

## A producer's experience with precision sheep management

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### Introduction

We have traditionally been a FX breeding operation, buying in our Merino ewes and Border Leicester rams, running cattle, growing dryland crops, and growing irrigated seed crops under contract. Some five years ago we started looking at our ability to produce an income during prolonged dry periods. Cost of Merino ewes was rising rapidly, water had become a very scarce commodity and general costs were rising rapidly (e.g. fuel, fertiliser, irrigation water and supplies). Things could not stay the way they were! As we started to look at what we could do, we decided we needed the services of a consultant. We had in the past used consultants successfully for agronomic services, so why not stock? We had some ideas of what we thought we may need to do to survive. We were already reducing our cropping area. In engaging the services of a stock consultant everything was up for discussion.

### Our decisions

Over a period of 12 months or so, we came to the conclusion that we needed to manage our operations with a lot more precision. Supporting this, in a previous job, I had learnt that if you wanted to be able to improve something, you had to be able to measure it.

The options we considered for the sheep operation were:

**Option 1:** mob based management – run only in age group mobs

**Option 2:** semi-individualised management – coloured ear tags for age (e.g. for pregnancy management, run twins as a group and separate by ear tags)

**Option 3:** individual performance management, a choice of

a. numbered tags – manual tag reading, paper or computerised records

b. electronic tags – electronic tag reading, computerised recording

At the end of the discussions we decided to start breeding some of our own replacement ewes and go to individual performance management.

**Option 1** was out, that was what we basically were doing.

**Option 2** probably was going to severely limit what we could do – maybe only manage 1 or 2 variables. I am red/green colour blind (like some 30% of the male population) and, once tags get faded in the sun, it becomes very hard for me to see the difference, especially when animals are moving quickly down a drafting race.

**Option 3** made sense as we could control many variables, and its uses and applications could expand as we proceeded. It was also explained to us that without individual animal identification, decisions have to be made at the time of measurement. Individual animal identification allows repeated measurements to be made so that decisions can be made based on past as well as present information. Decisions can be made after the information has been collected, and time is available to collate and analyse the data. Then, at a convenient/suitable time, the animals can be brought in and the decisions enacted.

Labour is a limiting factor for us. However we can generally get help from a contract stockman at times of high workload. Manual recording systems have a fairly high error rate (transcription errors, reading errors). It seemed to be clear to us that Option 3b was the way to go – electronic tags, electronic tag reading and computerised record management – Precision Sheep Management (PSM).

The system we decided to go with has an auto drafter (automated weighing/drafting) with a portal reader as well as a hand-held reader (readers read the electronic tags). The heart of the

system is a Bluetooth enabled indicator, a robust (use in the paddock) information manager – a basic computer. As a bonus it was suggested the newer system could weigh up to 600 sheep per hour – our old weighing system took 2–3 people 6 hours to weigh 900 lambs.

It was envisaged the PSM system would over time allow us to:

- weigh animals (individually or mob based)
  - could look at individuals in a group Those with low weight gain/low performance compared to the rest of the group need attention – maybe need drenching, maybe need to quit them early rather than later?
  - Target ewes gaining weight, indicating they are ready for high fecundity joining. Separate those that need extra attention (e.g. previous twin bearing ewes)
  - estimate time to be ready to market. Estimate how many may be available to meet a planned/unplanned market opportunity
- record any characteristic, e.g.
  - condition score – indication without weighing if they are at an appropriate condition for whatever stage they are in their production cycle
  - fly strike – can find and take preventative action early for susceptible individuals
  - whatever else may become useable in future to improve productive and profitable performance
- record scanning results – look at each animal over years as well as for yearly management, look at reproductive performance of different animal sources/different animal treatments
- mix animals together for management and re-sort when necessary based on any recorded characteristic – e.g. age, source, twinning ability, condition score

As time goes on there are likely to be many other things we will want to measure, or will become important for us to measure, to improve our productive performance (e.g. maybe weight of lambs weaned per ewe joined [by management group?]).

In short this system should allow us to measure traits and then:

- evaluate any changes we make, and
- use them to improve productive performance over time, profitably

### **Our experience**

There are three significant things we have learnt from the first 15 months of using PSM.

1. It takes a while to change habits. It is said that it takes 3 weeks to change a habit if you do it every day. Our goal is to have the new system 90% bedded down within 3 years.
2. Any new system brings its own challenges. We found it to be very helpful to have done a Master class on PSM before we started using the system, in fact before we purchased the system. We also have access to the person we bought our system through for back-up service. It has been especially helpful to have phone access to talk through the little things we forget (even though we have been told at some time), have not read or understood as we headed into the yards full of confidence. Except on one occasion when we had a piece of equipment fail, we have always been able to get our days work done on that day. The phone support has been invaluable – of course you pay for that in one way or another, but the sums have worked out for us.
3. The more I use the system, the more ways I can see it being used. I guess this comes from it not being a complicated system. This is just a new tool to use in our operations. It does not have a steering wheel, it is no more complicated to use than any new piece of gear you purchase to make your operations more efficient. You just need to take the time to understand it, and be trained in its use.

### **Weighing animals**

Lamb weighing is now undertaken on a more regular basis than in the past with our old weighing system. Currently we can weigh 900 lambs in 2.5–3 hours with 1–2 people (2 people are really needed when training to keep throughput up). We could possibly go faster (we

have not reached the 600 per hour average), but we suspect accuracy would have to be sacrificed. Compared to our old system (and it was old), we have almost halved the labour and have halved the time to weigh 900 lambs – 1.5 people for 3 hours at \$20/hr *versus* 2.5 people for 6 hours at \$20/hr, a saving of \$210 per weighing.

Not only do we save money, it is now a job that does not stress us. It is just so much easier on us and on the animals, so now we weigh more often, which in turn gives us more information, which in turn allows us to make better marketing decisions. We can predict and manage so much better than before.

Has there been any \$ advantage with this system for us? I have asked myself this quite a few times. We have seen the negative effects of lambs being in their wrong weight group, especially in the last month before marketing. The auto drafter allows us to sort lambs by weight really easily. My thoughts at the moment are that there is probably a \$5 per lamb advantage. Time will tell if there are any advantages in tagging lambs destined for the meat market.

### **Scanning**

Our ewe breeding flock is divided into their pregnancy management groups at crutching time rather than at scanning time. This gives us ample time after scanning to analyse the data and decide how we are going to set up the management groups, and where they are going to go. It is hard to put a value on this – my best estimate is that what we save on labour not dividing the ewes up at scanning, we use dividing them up at crutching. I feel more comfortable with our ability to put them into effective management groups at crutching – it gives us more flexibility in our paddock and pasture management.

Managing the reproductive status of our breeding flock is very important to us, as it underpins our future. It is the single most important factor driving profitability in our operation. We have set ourselves a goal of 115% lambs weaned per ewe joined (currently around 90%–95%).

What is the \$ benefit of this in our operation? If we say this system helps us to produce an extra

50 lambs (4%) this year, that is an extra \$5,000 to the bottom line. It could be from checking ewes gaining weight prior to joining, from checking ewes in suitable condition as the last month of pregnancy starts, or it could be from managing the feeding of the twin ewe flock. We expect this \$ benefit to increase over the next two years and then plateau.

We also run a small autumn lambing group. Those ewes that do not get into lamb for the spring lambing are rolled over into the autumn lambing group for joining. If they fail to get into lamb at this joining, they are off to market. The electronic tags make it easy to track these individuals without having to isolate them into a separate group. Given the current cost of replacement ewes, and wool being what it is at the moment, we can afford to give them 2 chances in 12 months.

It will probably take a year or so to work out the cost savings of being able to do this. Suffice to say that every ewe we maintain in our flock will put more upward pressure on our rate of improvement, as well as reducing our replacement purchases. If we keep an animal, then it will have something positive to offer our short and/or long term profitability.

### **Record any characteristic**

So far we have made a few recordings – flystrike, mastitis, mouth condition. We have recorded the animals that we have had to treat for flystrike. These animals will be treated prior to start of lambing to minimise unnecessary disturbance during lambing. Eventually these sorts of animals will be culled, but they are too valuable at the moment. Animals with mastitis and not enough teeth to support raising a lamb are removed and sold – reproduction rate drives the profitability of our operation.

Interestingly, our labour requirements for this system have not increased, labour is just used in different ways. If we hired a system like our set up, we estimate it would have already cost us around \$22,500. We have generated some 80 odd files of which about half are weighing files. Even if we were to say only 30 hirings (including an operator) were all that was needed to

immediately produce a profit (no benchmarking, no investment in the future), at say, \$750 per hiring, that gives \$22,500 in costs.

### **Managing data**

The challenge that has now arisen is how we handle all the data we are generating. Some of this data will only be really useful as we move into our second year of use and beyond. In some ways, we are benchmarking ourselves at the moment.

There are ways of bringing data together, like V-Lookup in Excel, but its usefulness is probably very limited when we are looking at many characteristics, especially over time. Raw data by itself is of limited value. When that raw data can be effectively managed and turned into information in the form of reports, it can then effectively assist and support decision making. Only with relevant reports does the raw data we are collecting become really valuable.

I know from previous employment that the best way to handle this amount of data is in a database (very common these days). Reports then extract the data needed to make profit-driven decisions. It would appear the market is not very advanced in this area. However, I understand there are some companies working on this at the moment.

### **The future**

Animal age is no longer a dominant factor in our operation. Individual animal performance will drive the operation's profitability. There is no reason some animals could not still be productive and profitable at 6, 7 or 8 years of age. Gathering of data has not been a problem as the system has made it easy. How often and how much data needs to be collected will be determined by the importance of the parameter we want to improve. As we gather more relevant raw data the quality of our decision making will improve.

The concept of Precision Sheep Management is not really new in agriculture, as precision management has been around for cropping for a long time. The same principles and thought processes apply to both systems.

The benefits of using things like Walk Over Weighing (WOW) and Pedigree Match Maker look very interesting and offer some real benefits. However, we have already made quite a few changes for our enterprise, and need to consolidate before we make more changes. Having said that, WOW looks very exciting for our FX lamb operation.

One of the great things we believe this system has given us is the ability to significantly influence the future direction we want our operation to go in, and now we sleep better at night!

