

BUSINESS CASE



Using Lick Feeders to Supplementary Feed Ewes

Pat and Sue Hegarty along with their children James and Emma, run Colanya Station, a merino wool and meat property north west of Longreach, Queensland. Historically, the Hegarty's trail fed their sheep, which is a common practice in the pastoral zone. Since 2011, the Hegarty's have moved away from this practice and have switched to lick feeders. This practice is relatively uncommon in the pastoral zone, but has helped the Hegarty's make improvements to their productivity.

Supplementary feeding has increased production due to higher lambing and weaning percentages. Since implementing this innovation, they have also made cost savings due to a reduction in labour, fuel and feed wastage.



Figure 1: Ewes and lambs being supplementary fed using a saliva lick grain feeder.



BUSINESS SNAPSHOT

OWNERS

Pat and Sue Hegarty

PROPERTY NAME

Colanya Station

PROPERTY LOCATION

140km North West of Longreach,
QLD

SIZE OF PROPERTY

13,515 hectares

BRIEF ENTERPRISE DESCRIPTION

Wool and meat sheep with agistment cattle and a registered Merino stud.

NUMBER OF PEOPLE WORKING IN THE BUSINESS

2 full time equivalents, where required additional family labour and contractors are utilised.

AVERAGE ANNUAL RAINFALL

350mm

WHY THIS IS A PASTORAL ZONE INNOVATION

Maintaining ewe nutrition is a challenge for many pastoral wool producers. Lick feeders can improve production and reduce labour and operating costs associated with supplementary feeding.

This business case 'Using Lick Feeders to Supplementary Feed Ewes' has been developed as a real example of a formal review and implementation process. The aim is to provide useful information and tools to help you make a decision to use or not use Lick Feeders in your own business.

You can use the method shown here to help prepare your own business case and assess this innovation on your own property.

Section 1: Supplementary Feeding at Colanya Station - The Hegarty's Story

BACKGROUND

Pat and Sue Hegarty run Colanya Station, a merino wool and meat property north west of Longreach, Queensland. Their son James runs a crutching and pregnancy scanning business and daughter Emma is a livestock scientist specialising in animal health and nutrition. They both assist with management decisions for the business and stock work during busy times throughout the year. In recent years the Hegarty's have run 3,500 ewes at Colanya.

Colanya Station is situated in what is often termed 'protein drought country'. This is due to the characteristic nature of the bulky pastures which provide a feed source with reasonable levels of energy, but are often low in protein.

Higher input costs and low lambing percentages were affecting the viability of the Hegarty family's sheep business. They recognised that in order to remain a sustainable business and increase profitability, their income had to increase. The Hegarty's identified that one way to achieve their goal, was to increase their lambing and weaning percentages.

Even though the Hegarty's lambing percentage was good compared to the long term district average of 50-60%, they still felt they could do better. In 1986, the Hegarty's decided they wanted to join ewes in March, when lush native pasture is available. This capitalises on the natural peak in the ewe's ovulation cycle improving conception rates. Joining in March meant their lambing time changed to August/September, when feed availability and pasture quality is low. It was therefore necessary to supplementary feed their ewe's pre and post lambing. This ensures ewes are in good condition to deliver and rear healthy lambs through to weaning.

MOTIVATION TO CHANGE PRACTICES

Initially, the Hegarty's began supplementary feeding ewes by trailing grain on the ground behind a ute three times a week. It took the Hegarty's three to four hours a day to load and deliver the grain, including going back to top up the 600kg feed cart. They found this feeding system was time consuming, labour intensive and required a significant amount of driving to, from and around the paddock.

Colanya is subdivided into 24 paddocks averaging 600 to 800 hectares in size. Of these paddocks, 10-12 are used as lambing paddocks, including seven small paddocks (50-100 ha) used for single sire joining for the stud.

The smaller paddocks enable easier stock management and means the ewes don't have to travel as far for water and supplementary feed during lambing. Even with the smaller lambing paddocks, ewes learned behaviour of running to the ute for feed presented a challenge. It was observed that the hungry ewes would run great distances for the feed once they heard the ute. Often ewes would leave their lambs behind in a rush to be fed, even when the feeder was not in their paddock. When this occurred, it increased the risk and incidence of mis-mothering. Another problem that occurred was some ewes would race to the ute to be fed and quickly gorge on the grain. This meant good ewes would miss out due to being slower walking to the feed with their lamb.

The Hegarty's identified the issues with trail feeding, so they undertook further research into options for feeding their sheep.



Figure 2: Ewes and lambs being supplementary fed at Colanya Station.

OUTLINE OF THE OPTIONS

The Hegarty's considered how they could provide supplementary feed to ewes with lambs, whilst reducing their labour and fuel costs. The following options were identified at Colanya Station.

1. Continue with trail feeding ewes on the ground.
2. Invest in lick feeders to supplementary feed ewes.

Each of these options has benefits and disadvantages. The Hegarty's reviewed both and considered changes relevant for their property. Table 1 lists the likely benefits for each of the options at Colanya Station.

Table 1: The benefits of each shearing option.

Option 1: Trail feeding ewes	Option 2: Using lick feeders
<ul style="list-style-type: none"> • No additional capital expenditure. • No additional research into feeders. • No extra freight costs associated with transporting the feeders to the station. • Known system within the business. • Paddock size is less of an issue with trail feeding as feed can be delivered close to the mob each time. • Accurate ration mixes can be delivered via feed carts which allow a combination of grains to be delivered precisely. • The feeding area can be moved to avoid baring areas of ground and the resulting erosion risk. 	<ul style="list-style-type: none"> • Potential improved grain feed utilisation, with less feed wasted on the ground. This could be impacted by soil type. • Unlike self-feeders, lick feeders control feed consumption by adjusting the flow of feed and restricting access to only the sheep's tongue. • 24 hour access to feed allows the shy ewes the opportunity to feed in their own time, reducing the variability of the ewe's condition. • At Colanya, the ewes are less likely to run to the feeders, and therefore the likelihood of lambs being mis-mothered is significantly reduced. • Ewes and lambs are fed from the feeders. This 'imprinting' process exposes the lambs to the feeders and reduces the time required to train the lambs to eat supplements from the feeders once weaned. Lambs recognise the feeder and associate it with grain. • Using the feeders reduces the labour and diesel cost of regularly travelling to deliver the grain via trail feeding. • Filling the feeders once a week reduces vehicle wear and tear and labour costs.

RESULTS OF THE CHANGE

Option two (using lick feeders) was the preferred option for Colanya Station. In 2010, they made the decision to purchase adjustable saliva lick feeders.

The Hegarty's chose a brand of feeder that could be flat packed and assembled on farm. This reduced the freight costs of transporting the feeders several thousand kilometres to their station.

The adjustable saliva lick feeders have mechanisms to ensure the sheep's feed intake can be controlled. The lick system limits the animal's ability to over-consume the ration. The sheep can feed for approximately five to ten minutes until their mouth becomes dry and they need to access water. The feeders are located approximately 150 metres from a water source, ensuring the sheep move away from the feeder. To ensure shy and reluctant ewes receive their ration, the feeder can be accessed 24 hours a day.

The 32 lick feeders at Colanya Station are designed to be placed in a paddock and filled with up to three tonnes of feed. The feeding system only requires one person to fill the feeders. At Colanya, each feeder is filled once a week, with one feeder servicing approximately 250 sheep over that period.

To maximise efficiency, the Hegarty's purchased a 3 tonne feed out feed cart with a pencil auger, which is towed by a ute for filling the lick feeders (figure three). The sheep are fed a mixture of corn, mineral lick, and hay. The feed ration was developed in consultation with a sheep nutritionist. The grain is stored on-farm in silos.

An additional benefit the Hegarty's have observed since 2011 is an increase in lambing percentage. They have lifted their 10 year average lambing percentage of 85% (2000 to 2010) to 106% in 2011 and 109% in 2012. This improvement in productivity has been achieved by changing the feed ration to include corn, hay and a dry lick, as well as implementing lick feeders. Colanya also experienced varied seasonal conditions over this period. See section 2 for costs, risks and further considerations on lick feeders.

For more information on how the Hegarty's have improved their lambing percentage, check out the innovation profile 'Increasing Lambing Percentage in the Pastoral Zone', on the Bestprac website.

Table two shows the weaning and lambing percentage results the Hegarty's have achieved from 2009 to 2012. Variable seasonal conditions were also experienced at Colanya over this period, which is indicated by the annual rainfall in this table.

Table 2: The annual rainfall, weaning and lambing percentages observed at Colanya Station from 2009 to 2012.

	2009	2010	2011	2012	Average
Annual rainfall	353	594	442	396	446.25
Weaning percentage	45.9%	74%	106.7%	101%	81.9%
Lambing percentage	57%	74%	106.9%	109%	86.7%

KEY LEARNINGS

The Hegarty's began with 12 feeders and have since purchased an additional 20. With 32 feeders they have now completely eliminated the need for trail feeding.

"In hindsight, we should have moved straight to lick feeders when we first started supplementary feeding" said James.

The Hegarty's initially stored their grain in bunkers, but this option proved to be problematic as weevils caused damage to the feed. They chose to purchase silos as a long term storage solution. Silos allow weevils to be controlled through the use of fumigants, insecticides or gas circulation. This has also given the Hegarty's flexibility to buy large quantities of grain at strategic times when the price is low.

Another learning was to sit the feeders on conveyor belt matting. The reason for this is that the sheep quickly erode the soil close to the feeders, which creates holes that fill with water when it rains. The matting reduces the erosion around the feeders.

Section 2: How to use a business case to assess 'Using lick feeders to supplementary feed ewes'

AIM OF THE BUSINESS CASE

A business case is a practical process to assess investment opportunities; whether it is a new practice or a piece of machinery. This business case aims to assess the options for providing supplementary feed via lick feeders to ewes.

Section 1 detailed the Hegarty's experiences in shifting from trail feeding to saliva lick grain feeders. The following section will show how a business case can be used to formally assess the costs, risks and other considerations involved when making business decision such as this shift of practice.

WHAT ARE THE COSTS?

The Hegarty's observed a reduction in fuel, labour, supplementary feed and vehicle repair and maintenance costs, since implementing lick feeders at Colanya Station. They also observed a number of benefits that are not quantifiable at this stage. These include:

- Improved grain feed utilisation, as less feed is wasted on the ground.
- Reduced variability in the ewe's condition, as shy ewes have the opportunity to feed in their own time.
- Reduced likelihood of lambs being mis-mothered, as the ewes are less likely to run to the feeders.
- Lambs being 'imprinted' with the grain feeders before they are weaned.

Table 3 is a partial budget which describes how to calculate the overall benefit/loss per head from using lick feeders on your own property. A partial budget only includes items which alter as a result of the change in practice. It is assumed the following items will not be affected when changing from trail feeding to lick feeders, and hence they have not been included.

- Wool income
- Hay costs
- Shearing and crutching costs
- Pregnancy scanning costs
- Labour associated with other key activities e.g. lamb marking.
- Animal health costs
- Freight costs associated with feed and livestock
- Sheep selling costs

Figure 3: Filling up a feeder using a feed bin and pencil auger towed behind a ute.



Table 3: A partial budget describing the benefits and costs associated with implementing lick feeders compared to trail feeding.

	Average \$/head per year
BENEFITS OF LICK FEEDERS	
<i>New Income Associated with Lick Feeders</i>	
Lamb (\$ per ewe)	Reduced variability in ewe condition (particularly shy feeders) and reduced likelihood of mis-mothering will increase lamb income. Lambs will be "imprinted" with grain feeders and growth rate of weaners will increase, resulting in an increased carcass weight.
<i>Costs Saved from Trail Feeding</i>	
Fuel*	Fuel usage from trailing feed and filling up the feed cart. The Hegarty's were trail feeding three times a week for 8,000 sheep which involved multiple trips to re-fill the feed cart.
Vehicle R&M*	Vehicle repairs and maintenance costs associated with regularly using a ute to trail feed.
Labour	Labour costs for trail feeding. Can be calculated as the number of hours per week at an agreed hourly rate. As a guide, trail feeding approximately 8,000 sheep consumed 15 hours a week at Colanya Station.
Supplementary feed	Supplementary feed trailed behind a ute, plus wastage on the ground.
Total Benefits of Implementing Lick Feeders	\$
COSTS OF LICK FEEDERS	
<i>Income Forgone from Trail Feeding</i>	
Lamb (\$ per ewe)	Lamb income associated with trail feeding.
<i>New Variable Costs Associated with Lick Feeders</i>	
Fuel*	Fuel usage for filling up lick feeders. The Hegarty's filled up their 3t lick feeders once a week and 1 feeder serviced 250 sheep. Their fuel costs reduced by \$0.07/head.
Vehicle R&M	Vehicle repairs and maintenance costs associated with filling up lick feeders. The Hegarty's R&M costs reduced by \$0.02/head as vehicles were used less for feeding.
Labour*	Labour costs for filling up supplementary feeders once a week. As a guide, feeding approximately 8,000 sheep via 32 lick feeders consumed 10 hours a week at Colanya Station.
Supplementary feed	Supplementary feed used in the lick feeders. Reduced wastage compared to trail feeding.
<i>New Overhead Costs Associated with Lick Feeders</i>	
Consultants/nutritionist	A livestock consultant or nutritionist is required to setup the supplementary feed ration.
Lick feeder depreciation	Annual depreciation on the lick feeders. Can be calculated as approximately 10% of the estimated value and divided by the average number of head.
Total Cost of Implementing Lick Feeders	\$
BENEFIT/COST PER HEAD (excluding capital costs)	\$ (= Total benefits less total costs)

*Fuel and vehicle R&M costs can be estimated using the rate of 75c per kilometre. This is based on the Australian Tax Office's method of calculating vehicle costs and is based on a vehicle with over 2.6L of engine capacity.

**Please note the partial budget does not include any financing costs associated with investing in lick feeders.

A blank partial budget template has been provided in section 3 for you to assess the impact of implementing this innovation in your own business. The overall benefit/cost per head can be multiplied over your average mob size to calculate the expected change in gross margin for your business.

Capital Costs

The Hegarty's business had to invest significant capital into new lick feeders and silos to store the grain on farm. Table 4 shows the actual capital investment made at Colanya Station between 2010 and 2012 to set up the lick feeders. The lick feeders were the main capital costs specifically associated with implementing the innovation.

Table 4: The actual capital costs of implementing lick feeders at Colanya Station between 2010 - 2012.

Equipment	Capital Cost
Augers	\$13,050
Lick feeders	\$40,770
Feed bin	\$4,000
Silos	\$46,720
Total Capital Costs	\$104,540

If a benefit is observed in the partial budget then the associated capital cost also needs to be calculated before implementing lick feeders. Table 5 demonstrates how you can account for the capital costs to calculate the overall benefit/cost per head of implementing lick feeders in your business.

Table 5: The overall benefit/cost per head of implementing lick feeders, including the associated new capital costs.

	Average \$/head per year
Benefit/cost per head (excluding capital costs)	Calculated from the partial budget (see table 3)
New Capital Costs Associated with Lick Feeders	
Lick feeders and other equipment required	Capital costs (including freight) associated with implementing lick feeders need to be amortised over the number of years you expect to keep the equipment. For example, if the lick feeders cost \$40k and are expected to last 10 years the approximate capital cost is \$4k per year. This figure should then be divided by the average number of head.
OVERALL BENEFIT/COST PER HEAD	\$ (= Benefit/cost per head less new capital costs)

It is also possible to calculate the effect that investing in lick feeders will have on your businesses cash flow, by creating a development budget. This budgeting tool evaluates how long it will take for the new lick feeder system to break-even on the initial capital investment (as opposed to cash flow break-even).

For more information on development budgets and a simple template, download the "How to create a development budget" factsheet from the Bestprac website www.bestprac.info



Figure 4: A delivery of grain at Colanya Station.

WHAT ARE THE LIKELY RISKS?

Before undertaking the change to feeders for their supplementary feeding, the Hegarty's investigated the risks. They began by slowly integrating the feeders into their business, however, soon realised the benefits outweighed the risks. They have now moved to a system entirely based on the lick feeders.

Table 6 demonstrates some of the risks they faced when changing to lick feeders, and how they managed them.

Table 6: The risks associated with using lick feeders.

What are the risks associated with converting to lick feeders?	How can this risk be managed?
Large investment in capital for the new equipment.	The Hegarty's researched the best feeders for their system. They also investigated freight charges and the location of the product supplier to reduce costs. Flat packing also reduced freight costs.
The capital investments may not provide an adequate return.	Preparing a budget and the expected gains to measure the cost:benefit of implementing this innovation. Using lick feeders needs to either increase income or reduce costs.

WHAT ELSE IS THERE TO CONSIDER?

When making a decision, the cost of implementation isn't the only thing to consider. Other areas to consider include implications to Workplace Health and Safety (WHS), labour, time requirements, and how easy the innovation will be to implement.

Table 7: Implications to WHS, labour, ease and time requirements which may result from grain feeders or trail feeding.

What to consider?	Option 1: Trail feeding	Option 2: Lick feeders
Workplace Health and Safety	Trail feeding grain requires safe work practices, and can be completed safely by a single person.	Feed is delivered by a feed bin with a pencil auger that is towed behind the ute. This requires safe work practices, and can be completed safely by a single person.
Labour	Trail feeding requires a greater labour input of three to four hours a day, up to three days a week. The Hegarty's spent 15 hours per week trail feeding.	The system is designed to require only one labour unit to feed the entire flock, in approximately one day per week. The Hegarty's spend 10 hours per week filling feeders.
Ease of implementation	Easy to implement, with little capital costs associated.	Easy to implement, however the initial capital set up costs can be high.
Paddock size and access to water sources	Paddock size and distance to water is less of an issue with trail feeding because the feed can be delivered close to the mob or further away each time.	Consider the placement of your feeders in relation to your water sources and paddock size. The feeders can be relocated further away from water to reduce feed intake, manage grazing of the whole paddock, and deter mobs from camping in one spot.
Available products		Research the available types of feeders, including feed delivery system and control of grain flow, availability of flat-packs and freight costs.
Risk of acidosis caused by overconsumption of grain.	Ensure grain is introduced to the livestock slowly and carefully.	Ensure grain is introduced to the livestock slowly and carefully. Regular delivery of grain via a lick feeder compared to trail feeding every few days can reduce the acidosis risk. However this is also dependent on the starch content of the ration.

Other things to consider for both options of delivering supplementary feed are:

- Regulations on supplementary feeding in the pastoral zone. Know your local regulations for supplementary feeding in the rangelands (particularly pastoral leases in South Australia).
- Storage of grain and feed supplements. Inadequate or unsafe storage of grain results in grain spoilage from moisture and pests. Check the integrity of the storage facilities to ensure the grain does not get wet or damaged and spoil. Control pests such as weevils and mice.

KEY TIPS FROM A NUTRITIONIST'S PERSPECTIVE

1. Correct ration formulation is important for productivity and cost efficiency.
2. Lick feeders are labour and fuel efficient
3. Grain safety is important whether you are trail feeding or using lick feeders. When trail feeding, regularity of feeding is important especially for high starch grains. When using lick feeders it is important that they remain full especially when feeding high starch grains.
4. Trail feeding can be effective but it is important to provide sheep with the correct amount and type of feed just as when using a lick feeder.

FURTHER INFORMATION

The Hegarty's gathered information before undertaking this change. Further resources on this topic include:

- LeadingSheep Webinar on "Nutritional management of spring lambing Merinos to rear more lambs" which can be accessed at www.leadingsheep.com.au
- Advantage Feeders www.advantagefeeders.com.au
- Lifetime Ewe Management www.sheepcrc.org.au
- Sheep Genetics www.sheepgenetics.org.au for information on Australian Sheep Breeding Values (ASBV)
- Bestprac www.bestprac.info case studies, for information on 'Select Twin-Bearing Ewes for More Lambs'

Section 3: How can you make the change?

Section 3 provides all of the tools necessary to work through a business case process to assess an innovation. You can assess the option of investing in grain feeders on your own property by completing the templates below.

WHAT ARE THE BENEFITS?

Benefits can be measurable, such as income, lambing percentage and achievement of business goals; or non-measurable, such as safety. List all the benefits associated with each option in the table below.

Option 1:	Option 2:

WHAT ARE THE LIKELY RISKS?

List the risks involved with shearing more regularly and identify how they can be managed in your business.

What are the risks?	How is this risk managed?

WHAT ARE THE LIKELY COSTS?

Using the information provided in section 2, complete the partial budget template below to assess the cost of implementing lick feeders in your business.

	Average \$/head per year
BENEFITS OF LICK FEEDERS	
<i>New Income Associated with Lick Feeders</i>	
Lamb (\$ per ewe)	
<i>Costs Saved from Trail Feeding</i>	
Fuel*	
Vehicle R&M*	
Labour	
Supplementary feed	
Total Benefits of Implementing Lick Feeders	
COSTS OF LICK FEEDERS	
<i>Income Forgone from Trail Feeding</i>	
Lamb (\$ per ewe)	
<i>New Variable Costs Associated with Lick Feeders</i>	
Fuel*	
Vehicle R&M	
Labour*	
Supplementary feed	
<i>New Overhead Costs Associated with Lick Feeders</i>	
Consultants/nutritionist	
Lick feeder depreciation	
Total Cost of Implementing Lick Feeders	\$
BENEFIT/COST PER HEAD (excluding capital costs)	\$ (= Total benefits less total costs)
<i>New Capital Costs Associated with Lick Feeders</i>	
Lick feeders and other equipment required	
OVERALL BENEFIT/COST PER HEAD	\$ (= Benefit/cost per head less new capital costs)

WHAT ELSE IS THERE TO CONSIDER?

Address any other factors to consider for each option in the following table.

What to consider?	Option 1: Trail feeding on the ground	Option 2: Using grain feeders
Workplace Health and Safety		
Labour		
Ease of implementation		
Time taken to implement		
Other		

CONTRIBUTORS

Bestprac would like to acknowledge to contribution of the Hegarty family from Colanya Station, Queensland.

To view more innovation profiles, business cases and videos of innovations in the pastoral zone, visit the Bestprac website www.bestprac.info

