Sheep CRC Practical Wisdom Notes

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Know it. Do it.

Profiting from Individual Electronic Identification (eID)
Gilgai Farms - Guerie

CASE STUDY: Gilgai Farms

LOCATION: Guerie, NSW

Summary

The Harvey family operate Gilgai Farms at Geurie in Central West NSW. They run a fine/superfine Merino flock and a Simmental beef herd on 2,800 hectares, which is grazed using Holistic Management principles.

The Harveys had been visually selecting, micron testing and fleece weighing their hoggets for some 15 years and were looking for the next productivity leap for their Merino flock. They decided to trial individual electronic identification technology so they could better identify highly productive animals for retention in the flock. Individual animal performance measures were collected prior to and at the 2015 ewe hogget shearing. For each ewe hogget the information collected was used to generate a Rampower Index Value and Ranking. This information was used to select replacement ewes for the flock and culls for sale.

The additional value of the retained ewe hoggets represents a $10/hd improvement (9%) on the value of the cull hoggets and a $4/hd (3.2%) improvement across the average of the whole hogget flock. Taking the full purchase price and interest costs of the technology into account ($7,850) the investment pays itself back at the third shearing. Further, the eID technology will provide additional value throughout the year by recording liveweight, condition score and pregnancy status information to support management and wellbeing of lambing ewes. The long-term cumulative benefits of selecting more productive replacement ewes and increasing genetic gain are an additional benefit that eID technology will provide and reduce the payback period.

Background

Gilgai Farms operated by the Harvey family, is situated near Geurie in Central West NSW. It consists of seven aggregated properties totalling some 2,800ha.

The property sustains a 300-cow Simmental herd and a self-replacing fine/superfine Merino flock of 2000 ewes. Gilgai Farms is managed holistically and for long periods of the year animals are run together over the farm in a single "flerd" (flock and herd) allowing long recovery periods for the rotationally grazed perennial grass-based pastures.

1. A strong pasture base

When they took over the property some 15 years ago, the Harveys focussed on improving the production of their pasture base through a combination of pasture cropping and holistic planned grazing, including a long plant recovery after grazing. The soils on Gilgia Farms vary in quality; areas of sodic soils have responded very well to this management, with increasing groundcover, perenniality and species mix being measured over time. Paddock and stocking records show significant improvements in grazing days achieved in paddocks right across the farm. This has created a strong base for increased animal production.

2. Sheep

The fine/superfine flock is based on Grathlyn bloodlines. The flock has been visually classed each year, and some selection on fleece weight and micron has taken place.

Over the last five years the Harveys have focussed on improving lambing and weaning rates, and for the last three years have weaned in excess of 100% of lambs. This improvement is largely due to better ewe nutrition prior to, during, and after lambing, and also by set stocking lambing ewes in smaller mobs (250 ewes). Foxes have been controlled and alpacas are run in with the ewes as guard animals.

3. Focussing on production via individual measurement

Having a strong pasture base has allowed higher weaning rates to be achieved. The question the family had was "what's next?" The move to eID technology was the obvious next step to allow individual animal performance and profitability to be measured.

This change of focus from managing a flock to managing individual animals has created significant potential for enhanced financial returns.

Mark Gardner, Vanguard Business Services Dubbo, is a Farm Management Consultant who works with the Harveys. Together they investigated the possibility of using eID to identify the high and low performers in the flock and improve the profitability of the overall flock.

Step 1: Breeding Objective and working out what to measure

The Harvey's spent some time defining the breeding objective for their flock.

Gilgai Farms Breeding Objective:

1. Shear every 6 months for:
    a. 4kg average wool cut
    b. 70mm average wool staple length
    c. Above 50 N/Kt average staple strength
    d. Flock average of 17.5 micron
2. 110% average lambing at lamb marking
3. Increase body weight to average a 35kg carcase at hogget age
4. Increase conception to 135% at pregnancy testing

Describing the family's breeding objective helped identify the traits that would drive profit in the business and hence what should be measured in the flock. The traits identified for measurement were: fleece weight, staple length and strength, micron, pregnancy rate and live weight. They then investigated the best time to measure this information and researched the best equipment to collect the data.

Step 2: Deciding on the equipment

This step can be confusing. The marketplace is crowded with choice, with many brands, options and combinations possible.

For the Harveys the choices were made easier by considering:

1. What needs to be measured and why (breeding objective);
2. Buying devices that were "entry level" rather than advanced;
3. Buying technology known to "talk" to the other devices being purchased;
4. Ensuring that they would receive good after sales support.

These points can be real challenges and a significant barrier to entry for many growers. Keeping it simple and knowing what you want to measure will make it easier.

Step 3: Purchasing the equipment

The choice of equipment is an individual case by case decision. In the Harveys case they decided to purchase:

1. Koolcollect Software (Sapien);
2. Trutest ID 5000 Indicator Box and Trutest Scales;
3. Shearwell Stick reader, Bluetooth Printer and a Motorola Barcode reader.

The capital outlay for the above was $7,850.

Shearwell wrap around individual eID (RFID) tags were used and were included in the above cost. The eID tags used had an individual sheep management ID number and Property Identification Code (PIC) printed on them, saving the costs of an additional tag. The net costs of these multipurpose tags, taking into account the savings in management and PIC Tags, was 60c/hd.

Even given the research which was undertaken, there were significant issues getting all devices to “talk” to each other and integrate, and significant use of the help desk of each supplier was made. The time and complexity to do this must be factored into purchase decisions and should not be underestimated.

Step 4: Gathering information

The first main shearing in January 2015 was used to test the data collection process, focussing on parameters that had been identified in the breeding objective. An in-shed Laserscan was contracted to provide important wool measurements (micron and staple length/strength) for the 2013 drop ewe hoggets (which had previously been tagged and obvious culls visually classed out).

The Sapien software allowed for each tag to be entered and individual measurements to be allocated to each individual sheep. Generally this worked well. At the end of shearing individual performance measurements had been captured for 767 ewe hoggets.

Step 5: Using a Selection Index

The information collected was used to generate a Rampower Merino Production Index value and rank for each ewe hogget. This service is provided through Sheep Genetics and can be accessed through a web portal once you have a registered log in, or a genetics service provider can undertake this job for you.

Individual animals were ranked on the index and the required number of culls identified. A drafting list identifying ewes to be retained in the flock and culls was used to draft out the culls for sale after shearing.

5. Results

Individual animals were valued, using fleece values based on wool prices achieved at sale time soon after shearing, and livestock carcass values based on Dubbo Saleyard prices on the same day. The value of each individual animal was calculated, being the total of the fleece value and the carcass value.

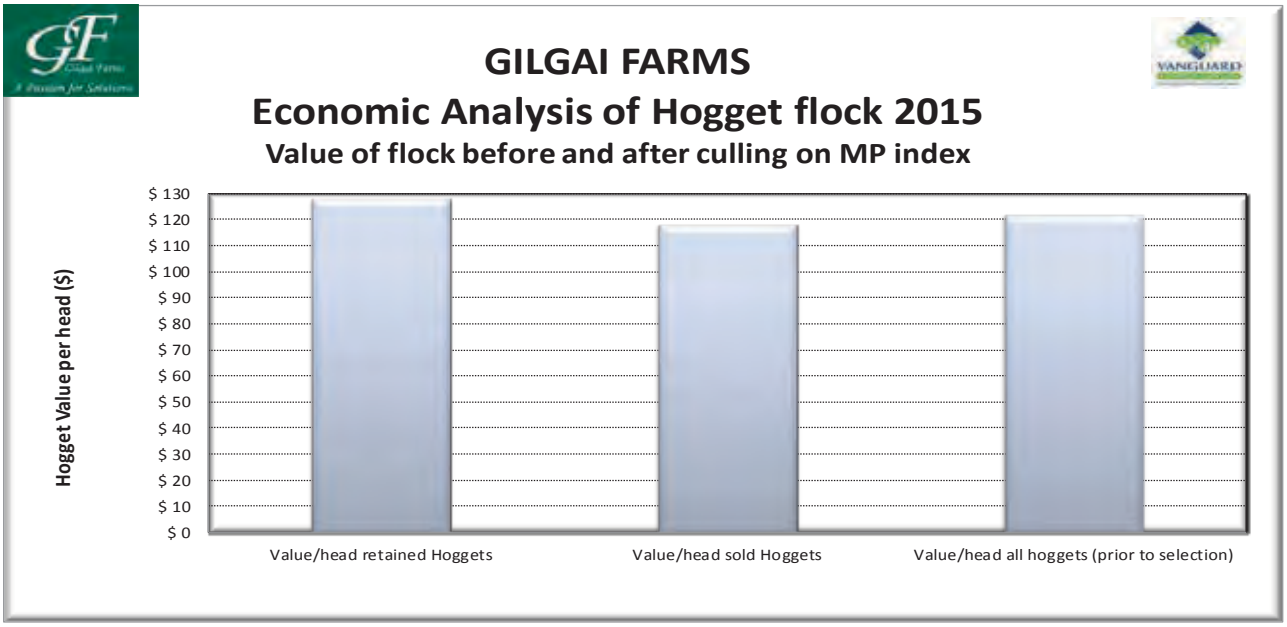
Table 1: A summary of the value of the Hogget drop, after selection is as follows:

MOB DESCRIPTION	RETAINED HOGGETS	CULL HOGGETS	AVE.OF FLOCK PRIOR TO SELECTION*
Total value $/hd (Meat and Wool)	$126	$116	$122

Note: visual culls were removed before testing

The average value of retained ewe hoggets was $126/hd which was $10/hd more than the cull hoggets that were sold and $4/hd more than the average of the whole hogget flock. It should be taken into account that some hoggets were visually culled and were not measured. This can be represented below as:

Graph1: The value of the hogget drop, after selection is as follows:



Summary

The retained hoggets were 9% higher in value than those sold and 3.2% higher value than the average of the whole hogget flock prior to selection.

6. Breakeven Analysis: Cost of technology vs Returns

The value added per head from the individual animal performance selection was $4/hd. Taking into account the size of the hogget flock the table below summarises the overall impact of the measurement based selection:

Table 2: Return on capital from technology purchase and breakeven timeframe.

Change in flock value ($) The value of the retained hoggets over the average of all hoggets multiplied by the number of retained hoggets – e.g. $4/hd x 691 hd.	$2,764
Cost of technology purchase ($) This is the actual cost of the technology, tags and includes one year's interest.	$7,850
Return on investment in technology in Year 1 Change in flock value/cost of technology purchase.	35%
Years to break even: Does not include any additional use of the technology through the year.	Less than three years

*Includes cost of technology, interest at 6% and cost of tags.

Conclusion:

Electronic identification and individual measurement has been successfully used to identify high and low performing animals in the Harveys' flock.

The additional value generated in the retained flock ($4/head) was achieved after visual selection and culling for obvious faults. With a modest investment in eID equipment and software, the Harveys achieved a 35% return on investment and will pay for the equipment in 3 years.

Using the equipment throughout the year to monitor animal wellbeing in terms of liveweight, condition score, pregnancy status will reduce the payback period.

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