



Books, Book Reviews, Extracts

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Sheep — the simple guide

making more money with less work

High rainfall zone edition

Sheep – the simple guide

making more money with less work

High rainfall zone of Australia

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Foreword

The national sheep flock is a mere 40% of the size it was at its peak in the early 1990s. Some would say that it is on the verge of losing its critical mass for survival into the future. Others would see it already as a niche market industry, especially in regards to wool.

Farmers in a recent survey gave two key reasons for either quitting sheep or reducing the flock size: “sheep do not pay” or “the work involved in sheep is unacceptable”.

We believe that sheep *do* pay — and they *don't* have to be hard work.

The sheep enterprise on a farm may not always compare favourably in income with alternative enterprises, notably cropping, but sheep simply do not have a negative income. More importantly, as the percentage of the farm in crop increases over 60–70%, overall farm profits tend to decline. More to the point, for many farm businesses sheep are needed for reasons other than profit — risk management and grazing management to name a couple.

Many farmers view the work associated with sheep as a major disincentive to keeping sheep. The work is physically hard, dusty, repetitive, boring and seen as inappropriate but it simply need not be like that. There are many ways to make the job of running sheep much more producer-friendly.

This guide is designed to assist you in the thought processes required to improve labour efficiency associated with your sheep enterprise.

We trust you will find this guide useful.

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The why, what & how of sheep

Why sheep?

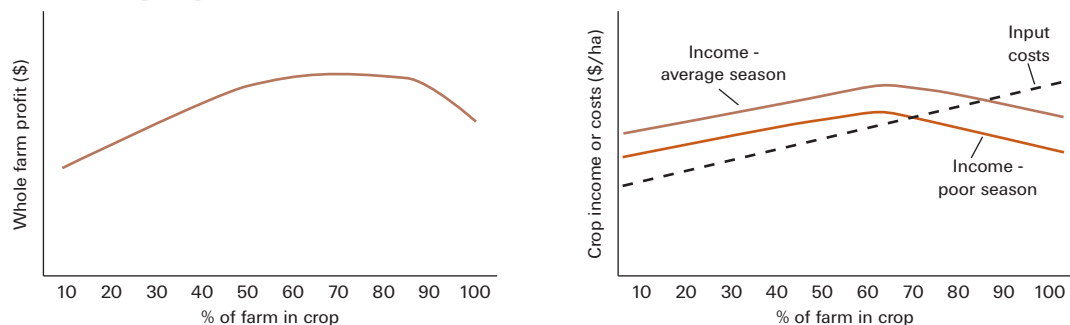
The equation is not sheep versus crop... but sheep & crop

Sheep pay ... sometimes better than crop and often better than cattle. With good management, sheep need not be labour intensive. In fact, there are many valid reasons to keep sheep in a mixed farm business.

Sheep are pretty fail safe. They do not get frosted, rusted or hail damaged. Sheep are generally a non-depreciating asset.

Sheep provide some measure of diversification and spread risk. More crop equals more risk. The growing costs of a crop increase in almost a straight line with increased crop area, and the business becomes more vulnerable to a poor or failed crop.

More crop equals more risk



As the proportion of the farm in crop increases over 60–75% (and the area of pasture decreases) whole farm profit and crop income per hectare decrease, despite input costs continuing to increase.

Source: JRL Hall & Co

Synergy with crop

Sheep provide good synergy with cropping operations and an opportunity to make overall farm operations more efficient. Sheep can:

- provide low-cost weed control without herbicide resistance problems
- provide a profitable break crop producing free nitrogen
- use less-productive, non-arable or saline land
- smooth out labour use over a year.

Synergy with beef

Sheep may have good synergy with cattle, particularly with regard to the efficient use of pasture. While cattle can have lower labour needs when run properly they can be as labour intensive as sheep.

Intangible value

Sheep can add value to the farm in ways other than profit, through:

- higher property value — imagine a cropped-out farm with no livestock infrastructure
- more local employment over the year
- the challenge of 'high tech' management.

What makes a sheep business tick?

Paradoxically, it is not things such as wool cut per head, wool price or sheep prices that you have to get right in a sheep business. The big ticket items are measures of business efficiency and performance, rather than measures of sheep performance alone.

There are a few big ticket items you must get right

The *key performance indicators* for a sheep business are:

- stocking rate
- profit from livestock trading
- cost structure
- gross margin
- cost of production
- productivity per labour unit.

All six KPIs listed above can be improved over time. Ask around, find out what others are doing, and work out what is possible. Remember that these are the things that have the big impacts on profitability (the 20:80 rule).

Stocking rate

Business success relies on efficient use of the feed you grow. Commonly there is at least 50% wastage. The message is: *use it or lose it!*

Flexibility, strategies and tactics are required for dealing with the variability of seasons but management should be such that there are no surprises. Failure to react to the season or not using the feed you grow, will have serious consequences on livestock trading profit.

Profit

Profit from livestock trading is the difference between the opening inventory (the numbers and value at the start, plus purchases and natural increase) and closing inventory (the numbers and value at the end, plus sales, deaths and rations).

Profit is a compound efficiency factor, it accounts for:

- price paid for livestock
- price received (but beware of feed costs)
- weaning percentage
- death percentage.

As meat prices rise, profit from livestock trading becomes more important — it is highly variable between enterprises.

Cost structure

Sheep businesses tend not to stand high costs. They can and should be a low cost system. Not only low variable input costs, especially hand feeding, but low operating costs (such as fuel, repairs, administration and depreciation) are possible. Clearly, scale is important to spread the costs over more area.

The 20:80 rule — 20% of the figures give 80% of any difference.

Gross margin

Gross margin is a calculated figure that can be related to the most scarce factor of production, it is the compound efficiency factor. Gross margin analysis demonstrates the technical efficiency of the enterprise. It allows comparison with others businesses, and displays strengths and weaknesses to work on.

Gross margins can be analysed in a variety of ways, but commonly as gross margin per:

- dry sheep equivalent (DSE)
- hectares used for sheep
- hectares used for sheep per 100 mm of rainfall.

Gross margin is not influenced by past investments in the business or by factors of size; 200 ha of sheep can be compared with 2000 ha of sheep.

Gross margin gives nothing away on the general state of your business and therefore can commonly be discussed among your peers without causing the slightest embarrassment.

How is a gross margin calculated?

Gross margin = income – variable costs

Income

- Livestock trading – that is opening value of livestock plus purchases subtracted from the closing value (at the same value per head as the opening which caters for a run down or increase of stock numbers)
- Wool sales

Variable costs

- Shearing, crutching, lamb marking, pregnancy testing, casual labour
- Dip, drench, vet products, woolpacks, dog costs, freight on sheep and wool
- Purchased and farm-produced hay and grain
- Pasture costs and fertiliser, haymaking, cost of growing any forage crops

Recent examples of gross margins for sheep production enterprises in the 525–750 mm rainfall area of southern Australia, over five years.

		Average businesses	Top 25% of businesses
Income (\$/DSE)			
Wool enterprise	wool	30.9	32.7
	livestock trading	20.6	26.1
Prime lamb enterprise	livestock trading	42.8	49.3
Variable costs (\$/DSE)			
Wool enterprise		14.4	14.1
Prime lamb enterprise		14.3	15.8
Gross margin (\$/ha) for approx. 11 DSE/winter grazed hectare			
Wool enterprise	2009–10	187	242
	2010–11	408	492
Prime lamb enterprise	2009–10	330	396
	2010–11	451	510

Cost of production

Cost of production is a useful indicator for comparing business performance. Be sure when you are making comparisons that you compare like with like, and that other producers use the same calculation system.

Cost of production should be apportioned to each commodity produced — generally wool and meat; and it is usually quoted in proportion to the gross output (sales) of each commodity.

Wool sales should include a valuation of any wool unsold at the end of any period.

Livestock trading profit should be used rather than merely sales. In other words take into account the difference between the opening and closing stock inventory.

Cost of production can be taken to many levels. That is, 'output' less various levels of costs. From income one can deduct:

- merely variable costs
- variable costs and overheads
- costs, overheads and an allowance for family labour
- depreciation of plant for the sheep enterprise
- lease and interest costs.

Remember all of life is benchmarking for good reason — it indicates possibilities. We are benchmarking when we set and aspire to particular golf handicaps, school grades, fuel economy or race times!

Lack of scale is often the cause for poor production figures so consider using your surplus labour to better effect. It should take about one day a week to manage 1500–2000 DSE, and then you have four days a week to work off farm. But ... with poor labour productivity, fix the farm first. Get the feeding system right, put in the laneways, fix the shearing shed. If you can't increase the scale of your livestock operation, keep your labour efficient and use your time to more profit. You are expensive so use your time wisely.

An example of cost of production for a group of mixed enterprise producers

Cost of production	Bottom 20% of group	Median	Top 20% of group
Wool (\$/kg clean wool) at 19 micron & finer	11.00–14.00	7.00–9.00	5.00–7.00
Lamb (\$/kg lamb) all dead weight	3.00–4.00	2.50–3.00	2.00–2.50

Holmes & Sackett

Calculating cost of production need not be difficult
but you may need some help with interpretation.

Further information

- www.makingmorefromsheep.com.au, tool 1.16, for cost of production information
- www.mla.com.au/Publications-tools-and-events/ for MLA cost of production tool



Better performance isn't more work

Benchmarking is an important part of your sheep business — of any business for that matter.

Benchmarking will help you answer the following questions:

- do you have an efficient sheep business
- what do you do well
- where are the opportunities for improvement?

The really good news is that sheep enterprise performance is extremely variable from one business to the next. And that illustrates a road map to improvement.

From your farm business figures you can prepare a future action plan then check your progress against that plan. All good managers have figures.

Records are simple. Apart from the farm accounts, you will need:

- sheep numbers — start and finish
- feed used — home grown and purchased
- total area of pasture, forage crops and cash crop.

Compare your enterprise against others. How do you compare with:

- your neighbours
- others in the district
- others elsewhere
- the experts?

What business attributes do you compare against:

- gross margin
- cost of production?

Several years of information is so much more valuable than just one. The longer you keep and work on figures the more valuable they become and the greater the benefit.



Manage for ease & success

Ten points of a good manager

Good
management
saves time
& money

Good management means that a job will be more than half done before you step outside.

The first six points of a good manager are needed before performing the task; and with good management, labour will be efficient and problems will be ironed out before you start.

A good manager will:

1. have a plan — they will insist on one
2. organise the work to fit the plan — could include some modification
3. check that things are in place and functional before starting a task:
 - logistics (materials)
 - resources
 - labour
 - facilities
 - machinery
4. engage outside service providers
5. ensure all involved understand — communicates to others:
 - what there is to do
 - why it is to be done
 - what their responsibilities are
6. implement the plan
7. classify the tasks and perform the important tasks *on time and avoid distractions*
8. keep appropriate records
9. accept responsibility and improve future plans
10. deal with unforeseen events and make good tactical responses.

Manage the risk – the back door

Things don't always go as planned. It is then important to manage that situation in order to maintain efficiency and most importantly to save effort and reduce stress.

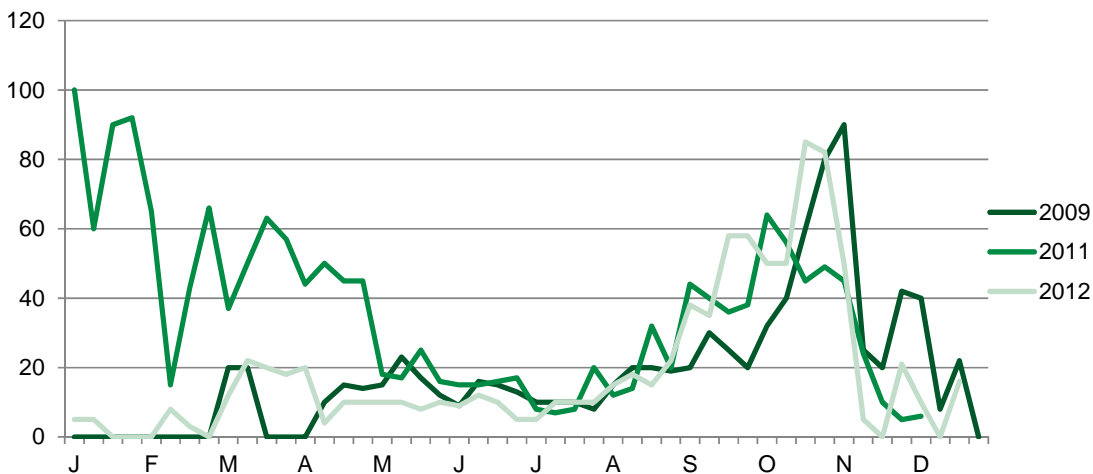
Sometimes your plans will need to change

Having an appropriate stocking rate is *the* key performance indicator to sheep profitability. Occasionally with an adverse season (especially with a late break) the selected stocking rate will be simply too high. This problem is frequently cited either as a reason for selecting a sub-optimal and less profitable stocking rate or worse, as an excuse for getting out of sheep. Dead sheep cause much stress. This risk needs to be managed.

As the year progresses without a break or the length of the winter slowdown increases, the total feed available for the year will be less. An exceptional spring will occasionally make up for a poor start. Timely decisions are a must!

If you are bombproof against a lack of feed in a late break, you are missing out on potential profits for the rest of the time. If you are bombproof against a lack of feed in spring, your autumn grazing could have got out of control. It is better to make appropriate and planned decisions throughout the season rather than make a guess at overall pasture production.

Pasture growth curves



These pasture growth curves are for Hamilton in three different years. Wherever you live, you can expect to get similar variations. The typical break is after Anzac Day; 2011 was an exceptional year and not the norm.

Source: www.pasturesfromspace.csiro.au The Pastures from Space website provides pasture growth rates for individual areas.

Action beats hope

It's mid-March and you have four weeks of feed in front of you and you are counting on a break by Anzac Day — make sure you have a plan for getting to the break as well as what happens if it doesn't come. Start early! An example plan is shown below.

A plan of action for the break

Weeks before break	Potential action
3	declining feed quality — start feeding to keep up nutrition
2	continually assess the situation, condition scoring and monitoring what is being fed
1	prepare your plan for late break

Have a *plan of action* ready if opening rains are late. This should be a written plan of sequential actions that are linked to specific weeks after the average season break.

A plan of action for a late break

Weeks past average break	Potential action
1	Check feed supplies, think about ordering more
2	Obtain extra feed and start feeding (extra feed for twin-bearing ewes)
3	Sell scanned dry ewes and any cull sheep on hand
4	Seek agistment; sell wethers; prepare feedlot for deferred grazing
5	Do not crop last year's good pastures; crop less (possibly no canola)
6	Sell even more sheep, possibly mated ewes
7	What might your further strategies be?
8

Pre-emptive actions

There is so much that can be done to be prepared for a bad season. Yes, most actions have a cost in the bad years but that cost will be repaid several-fold in the good seasons. Pre-emptive actions could include:

- lambing later
- always pregnancy testing, including for multiple births
- sowing cereals on early rains before the normal break
- storing cheap food
- having a flock mix that allows some sales other than at normal selling times
- being prepared to grow ewe hoggets slowly and not mate for another year
- improving low production areas, if possible, to provide valuable feed at the break of the season.

A late break year

In the event of a late break, use the actions below to give you the best approach when feed is tight.

Reduce stocking rate:

- identify which sheep to sell first — this is an important part of planning
- sell dry ewes, wethers and old sheep first.

Supplementary feeding:

- feed the tail of the mob (bottom 20%) preferentially
- look after multiple-bearing ewes better
- buy extra feed early — cheaper
- drench at the start — don't feed worms.

Increase feed availability:

- put in less crop
- encourage ryegrass with nitrogen
- use confinement feeding to defer grazing
- bring feed forward with gibberellic acid (check the economics for your situation)
- put in more crops for grazing
- do not seed good pasture paddocks
- rotationally graze
- use saline areas to good effect.

**Have a written plan. Act sequentially.
This is called management.**

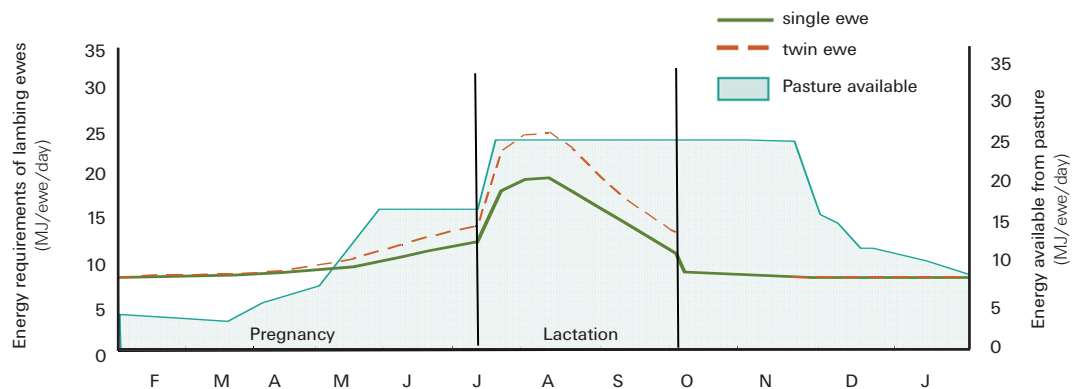
When do sheep need work?

Biological & labour efficiency come from timing the big things right

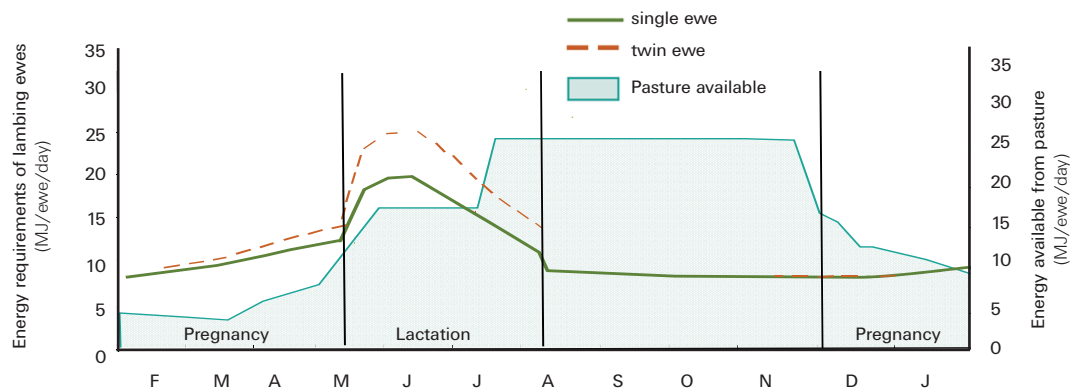
Good planning is about taking into account what is factual — planning for what you know: feed supply, labour, husbandry and marketing.

Have a plan in place that covers the whole year and all the work needed for good sheep production — the sheep calendar.

Matching feed requirements to pasture availability



Feed requirements matched



Feed requirements not matched

These graphs show how pasture can meet the energy requirements of winter/spring lambing ewes (top) but struggle with an autumn lambing (bottom). The data is based on a set stocked paddock of 12 DSE.

Energy requirements of the ewe vary throughout pregnancy and lactation. The cheapest and most easily fed sheep food is pasture. Logic dictates therefore that the requirements of the sheep should match the availability of that pasture feed, as closely as possible. This is a major factor in saving labour and feed costs without any compromise to husbandry.

Further information

- The Lamb Planner (DAFWA and ASHEEP) — available from DAFWA offices, AWI or MLA
- MLA – Feed demand calculator - www.mla.com.au/News-and-resources/Tools-and-calculators/Feed-demand-calculator
- www.pasturesfromspace.csiro.au for detailed and current pasture growth information

Labour availability

Timely and reliable labour is required for major sheep work but it should be planned to avoid the peak work periods of other enterprises on the farm. In particular, the following tasks should avoid the pressure times of other enterprises:

- shearing
- crutching
- lamb marking
- drafting lambs for sale
- jetting for blowflies.

The wise operator will also include holidays in the 'no go' zone of labour planning.

Timing of the big things

Good systems get the timing of the big things right. This improves the efficiency of the whole farm operation.

Lambing — after the break and onto green feed — try and avoid the need for hand feeding over seeding.

Shearing — in spring between seeding and harvest, or in summer after harvest and holidays. Either times have problems with wool quality; and late summer shearing can also cause problems if there is summer rain and an associated fly wave.

Crutching — crutching can be combined with jetting.

Jetting — jet and forget; September–November for sure and sometimes March–April for the May fly wave.

With prime lambs there are three important areas that require organising to ensure the efficient use of labour:

- mating
- pregnancy scanning
- drafting lambs.

Plan for the market

Feeding and husbandry must be planned so wool or stock can be ready for sale at the time *you choose*, which should coincide with a specific market point.

Wool — the choice is between staple strength (spring shearing) and vegetable matter contamination (late summer shearing). Match your system with your discount.

Prime lambs — understand the price cycle — can you turn off lambs in the right grid at the right time? Intensive feeding is labour hungry and must be done efficiently to make it pay.

A well-managed system with lower returns pays better than a badly-managed system with possible high returns.

Smart use of labour

Time is money... use labour efficiently

Labour, even your own, is expensive and often under pressure.

Smart use of labour is the answer to efficient management of high DSEs per labour unit. A well-planned system, time-efficient husbandry, good facilities and well-managed staff make high DSEs per person achievable. The scale of the enterprise may dictate the efficiency per DSE. It could be that the size of your farm means you have surplus labour, if this is the case use your labour elsewhere. If your labour is more valuable in other areas, make sure you keep the sheep enterprise manageable in the time you have. For a dedicated sheep manager however, 10,000 to 15,000 DSE per labour unit is possible and efficient.

System planning

- Match sheep to available feed.
- Match sheep work time to available labour.
- Minimise the need for feeding.
- Have the sheep in big enough mobs: work is proportional to the number of mobs.

Work culling

- Try to eliminate going *'round the sheep'*.
- Alter and improve water systems — checking water is a big time waster.
- Consider less frequent feeding.
- Think about feeding lupins rather than cereals or hay (only use hay if tested and fit for purpose).
- Box-ups of mobs are a real waste of time — see to the fencing! Large mobs take less time per head — less droving, less start and stop.

Work amalgamation

Plan all sheep work so more than one job can be done at a time.

Two examples

Lamb marking and pregnancy scanning are examples of major tasks that can be combined with several other jobs.

Lamb marking

- Crutch the ewes
- Mark the dry and cull ewes
- Draft off dry ewes
- Vaccinate/ear tag/mark/scratch
- Cull lambs on wrinkle

Pregnancy scanning ewes

- Drenching on worm egg count (WEC)
- Draft dry and multiple-bearing ewes
- Condition score sheep and draft out lows
- Booster vaccine

Facilities

Ensure that the three big time-savers are operational:

- laneways
- functional yards and out-yards
- efficient handling machines (probably mobile).

Staff

Team work is more efficient per labour hour than single operators. Single operators should contemplate:

- syndicated work with neighbours
- employment of casual labour and sheep services
- a large feed trailer to save time and make less journeys .



Smart use of labour is the answer to efficient management of high DSEs. Equipment such as large feed trailers save time and travel when feeding out.

**Remember we are supposed to be the intelligent ones!
It is up to us to make the keeping of sheep efficient.**

Electronic ear tags

Electronic or radio frequency identification (RFID) technology has been available for a number of years but currently is not used widely. The cost of the tags and associated technology has been a major deterrent but they are getting cheaper, and the readers and software are improving in efficiency (both used to be a problem).

RFID technology can significantly reduce labour and increase accuracy in flocks that are being monitored or measured. The technology will be of greatest benefit in ram breeding flocks where considerable measurements are taken. The technology is only useful if it is used in conjunction with an accurate and easy to access data management system.

Before investing in this technology, be clear on the purpose for which you wish to use the equipment and how you will use all the data that is collected. Make sure there is appropriate software available to meet your needs.

Be prepared to spend time learning how the equipment works. Patience will be a virtue at least in the first three months of use as the available systems are not foolproof.

Uses

Systems are available that can more easily monitor/measure for a range of activities including:

- shearing — fleece weighing, in-shed fleece testing
- pedigree match maker — matching ewes and lambs
- calculating litter weight per ewe as a measure of ewe efficiency
- pregnancy scanning — identifying single and multiple bearing ewes — allowing easy drafting at a later date
- growth rate monitoring — tracking the performance of lambs.

Further information

- Sheep CRC Precision Sheep Management www.sheepcrc.org.au/information/publications/publications-precision-sheep-management.php
- Electronic Identification (EID) Equipment and Software Suppliers for Sheep Producers www.dpi.vic.gov.au/agriculture/farming-management/nlis/sheep-and-goats/eid-equipment-software-suppliers



Less droving, more driving

Laneways

Move you
& your sheep
efficiently
around the
farm



With sheep, laneways are the greatest *labour-saving* device.

There are two great reasons for installing laneways on your farm. In and out of the ute at every gate encourages you not to visit furthestmost paddocks; and returning sheep to far paddocks can be done without droving.

Other good reasons for laneways include:

- quicker mustering
- less boxing of mobs
- quicker feeding out.

Laneways can be multi-purpose. They can:

- incorporate a roadway
- incorporate a firebreak
- be grazed from the end paddock
- be used in conjunction with portable yards or out-yards.

Laneways are not costly because one fence is there already and they can be a multi-use area. Look at the benefits not the cost.

Tips for laneways

1. Make them wide — 20 metres minimum, wider is better and may suit your machinery. Narrow laneways cause problems with sheep movement.
2. Design laneways such that most paddocks are served.
3. Make laneways part of overall farm planning.
4. Go to the expense of piped culverts and cement crossings.
5. Form up the road to ensure all-weather use.

Take the work to the sheep

Moving sheep from all over the property to one set of main yards can be time consuming and inefficient. There are alternatives.

Portable yards

With apologies to some very smart manufacturers, portable yards should be regarded as *temporary only* — and for that purpose, they are excellent.

But the reality is that portable yards take time to set up and take down — an excuse for leaving that job for another time. They are often left erected because they may be needed later, and next they are found rusted *in situ* and no longer portable.

Mostly, portable yards do not have good functionality for:

- drafting
- handling (especially)
- storage of sheep (limited).

Worst of all, parts of portable yards get taken for other uses and end up all over the farm.

Simple out-yards

Certainly use portable yards if distance or fragmentation is the problem but there is a better way — simple out-yards. These give greater labour saving and more efficiency.

Have a series of permanent, simple, low cost bugles at strategic points. Make cheap storage areas around these bugles:

- double fenced mini-paddocks
- use an adjacent laneway.

Have single purpose *mobile* sheep machines that will 'plug into' these bugles with portable handling equipment that is easily moved and quick to set up and dismantle, such as:

- V machines
- handling races
- crutching cradles
- jetting outfits
- mulesing platforms
- sheep handling machines.

Shearing sheds

Mobile shearing sheds are very rare. Sheep normally have to go to the shearing shed. A good shearing shed costs money and it's worth it but make sure it's in the right place, functions well with the yards and built-in multiple use areas. Shearing is the one time that sheep will need to visit the main sheep handling area. Crutching can be done in the field. See 'Headache-free Husbandry' (see page 23) for more details.

Perform tasks
efficiently &
on time



Grab your brain — save labour
(while performing the task more efficiently and on time).

Less driving,
more driving

Big mobs save time

It's all about
labour
efficiency!

Man days of work is proportional to the number of mobs rather than the number of sheep.

Reasons for big mobs

Less mobs, less work. Less mobs of sheep mean:

- less droving
- less starting and stopping (this takes time)
- less waiting between mobs
- more incentive to get the job finished by a certain time — speed is dictated by the time available to do a job
- a better labour force (casual or contractor) — it is easier to justify and use better labour for more efficiency.

Big mobs save time. Less mobs but big mobs can also save time through:

- less feed stops
- less gates to open and close
- easier observation (if you must go *'round the sheep*)
- better numbers recording (the death watch).



For example

Efficient labour can be planned with a big mob. So it is important to have the mob the right size for a day's work, or to have the work organised to suit the mob.

Let's take marking and crutching ewes at the same time.

The marking team can do 1000 lambs per day — that could mean a mob of 1200 ewes. To crutch the ewes at the same time needs two cradles at 600 per day or three at 400.

A slower pace might allow other jobs to be carried out at the same time. There is a need to match the capacity of the facilities to be used with the size of the mob so that mobs can be effectively dealt with.

Plan to benefit from big mobs. Large paddocks suit big mobs. Large paddocks are the modern way of saving on fencing and water, and better for cropping.

Big mobs are essential for rotational grazing.

Reasons for small mobs

Some farmers have good reasons for small mobs:

- breeding rams
- progeny testing
- single sire matings
- ewes having multiple lambs.

But the usual reasons for small mobs are not valid.

Ear tag year-colours are really great, and used correctly facilitate rapid age identification. However, to keep mobs to tag year colour is counterproductive to labour efficiency and general management.

With ewes there is no good reason to keep age groups separate other than in the year when they will be culled for age. In fact there *are good reasons* to box age groups of sheep :

- maidens seem to lamb better when with older ewes (do they learn more quickly?)
- mob of tail-enders for preferential feeding
- twin-bearing ewes of any age for special feeding
- culls and non-rearers as marked at crutching — no point scattering them around the farm
- dry ewes at scanning — these can be given less food than pregnant ewes over critical times.



Lambing rate & lamb survival

Smaller mobs — particularly smaller mobs of multiple-bearing ewes — can be valuable for increasing lambing success. As lambing rates increase in a mob, the number of lambs born per day can lead to a few very crowded and 'busy' days. Research and experience shows that survival rates rapidly decrease in mobs where the rate of lambs born per day is high. Multiple-bearing ewes are especially affected, so the smaller the mob the better.

Lambing rate for twins	Range (lambs/day)	Survival %
Low	0-16	83
Medium	17-32	80
High	33-48	63

Source: DH Fowler, MLA report DAN32s

Work amalgamation

Do as many jobs as possible on the same day

Plan as many jobs as possible when sheep are in the yards for time-critical operations. This minimises droving and yarding for a start.

An example

Plan the work around a system

Critical operation		Other work at the same time
Crutching	Lambs	<ul style="list-style-type: none"> • Mark/mules, vaccinate, tag and scratch • Score and mark lambs for breech wrinkle
	Ewes	<ul style="list-style-type: none"> • Jet • Drench (only on test) • Mark non-rearing ewes and put aside • Condition score some ewes • Separate tail of the mob for special treatment?
Weaning	Lambs	<ul style="list-style-type: none"> • Second vaccination • Crutch and wig • Drench • Jet
	Ewes	<ul style="list-style-type: none"> • Sort culls and sale sheep • Condition score some ewes • Separate tail of the mob for special treatment?
Shearing	Young sheep	<ul style="list-style-type: none"> • Drench (only on test)
	Young sheep & ewes	<ul style="list-style-type: none"> • Treat for lice when lice are detected—no split mobs • Condition score a sample • Separate tail of the mob for special treatment • Sort any more sale sheep
	Ewes	<ul style="list-style-type: none"> • Possibly rams in
Pregnancy scanning	Ewes	<ul style="list-style-type: none"> • Drench — (only on test) • Annual booster of vaccine • Dry ewes out • Multiple-bearing ewes out • Condition score some ewes • Separate tail of the mob for special treatment • Rams out

Pretty well everything that has to be done to a ewe can be done in four critical operations and still be done at the right time.



Headache-free husbandry

Shearing sheds

A shearing shed has equal importance to harvesting machinery

Most farmers will not tolerate clapped out tractors or headers. It is strange that an inefficient or dilapidated shearing shed is accepted on the same farm.

The modern shearing shed not only saves labour but a good shed is a display of professionalism and a correct attitude towards the sheep enterprise and the importance of shearing to all concerned.

The modern shearing shed

The modern shearing shed should provide:

- a well-lit, pleasant, clean, safe working environment
- first aid kits and circuit breakers to ensure safety
- a dedicated mess area with a functional fridge
- hot water on tap with sinks
- toilets (hire one if necessary) and possibly showers.

A modern shearing shed has the following important features:

- well-maintained structure, especially grating, boards and pen doors
- back aids correctly secured (a bit of wire will not do)
- an efficient self-pinning wool press
- undercover storage for loose wool (good bins) and baled wool
- a storage cupboard for stationery, bale hooks, stencils, ink, wool packs and bale fasteners.

No shed or a falling-down shed

For those with no shearing shed, an inefficient shed or a falling-down shed, there are two options.

Build a new shed. This can be expensive, approximately \$20,000 or more per stand. Therefore a five stand shed could be over \$100,000 ... but then that is only the price of a small tractor!

Alter and refurbish an existing shed. Renovations to an existing shed would include:

- front fill or better filling catching pens
- better sheep exit
- raised board
- good floors.

The main thing is to raise efficiency, and therefore reduce the cost of shearing. The aim should be 150–200 sheep shorn per day for one shed staff (other than shearers).



Sheep yards

Well-designed yards can be operated by one person and a dog.

Sheep yards need to be able to handle a variety of tasks: holding sheep, moving sheep around, drafting and sorting sheep, handling sheep for work and loading sheep for transport.

Assemble & hold

- Small mini-paddocks surrounding the yards are best and cheapest.
- Strong conventional fencing or double wire is needed.
- More mini-paddocks are better than less.

Move sheep around

- Lanes/runs based on circles and curves are the best.
- Bugle design most common. If the yards are associated with the shearing shed, orientate the bugle so that sheep are not affected by noise from the shed.
- Be prepared to alter the design until you have got it right.

Draft & sort

- A three-way draft works the best.
- With a two-way draft, at least have the ability to remove the odd sheep.
- Most people prefer short drafts: 2–3 metres.

Handle sheep to perform work (the handling race)

- A slatted floor to the handling race works best.
- Adjustable sides are a good option.
- Have the ability to draft off at the end of the race.
- Double race useful (even treble on occasion).
- A roof provides shade and shelter.
- Good access for dogs and people.
- Be able to lift the exit gate from a distance.
- Spend on this area — *sheep husbandry happens here*.

As an alternative to a fixed handling race, have a permanent bugle and draft used in conjunction with specialist mobile machinery. The bugle can be compared to an electrical circuit into which the machinery is plugged. Spread the cost of good machinery.

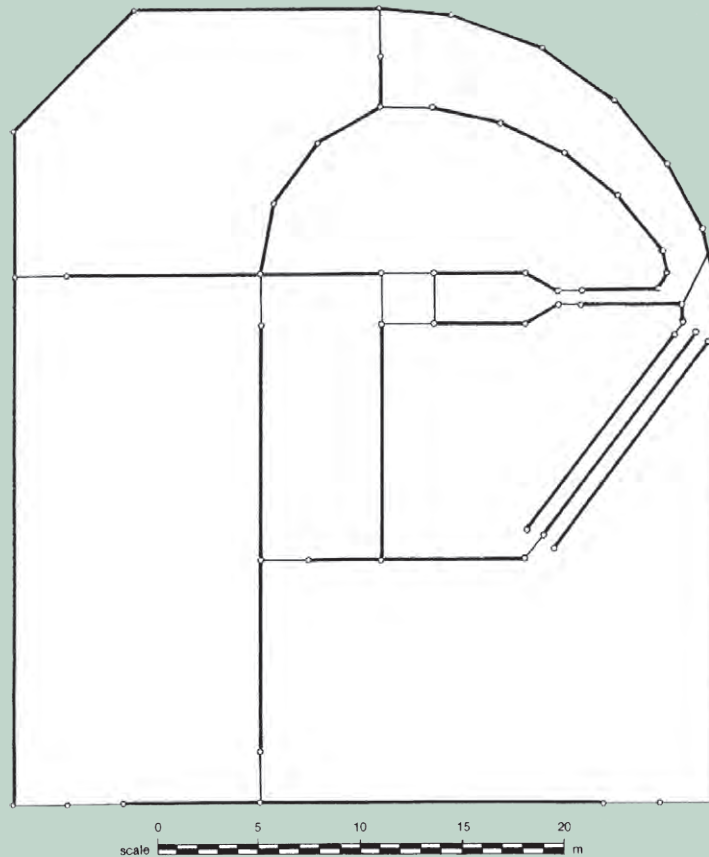
Load for transport (the ramp)

- If sheep are not loaded out of the shearing shed, a good permanent ramp is important.
- Good truck access is important.
- Adjustable height is important.
- The ramp should be of solid construction unless it is portable.

The heart of the sheep operation



An example of Y bugle sheep yard design



A major advantage of circular yards is the continuous flow of sheep through the main handling area. The design uses the natural circling instinct of sheep to encourage them to keep moving. The bugle entry takes advantage of this and the operator uses less labour moving about the yards. The curve of the bugle and the placement of the drafting and working races allow the operator to be close to the sheep at all times.

Image and text courtesy of NSW DPI.

Further information

There are many designs, visit some shearing sheds and talk to the owners, and talk to some experts.

- www.wool.com — Shearing Shed Guidelines, sheep handlers and yards
- www.dpi.nsw.gov.au for shed designs
- Kondinin Group books 'Shear Sense' and 'Yards and Yakka'*
- Sheep Yard and Shearing Shed Design edited by Fiona Conroy & Peter Hanrahan, ISBN 9780730641865*

**These books may only be available in libraries*

Sheep machinery

Remove the stress, strain and drudgery of sheep work with carefully selected items of machinery.

There are four main types of machinery to use in conjunction with modern yards. However design, the skill level required and labour availability will all be factors to be considered in the choice of the particular equipment.

Try before you buy.

Buying the machine is only the start. You will need to learn how to use it to best effect.

You may have seen the machine working well at a show. They always seem to work well there! How often at clearing sales do you see sheep machinery in almost new condition, hardly used, because the operator could not master the process?

So, get together with someone who uses it efficiently and learn the tricks of the trade. Go as far as working with them for some time. This will be a very good investment of your time and your assistance could well be appreciated by your host!

The crutching cradle

- There are many designs, most can be made mobile.
- Excellent output with semi-skilled labour 500+ per day.
- Less wool removed adding at least \$1.00 to overall fleece value.
- Allows careful fault (stain) removal.
- Timely work can be achieved plus individual sheep inspection.
- Other tasks can be performed at the same time, such as drenching, vaccination, wet/dry, udders, identify culls — takes longer but worth it.

Single units

- Can be 1 person operation
- Crush and tip
- Tip into cradle
- Multiple uses
(see 'The sheep handler')

Multiple units

- Team operation
- Suits syndicates and contractors
- Tip into cradle
- 2–4 stations common with good sheep flow
- V machines can be used (a bit difficult)

The sheep handler

Depending on the machine sheep handlers can be used for much sheep work, such as drenching, crutching, vaccinating, ear tagging, horn cutting and worm sampling.

- Many and varied machines.
- Single operators or team work.
- Crush and tip or "v" belt.
- Several machines weigh sheep electronically and have an automatic drafting function.
- Should remove the strain from repetitive sheep work.
- Good OH&S — less operator damage!!!
- For many, the handling race is obsolete.



Automatic scales & drafters

There are a number of different automatic scales currently on the market. Other activities, e.g. ear tagging, are possible with some machines.

- Access to sheep in some is limited; be clear on why you need the machine.
- Three-way drafting is the most common configuration however options are available for up to nine-way drafting.
- High throughput is possible with automatic weighing and drafting.

Jetting machines (for flystrike)

Jetting machines are in common everyday use by producers and found to be effective, provided the appropriate quantity of chemical is applied correctly.

- Several automated machines are available with electronic sensors on some.
- Correct pressure, jet type, and placement and liquid quantities most important.
- Throughput is vital without prejudice to the appropriate application of chemical.

Dipping machines (for lice)

- Several machines available:
 - mobile plunge dippers
 - immersion dipping (usually contract)
 - sheep showers — mobile or fixed
 - electronic spray on machines.
- Dipping machines work well if sheep are correctly wetted and the appropriate chemical is applied.

**Go and see someone who uses the machine
and is pleased with it.**

Tips on how to use sheep machinery

- Make sure the sheep run reasonably. If not, alter the set up until they do. There is usually a way.
- Good dogs help but the machines should work anyway.
- Always run the sheep the same way round. They get used to it and move better.
- Mini feeder lanes assist in sheep movement and prevent them turning around.
- Covered main working areas help (not only the sheep!), they need not be expensive.
- Early morning is a good time for working (muster the evening before).
- If the sheep are not running, get down low to get a sheep's eye view to find out why.



Healthy sheep save time

Healthy sheep require less labour

Do it once,
do it well,
save labour

Sheep health is important and unnecessary sheep deaths are not acceptable ...

At one time sheep were not worth much but these days any loss is of great economic significance and to be avoided if possible. This will also improve the humane aspect of keeping sheep.

Understand that you tend not to find dead sheep — they have simply gone. Blame sheep stealing if you must, but it is seldom that. Basic parasite and disease control (for worms, flies, lice and clostridial diseases like pulpy kidney), along with correct and efficient feeding levels, is essential for healthy, profitable sheep.

Good, high level control of parasites and disease is the best long-term strategy for healthy sheep. Along with good health management, pay close attention to *biosecurity* when buying sheep or moving sheep around different properties. This will minimise the risk of introducing parasites and diseases to your flock, and save time and money in the long run.



Strategic management of parasites and diseases, and close attention to biosecurity are essential for healthy, profitable sheep.

Vaccinate to reduce disease

Pulpy kidney and other clostridial diseases are unnecessary killers of sheep. The risk of death by disease can be largely prevented by the correct use of vaccines.

Clostridial organisms are everywhere and most of the time they cause no problems. However, every now and again, when conditions are favourable, the population explodes and they produce powerful toxins. These toxins are usually fatal to sheep and can kill rapidly.

There are several vaccines on the market so vaccinate appropriately to avoid deaths. Many products also contain trace elements so consider using these if deficiencies occur in your district.

Deaths from disease can be reduced *but only with correct vaccination*.

The clostridial vaccination plan should be:

- first vaccination at lamb marking
- a booster for lambs at weaning
- an annual booster for all rams and ewes — preferably pre-lambing for ewes as there is a level of protection provided to newborn lambs via colostrum.

With vaccinating it is:

- all or nothing
- small cost
- big savings
- peace of mind
- humane sheep management.

Check the trace element status of your sheep (blood or liver tissue test for copper, selenium and cobalt, for example) and if appropriate and recommended, vaccinate at the same time or separately.

Trace elements have a major effect on wool production, growth rate and reproduction.

- Administer efficiently with least labour input.
- Add to vaccines, drenches and feed.
- Add to pastures with fertiliser or spray on.

Ovine Johnes Disease (OJD) (page 36) may be an issue on your farm. Check your status and state requirements and if recommended and appropriate, vaccinate as required. Be aware OJD may be an issue when buying and selling sheep.

Prevent
disease &
death with
vaccines

Follow through with the vaccination program —
giving just one vaccination at marking doesn't do the job.

Blowfly control

Save labour
& save sheep

There can be no worse job than *chasing flies*. The task is a frustrating *labour killer*, not to mention the dead sheep!

Jet & forget

There is a good range of effective chemicals available to deal with blowflies. Use them.

- Cyromazine products, such as Vetrazin®, and their derivatives still work. Properly applied they will give protection for 8–12 weeks.
- Dicyclanil products, such as Clik®, are effective for a period of 20 weeks but are more expensive than Vetrazin.
- Ivermectin products like Coopers Fly and Lice® are good for instant kill of maggots and last for 12 weeks.
- Vetrazin and Clik do not kill existing maggots until they move from one growth stage to another, so they tend to be slow acting.
- Products containing spinosyn, such as Extinosad®, last for up to five weeks and have no wool withholding period.
- A knockdown product is needed to treat struck sheep.

Withholding periods

Check the label as chemicals have a range of withholding periods for wool and meat and often the export slaughter interval can be quite long. It is better to choose the right chemical well before hand than treat at the last minute and not meet withholding periods.

Application

There is no doubt that hand jetting is the best method of application but it is quite labour intensive. There is much evidence to show that jetting machines perform a satisfactory job and provide sufficient protection provided that the sheep are well wetted and the appropriate quantity of chemical is applied to each sheep.

Previous wet seasons have illustrated that very heavy rain or rain over a long period tended to reduce the effectiveness and longevity of application, especially if not hand jetted. There is a need to be cautious under such weather conditions and possibly think of a second treatment provided there is no problem with withholding periods.

Pre-emptive action

Sheep can be bred that have much less of a problem with flystrike — start now for this takes time (see page 59 for more details).

Further information

- www.flyboss.org.au — FlyBoss for control options and management calendars
- Flystrike Chemical Planner — hand held tool for chemical withholding and protection periods available from DAFWA Offices
- www.wool.com for AWI publication Managing Breech Flystrike
- www.agric.wa.gov.au/flystrike for phone app Flystrike Assist

Control or eradicate lice

Control is a short-term option to minimise wool damage and manage sheep welfare but eradication is your goal.

Lice are very costly in terms of the labour required for treatment, the downgrading of wool and the impact on sheep welfare. Lice require vigilant monitoring, correct chemical choice and application, and farm biosecurity (refer to page 35).

Control is simple, eradication is difficult. Remove management practices that foster lice:

- split shearings
- bad musters
- untreated sale sheep left on farm
- poor fencing
- shorn ewes with lambs at foot.

Issues that make lice treatment more difficult:

- lice are universally resistant to synthetic pyrethroids — the simply should not be used
- IGRs can no longer be trusted due to increasing resistance
- no chemicals with long protective periods
- banning of diazinon (other than Eureka Gold)
- long wool — needs to be hand treated or applied with a very efficient jetting machine.

Options for lice treatment

Wool growth stage	Treatment	Example products
Off shears	Dip (plunge or shower) n.b. check for wetting	Assassin® or Wham® (temephos), Extinosad® (spinosad), Flockmaster II® (magnesium fluorosilicate)
		Avenge® (imidocloprid)
	Pour on	Extinosad® (spinosad)
		Eureka Gold® (diazinon) Maverick® (abamectin)
	Cage dipping	Diazanon under permit (# 12555)
Long wool	Mostly hand treatment options	Coopers Blowfly and Lice®, Zinjet® (ivermectin) — hand jet
		Extinosad Backline — especially handy close to shearing due to no residual

Always check the product label for application rates and dates as well as withholding and handling periods

Have a plan — take advice. There is no excuse for lice.

Further information

- www.liceboss.com.au — LiceBoss for control options

There is no
excuse for lice
— eradication
is your goal



Worms — plan your action

New effective drenches are available

Test for resistance and use an effective drench. Not many sheep producers do it but it's important to know what works for you — you will get better results and your drenches will last longer.

Recommendations for high winter rainfall environments

- Drench adults in summer on worm egg count (WEC) results.
- Always use an effective drench — do a resistance test to make sure.
- Weaners are special and need more monitoring.

Worm risk matrix guide (source: D Rendell)

Risk factor	Worm risk			
	Very high	High	Moderate	Low
Age	< 6 months	6–12 months	1–2 years	> 2 years
Green pasture FOO kg DM/ha	< 600	600–1000	1000–1400	> 1400
Condition score	< 2.5	2.5–2.7	2.7–3.0	3.0 +
Weaner weight gain	losing weight		gaining 1–2 kg/month	
Hay paddock (time from cutting to raking)	4 weeks	2–4 weeks		No delay
Paddock history	e.g. any high WEC mob	e.g. most weaner mobs	e.g. most adult dry sheep	e.g. any very low WEC mob



Review the risk factors to manage worm burdens in your flock. This requires regular WEC monitoring and reviewing of control strategies. Monthly WEC monitoring is usually recommended although in high risk periods you may need to monitor every two weeks. The high risk period is 4–7 weeks post-drench or post-autumn break. Seek advice on what WEC results are showing and visit www.wormboss.org.au for detailed information.

Grazing management for worm control

Prepare low worm-risk paddocks for high worm-risk mobs, e.g. low condition weaners.

Low worm-risk paddock options:

- crops or renovated paddocks
- hay aftermaths — but watch rain delaying hay drying
- paddocks run with cattle.

Weaners require exposure to enough worms to build up immunity in their first year but shouldn't be over exposed. Good nutrition reduces worm problems. Actively growing weaners or weaners of good condition score are less susceptible.

Pregnant and lactating ewes are especially important to manage as they have added stresses to deal with.

Further information

- www.wormboss.com.au — WormBoss for control options

Biosecurity

If you are serious, pay close attention to biosecurity. It will minimise the risk of the introduction of parasites and diseases to your property and save time and money in the long run.

Biosecurity can be as formal as requesting statements of sheep health before purchase, and it can be as practical as fencing and mob management. Biosecurity goes hand in hand with managing animal health with vaccines and drenches.

Keep out wandering sheep — stock proof the farm boundary to prevent potentially diseased sheep straying onto your property. In the long run this will be a big labour saving.

Quarantine newly arrived sheep and observe them carefully for the first two weeks for any signs of disease.

Buy stock directly from the farm rather than through the sale yards.

Clean agistment — ensure that any agistment properties you use have the same health status as yours.

National Sheep Health Statement

Whenever buying sheep, insist on the provision of a National Sheep Health Statement (NSHS). The new NSHS not only covers OJD but also footrot and brucellosis. These three diseases are described in more detail on page 36.

This statement is *the* biosecurity tool for those taking the topic seriously. It is vendor provided and should be requested by the purchaser. This costs them nothing unless they have something to hide.

The NSHS is not a widely used tool at the moment but it should be. It is the flock owner's safeguard when purchasing sheep. Wider use of this tool will create better attitudes towards the biosecurity associated with purchasing sheep.

Save time
& money in
the long run



Further information

- Download the new statement and further information www.animalhealthaustralia.com.au/programs/

Ovine Johnes disease

Ovine Johnes disease (OJD) is a wasting disease of sheep leading to higher than normal adult deaths. It is present in all sheep-producing states of Australia. Ovine Johnes disease is difficult to test for, so the true prevalence is not known, however it is predicted that eventually over 80% of sheep flocks will have some stock with OJD. Its impact on the rate of deaths in adult sheep on a particular farm is variable but appears to be made worse by environmental stress. Ovine Johnes disease is likely to happen to your flock at some time in the future.

If OJD is diagnosed on your property it is recommended that you start vaccinating sooner rather than later, and walk the vaccine in with the lambs. Do **not** wait until the death rate spikes! The vaccine is effective, albeit quite expensive, usually over \$2.00 for a dose but it does last a lifetime. The vaccine should be given before 12 weeks of age, to all ewe lambs and any wethers that are likely to remain on the property beyond 12 months of age. Prime lambs that are sold early can be excluded. Ram producers are advised to vaccinate for OJD as a precaution because an outbreak would cause terrible interference with sales.

Foot rot

Virulent foot rot in sheep is a very serious problem. It is highly contagious and difficult to eradicate. Virulent strains are a lower risk these days but there are still sporadic outbreaks and it is well worth ensuring adequate biosecurity to prevent its occurrence in your flock. Intermediate strains are more common, and are more difficult and costly to eradicate than virulent strains. An outbreak involves a huge workload. All sheep on the property have to be individually inspected several times and infected sheep treated or slaughtered, until finally the flock is declared free of foot rot. This process can take a long time and a lot of labour. An alternative solution is to destock, leave the pasture without sheep for at least seven days and then contemplate restocking. Both solutions have serious financial consequences and can involve much labour.

Brucellosis in rams

More and more frequently rams are being diagnosed with ovine brucellosis. Once thought a disease of 'British breed' rams, it is becoming more common in Merino rams. The effect of the disease is reduced lamb marking percentage, extended lambing period and a high ram culling rate but is hard to diagnose in affected rams. Buyers should check the brucellosis status of the flock (recorded on the NSHS) or buy from an accredited free flock.



Well-fed sheep

Condition score matters

No extra work for better sheep management

Understanding the shape your sheep are in is basic good management. The condition score of ewes affects the lambing percentage and ewe mortality — two key losses in a sheep enterprise.

Condition scoring is quick and simple. Although body weight is important, few farms have scales or use them. Condition scoring has the advantage as it is independent of:

- frame size and body weight
- time off feed
- pregnancy status
- wool growth.

Fat scoring is useful for determining the grade of prime lamb but it is not a good reflection of nutritional status of the sheep.

Get your hands on your sheep. Condition score is estimated by feeling the amount of muscle and fat over the back bone and short ribs, just behind the long ribs, and giving a score between 1.0 (thin) and 5.0 (fat). Often half scores are used.

Condition score 25–50 sheep at random, write the scores down and calculate the average. Do it whenever the sheep are yarded. It does not take long, and it gives you valuable information about how your sheep will perform.

Also understand that if the average of the mob is say condition score 3.0, there will be many sheep in the mob at condition score 2.5 or less. These sheep are in danger and should be drafted off as the tail of the mob for extra feeding. As it starts to get cold, sheep in condition score less than 2.5 will need heavy feeding to maintain adequate condition. Early action saves time later.








Correct positioning of the hand for condition scoring, with thumb on the backbone and fingers on the short ribs.

Further information

- www.lifetimewool.com.au or www.agric.wa.gov.au/sheep for condition scoring charts and resources and “how to” video

Condition scoring

Condition score	x-section of backbone	Description
1		No fat and very little muscle on the backbone and ribs Seriously low body condition. Quite unacceptable — prone to disease and at risk of death.
2		A small amount of muscle along the backbone but no fat The least acceptable condition for thrift. Perhaps acceptable for dry sheep when the feed is short but a clear indication that nutrition requires attention.
3		Good level of fat and muscle with rounded ends of ribs and top of backbone A good level for Merino ewes from joining to lambing and an ideal condition for young sheep.
4		Over-round across backbone — lots of muscle and fat Tending towards over-fat.
5		Can't feel the backbone or ribs Definitely over-fat. Too fat for slaughter.

Pregnancy scanning — it's a *must do*

Pregnancy scanning is an investment in systems efficiency

Pregnancy scanning is a time critical operation in the sheep enterprise.

Pregnancy scanning is most useful if you use the results to best advantage. This includes segregating and feeding ewes according to the number of foetuses they are carrying. Knowing the pregnancy status (especially single and multiple rates) of the ewe flock allows an accurate feed budget to be developed. In most flocks more than 60% of the lambs dropped will be twins.

To lift marking rate, it is much more important to look after multiple-bearing ewes better than to increase pre-joining nutrition. Every extra lamb surviving, even at low meat prices, earns you money. If you are understocked, the value almost doubles. Lifting twin survival from 50 to 70% can mean an extra 15 lambs marked per 100 ewes in an average Merino flock, giving a fivefold return on scanning.

Pregnancy scanning should not be seen as a cost but more as an investment. The savings in feed allocation by identifying and separating ewes of different pregnancy status more than pay for the scanning job.

Multiple-bearing ewes are identified

- Better condition in late pregnancy leads to better survival of multiples born.
- Identifying multiples minimises over-feeding of single-bearing ewes and birthing problems.
- Multiple-bearing ewes *do* need more feed.
- Best results for preferential feeding are seen in a hard year.
- Preferential feeding must be matched with good husbandry. This is especially important if ewes have been managed for high conception rates.
- Feeding multiple-bearers needn't be more costly, as these ewes can have some of the feed that the single-bearing ewes don't need.

Dry ewes are identified

- This is most useful in maiden mobs.
- Dry ewes can be run harder in their own mob or sold to reduce stocking rate.

Pregnancy scanning is done by ultrasound and needs a skilled operator for accuracy. It should be completed 42–62 days after the rams come out, assuming a five-week mating.

Plan to do it routinely rather than only when the season goes wrong. By that time it is too late, and it is difficult to find an operator. Labour savings can be made when other tasks are combined with pregnancy scanning.

Pregnancy scanning is an indication of top management — it is a *must do*.

Further information

- www.sheepcrc.org.au for information on benefits, contractor contacts, and how to successfully scan sheep

Protect the future – manage your weaners

Weaner management is about good planning

Managing weaners is important. Dropping the ball on this one can result in high mortality and big economic losses.

The key actions for good weaner management are set out as follows.

Wean early

Weaning should take place by 12 weeks (85 to 100 days) from the start of lambing ... maximum. This is especially important when the season has been poor.

Weaning at 12 weeks helps the ewes get back into shape for next year and it helps the lambs get growing ready for turnoff or keeping over the summer. Weaners must have good nutrition to meet their growing needs.

Also prepare to 'imprint feed' the lambs while they are still on mum. They will learn to feed more quickly and be happier.

Provide good feed

Feed quality is particularly important for weaners, especially high protein feed. That means 12–15% protein and highly digestible (>75%) feed that gives 12–15 MJ/kg DM. Feed requirements can be met by:

- good quality pasture (not tall and rank)
- green forage crops
- good quality grain (particularly lupins).

Aim for growth

Healthy Merino ewe weaners dropped in winter should be condition score 2.0+ and reach the following weight targets in their first year:

- weaning — 18 kg plus (40% of adult weight)
- start of summer — 20–25 kg (45% of adult weight)
- break of season — 28–30 kg.

To meet these targets, the ewe weaners have to grow over summer, not just maintain weight. This requires a growth rate of 50–100 grams per head per day.

Healthy maternal prime lamb ewe weaners dropped in spring should be condition score 2.0+ and reach the following weight targets in their first year:

- weaning — 28 kg plus (40% of adult weight)
- autumn (250 days post lambing) — 38–40 kg (60% of adult weight)
- summer–autumn (600 days post lambing) — 55–60 kg

To meet these targets, the ewe weaners selected for replacements have to grow over summer, not just maintain weight. This requires a growth rate of 100–150 grams per head per day.

Healthy cross bred or prime lamb weaners will need to grow at higher rates (200–250 grams per head per day) post weaning to reach a weight suitable to go onto a feedlot or to be retained and mated. Aim for growth rates on a feedlot to be 300–400 grams per head. Depending on your market grid, draft prime lambs to slaughter at weights between 42–52 kg.

Preferentially feed the tail of the mob

Deaths are proportional to weight. Lighter lambs, usually twins or late drop, need to be fed preferentially. Separate out the lighter lambs (up to 20% of the mob) at weaning to provide them with improved nutrition so they make the grade.

Ensure good health

Good husbandry is critical for good health. You need to:

- drench effectively at weaning and/or early summer
- with summer rain, check if another drench needed
- vaccinate at marking and weaning
- provide selenium or other trace elements over summer in deficient areas
- provide an effective fly preventative
- wig if appropriate
- provide access to fresh, clean and cool water.

Monitor progress

Good management of weaners means knowing their weights and condition scores. Check a small sample when the weaners are in the yards. Monitoring reduces reliance on luck.

Aim to have low deaths

Losses of weaners cost money! For 5% loss of lambs by weaning at \$60/head = \$300 therefore adds \$3.10/head to the cost of survivors.

Aim for no more than 3–5% weaner deaths from marking to one-year old.

Over 3% missing? What killed my weaners? Find out!

**Unfortunately, high rates of weaners 'missing' are too common.
It is seldom sheep stealing, sometimes lupinosis, but usually
poor feeding.....that is bad management!**

Further information

- www.sheepcrc.org.au for more details on targets and feeding for weaners and the High Performance Weaner course

Lifetime ewe management

Healthy well-fed sheep make money

Lifetime ewe management is about having ewes in the right condition at the right time.

Getting stocking rate right is a key strategy for feeding ewes well. Whatever your stocking rate (high or low), having ewes in the right condition at the right time is the most effective use of feed and grain. Having ewes too thin when it is important, is more of a waste than having ewes fat at times that aren't important. Once sheep have slipped in condition it is difficult to recover and fatten them.

Joining and lambing are the two most important times to have ewe condition right.

- Ewes in better condition at joining conceive more lambs.
- Ewes in better condition at lambing will increase lamb survival and wool production, as well as improving their own survival at lambing.
- Multiple-bearing ewes are the most important to look after and are most affected by lack of feed.

Weaning time gives you the best time to get ewes back into good nick for the next joining. Maintain them from when they get to peak condition (early to mid-summer) until the end of joining to maximise conception rates. Remember it takes more feed to hand feed ewes back to target condition than maintaining them at target condition all along. Use green pasture to put on condition and then maintain them with grain if you need to.

Make sure ewes are condition score 3.0 (multiple-bearing ewes condition score 3.3) by lambing and have good feed in the lambing paddock to encourage them to stay on the birth site longer.

Condition score targets at lambing — high rainfall zone

Lambing time	Condition score target
Lambing on green feed	CS 3.0 at joining
	Allow moderate loss (0.3) from rams out until day 90 or scanning, provided that the lost condition can be regained prior to lambing (at least 3.0 for singles and 3.3 for multiples)
Lambing on dry or poor green feed	CS 3.0 at joining
	Maintain condition until lambing (at least 2.7 for singles and 3.3 for multiples)

Further information

- www.lifetimewool.com.au — condition score targets for your area

To join a Lifetime Ewe Management group

- visit www.rist.com.au or telephone RIST 03 5573 0943

Feed budgeting saves stress, time & money

FOO is important — learn your trade, learn how to estimate FOO

How much pasture *do* you have? How much pasture *will* you have?
How much do you *need*?

Regular feed budgets are a part of running an efficient sheep business. In the pasture growing phase it requires knowledge of *feed on offer (FOO)*, current or expected *pasture growth rates* and the *feed requirements* of stock. This allows stocking rates to be determined, growth and liveweight change to be predicted, and if necessary hand feeding to start *before* animals start to slip.

Feed on offer (FOO)

Feed on offer is an estimate of the pasture available to grazing sheep, measured in kilograms of dry matter per hectare — kg DM/ha. Estimating FOO is an important skill for sheep managers, it can be learned from experienced advisors or from pasture photo guides. Using these pasture photos (www.feedonofferlibrary.com) will help calibrate your assessments as pastures mature.

In autumn and winter, the emphasis is on increasing FOO, while in spring it can be about ensuring FOO does not get too high. In a poor season FOO will need to be managed so that it doesn't get too low and affects the growth rate. In a good season, control of FOO will require management, and it provides an ideal opportunity for:

- pasture topping either chemical or mechanical
- hay freezing *in situ*
- fodder conservation — hay or silage.

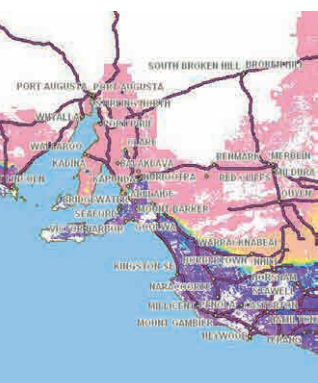
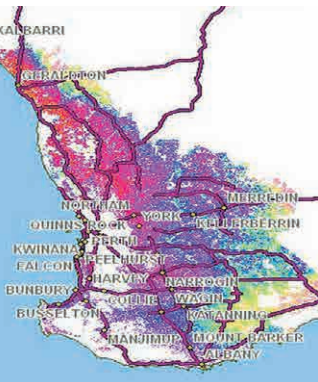
Sheep managers need to estimate paddock FOO levels to ensure that their stock are properly provided for. *Learn your trade*. Once learned, estimation is quick and simple.

Pasture growth rate

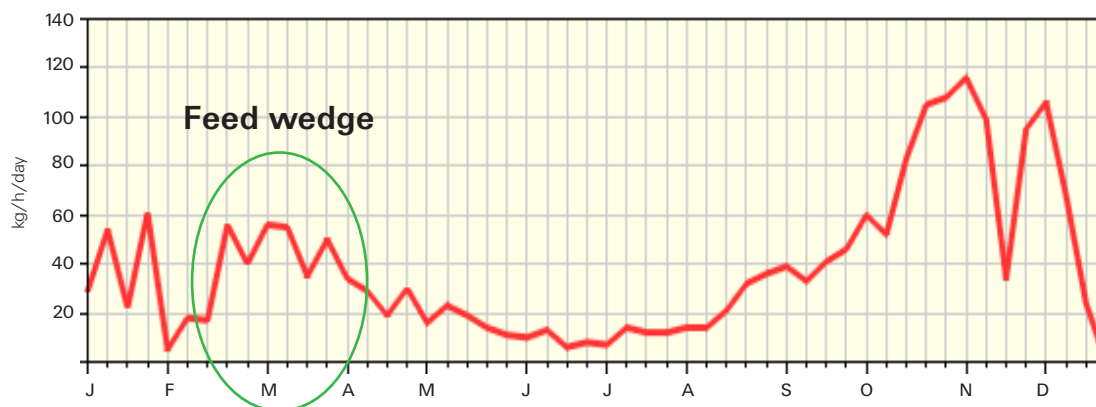
Pasture growth rates which can be read as feed availability at a given FOO, will depend on the season and in particular the time of the break. Check rates for your district at www.pasturesfromspace.csiro.au

Pasture growth rate is the amount of dry matter in kilograms that grows each day. The rate varies over the season. It can be under 10 kg DM/ha/day in the cold, wet, cloudy, short daylight hour days of winter. In contrast it can be as high as 80 kg DM/ha/day or more in the peak spring growing period.

- With an *early break* there is rapid early growth and the creation of an autumn feed wedge that will last through winter as extra available feed.
- With a *late break* there will be slow early growth, less winter feed and less total feed for the year. The total growth of a late break year will never be as much as an early break year.



Pasture growth rates



Pasture growth rates for the South Gippsland Shire in 2012 showing the feed wedge developing in March and April

Source: Pastures from space www.pasturesfromspace.csiro.au

Feed requirements of sheep

The daily energy requirements of sheep are known but it varies considerably with class of stock and stage of reproduction.

Feed on offer (FOO) and energy requirements of a medium frame sheep

Feed category	High quality (75% digestible) FOO (kg DM/ha)	Poor quality (65% digestible) FOO (kg DM/ha)	Energy intake MJ/head/day approx.
Mature dry sheep	400	700	8.5
Pregnant ewes			
- mid term	500	1000	9.0
- last month	800	1500	11.5
Multiple-bearing ewes	800	1500	13.5
Lactating ewes			
- singles	1000	nd	20
- twins	1500	nd	26
30 kg weaners			
- maintenance	550	700	6.0
- 50 g/day	650	1050	8.0
- 100 g/day	800	1600	10.5

Feed budgeting

Grazing management boils down to good feed budgeting. Completing a feed budget involves working out:

- how much energy sheep are likely to be getting from the pasture. This can be worked out with sufficient accuracy by assessing FOO, estimating quality and finding out pasture growth rates
- how much energy sheep need — see table above for energy requirements for ewes.

If there is excess energy sheep will be gaining liveweight, if there is a shortfall sheep will be losing weight and depending on the class of stock and severity of the shortfall extra feeding may be required.

Multiple-bearing ewes will have lost more condition and must be helped to regain condition so they can be productive for the next joining.

Effect of stage of pasture growth on digestibility and energy content

Stage of growth	% Digestibility	Energy content (MJME/kg)
Short actively growing vegetative pasture	80 %	12.0
Tall actively growing vegetative pasture	75–80%	11.0– 12.0
Early flowering	70–75 %	10.0– 11.0
Late flowering	65–70 %	9.0– 10.0
Dry stems and leaves at start of summer	55–60 %	7.0–8.0
Dry residue at the end of summer	40–45 %	5.0–5.5

Further information

- www.feedonofferlibrary.com
- www.mla.com.au/News-and-resources/Tools-and-calculators – including feed demand calculators, stocking rate and pasture improvement calculators
- www.lifetimewool.com.au and www.agric.wa.gov.au/sheep – handy feed budgeting tools

Feed out efficiently

Feeding should always be based on a feed budget that takes into account the existing condition of the sheep, the target condition of the sheep, what's in the paddock and therefore how much extra feed is required to meet the condition target.

Don't make feeding a chore

Focus should also be given to stock that need feed the most, i.e.:

- the tail of the mob
- multiple-bearing ewes
- growing sheep.

Grains & pellets

Grains and pellets can do the job but it must be realised that many grains such as oats vary a lot in their quality, so get them tested and remember that starchy grains must be introduced very slowly to avoid acidosis.

Grains and pellets are usually trail fed but can also be spun out in the paddock to good effect. Grains and pellets can also be made available to stock through lick feeders.

Grains and pellets must be fed regularly — minimum of twice a week and better, three times a week.

Lupins — little packages of energy & protein that save labour

Lupins can be difficult to source and often seem relatively expensive compared with other grains, on technical feed value, *but* in practice they punch well above their weight and perform better than other grains in a paddock situation. *Also* lupins are nicely packaged so there is less waste in feeding them. The major advantage of lupins is in saving labour. They can be fed out every one to two weeks as long as the same total quantity of feed is presented to the stock over the same time. This is because lupins do not contain starch and therefore they do not cause digestive upsets.

Licks & blocks

Licks and blocks are popular, particularly in the dry season as they can be left out in the paddock, but be wary about their value in both dollars and need. They are not a complete food — energy is usually what sheep need in the dry; and claims of production and profitability are seldom scientifically substantiated.

If you are hand feeding, analyse what you are doing and look for ways to reduce labour.



Confinement feeding

Containment areas require grain feeding. They do require a bit of extra work but the energy is used efficiently and the rest of the farm is protected from overgrazing. The main benefits of containment areas are:

- energy saving for sheep, i.e. less walking
- less paddock degradation
- good for deferring the grazing at the break of season giving more paddock feed later.

Lick feeders

Lick feeders feed out in a controlled fashion, giving confidence that the mob will get what they need. The major benefit is the daily access to feed, especially cereals, without daily attention.

Lick feeders attempt to regulate intake of supplement by requiring sheep to actively `lick` feed from restricted areas within the feeder. Lick feeders can restrict the access of pellets but not as much as anticipated when dry feed is low.

There is less wastage with lick feeders from either spillage or spoilage compared with about 20% loss with other types of self feeders, and some claim a 25% reduction in wastage of supplement compared with trail feeding on the ground.

Some producers have found lick feeders reduce the labour and time to feed sheep in summer and autumn, as taking out the feed cart can be reduced to once every 5 to 7 days.

Lick feeders are not labour free. You need to introduce grain slowly, check rates and number per mob, check for blockages, refill feeders and regularly move them around the paddock.



Final tip

If you are feeding out, *get a big feed trailer*. So often you see small trailers and the requirement for many trips. The savings in fuel and wear and tear on the vehicle alone will be likely to pay for the cost, never mind the labour saving. Most farm utes cost 40–50 cents per kilometre in depreciation and running costs. Also it can be just one more instance where a little investment will save a lot of time with sheep.

Hand feeding uses labour — but the labour required can be reduced substantially with better feeding strategies.

Further information

- www.wool.com — *Managing drought feedlots*, Australian Wool Innovation
- www.productivenutrition.com.au/COPlambfinishing/index.html — National guidelines for feedlotting sheep
- Feeding and managing sheep in dry times. Bulletin 4697 (WA and SA dept.s)



Money grows in paddocks

Make the pasture work for you

The selection of a grazing system depends on the production objectives, the requirements of the stock and the requirements of the pastures, as well as management preferences and availability of labour. In most cases there will be a combination of a number of grazing systems within a year — set stocked at some stages and rotational grazing at others.

Set stocking or rotational grazing?

Factors to consider when selecting a grazing system.

- Set stocked systems require less labour.
- Animal production per head tends to be lower under rotational systems because stock can't selectively graze like they can in a set stocked system.
- A simple four-paddock rotation system has been shown to increase stocking rates by 10–15%.
- A strict rotational system that controls feed intake to requirement can significantly increase winter stocking rates.
- Rotational systems will favour pests such as red-legged earthmite and lucerne flea.
- Rotational systems increase perennial plant persistence and productivity.
- It is easier to control and manage feed on offer under a rotational system.
- Bigger mobs can be managed in a rotational system.
- Rotational systems are handy for conservation of surplus feed in the spring — take paddocks out of the sequence for fodder conservation.

Rotational grazing — more work but more control

Compared with set stocking, rotational systems require:

- more labour and more skill
- an elevated level of management — constant attention



Two paddocks at different stages of a rotational grazing system.

- possibly more investment in infrastructure— fencing, water
- three years or more to become good at it.

Also, it is difficult to manage lambing ewes in rotational systems, so stock are often set stocked during lambing.

Tips for strict rotational grazing

- Graze paddocks for 2–5 days — no more. Summer may be an exception.
- The stock will tell you when it is time to move (vocalising).
- Plan the sequence of paddock use carefully.
- Alter gateways to where the stock wish to move between paddocks.
- Mix annual and perennial pasture paddocks in winter.
- Defer grazing until feed target has been reached (500–800 FOO). Use a containment area or stubble in the meantime.
- Be prepared to leave some ewes behind at lambing and collect them later, even the next time round.

Feed on offer

Pasture availability during the growing season can be estimated from the average height of the pasture and the density of the pasture or by using FOO photos (www.feedonofferlibrary.com).

FOO will vary depending on the species present in the pasture and the nature of the grazing enterprise. Dense pastures are common in set stocked sheep pastures. Rotationally grazed pastures and cattle pastures will tend to be moderately dense.

How good is the FOO?

The best guide to feed quality is the growth stage of the plant. Feed quality is high while the plants are vegetative but drops quickly as plants run to head and set seed.

Effect of stage of pasture growth on digestibility and energy content

Stage of growth	% Digestibility	Energy content (MJME/kg)
Short actively growing vegetative pasture	80%	12
Tall actively growing vegetative pasture	75–80%	11–12
Early flowering	70–75%	10–11
Late flowering	65–70%	9–10
Dry pasture at start of summer	55–60%	7–8
Dry pasture at the end of summer	40–45%	5–5.5

Pasture growth rates will vary from year to year and seasonal conditions need to be considered.

Remember, that the time of the autumn break is critical for determining the year's stocking rate, especially over winter. If the break is one week each side of normal it can alter the stocking rate by up to 10% per week. That is, up with early breaks and down with late breaks. This will vary across regions so get advice for your particular area and farm.

Some practical feed targets for improved pastures

Break of season — defer until 500–800 FOO. Don't defer in an early break. While there may be some increased labour associated with an autumn deferment, there will be reduced feeding later in winter if a feed wedge can be developed.

Winter — feed level close to 1000 FOO for ewes at the point of lambing and 500 FOO for dry sheep.

Spring — gives opportunity to manage pastures in order to:

- maximise seed set of desirable species
- manipulate composition for next year through spray topping etc
- maintain nutritive value.

You may need to sacrifice some lower performing paddocks by allowing them to grow out of control in order to preferentially graze higher performing paddocks.

Summer–autumn — manage grazing to prevent wind and water erosion (no less than 1000 FOO on the flat and 1200 FOO on the slopes).

The amount of feed that needs to be left on a paddock going into spring will vary. In grazing only areas with no summer growth, levels of up to 4500 FOO are often needed to ensure the end of summer/autumn targets are met. Where stubble grazing is available or where growth is expected over summer, lower levels can be left.

Reseeding

After a long cropping cycle, reseeding of pasture legumes, depending on the aim of the rotation and soil type adaptability, is appropriate.

Lack of early growth is a problem with reseeding, so plan the task when there is an early break to the season. For early grazing it may be appropriate to add some ryegrass (1 kg/ha) or a light seeding of cereals. Keep in mind the impact grasses may have on future crops.

Sow shallow into a firm, fine seedbed and ensure red-legged earthmite are controlled early.

It is important to graze quite heavily approximately six weeks after seeding to encourage the sub-clover. Then remove the stock at early flowering to encourage seed set of the clover. With medic pastures, graze moderately to control grasses until flowering. Carefully monitor summer grazing, as over-grazing of pods will reduce future pasture regeneration.

Further information

- www.makingmorefromsheep.com.au/grow-more-pasture/index.htm
- www.pasturepicker.com.au

Pasture systems

Pasture types in south eastern Australia are varied and the pasture system tends to depend on the proportion of crop on the farm.

In mixed farming systems the pastures in the ley (non-cropping) phase are often annual legume based (sub-clover on acid soils or annual medics on alkaline soils) or lucerne based.

In the grazing-only areas, most pastures are dominated by sub-clover, annual grasses (silver grass, barley grass, soft brome and Wimmera ryegrass) and a range of broadleaf weeds. Large areas have been sown to perennial grass species in the past and contain varying levels of perennial grasses and the range of annual grasses.

Mixed composition is best

A good content of clover is required to ensure that the pasture is supplied with nitrogen, however a high percentage (> 50%) of sub-clover or medics in the pasture can result in poor early-season growth and potentially reduced animal performance and health issues (e.g. red gut). A suitable cultivar of annual ryegrass is an ideal companion but needs to be managed correctly in paddocks that are to be cropped into the future.

Other species that will be present are volunteer grasses such as annual ryegrass and brome, winter grasses like silver grass and barley grass, and broadleaf volunteers such as capeweed and geranium/erodium. It is not desirable to have silver grass, barley grass or geranium/erodium more than 10% of the pasture.

Achieving the ideal pasture

Getting the right amount of sub-clover or medic in pasture can be done by a combination of herbicide application, grazing pressure and fertiliser application.

Manipulation with herbicides

The reasons that weeds invade pastures are generally due to lack of competition from suitable species or factors that prevent the desirable species performing to potential. Use herbicides for immediate effect but understand the reasons for the weeds and address those issues.

Get good advice on using herbicides to increase legume content (especially alternative legumes) and control problem species. Generally:

- barley grass — spray top
- silver grass — winter clean (simazine)
- broadleaf weeds (capeweed, Paterson's curse, geranium/erodium) — spray graze (use MCPA for clover, but not medics, then graze and stock will eat the weeds preferentially and reduce their content).

The long-term solution to plants such as capeweed is to out-compete them with a vigorous perennial pasture.

Sub-clover
is great
for labour
efficiency

Grazing management

Maintaining high grazing pressure in the growing season will reduce excess grass. However, the pasture should not be overgrazed so as to risk soil erosion or insufficient feed for sheep. It's important to ensure that dead plant material from the previous year is mostly gone by the time the break comes to optimise sub-clover germination.



This low winter pasture has only a little legume but will maintain dry sheep.



This spring pasture, at 3500 kg DM/ha FOO, is undergrazed and a wasted resource.

Fertiliser application

Low fertility is the major limitation to pasture productivity throughout south eastern Australia. Major deficiencies of phosphorus, sulphur and potassium and molybdenum are present. Soil analyses and plant tissue tests should be undertaken to determine fertiliser regimes.

As the soil fertility improves through fertilisation, grass will become more dominant, thus it is important to increase the stocking rate as fertility improves. It is desirable to keep FOO to no more than 2500 kg DM/ha, other than at the end of the season.

Excess feed can be controlled by some spray topping to control problem growth in certain paddocks or cut for hay if ryegrass is dominant.

Manage it. Do not just watch it! 5000+ FOO is, frankly, out of control and the legume content will decline.

Where do perennials fit?

In the non-cropping zones, the inclusion of perennial species in a pasture is desirable for a number of reasons.

- Stability in pasture composition — a good strong perennial pasture will restrict broadleaf weeds reducing the need to spray.
- The ability to respond in adverse conditions such as late breaks — perennial pastures grow faster than annuals at the break, reducing the need for hand feeding in poor seasons.
- Excellent for soil conservation on difficult soil types, especially lighter soils.

- Highly productive, if properly managed.
- Utilisation of out of season rainfall and reduced use of feed supplements.

Perennial pastures are expensive to establish, so consider using a contractor. Do it once ... properly! That will be cheapest and save labour in the long run.

- Seed is expensive.
- Autumn sowings can take up to a whole year before there is useable production.

A time frame of 10 or more years is often required to achieve a payback period on the investment in sowing a perennial pasture, so careful selection of persistent, productive cultivars is essential, as is attention to good agronomic practices — particularly weed control.

Local experience will tell you which species and cultivars persist. Don't fall for the trap of sowing a shot gun mix — most of them won't survive and the competition will hinder the establishment of the persistent species. Having to resow a pasture because the wrong plants were sown initially is a waste of time and money, and results in lost production.

Perennial grass species are suited to the higher rainfall zones (> 500 mm) of the south eastern states. However rainfall alone is not a good guide because the different lengths of growing seasons that can be found at each rainfall level. A 500 mm rainfall area in the southern part of Victoria will have a much longer growing season than a 500 mm rainfall area near the Murray River.

Guidelines of selection of perennial species

Pasture options	Rainfall (mm)	Growing season	Comment
Sub-tropical perennials e.g. kikuyu, Rhodes grass, panic grass	> 450		Better suited to areas with summer rainfall
Phalaris	> 400	5–10 month growing season	Also suitable for lower-lying wet areas in lower rainfall areas
Tall fescue	> 600	6–10 month growing season	Winter active cultivars have high drought tolerance
Cocksfoot	> 800	8-month growing season	Old cultivars suited to mild climate and high rainfall. New cultivars are tolerant of low rainfall. Not tolerant of waterlogging
Perennial ryegrass	> 800	Long growing season	Suited to > 800 mm rainfall zone
Tall wheat grass, puccinellia	> 400		Limited use. Also suitable for lower-lying salty, wet areas in lower rainfall areas

Grazing winter crops

Have your
cake and
eat it too!

Crops sown prior to, or at the break, can provide an alternative winter feed option with little or no penalty to crop yield.

Winter crops can be grazed to fill the autumn–winter feed gap, improving animal performance, allowing grazing of pastures to be deferred and allowing extra pasture growth in pasture paddocks for later in the season.

In the case of an early break, grazing can be used to retard development of early sown crops, reducing the impact of premature crop maturation. Both cereal and canola crops can be grazed before stem elongation without affecting yield.

The key actions for grazing crops are:

- ensure a weed free paddock to achieve best yield results from grazed crops
- use varieties with good early growth rates and that suit the area
- sow as early as possible with some nitrogen as well as phosphorus
- adhere to withholding periods for any crop treatments applied prior to grazing
- start grazing once the crop is anchored — the twist and pull test will tell you this
- graze at an appropriately high stocking rate to ensure even grazing
- do not graze past the white line in cereals — leaving some leaf will improve recovery
- to minimise yield loss, do not graze once the stem elongation process commences in cereals (growth stage 30) or after bud formation in canola.

Graze crops with animals that have been vaccinated against pulpy kidney, and ensure gut fill prior to introduction. Roughage should be provided as lush fast-growing crops are low in fibre. Provide salt, calcium and magnesium as supplements to sheep before and during grazing cereals to minimise grass tetany and hypocalcaemia. Above all, monitor the animals and act accordingly.

Winter varieties may produce less biomass than spring varieties when planted later in the season (i.e. not an early break) and may also run out of time to reach their potential yield in areas with a shorter season and lower rainfall.

Grazing crops can help avoid the effects of frost and disease and reduce the level of risk in a cropping system. Stock numbers and/or crop area can be increased on a farm, as there is less reliance on early pasture in a grazing crop system.

When grazing winter crops, the key is to graze with the sheep that most need the feed.

Further information

- www.grainandgraze.com.au – *Grazing winter cereals feed budget calculator* and *Grazing winter cereals ready reckoner*



Breeding labour-friendly sheep

Save labour: have easy-care sheep

It's more than just plain sheep: it's low maintenance with high productivity

Easy-care sheep may seem all about having plain sheep that don't get fly struck but there is much more to them than that.

Historically, sheep have been regarded as hard work and often proven to be hard work. Perhaps the old-fashioned Merino with all its work was acceptable at one time but the majority of people want sheep that are easier to manage whether they are Merinos or meat sheep.

If you are going to run Merinos, make them easy care. The modern easy-care sheep has a range of attributes, apart from a plain body that reduces fly strike. Features of easy-care sheep that provide a high value are:

- **robustness** — they require less feed and are less likely to crash when feed is limited
- **polled** — horns cause injuries to other sheep and their owners, they are not required in any modern sheep enterprise
- **higher body weight**
- **quick early growth** — better weights at weaning and do better post-weaning
- **more fertile** — conception rates higher
- **more fecund** — have more lambs
- **less drenching** — genetically resistant to worms
- **less dags** — which are caused by scouring, and can be reduced genetically.

Other features that easy-care Merino sheep need to have:

- **clean heads** — do not need to be wigged, do not have problems with grass seeds, ewes with woolly faces have less lambs
- **plain-bodied** — usually means less wrinkle in the breech area as well
- **wool-free legs** and a natural bare area around the anus
- **white bright wool** — less prone to body strike.

Easy-care Merinos need to be **more profitable** all round.

It was traditional to find that the plain-bodied Merinos cut less wool. This can be true if the sheep are traditionally bred, but there are many studs that successfully breed plain sheep with good, if not better, wool cut and quality. Always remember — dead sheep cut no wool at all!

The graph on page 61 shows that many rams have both high clean fleece weight and low breech wrinkle, making it possible to select for easy-care sheep with good productivity.



The genetic solution to mulesing

Surgical mulesing will go, either through bans or economic pressure. It is only a matter of time. But that is not all bad news.

In the long run, non-mulesing will be *labour efficient and lift productivity*. Breeding sheep that do not require mulesing is possible, and is effective at reducing flystrike, similar to the mules operation. Three opportunities for selection exist in your own flock ... now.

Wrinkle-free bodies, especially in the breech area

- Breech wrinkle score 1 animals seldom get struck, score 5 animals often do. Wrinkle score 4 and 5 are the real problem sheep and should be culled if possible.
- Scouring can be an allergic reaction to worm larvae with some sheep. If possible consider culling these sheep. Check with the experts.
- If selection for wrinkle is difficult at lamb marking, culling should be at first shearing.
- For rapid progress, select ram and ewe replacements with less wrinkle. Cull the highest wrinkle-scoring ewe replacements each year.
- Easiest time to select against breech wrinkle is at lamb marking — tag the animals and market at an appropriate time.
- Use rams from a source that is also breeding plainer sheep — use Australian Sheep Breeding Values (ASBVs) to identify plain but high fleece weight rams.

Naturally bare-breeched animals

- Animals that have less breech cover (bare breech) do occur naturally.
- Animals with a greater bare area do get struck less often in winter rainfall areas.
- Bare breech is not as important as breech wrinkle in terms of propensity for flystrike.
- Genetic progress for reducing breech cover is possible albeit slower than for breech wrinkle.
- Once you have reduced breech wrinkle to score 1-2, you can select for bare breech.

Freedom from the dreaded dags

- In winter rainfall environments, dags are the biggest cause of breech strike in sheep.
- Review your worm management program to reduce dags.
- Dags are moderately heritable ... progress is possible but slow.

Every little bit helps and is permanent — start now!

There will be rewards for selecting for plain-bodied sheep with less labour and easier management. Continue to select for fleece cut and quality along with plain-bodied traits, such as fleece rot, to achieve a valuable fleeced sheep that doesn't cost in extra care.

Sheep that are genetically less prone to flystrike are the sheep of the future — it need not be the distant future if the woolgrower pays attention to selection.

You have
been warned
— mulesing
will go!



Further information

- www.flyboss.org.au for flystrike management and breeding recommendations

Sheep improvement — use of genetics

If you wish to improve the productivity of your sheep flock the quickest and most certain way is by the application of genetics combined with some visual appraisal.

The techniques required are something that everyone should commit to learning. It will be something to discuss with experts and consultants, together with undertaking appropriate training courses.

Ram selection

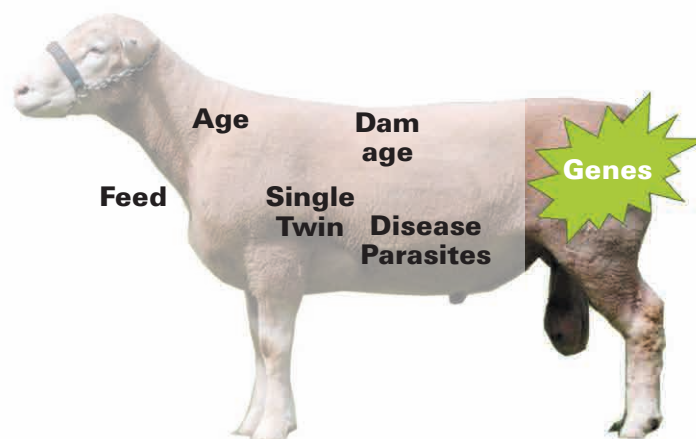
Measurement

- Rams that will improve your flock faster are easy to identify when their performance has been assessed against other rams.
- Breeding values are your guide to excellence. You fly blind in selecting sheep without such values.
- Australian Sheep Breeding Values (ASBVs) allow ram performance to be benchmarked in the stud and against other studs.
- Sheep Genetics provides inter-ram and inter-flock comparisons.
- MerinoSelect can be used to select Merino sires and LambPlan to select meat sires
- There are ASBVs and breeding indexes for all major production areas — weight, carcase, fertility, fleece, parasite resistance
- Training courses are available to help you learn about ASBVs. Check with *Making More from Sheep*, MLA and AWI for details.

Sheep Genetics gives lists of excellence for the sheep industry.

Visual

Visual assessment is still important for the selection of traits without ASBVs, the removal of faults and to ensure a good conformation. But remember, the visual appearance of an animal is heavily influenced by its environment and management conditions, and on its own will be a poor guide to the performance of a ram's progeny.



Source: Bred Well Fed well

Improvement

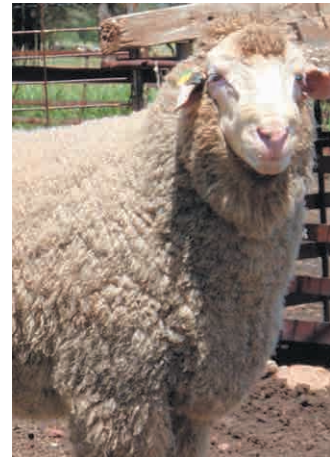
If you continually use a particular ram source, your flock will improve at the same rate as the source, but with a small time-lag. Therefore:

- ensure your ram breeder has similar aims for flock improvement as your own
- make sure breeding values are provided to back up the visual appearance
- ensure that the ram figures are highly ranked in your selected breeding index
- measurement and selection in your ewe flock will increase the rate of improvement.

There are many indexes to choose from. You will need to obtain expert opinion as to which index is best for your aims and ambitions for improvement of your flock. Buy rams that fit your index. Look at the example on page 62.

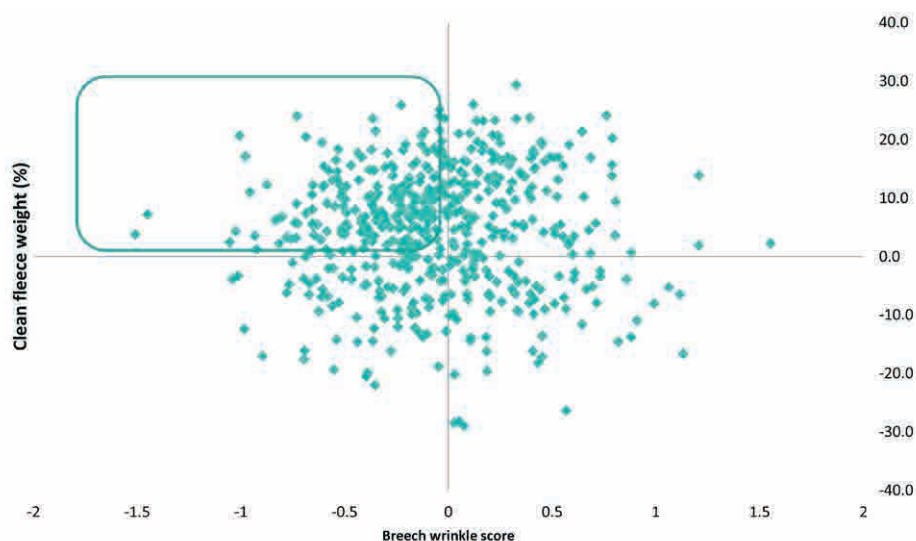
Applying a Dual Purpose Plus index for Merinos — the results after 10 years in the flock

Parameter	Change
Clean fleece weight	+ 8.5%
Micron	0
Body weight	+ 6.1 kg
Lambs weaned	+ 8%
Fibre diameter coefficient of variation	- 0.3 mm
Eye muscle depth	+ 1.0 mm
Fat	+ 0.2 mm



If you wish to have easy-care sheep and retain wool cut and productivity:

- make sure you buy rams from breeders with genetic information, i.e. ASBVs, and have a breeding objective that fits your needs
- balance modern selection techniques with physical requirements, don't go overboard.



This graph shows that there are many rams who have both high clean fleece weight and low breech wrinkle (each dot represents a ram). Source: Sheep Genetics

ASBVs – the genetic language

Produced by Sheep Genetics, Australian Sheep Breeding Values (ASBVs) give the genetic worth of an animal compared with its peers, for a whole range of traits. Breeding values illustrate the improvement that can be expected in an animal's progeny.

The values are delivered by Sheep Genetics through LAMBPLAN for maternal and terminal breeds and MERINOSELECT for merinos.

Breeding values can be used to calculate the true worth of a ram compared with others and therefore can be used to guide your investment decisions.

Visit www.sheepgenetics.org.au and explore the website.

An example of ASBVs for some fleece traits for a ram and the results that can be expected with its progeny at one year of age, are shown in the table below.

Trait	CFW (%)	FD (μm)	FDCV (%)	SS (N/Ktex)	SL (mm)
ASBV	18.0	-1.6	-1.0	4.0	8.6
Compared to a ram with an ASBV of 0, this ram's progeny will have:	9% greater CFW at yearling age	0.8 μm finer at yearling age	0.5% less variation in micron at yearling age	2 N/Ktex stronger wool at yearling age	4.3 mm longer wool at yearling age

CFW – clean fleece weight

FD – fibre diameter (μm)

FDCV – fibre diameter coefficient of variation

SS – staple strength

SL – staple length

An example of ASBVs for some meat traits and the results that can be expected in the sire's progeny.

Trait	BWT	WWT	PWT	PFAT	PEMD
ASBV	0.57 53%	12.3 67%	17.4 68%	-1.2 62%	2.4 70%
Averages	0.26	6.9	10.8	-0.2	1.1
Compared to a ram with an ASBV of 0, this ram's progeny will be:	0.15 kg heavier at birth	2.7 kg heavier at weaning	3.4 kg higher post weaning weight	0.5 mm leaner	0.7 mm deeper eye muscle

www.sheepgenetics.org.au for all ASBVs and details of rams available



It can be done!

It can be done!

There are very profitable sheep farms with simple sheep programs

A history of labour efficiency is the key to many farms keeping sheep over the last 50 years.

Productivity of livestock per person has increased.

In the 1960s, typically a farm would have had around 2000 DSE per labour unit. With the advent and cumulative advantage of higher producing pastures, laneways, bugle yards, sheep handling machines, raised boards, front-filled catching pens with sloping floors, pour-on animal remedies, better understanding of the underlying causes of animal health disorders, internal parasite control and a better understanding of nutrition, the same amount of effort can run 8000–10,000 DSEs per labour unit. The caveat is that there is a flag fall level where you may need to move to the second labour unit to achieve the 10,000 DSEs but then 20,000 should be within reach for two people.

The table below shows the cost of new sheep handling equipment. Good second hand equipment is often available at much less cost. Compare that with cropping machinery!

Approximate cost of new sheep handling equipment

Machinery	New cost
V Machine	\$28,000
Auto jetter	\$18,000
Crutching cradle (3 stand)	\$20,000
Mobile marking station	\$10,000+
Multiple holding yards around the property	\$10,000
Total	\$86,000

This is less than a modest tractor!

Are you having problems with labour? Analyse your situation and see what can be done in order to deal with your labour problems. There are solutions! Others are achieving it.

The aim is more sheep with less stress and toil, and better occupational health and safety. It can be done and many have.

A relatively minor investment provides excellent labour efficiency.



An Australian Government Initiative



Department of Agriculture and Food

