits of EID can begin with a relatively modest investment and progress at their own pace. An uncomplicated enclosure will be priced at approximately \$3000, while a handheld device for data capture will cost around \$2,200. Adding an antenna to the enclosure will require an additional \$1,000. Scaling up to a fully automated drafting system and handling equipment can entail higher costs, reaching up to \$50,000, but it substantially enhances the value of the investment.

When Clayton invested in EID, he dedicated considerable time to determining his objectives. The optimal approach is to address the following question:

"What is the foremost aspect of my flock that can benefit from data-driven insights?"

By answering this question, you can identify the starting point for your EID journey.

Appendix: Assumptions used in the analysis

The following assumptions have been used in this report:

- The analysis hasn't factored in the change in stocking rate associated with having more twin bearing lambs in the flock
- Wages costs \$55/hour including all costs, \$104,000 per year for an experienced farm worker is used as the base
- Discount rate: 6.5 % per year (the long term rate accepted by broadacre farmers in WA, being 2.5% capital gain and 4% return, the value is below that accepted in other industries)
- Inflation 2% per year
- Lambing percentage 105%
- Twinning percentage 45%
- EID ear tags cost \$1.90 each. Rebate 75c
- Visual ear tag cost \$0.30 each
- EID scanner \$3,000
- Sheep handler cost \$33,000
- Lupin cost per tonne \$350
- Meat value per kilo \$2.97/kg (five year average to July 2023)
- Wool value per kilo \$10.67/kg (five year average for 19 micron wool in WA)

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