

iSheep – Data driving management



Background

Trial results have shown a large variation in individual animal performance in stud and commercial sheep flocks. As a result there is an opportunity to select to breed with the highest performing animals and cull those that are not contributing to farm productivity.

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

The method

A self-replacing merino flock was selected to assess the technology. Each ewe and lamb was tagged with an electronic (RFID) tag. A 'Pedigree Matchmaker' system was also installed at the demonstration site to identify, which lambs belonged to which ewe.

Pedigree Matchmaker is an electronic panel reader used with RFID tags and it collects the order in which animals pass the panel. It works on the principle that lambs naturally follow their mothers and over time can make an accurate associate 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.

A contractor was used to collect the data, measuring wool and lamb income, collecting fleece weights, micron samples and conducting the Pedigree Matchmaker process.

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

The results

Each individual ewe in the mob generated a wide range of total wool income. The results varied by \$36.39 from the lowest producing to highest producing ewe.

The following graph shows total wool income per ewe across the trial mob.

Lamb income contributed a significant proportion to the total income per ewe.

In this instance 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).

The table below shows the range in total income per ewe.

It's worth noting that some animals were culled from the mob as per normal farm procedures. Ewes that had not conceived (pregnancy scanning) and those with wool/visual faults were culled and did not contribute to the data set. Had they remained in the mob, the range in income of individual animals would have been significantly wider.

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

On average ewes that wean higher total kg of lamb also have higher liveweights and 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.



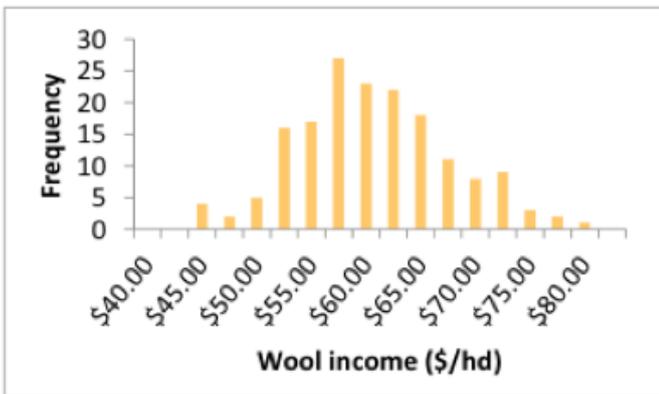
In addition the land manager was able to identify the individual ewes that conceived and reared twins. These animals will be monitored and potentially used to produce replacement animals for the flock.

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

Using the data for improved decision-making resulted in an increase of \$10.13 per ewe per year or 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 land manager involved in the project was able to achieve improved measurement of individual animal performance, which led to improved decision-making.



Recommendations

Land managers interested in adopting electronic ear tag technology need to have a clear objective for data collection. The following questions need to be asked before starting:

- 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.

Seeking assistance in setting up the equipment is important as difficulties can occur.

Data collection can take time and this needs to be considered when weighing up the benefits of implementing the system.

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