

# CHAPTER 1

## Preparing for droughts



This chapter is about planning and preparing for drought. Developing an action plan that will cover when and what decisions need to be made will reduce the stress and make management easier. Early indicators of drought, including climate indicators, are discussed as guides to making the early decisions that farmers agree are a key to the successful management of, and recovery from, droughts.

### Key messages

- **Droughts and dry seasons are a normal part of farming in Victoria and plans on how to manage them should be part of managing the business.**
- **Farmers who have managed past droughts successfully agree that a key component was making and acting on decisions early.**
- **Climate drivers can provide some indicators of the season ahead, particularly in late winter when El Nino or drier Indian Ocean Dipole is a more reliable indicator for southern Australia. Other indicators may include low soil moisture and early seeding of annual pasture species.**
- **Developing an action plan, or drought strategy, that can be triggered by these seasonal indicators will make managing droughts easier and less stressful. The plan should be reviewed regularly as circumstances change.**
- **Feeding all or some sheep through droughts may be your strategy, but is not the only option.**
- **Early decision making ensures good welfare outcomes for livestock, as well as for the people involved in the farm business.**

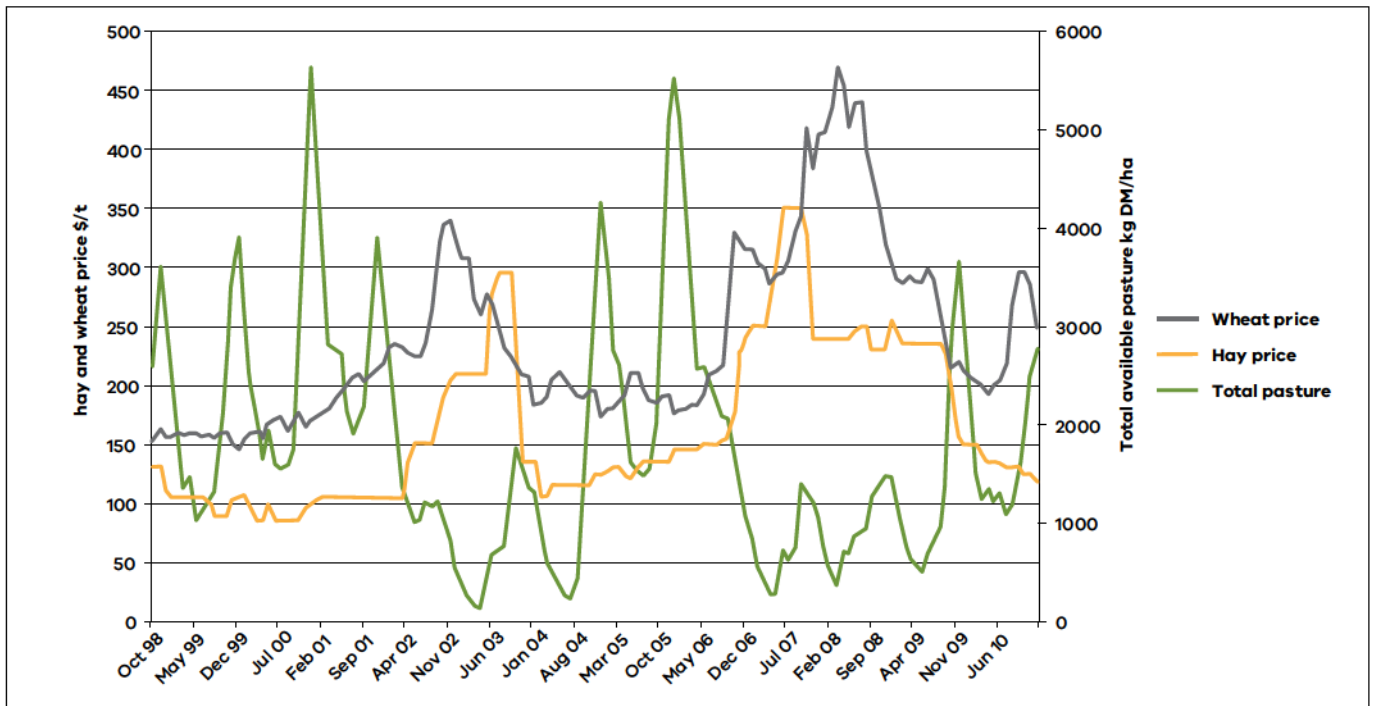
A drought is an extended period of dry weather (6 to 8 months) where pasture, and sometimes water, become limiting for livestock production and supplementary feeding is needed to maintain production.

Droughts in Victoria typically arise on the back of short dry springs and late autumn breaks where the period of reduced pasture growth is longer than normal. Many consider droughts are a one in 10 year occurrence but they can be more frequent and can occur in successive years. They are the extreme end of dry seasonal conditions that occur annually in most Victorian environments.

### Planning for drought

A strategy or action plan for dealing with drought should be prepared as part of farm business planning and be reviewed annually. This planning should occur well before a drought occurs or is forecast. The plan needs to consider what feed is normally stored on farm and held in reserve, the infrastructure, facilities and labour required for dealing with drought, and the contingency plans for dealing with shortfalls in feed and water for your livestock.

Your Drought Action Plan should be activated as soon as you recognise the possibility that the poor season may become a drought. If you leave the decisions until the drought worsens, many of the management options available early may have passed by. Hay and grain prices usually rise significantly, stock prices may drop dramatically, there are fewer agistment options and off-farm employment becomes difficult to find.



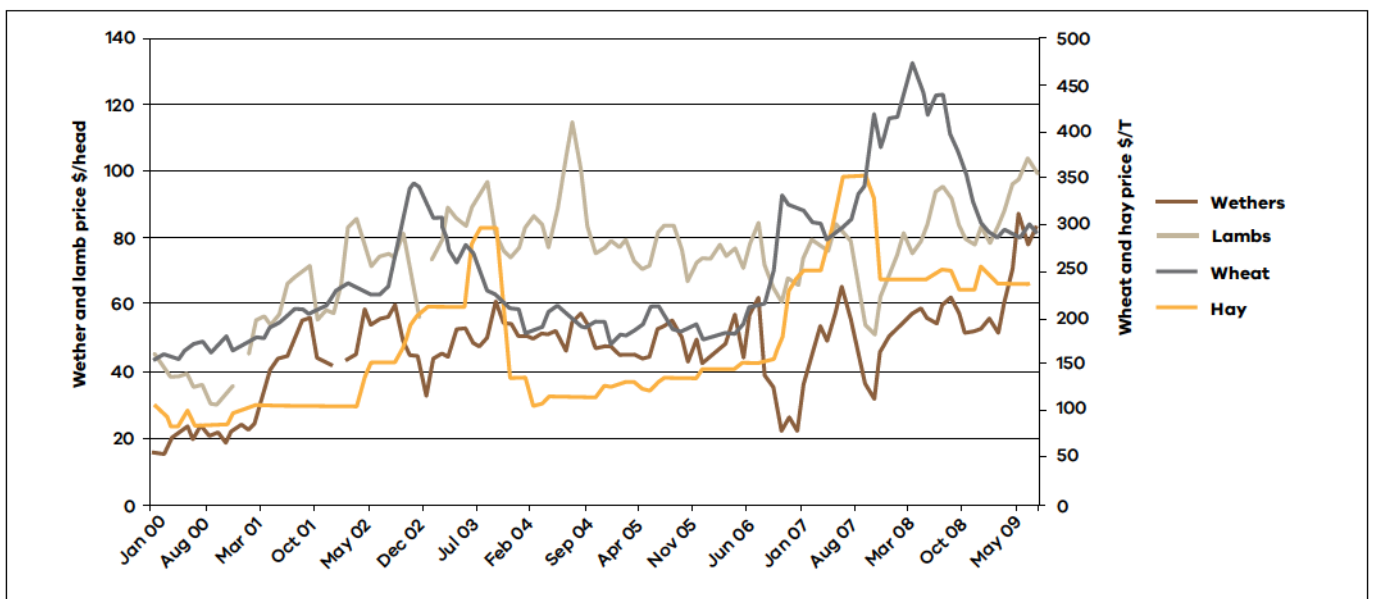
**Figure 1.1: Hay and wheat real prices and available pasture at Central Victoria 1998–2009.**  
 Source – J. Court Masters thesis

Figure 1.1 illustrates how both feed grain and hay rose substantially in the 2002–2003 drought and again in 2006–2008.

Figure 1.2 shows the same feed prices between 2000 and 2009 and sheep prices (wethers and lambs) to illustrate how feed prices rose and stock prices dropped in the 2002 and 2006 droughts.

This has not always occurred. In recent drought (e.g. 2016) stock prices held due to low supply and good seasons in other parts of Australia.

The graphs illustrate that costs may escalate quite quickly and making an early decision to purchase supplementary feed and/or sell surplus stock, can result in significant savings.



**Figure 1.2: Victorian stockfeed and nominal sheep prices (2000–2009).**  
 Source – J. Court Masters thesis

## Climate indicators for predicting the season

Seasonal forecasts can offer insights into the spring ahead. There may only be strong or clear climate signals every two or three years, but it's still worth tuning in as they can be useful indicators in some droughts or poor springs. The Bureau of Meteorology (BoM) has seven-day rainfall forecasts plus one to three month seasonal outlooks that can help you get a feel for what's in store. Stored soil moisture ('rain in the bank') is measured by some croppers and some modelled data is available on websites such as MLA Pasture Growth Outlook Tool.

Every farming system has key periods when major decisions about seasonal conditions are needed. Profitable farms employ a range of tactics and strategies to manage variability, with clear trigger points for decisions at key points of the production year. As always, focus on what's under your control. Seasonal forecasts are a useful indicator of what may occur, but long-term forecasts are a guide only. They are getting better, with bigger computers, more live data from oceans and atmosphere, and a better understanding of which climate drivers affect each region and when.

The four key climate drivers listed below have major effects on our wetter and drier seasons. While they are linked and usually affect one another, here is a short summary of what each driver does.

**ENSO (El-Nino/Southern Oscillation)** – refers to sources of rain-bearing moisture that comes from the tropical Pacific Ocean. Historically, El Nino years like 2015, produce less moisture, increasing the chance of drier springs. La Nina years (like 2010) send us more moisture and eastern Australia tends to have an increased chance of average or wetter springs. Changes to ocean temperatures along the Equator affect ocean temperatures to the north and north-east of Australia, one of our major moisture sources. Farmers can track what the ENSO is up to, and so can see what the outlook is for each spring. June to August is a good time to look at how things are set up for spring rainfall. The SOI (Southern Oscillation Index) is a measure of the pressure difference between Darwin and Tahiti. In El Nino years, the pressure is higher over Darwin and lower at Tahiti (SOI negative), which is not helpful for the flow of tropical moisture towards Australia.

**IOD (Indian Ocean Dipole)** – refers to changes in ocean temperatures off Africa and Indonesia that affect moisture sources to our north-west and alters the position of fronts and lows across south-east Australia. The IOD is a major influencer of north-west cloud bands. Victoria's spring rainfall has a strong correlation with the IOD: positive IOD tend to be drier years when cooler water off

Indonesia limits north-west cloud bands and the moisture flow into them. Wetter springs are more likely during negative IOD phases (like 2016), when extra moisture flows and rainfall triggers get sent down to us via north-west cloud bands that drop out their moisture when they hit our cold air down south.

**SAM (Southern Annular Mode)** – refers to belts of westerly winds that circulate around the southern ocean and can influence the strength of frontal activity and rain triggers that get to Victoria. More regular or stronger fronts lead to wetter winters. When the SAM is in a positive phase, fronts sit a lot further towards the south pole, which can lead to drier winters. However, in summer the same SAM positive phase can boost rainfall along the south-east coast and eastern Victoria, and southern NSW. These days, the SAM spends more time further south than it once used to.

**STR (Subtropical Ridge)** – is a natural high pressure belt that sits across southern parts of Australia and can influence the location and strength of high pressure systems. The STR can be affected by ENSO, IOD and SAM. Farmers know that seasons with stronger or more frequent blocking high pressure systems over south-east Australia don't tend to produce the regular rainfall that we would like. In recent decades, the pressure pattern has become a bit stronger, which meteorologists blame for the less reliable autumn rains in south-east Australia.

## When are these seasonal indicators most useful and reliable?

For south-eastern Australia, seasonal predictors are most reliable in late winter and spring. An El Nino becomes a more reliable indicator of lower rainfall in July and August and the likelihood of below-average spring pasture growth, but is a poor indicator of the autumn break. Similarly, the positive IOD is most active in winter and spring and usually departs in November.

Examples of climate drivers affecting the season:

- The wet spring and early summer of 2010 was due to both a strong La Nina and a weak negative IOD sending more moisture our way.
- The 2006 drought was the result of a combination of an El Nino and positive IOD. The bigger droughts often occur when both phenomena are in their dry phase.
- The wetter 2016 winter-spring was thanks to a negative IOD, which helps herd extra moisture to Victoria via north-west cloud bands.

## Beware modern day 'curveballs'

While these climate drivers have always driven our seasonal variability, there are some recent trends and learnings from climate science that will affect variability in future:

**Hot under the collar** – each decade since the 1950s has been warmer, a trend that is expected to continue. Spring has been our fastest warming season, which affects pasture and crop yields and the length of the growing season. Seven of our last 10 springs (2007-2017) have been 1–3°C warmer than average, effectively extending the summer.

**Under pressure** – the pressure pattern during the growing season over south-east Australia has been trending stronger as global temperatures have increased. Scientists expect this to continue. This pressure tends to squeeze out a few rain events each year, and in some seasons this is not useful. It also tends to be making autumns less reliable. Some of our biggest weather events occur when 'blocking' high pressures sit in the same spot for too long, resulting in a stuck weather pattern (e.g. giving us an extended heatwave or a big rain event).

**Warmer oceans** – overall, a warmer world will be wetter, driven by warmer tropical oceans. But it won't be wetter everywhere, especially in Victoria, which sits under the subtropical ridge that has a rising pressure, pushing weather patterns polewards (south). This means that we might expect increasing hot and dry periods, but when conditions are right we could receive bigger or more extreme individual rainfall events.

Managing for seasonal variability will become increasingly important in modern farming enterprises.

## Making early decisions

Agile producers tend to have set key decision trigger points for action and as each season unfolds they exert the discipline to act as needed. Many farmers say that not taking, or delaying, decisions can prove costly to the business, livestock, soils and their state of mind.

In making decisions early, a number of indicators are more likely to give greater accuracy in predicting a drought year or a very poor spring. For example, in July you might start to look at:

- A predicted El Niño (if SOI is strongly negative and the Coral Sea is cooler), which increases the likelihood that spring rain will be below average.
- Stored soil water. If soil moisture is low in late winter then the chances of getting good pasture growth from rain when it comes will be reduced. Studies that have looked at modelled soil water have indicated that this can be a quite reliable indicator of spring pasture growth in some Victorian locations. One study of modelled soil water on farm sites in central and north-east Victoria, reported that if soil moisture was in the

lowest decile on 1 September and the SOI was at or below –8, there was an 88 per cent probability that spring pasture growth would be very poor (in the lowest two decile) with only a 4 per cent chance of above-average growth.

- Other indicators may also be observed from your own experience, such as annual grasses seeding early.

It is worthwhile setting your own seasonal and farm indicators that can be used to trigger your Drought Action Plan. While our climate and weather patterns will change in coming decades, the key will be how well farm businesses set themselves up to make the most of the good seasons and have strategies to limit the impact of tough or 'curveball' years.

## Tips from past droughts

Farmers who successfully managed past droughts were asked what they did to ensure they got through. In summary, they:

- made plans and acted early
- did simple budgets for various feeding and selling options
- knew their hay supplies and were prepared to ration roughage
- prepared cash flow budgets for 2–3 years
- used current market prices for fodder, grain and livestock to make informed decisions
- reviewed decisions regularly
- acted quickly and decisively
- looked for opportunities
- remained positive
- planned a holiday
- looked out for family and friends
- were prepared to put sheep into stock containment areas to preserve pastures and soil.

## Management options

If you were not on your farm during a previous drought, talk to neighbours and other locals about what happened in your district. They may be able to suggest strategies that reduce the impact of the drought without significantly increasing your financial burden.

### Toughing it out

It is your legal responsibility to ensure that sheep do not become distressed or starve during a drought. You may be tempted to do nothing in the hope that a poor season will not turn into a drought. In the meantime, paddock feed diminishes, the condition and value of stock slip, and feed prices soar. These changes close off many of the options available to you earlier in a drought. In contrast, if the season improves or is not as dry as predicted, you can put the plan to one side and continue with a normal season program.

### Feeding livestock

Feeding is an expensive and time-consuming option. Consider feeding targets carefully and complete cost/benefit budgets on the implications for cashflow and when feeding needs to begin.

Previous experience is that the quality of dry pastures, stubbles and failed crops is often much better than first anticipated. This reduces the feeding levels – and cost – needed to maintain live weight, but be mindful of not over-grazing paddocks, leading to loss of soil, nutrients and seed.

Weighing, assessing and recording the condition of stock ensures that feed demands are being met and that stock are not overfed or underfed. The cost of sheep scales can often be recouped through avoiding over-feeding or preventing under-feeding during a drought.

The following chapters provide information on the nutritional requirements of various classes of sheep, feeding rates and stock management. Courses such as Prograze and Lifetime Ewe Management provide the skills to accurately assess stock condition as well as detailed feed assessment and budgeting skills. Consider doing a course if they are available in your area.

Remember: Allowing stock to starve is not an option and is an offence under Victorian law.

### Agistment

Sending sheep away on agistment is sometimes more economical than feeding, and the time saved might be more usefully employed. It also releases more feed for the stock remaining on the property. How close to home agistment can be found and the quality of its infrastructure and pastures will affect the practicality and labour requirements. You may be able to find local ungrazed paddocks for lease, but if the drought

becomes more widespread, agistment becomes harder to find and the cost rises rapidly. It may then be cheaper to feed stock at home. It may also be costly and impractical to supervise sheep (especially lambing ewes) at a distance.

The cost of transport and the possibility of disease and losses must be taken into account. The possibility of selling the stock after the drought in the area of agistment may also be considered, eliminating the return transport costs.

### Droving

Another source of off-farm feed may be droving stock along roadsides. This is allowable only in some shires. Legal restrictions and local environmental considerations that apply to this practice vary between shires and may change. The risk of disease spread also needs to be considered. Check with all shires involved before taking stock on the road.

### Selling

Early planning and action improves the options for selling sheep. Decisions need to be made before stock have lost too much condition to be saleable and market prices have started to drop.

When deciding what stock to sell and when, consider:

- Present value of stock (including the wool value).
- The quality of stock and the genetics that need to be retained for future productivity. Alternatively, it may be an opportunity to improve your genetics by selling and then buying in better quality sheep that may come up for sale during the drought.
- Which animals are your essential breeders. Pregnancy scanning ewes post-joining to identify dry, single and twin bearing ewes will provide better options for saving and targeting feed and targeted selling.
- Taxation effects (there are options to set aside funds to restock after the drought – speak to your accountant).
- Likely demand for the stock at the end of the drought.
- Likely length of the drought.

In general, a sound policy is to sell some stock and feed the rest. Cast-for-age and cull sheep will normally be the first to go. Ask yourself: "What stock are not required in the long term?"

Further sales should be planned, keeping two general aims in mind. One is to maintain as many breeders as possible to assist in building stock numbers quickly after the drought breaks. The second is to keep the most productive sheep.

Wethers would generally be sold before ewes and older sheep before the 2–4 year-old groups (1–3 years for wethers).

Dry ewes identified at pregnancy scanning can be sold to reduce feed requirements. If the drought is not widespread, selling some ewes that are carrying multiples (e.g. triplets) may also be an option, and attract a premium, in some circumstances and considering whether or not these are some of your most productive ewes.

Better-grown ewe weaners destined to be replacement ewes in the flock should be given preference for available feed over other ewes or wether weaners. Given a suitable ration, weaners may be carried through a drought, but they are more susceptible to nutritional stress and disease than mature sheep.

Taxation can have an important bearing on your selling policy during a drought. Its effects, especially if a large part of the flock is to be sold, need to be worked out before the stock are sold, particularly where low 'cost price' valuations are used for taxation purposes. Speak to your accountant about the possibility of spreading the income over a five-year period if the sheep sale was forced due to drought conditions or holding funds for restocking after the drought breaks.

### Requirements for stock leaving the farm

All sheep and goats in Victoria must be tagged with an NLIS Sheep tag before leaving their property of birth. All lambs and kids born in Victoria after 1 January 2017 must have an electronic identification (EID) NLIS ear tag before leaving the property of birth.

All movements to a new owner, saleyards, processor or another Property Identification Code (PIC) must be accompanied by a properly completed National Vendor Declaration. The only tagging exemption is for dairy goats, but an NVD must accompany sheep and goats when moved to another property having a different PIC.

If sheep or goats on agistment have lost their NLIS tag before their return they must be re-tagged with an NLIS sheep or goat Post-Breeder tag printed with the PIC of the agistment properties.

In some cases, agistment properties can be linked to the PIC of the home property, which would eliminate the need to use an NVD or attach an NLIS Post-Breeder tag. For more information, contact the NLIS Helpline on 1800 678 779.

### Fit to travel

Stock must be in a fit condition if they are to be transported, whether for slaughter or to another farm. An animal is not fit if it:

- is not strong enough to undertake the journey
- cannot walk normally, bearing weight on all legs
- is severely emaciated or visibly dehydrated
- is suffering from severe visible distress or injury
- is blind in both eyes
- is in late pregnancy.

### Buying sheep after the drought

To minimise the risk of introducing disease, sheep must be accompanied with a completed National Sheep Health Declaration. The form is available on the farm biosecurity website [www.farmbiosecurity.com.au/industry/sheep/](http://www.farmbiosecurity.com.au/industry/sheep/).

### Humane killing

If some classes of stock are unsaleable, and no other option is feasible, these animals should be humanely destroyed. In past droughts, shires have made facilities available to dispose of carcasses.

Information on appropriate methods of destruction and disposal can be obtained from animal health staff from your local Agriculture Victoria office. See Appendix 1: Humane killing of sheep.

### Other management decisions

Shearing, pregnancy and lactation all increase the flock's nutritional requirements. Changes to mating, weaning and shearing times can sometimes be used to reduce feed demands during a drought.

The cost of drought-feeding a breeding ewe for 6 months (including late pregnancy and lactation) is about 50 per cent more than for a dry ewe, so savings can be made by delaying joining or by not joining. However, the long-term effect of this action needs to be carefully considered.

Delaying the time of joining for an early autumn lambing flock has the potential to greatly reduce supplementary feeding costs. Joining may be put back a few weeks or changed to a late winter or spring lambing.

### Transition to green feed after the drought breaks

Planning is needed for when the drought finally breaks to ensure the sheep are slowly transitioned from a drought ration to the emerging green feed diet. Many sheep in past droughts have been successfully fed through the dry months only to perish chasing the green pick once the drought has broken. For the benefit of both the sheep and the emerging pastures maintain the drought ration for a few weeks and gradually transition the sheep to the green feed.

## Environmental impacts of drought

Droughts can be hard on pastures and soil. Over-grazing can lead to soil being blown away and pasture being lost but most farmers manage this well and the dust storms of 1982 are rare. However, a drought plan needs to consider the impacts on pasture and soil, as well as the stock.

If your pastures are mostly annual species or the soil type is unstable, you may need to lower stocking rates to minimise the long-term effects on the environment. You should seriously consider confining at least some of your flock to a small part of the farm. This may be on sacrifice paddocks (paddocks with stable soils but pastures that need resowing) or contained in specifically built yards (stock containment areas). This option has been successfully undertaken by farmers in previous droughts with the stock, pastures and soils emerging from the drought with minimal impact (see Chapter 6 - Stock containment for more on stock containment areas).

## Animal welfare

- Good welfare means that all nutritional, behavioural and health requirements of the sheep are being met.
- Early decision making ensures good welfare outcomes for livestock.
- Low stress and calm handling of livestock lead to good welfare outcomes.

Consideration of animal welfare beyond food and water is innate for most farmers and the responsibility of all animal owners and managers. Good animal welfare means that animals receive appropriate veterinary treatment, shelter, humane handling and humane slaughter. The World Organisation for Animal Health defines animal welfare as how an animal is coping with the conditions in which it lives. It says an animal is in a good state of welfare if it is healthy, comfortable, well nourished, safe, able to express innate behaviour, and is not suffering unpleasant states such as pain, fear and distress.

It's important that animal welfare is assessed objectively. There is a step-wise approach to improving animal welfare. This involves making improvements that are practically realistic and continue to move towards best practice that promotes positive welfare as well as minimising negatives (Mellor & Beausoleil, 2015).

When drought feeding, farmers tend to have much more contact with sheep than they normally would. Ensuring that the movement and handling of stock is done in a calm manner can help reduce the stress load that additional handling may create. Positive interactions at this time – such as calm handling and the provision of feed – can lead the animals to have positive responses to handling that can persist after normal management has resumed.

Stock owners and managers have an obligation to, at all times, provide proper and sufficient food, water and shelter for livestock under their care. Failure to do so is a breach of legislation. Sheep must not be allowed to starve to death. Where food and water requirements cannot be met sheep should be agisted, sent for slaughter or humanely destroyed on the property.

Animal welfare is a core component of a responsible livestock sector and must be maintained in any drought or dry season.

## Effect on you and your family

It is essential to discuss your drought strategy with your family and with others who may be affected; the personal stress of drought can be overwhelming if not addressed and shared. Many farmers have found outside help invaluable, so do not hesitate to seek it out. Farming field days can be good opportunities to share ideas and unburden with people in similar circumstances. Keep up social contacts, such as church and sporting groups, to give you and your family a break from farming activities.

A Drought Action Plan should address these issues to help you develop the most appropriate strategy for your business.

## Preparing a Drought Action Plan

To develop your plan, consider:

- What are the triggers that will put your plan into action?
- What is the seasonal weather forecast and how will it affect your locality?

### What is your current financial situation?

- Cost out various feeding or selling scenarios.
- Prepare a 12-month as well as a 2–3 year cash flow budget.
- Use partial budgeting or a computer spreadsheet to explore various options.
- Who do you need to talk to, e.g. bank manager, accountant, financial adviser (and when)?
- Consider your options (for example):
  - sell some stock early – identify priority mobs for selling early (e.g. cull sheep, wethers)
  - sell all stock – consider buy back price and financial recovery
  - agistment – is it available and practical?
  - feeding – how (paddock or in stock containment area) and how much for how long
- Should you reduce sheep numbers?
- What prices are sheep now? What prices might they be after the drought?
- Prioritise mobs that can be sold as conditions change.
- Consider the impacts of shearing and joining times.
- What effect will reduced stock numbers have on overall feeding costs and longer-term recovery?

### Do you have the capability to feed sheep for long periods?

- Do you have the equipment to feed sheep (silos, feed wagons, grain feeding equipment)?
- Do you have the labour and time to feed sheep for long periods?
- Can you improvise, borrow, or purchase equipment to feed the sheep?
- What will you feed and do you have a reliable source?
- How much will it cost?
- Is stock containment an option and, if so, when will it be utilised and for which stock?

### Will you feed for maintenance or production targets?

- What are your condition score targets for joining, lambing and weaning?
- What are the impacts of feeding for different production targets on short-term costs and longer-term recovery?
- What are the feeding needs of the various classes of sheep?
- Which are the priority mobs for the best feed?

### Water supplies

- Do you have adequate water supplies to last through the drought?
- Measure the water storage on the farm.
- Calculate your farm's stock water requirements over the summer months.
- Can you access water from other sources early before supplies dry up, e.g. creeks, bores or outlying dams, neighbours' dams or creeks?

### Sustainability and protection of pastures and soil

- What effect will your strategy have on your pastures and soils?
- Identify priority pastures to protect (e.g. newly sown).
- What effect will your plan have on long-term farm viability?
- Will the native vegetation on the farm be protected during the drought?

Appendix 2 contains a template for undertaking a stocktake of the farm livestock, water and feed resources that can be used to develop your Drought Action Plan.

The plan does not need to be implemented all at once, and should be flexible and staged to allow for changes in circumstances. For example, you may only sell a certain class of stock or buy some fodder if conditions do not improve by a certain date.

A written action plan is helpful and needs to include dates and targets such as ewe condition score targets, pasture residual levels, expected autumn break dates and next steps if the break is late. It is important to seek as much information as possible so that well-informed decisions can be incorporated into your plan.

Having a plan of action will greatly reduce the stress on you, your family members and employees. Though the plan may need continual modification as the drought progresses, each family or staff member will be working towards specific shared aims, especially if you have discussed the plan with them beforehand.



## Further information

### Climate and seasonal forecasts

- For a heads-up in seasonal rainfall outlooks and what climate drivers are up to, Agriculture Victoria produces a free monthly email update called 'The Break'. To subscribe, send an email to [The.Break@ecodev.vic.gov.au](mailto:The.Break@ecodev.vic.gov.au). It includes a monthly YouTube video summary that provides a three-minute update on the latest information.
- Where's the rain expected for the next 7 days? [www.bom.gov.au/jsp/watl/rainfall/pme.jsp](http://www.bom.gov.au/jsp/watl/rainfall/pme.jsp)
- The next seven days (model forecast) – just hit the play button and see what the next week might play out. [www.bom.gov.au/australia/charts/viewer/index.shtml](http://www.bom.gov.au/australia/charts/viewer/index.shtml)
- The BoM has new seasonal outlooks, which now have a monthly video snapshot as well as 1-3 month outlooks for rainfall and temperatures. [www.bom.gov.au/climate/outlooks/](http://www.bom.gov.au/climate/outlooks/)
- A new BoM product shows how much soil moisture is about. [www.bom.gov.au/water/landscape](http://www.bom.gov.au/water/landscape)
- CliMate app – useful tool to look up your nearest long-term rainfall station data and then ask questions like "How often we do we get autumn breaks with 50mm over 2 weeks in March-May?". [climateapp.net.au](http://climateapp.net.au)

### Pasture growth indicators

- Rainfall to pasture growth outlook tool – MLA. [www.mla.com.au/extension-training-and-tools/tools-calculators/rainfall-to-pasture-growth-outlook-tool/](http://www.mla.com.au/extension-training-and-tools/tools-calculators/rainfall-to-pasture-growth-outlook-tool/)

### Selling and purchasing stock – NLIS

- LPA National Vendor Declaration: [www.mla.com.au/meat-safety-and-traceability/red-meat-integrity-system/about-the-livestock-production-assurance-program/livestock/](http://www.mla.com.au/meat-safety-and-traceability/red-meat-integrity-system/about-the-livestock-production-assurance-program/livestock/)
- National Sheep Health Declaration. [www.farmbiosecurity.com.au/industry/sheep/](http://www.farmbiosecurity.com.au/industry/sheep/)

### Animal welfare

- Code of Accepted Farming Practice for the Welfare of Sheep: [www.agriculture.vic.gov.au/agriculture/animal-health-and-welfare/animal-welfare/animal-welfare-legislation/victorian-codes-of-practice-for-animal-welfare/code-of-accepted-farming-practice-for-the-welfare-of-sheep-victoria-revision-number-2](http://www.agriculture.vic.gov.au/agriculture/animal-health-and-welfare/animal-welfare/animal-welfare-legislation/victorian-codes-of-practice-for-animal-welfare/code-of-accepted-farming-practice-for-the-welfare-of-sheep-victoria-revision-number-2)
- 'Is it fit to load': [www.mla.com.au/News-and-resources/Publication-details?pubid=5873](http://www.mla.com.au/News-and-resources/Publication-details?pubid=5873)
- Australian Animal Welfare Standards and Guidelines- Land Transport of Livestock. [www.animalwelfarestandards.net.au/land-transport/](http://www.animalwelfarestandards.net.au/land-transport/)
- O.I.E. (World Organisation for Animal Health). (2004). Terrestrial Animal Health Code. Paris.
- Mellor, D.J. and Beausoleil, N.J. (2015). Extending the 'Five Domains' model for animal welfare assessment to incorporate positive welfare states. *Animal Welfare*, 24(3), 241–253.
- The Australian Animal Welfare Standards and Guidelines for Sheep. [www.animalwelfarestandards.net.au/sheep/](http://www.animalwelfarestandards.net.au/sheep/)

### People welfare

- [www.agriculture.vic.gov.au/agriculture/farm-management/drought-preparedness/health-and-social-welfare#](http://www.agriculture.vic.gov.au/agriculture/farm-management/drought-preparedness/health-and-social-welfare#)
- Beyond Blue. Phone: 1300 22 4636
- Lifeline. Phone: 13 11 14