



Books, Book Reviews, Extracts

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Author:	Bob Hall (Icon Agriculture); Andrew Thompson; Mandy Curnow (Department of Agriculture & Food, WA)
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Sheep — the simple guide

making more money with less work

Spring-summer rainfall zone edition

Sheep – the simple guide

making more money with less work

Spring–summer rainfall edition

Spring and summer rainfall regions include the southern tablelands of Queensland, and the northern tablelands, the northern slopes and the northern part of the central tablelands of New South Wales. These areas have predominantly spring and summer rainfall of 650–1000 mm annually.

Authors

Bob Hall, Icon Agriculture, Western Australia

Mandy Curnow, Department of Agriculture and Food Western Australia

Andrew Thompson, formerly Department of Agriculture and Food Western Australia

Contributing editors

Chris Shands, formerly NSW Department of Primary Industries, Glen Innes, New South Wales

Lewis Kahn, University of New England, Armidale, New South Wales



An Australian Government Initiative



Other editions of Sheep — the simple guide to making more money with less work:

- Western Australia
- Cereal–sheep zone of Australia
- High rainfall zone of Australia (winter rainfall)

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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. Generally, 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.

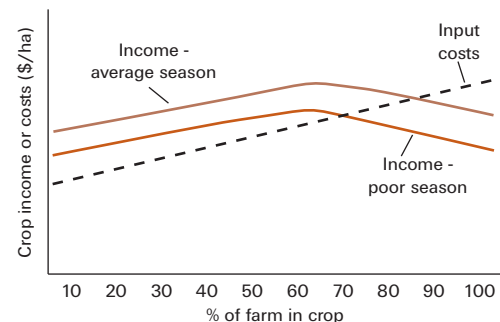
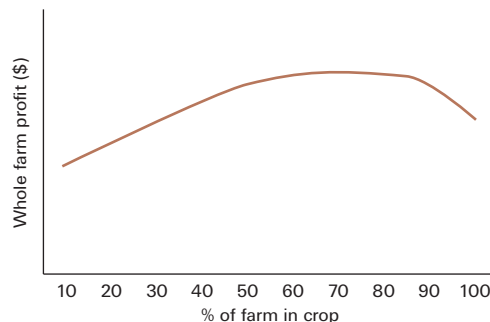
Synergy with beef

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.

Synergy with crop

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

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.

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.

**With good management,
sheep need not be labour intensive.**

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

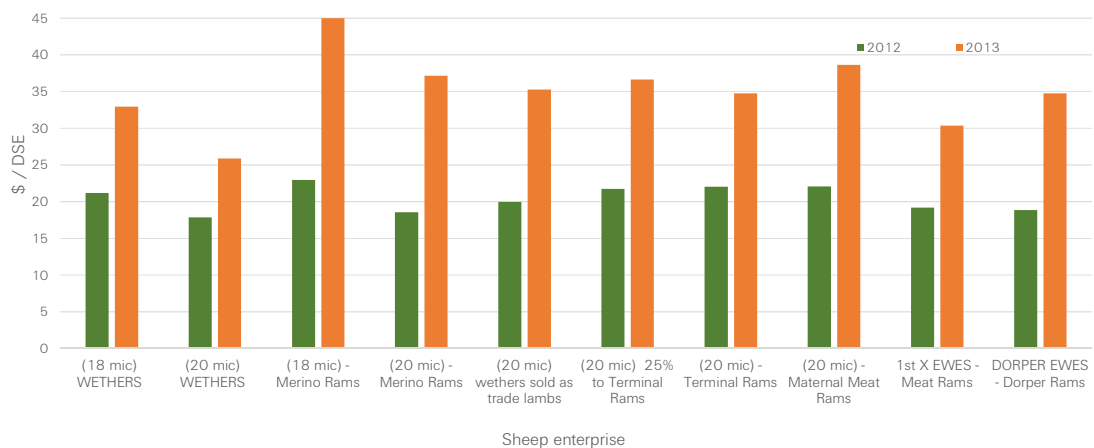
Income

- 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

Comparative gross margin for different sheep enterprises (\$/DSE)



These gross margins are an average of cost and income over a six-month period. There has been some large variation between years so the period of prices used can impact on the result. To convert \$/DSE to \$/ha, multiply by 10 to account for the stocking rate of 10 DSE/ha.

Source NSW DPI 2014

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



Know where your business is at

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

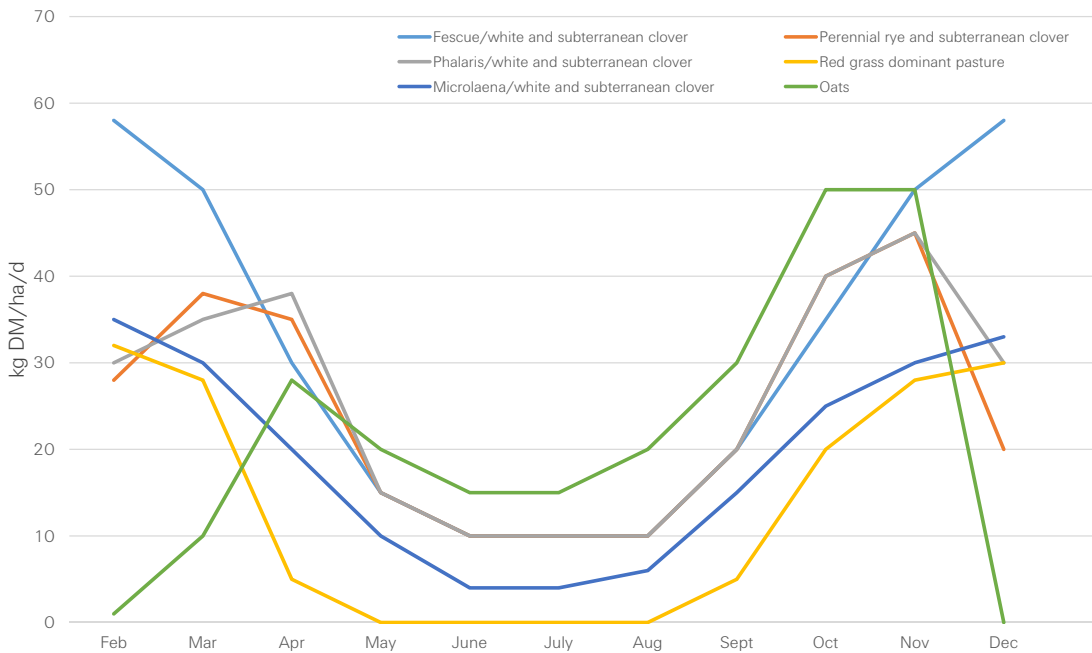
Having an appropriate stocking rate is *the* key performance indicator to sheep profitability. Occasionally with an adverse season (especially with a dry spring) the selected stocking rate will be simply too high. This problem is frequently cited either as a reason for selecting a sub-optimal and less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

Without adequate winter rainfall and regular spring falls, adequate pasture accumulation for the next autumn and winter will be severely restricted. An exceptional summer will rarely make up for a poor start. Timely decisions are a must!

As a rule of thumb, if at least two thirds of annual rainfall has not been received by mid-spring then feed is highly likely to be significantly restricted, especially for carry over feed for the following winter. This applies mainly to areas of the tablelands.

It is better to make appropriate and planned decisions throughout the season rather than expect that a few falls of rain will be enough to make up for a dry start to the pasture growing season.

Estimated pasture growth rates – northern tablelands NSW



Winter growth is low for all pasture types but improves as the temperature increases in spring. Growth of annuals such as oats and clover declines again in summer.

Source: Prograze™

Action beats hope

Have a *plan of action* ready if winter or spring rains are late. This should be a written plan of sequential actions that are linked to specific times.

A plan of action for a dry spring and summer

- Monitor the condition score of ewe flocks to gauge their need for supplementary feeding.
- Consider early weaning of lambs. Lambs can be weaned down to eight weeks of age and a minimum of eight kilograms live weight. Ensure lambs are fed on a similar ration to that which the ewes were fed on leading up to weaning. Introduce the ration gradually and use plenty of good quality lucerne hay during the introductory period.
- Check feed availability and consider ordering more of the same type of feed.
- Weaners will need a balanced ration with a minimum 15% crude protein level.

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:

- always pregnancy testing, including for multiple births
- sowing grazing cereals on late summer rains
- buying and storing feeds when more available at harvest time
- having a flock mix that allows some sales other than at normal selling times; cattle may assist with this stock balance
- improving pasture to capitalise on spring and summer rain fall events and this could include summer responsive tropical species.

A dry spring–summer season

In the event of a dry spring and summer, 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 lower condition score ewes (bottom 20%), preferentially
- look after multiple-bearing ewes better
- buy extra feed early it may be cheaper
- ensure an effective drenching program — don't feed worms.

Increase feed availability:

- create fodder budgets for lambing and weaning paddocks
- start supplementary feeding earlier or use confinement feeding to defer grazing selected paddocks
- establish more crops for grazing
- prior to weaning, teach lambs to feed while on their mothers
- rotationally graze to improve feed utilisation.



**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.

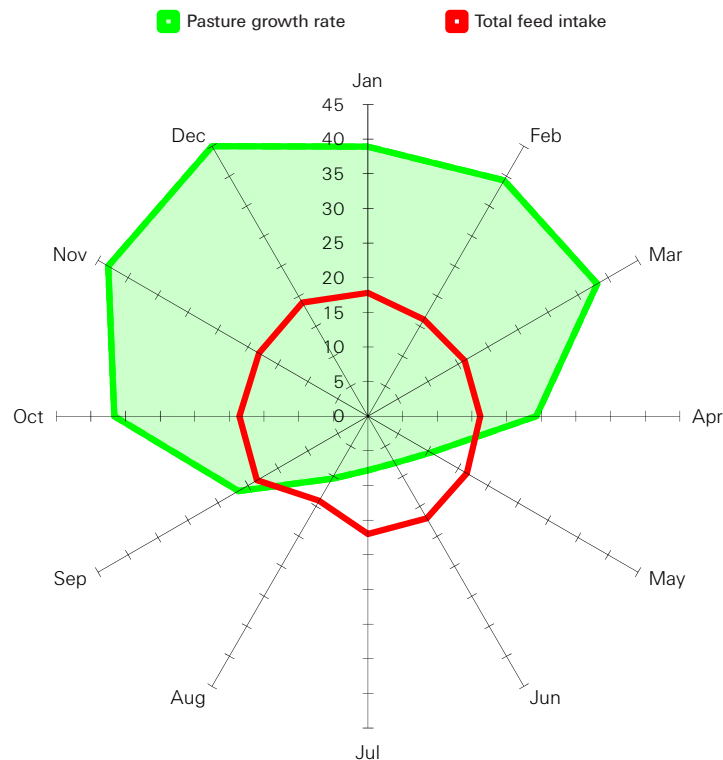
Matching feed requirements to pasture availability

Pasture growth for a typical improved pasture on the northern tablelands of New South Wales, with normal rainfall, is illustrated by the green line on the spider web graph below. It shows that there is low pasture growth in winter months and peaks in late spring and summer. The red line on the graph shows the nutritional requirements throughout the year for a September lambing.

The area of the graph, where the red circle is outside the green circle, indicates a pasture deficit. A September lambing provides the best match between peak pasture production and peak feed requirements and would allow for autumn pasture growth to be saved for winter grazing.

The cheapest and most easily-fed sheep food is pasture. Therefore logic dictates that sheep requirements should match pasture availability, as closely as possible. This is a major factor in saving labour and feed costs without any compromise to husbandry.

Pasture growth rates for the northern tablelands of New South Wales



A comparison of pasture growth (kg DM/ha/d) and nutritional requirements (kg DM/ha) of September lambing ewes, stocked at 7.5 ewes/ha.

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. Lamb marking is also a good time for jetting – select a treatment that will offer protection for at least 90 days. Checking and treating for worms is one of the most important tasks.

Suggested calendar of operations for the spring–summer rainfall region

Operations	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Shear ewes							XX	X				
Shear lambs/ weaning	XX											XX
Crutch		XX										
Drench and monitor ewes and lambs								XX			X lambs	XX
Pregnancy scan/monitor/ vaccinate ewes/drench if required							XX					
Mark lambs										X	X	
Vaccinate								XX ewes		X lambs		X lambs

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

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/
- www.pasturesfromspace.csiro.au for detailed and current pasture growth information

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 or use lick feeders.
- 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
- 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 or multiple lick feeders 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.

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



Think about how you can 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 lambed and lost ewes identified 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, vaccinate and tag • Score and mark lambs for breech wrinkle
	Ewes	<ul style="list-style-type: none"> • Jet • Drench (only on test) • Identify lambed and lost 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, especially twin bearing 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
Pregnancy scanning	Ewes	<ul style="list-style-type: none"> • Drench — (only on test) • Annual booster of vaccine • Dry ewes for keeping separate • Multiple-bearing ewes for keeping separate • Condition score some ewes • Separate tail of the mob for special treatment

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.
- Races can be mobile, which is also useful.
- 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.

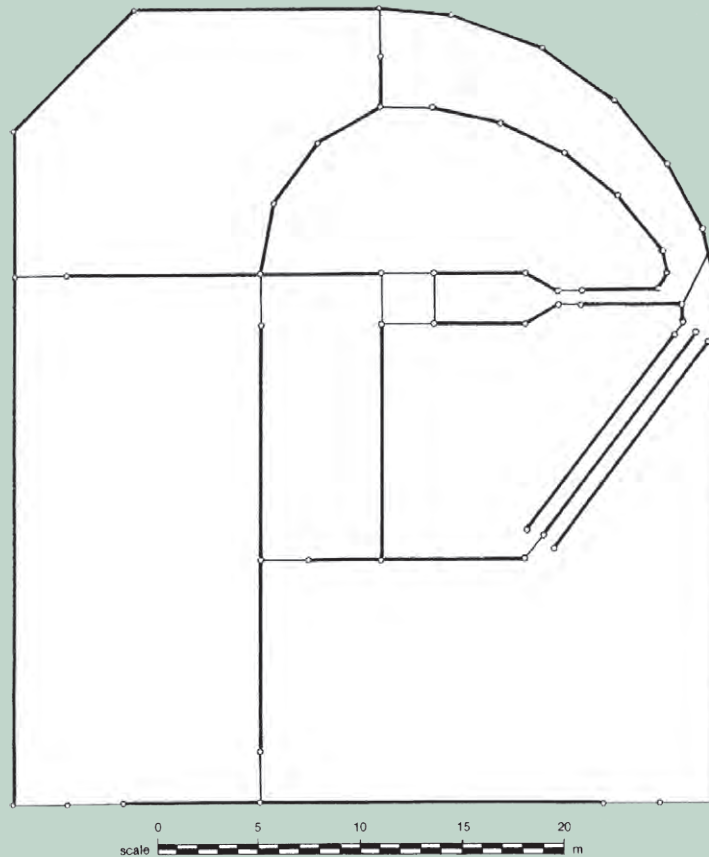
Load for transport (the ramp)

- 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.

- [Shearing sheds & sheep yards](#) on Australian Wool Innovation website
- [Sheep yards & equipment](#) on NSW DPI website
- 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 per head 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 Klik®, 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 Klik 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
- [Breech Flystrike](#) on Australian Wool Innovation website
- www.agric.wa.gov.au/flystrike for iPhone 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 — do not use this chemical group for lice control
- 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

Integrated plans work

Test for drench resistance and only use effective drenches. Ineffective drenches cost labour so it's important to know what works for you — you will get better results and your drenches will last longer.

Recommendations for spring–summer rainfall environments

- Prepare low worm-risk spring lambing and summer weaning paddocks.
- Choose rams with negative ASBVs for worm egg count.
- Conduct drench resistance tests every 2–3 years.
- Always use an effective drench and where possible multi-active combinations.
- Give ewes a pre-lambing drench and lambs a weaning drench.
- Use WormTests to determine the need for drenching at all other times.

Worm egg count (eggs per gram) thresholds for Barber's pole worm

Sheep condition (or growth rate for weaners)	Pasture condition		
	Poor	Moderate	Good
Poor	600	800	1000
Moderate	800	1000	1100
Good	1000	1100	1200

Source: WormBoss Worm Control Program: Qld/NSW Summer Rainfall Tablelands and Slopes

The biggest cost of worms is lost production and stock deaths; and not the cost of drenches, monitoring and tests. WormTests for ewes are recommended prior to shearing and weaning, and usually every 4–6 weeks at other times of year for all stock. The high-risk period is over summer and autumn from Barber's pole worm. Seek advice on interpreting WormTests and visit www.wormboss.org.au for detailed information.

Grazing management for worm control

Prepare spring lambing paddocks by preventing contamination with worm larvae in the six months prior to lambing.

- March and April: spell paddocks, graze with cattle or graze with sheep only in the 0–21 days after an effective drench.
- May–August: no grazing restrictions apply when maximum daytime temperatures are consistently below 18°C, if they are not use the same strategy as for March and April.

Prepare summer weaning paddocks by preventing contamination with worm larvae in the three months prior to weaning.

- Spell paddocks, graze with cattle or graze with sheep only in the 0–21 days after an effective drench.

Good nutrition reduces worm problems. Actively growing weaners or weaners of good condition score are less susceptible.



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/
- Check with your Local Land Services veterinarian for OJD recommendations and stock introductions www.lls.nsw.gov.au/livestock

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. In northern New South Wales and southern Queensland, sheep introductions need to be reported to the local livestock authorities for the monitoring of OJD status.

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. The effect of the disease is reduced lamb marking percentage, extended lambing period and a high ram culling rate but is hard to diagnose newly infected rams. Buyers should check the brucellosis status of the flock and only 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.

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
- Visit the App Store for [Sheep Condition Score app](#) for iPad and iPhone

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 around day 90 from the start of joining.

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

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 from the start of lambing 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.

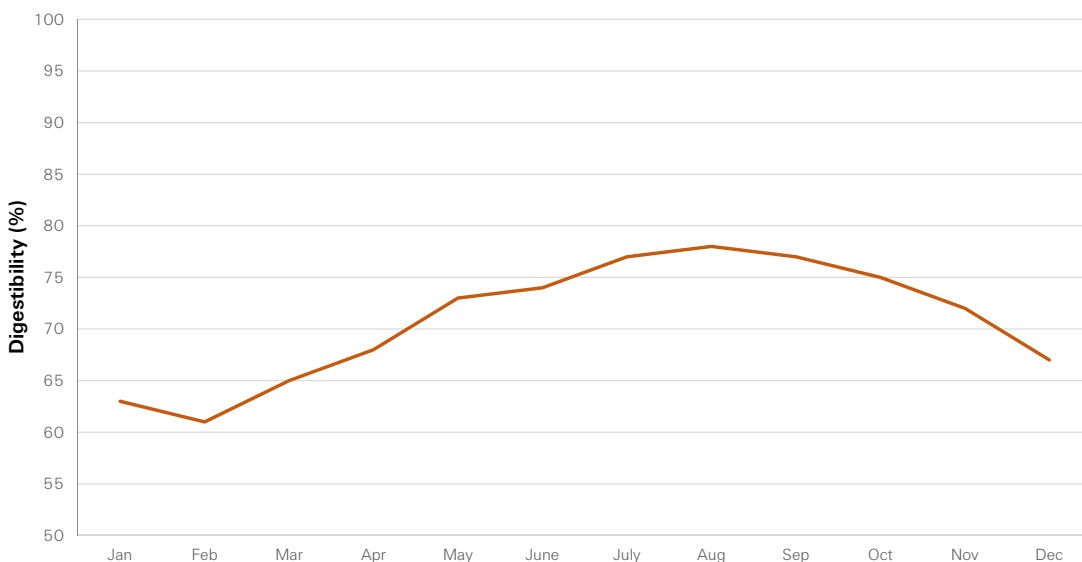
Also prepare to 'imprint feed' the lambs while they are still on mum. They will learn to feed more quickly and be happier.

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).

Digestibility of an improved pasture at Glen Innes



Digestibility of green herbage declines through summer and the early autumn months, as shown by this graph of digestibility of improved pasture at Glen Innes, 1989–91.

Weaners will perform at their best if grazed on pastures containing fescue and at least 20% legume, usually white clover. Grazing oats and/or ryegrass pasture will also provide good quality feed of sown in early February.

Weaner management is about good planning

Aim for growth

Healthy Merino ewe weaners, lambled in spring, should reach the following weight targets in their first year:

- weaning — 20 kg plus (40% of adult weight)
- start of winter — 25 to 30 kg (45% of adult weight); weaners need to grow at 100 g/head from weaning to the start of winter
- following spring — 35 kg.

To meet these targets, the ewe weaners have to grow over their first summer, not just maintain weight. Aim to have weaners growing at one kilogram per month through their first winter.

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 — 35 kg plus and achieved a growth rate of 300 g/head/day from birth
- autumn — from weaning to marketing, lambs will need to grow at 200 g/head/day

In order to meet trade specifications, market ewe lambs and fatter wether lambs in January and February before they reach high fat score 3. Consider forward contracting a percentage of the total spring drop to be available at a minimum of 50 kg liveweight and fat score 3 by April or May for the export market.

If lambs are to be shorn before sale, allow 10 weeks for sufficient wool to regrow to achieve acceptable skin values at slaughter.

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
- continually monitor mobs for worm infestations
- 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 but usually worms and poor feeding through winter ... that is bad management!

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 their target condition score.

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 poor quality or 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 (late 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 — spring–summer rainfall zone

Lambing time	Condition score target
Lambing on green feed	CS 3.0 at joining
	Try to maintain CS 3.0 through to lambing. In most seasons it is likely that you will have to feed the twin-bearing ewes in the last month prior to lambing
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

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

- using cattle
- fodder conservation into 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.

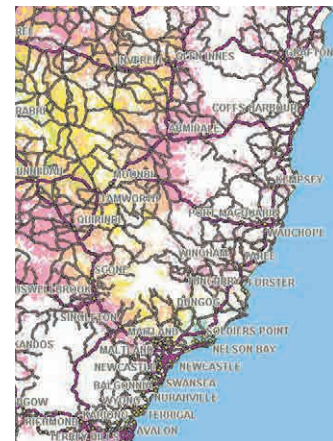
Pasture growth rate

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 well under 10 kg DM/ha/day in the midst of winter. In contrast it can be as high as 50 kg DM/ha/day or more in the peak spring–early summer growing period.

With adequate late winter and early spring rainfall there is rapid early growth and the creation of excellent feed conditions for lambing. This high quality feed will deteriorate in quality in late spring and early summer so it is advisable to utilise it as much as possible when it is young and actively growing.

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



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.

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

Don't make feeding a chore

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.

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. 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. The major advantages of lupins are their ease of handling, low feed out wastage, good balance of energy and protein, and being low in starch, their safety to feed.

Cottonseed

Cottonseed is a very useful feed that is readily available in northern New South Wales and southern Queensland. It has a high oil content, which self-limits intake by sheep. Cottonseed can be fed in dumps on the ground and will provide about 30% of normal supplement intake. It provides a good balance of energy and protein and is safe to feed.

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 late winter, leading up to lambing. One word of caution, when using lick feeders avoid running out of supplement as the ewes may gorge themselves when the feeder is refilled. Locate the feeder away from water — when ewes get a dry tongue and tire of licking, they will go to water and allow other ewes access to the feeder. Never add salt or ground limestone to the lick feeder mix. Those supplements can be made available in separate tubs adjacent to the feeder.

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

- [Managing drought feedlots](#), Australian Wool Innovation
- [National guidelines for feedlotting sheep](#)



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 spring and summer stocking rates.
- 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 to green FOO and flock production



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. Winter 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 kg/ha green FOO).
- 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. In normal seasons, pastures start to mature through the summer months, especially phalaris, fescue and clover-based pastures. It is difficult to keep these pastures in a vegetative phase even with heavy grazing using sheep or cattle.

Effect of stage of pasture growth on digestibility and energy content

Stage of growth	% Digestibility	Energy content (MJME/kg)
Short actively growing vegetative pasture	75–80%	12
Tall actively growing vegetative pasture	70–75%	11–12
Early flowering	65–70%	10–11
Late flowering	60–65 %	9.0–10
Dry pasture at start of winter	55–60%	7.0–8.0
Winter frosted native pastures	40–45%	5.0–5.5

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

Reliable late winter rainfall, to store enough soil moisture for an early start for pasture growth in the spring, is critical. Continuous rainfall events are required to ensure pasture growth meets production expectations. The later that rain falls through the spring, and into the summer, the shorter the effective growing season and less accumulation of feed for next winter.

Some practical feed targets for improved pastures

Early spring — try to avoid grazing pastures that have less than 500 kg DM/ha green FOO

Spring — try to save feed in lambing paddocks, 1500 green FOO for twin-bearing ewes at the point of lambing and 1000 green FOO for single bearing ewes.

Late spring and early summer — gives opportunity to manage pastures in order to:

- maximise seed set of desirable species
- maintain nutritive value and keep pastures in a vegetative stage for maximum quality production.

Summer–autumn — try to maintain at least a 70% ground cover to reduce the risk of weed invasion and potential top soil loss through water erosion. Try to target pastures at no less than 1000 green FOO on the flat and 1200 green FOO on the slopes).

The amount of feed that needs to be left on a paddock going into winter will vary. In grazing only areas with no winter growth, levels of up to 3000 green FOO are often needed to ensure the end of winter targets are met.

Further information

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

Pasture systems

Pasture types in the spring–summer rainfall regions of 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 legume based and include lucerne and white clover in the higher altitude areas, while some sub-clover is grown at lower altitudes.

In the grazing-only areas, most pastures are dominated by locally-adapted white clovers, some sub-clover, and improved perennial species like fescue, phalaris and cocksfoot. Tropical pasture species are becoming more common and respond well to summer rainfall. Annual grasses include a range of bromes and barley grass.

Large areas have been sown to perennial grass species in the past and their ongoing vigour depends on fertiliser applications, grazing management and clover content.

Weed infestations are common with African love grass and Chilean needle grass being a real concern as a pasture invader.

Mixed composition is best

A good content of clover is required to ensure that the pasture is supplied with nitrogen and in the northern areas, white clover levels seldom exceed 30% of the pasture mix.

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 white clover and medic in pasture can be done by increasing the seed bank by seed application with the fertiliser. Grazing pressure and seasonal rainfall play a great role in the persistence of white clover in the sward, 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, overgrazing 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).

Grazing management

Pasture plants of different species and varieties vary greatly to their response to grazing. A knowledge of how individual pasture plants respond to grazing is essential for top performance and pasture persistence. There are a number of features needed for successful pasture production including, maintaining adequate ground cover, good management at critical times to favourably influence competition and persistence, and establishing a well-adapted and persistent legume component in sown pastures.

Grazing should not be used as a management strategy isolated from other strategies, such as fertiliser inputs and weed control.



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

Fertiliser application

Low fertility is the major limitation to pasture productivity throughout south eastern Australia. Major deficiencies of phosphorus, sulphur, 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 leading into winter.

Excess feed can be controlled by grazing with cattle or dry sheep, like wethers. As a last resort some spray topping to control problem growth in certain paddocks, slashing or cutting for hay if appropriate.

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 base will ward off weed invasions, especially African love grass.
- Perennial species have the ability to respond in adverse conditions such as late spring — perennial pastures grow fast, use soil moisture better than annuals and may reduce 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 pasture establishment, provided there is adequate soil moisture, is usually the most successful. Unfortunately, it can take up to a whole year before there is well-established useable pasture.

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. Consider strategic use of high performance varieties but seek specialist advice.

Perennial grass species are suited to the spring–summer rainfall zones (> 500 mm) of the south eastern states. However rainfall alone is not a good guide because of the different lengths of growing seasons and the different altitudes where these species can grow.

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 in late summer can provide an early 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, especially lambing paddocks.

Early sown crops can be grazed to retard development, reducing the impact of premature crop maturation. To minimise effect on yield, only graze the crop prior to stem elongation and get some good advice on grazing technique.

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 appropriate fertiliser applications
- 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.

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 and may also run out of time to reach their potential yield in areas with a shorter season and/or 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.lwa.gov.au/products/list/3700?page=3 — *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

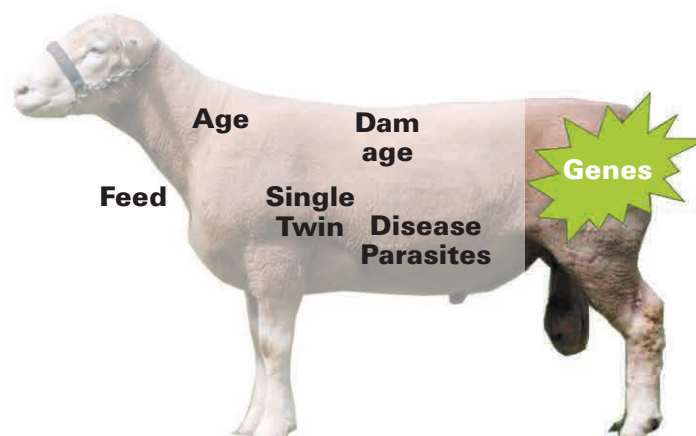
Measurement

- 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

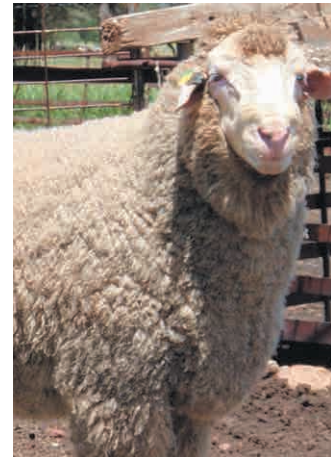
If you continually use a particular ram source, your flock will improve at the same rate as the source, but with a small time-lag. Therefore:

- 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.

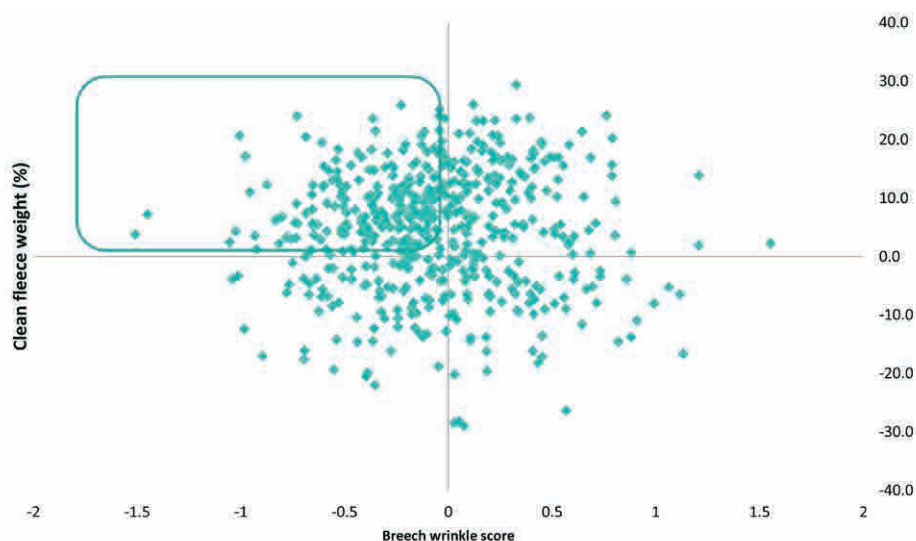
Applying the Merino Production Plus index for Merinos — the results after 10 years in the flock

Trait	Potential response	Contribution to economic gain (%)
Fleece weight	+2.1%	13%
Fibre diameter	-0.4 μ m	21%
Body weight	+2.9 kg	24%
Carcase traits	0.4 mm	2%
Staple strength	+1.8 N/ktex	16%
Lambs weaned	7%	25%



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.

Things are changing ... perhaps you should contemplate doing so as well.

**A relatively minor investment
provides excellent labour efficiency.**



An Australian Government Initiative



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