

# Case study: iSheep

## Data driving management



### Background

Large variation in individual animal performance can occur in any sheep flock. There is an opportunity to improve production by selecting the highest performing breeding animals and culling those that are not contributing to farm productivity.

New technologies such as electronic ear tags can be used to collect data and monitor the individual performance of each sheep in a flock, providing producers with accurate information on which to base farm management decisions

### The method

The project used a self-replacing merino flock to assess the technology. Each ewe and lamb was tagged with an electronic (RFID) tag. A *Pedigree MatchMaker* system was installed at the demonstration site to identify lambs belonging to individual ewes.

*Pedigree MatchMaker* is an electronic panel reader used with RFID tags that registers the order in which animals pass across the panel. It works on the principle that lambs naturally follow their mothers and over time can make an accurate association between the two.

The ear tags were used to record ewe conception rate, ewe liveweight and body condition score at weaning, number and liveweight of lambs weaned per ewe, and fleece weight and micron of each ewe.

Data was collected on wool and lamb income, fleece weights, and micron samples in addition to the data collected through the *Pedigree MatchMaker* process.

Economic analysis calculated the lamb income, wool income and total income per ewe.

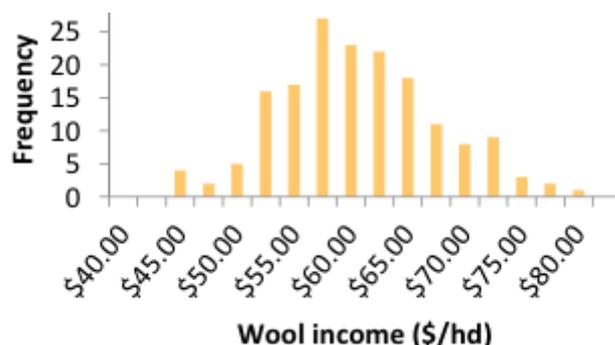
### The results

The total wool income for individual ewes in the flock varied widely. Graph 1 shows the range in total wool income generated by each individual ewe from a minimum of \$42.79 to a maximum of \$79.18.

Lamb income contributed a significant proportion to the total income per ewe. Table 1 shows the range in total income for varying groups of animals in the trial flock.

The land manager was able to identify that the lowest income-generating ewe with a lamb (wool and lamb income) still made more profit than the highest income-generating ewe with no lamb (wool income only).

It is worth noting that some animals were culled from the flock as part of normal farm procedures. Ewes that had not conceived and those with wool or animal confirmation faults were culled and did not contribute to the data set. If these individuals remained in the flock then the range in income between individual animals would have been significantly wider.



Graph 1 - Range in total wool income

Lowest	\$90.25
Bottom 25%	\$107.51
Average [ALL]	\$138.34
Average [TOP 75%]	\$148.47
Top 25%	\$191.92
Maximum	\$248.51

Table 1 - Range in total income



Lamb income is an important contributor to the total income generated by a ewe but it is also important to consider reproductive efficiency when decision making (percent of ewe liveweight lamb weaned).

On average ewes that wean heavier lambs are usually heavier themselves and have a greater feed requirement. This can reduce the number of ewes that can be run on a property. Reproductive efficiency is a far more effective way to identify highly productive animals within a flock.

The *Pedigree MatchMaker* data also enabled the producer to identify ewes that had conceived and reared twins. Twinning is a desirable and hereditary trait so these offspring will be monitored and potentially used as replacement animals for the flock.

The cost to collect the data was a one-off cost of \$15.05 per ewe, and included the price of the electronic RFID tag for all ewes and lambs.

Using the data for improved decision-making resulted in a total gain of \$40.52 per ewe over her lifetime in the flock (working on four expected lambings).

## Conclusion

As a result of implementing electronic tag technology the producer was able better assess individual animal performance, which led to improved decision-making about flock management.

## Recommendations

Land and Water Management Team Coordinator, Tony Randall from Natural Resources SA Murray-Darling Basin said 'this technology can really assist producers to maximise their production without running more animals'.

Producers who are interested in adopting electronic ear tag technology need to have a clear objective for data collection and think about:

- what information do I need?
- what will I use the information for?
- what decisions will I make with the data I collect?

'Having a clear objective will help to determine the best processes and equipment as there is always a cost to data collection.

'Producers should seek assistance when setting up the equipment as difficulties can occur.

Data collection can take time and the costs and benefits need to be considered before implementing the system'.



Above – Sheep fitted with the RFID ear tag

**Location:** Lameroo, SA

**Project:** The use of electronic ear tags to monitor individual animal production over time enables producers to manage their flocks for maximum production. Individual animal data can assist in deciding which animal to cull and retain for future breeding.

**Project partners:** Agri Partner Consulting

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## For more information

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