FARMLANDS
DROUGHT GUIDE

EDITION 3

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Farmlands co-operative

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Introduction

Pasture and forage crop production are fundamental to the output and profitability of pasture-based livestock systems. As it is difficult to accurately match feed to animal and weather requirements every season, feed pinches and excesses are inevitable.

However, as the effects of global warming become more apparent it is increasingly likely that more extreme weather — from heavy deluges of rain through to regional droughts — will become more common. How farmers plan, prepare, respond and manage this extreme weather is likely to make the difference in financial sustainability and the welfare of their stock — especially in regions historically more prone to droughts.

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Disclaimer: All information supplied in good faith and without prejudice.

Top tips for preparing for a drought

- Plan early and be prepared take decisive action sooner rather than later.
- Prioritise stock suitable for early de-stocking.
- Consider the long-term implications of losing capital stock — especially the youngest ones if genetic gains have been made that are important for your farming system.
- Focus on maximising income rather than reducing costs.
- Consider long term changes such as growing different forage crops or pasture mixes, changing calving/lambing dates or even the livestock type to build resilience.

Top tips for farming through a drought

- Take action early. Early decisions are often less costly.
- Feed stock as well as possible — animal welfare should always be paramount.
- Be prepared to sacrifice some paddocks by concentrating stock rather than over-grazing the entire farm and compromising recovery.
- Regularly monitor both the farm and the wider situation based on the most accurate information.
- Have a plan in place with defined trigger points to ensure key decisions are actioned by certain dates (trigger points can vary farm to farm and within areas).
- Monitor the space at meat works and recognise opportunities to sell prime or store stock.
- Review your plan weekly by monitoring rainfall, feed cover, supplement options and production.
- Monitor animal condition regularly by body condition scoring and weighing if possible.
- Make informed decisions based on current market prices for livestock and commodities including forages, straights and processed feeds such as blends and compound pellets.
- Aim to set your system up for the next season and the seasons ahead if the trend continues.
- Get off the farm once a week and do something else — this will help clear the head and realise you're not alone.
- Talk to your peer group, advisors and neighbours for support in finding solutions/options (they are there!).
- Expect things to get worse before they get better —dry forages will quickly deteriorate once it rains again.
- Ask for help and advice if you need it.

Plan, act early and review regularly

Drought management requires taking a critical look into your current situation, weighing up and selecting your best options, based on reviewing the following:

- What are your limitations?
- How to fill your feed deficit?
- Weighing up your feed options: what are your feeding options, now and for next season?
- What is the weather outlook for your farm and area, both short and long term?
- What are your present and future livestock goals?
- What solutions do you have when feeding stock for: maintenance, growth, fertility and reproduction, pregnancy, production (meat, wool/fibre and milk)?
- Review your expected financials for this season and over the next 2-3 years.

Know your pasture

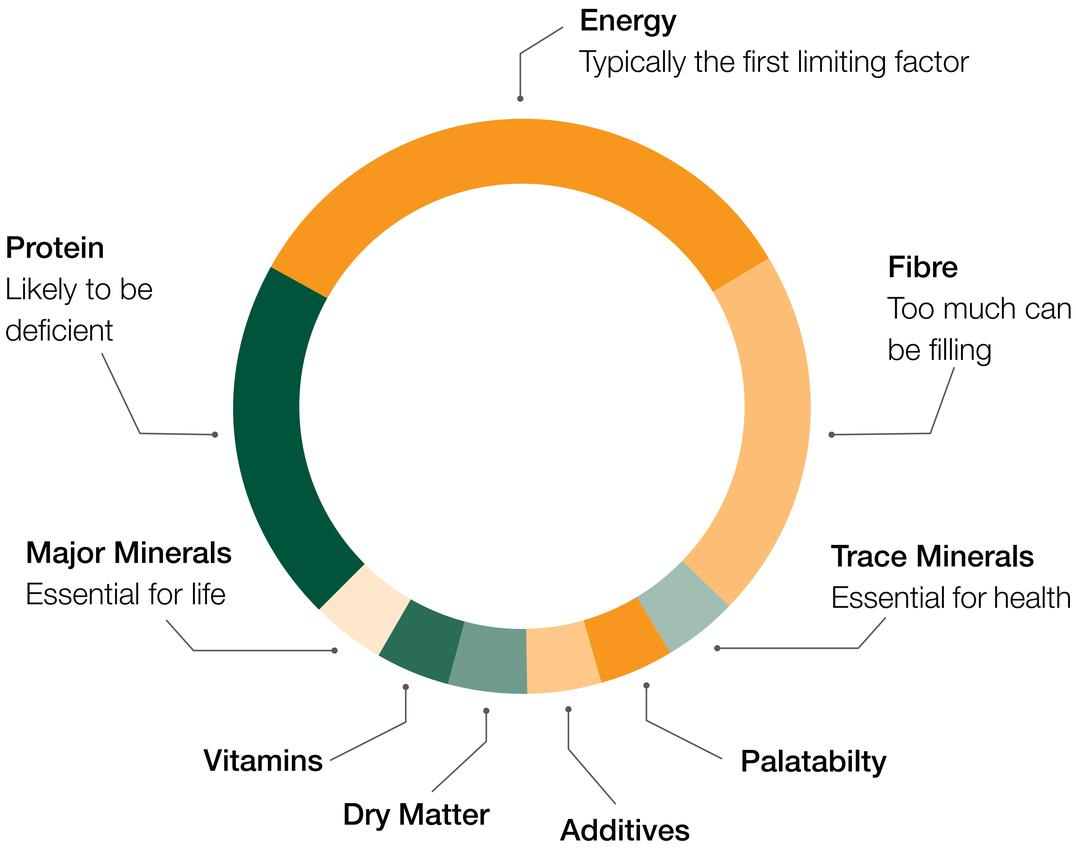
A lack of water and high temperatures reduce pasture and forage crop growth and create a feed deficit compared to cooler, wetter conditions. During a drought it is best to slow down the rotation, but care must also be taken not to over-graze paddocks or other issues may arise such as soil erosion or weeds getting a foothold in more open ground. Productive pasture species may become damaged from grazing the sward too low which can compromise recovery post-drought.

Know your limitations

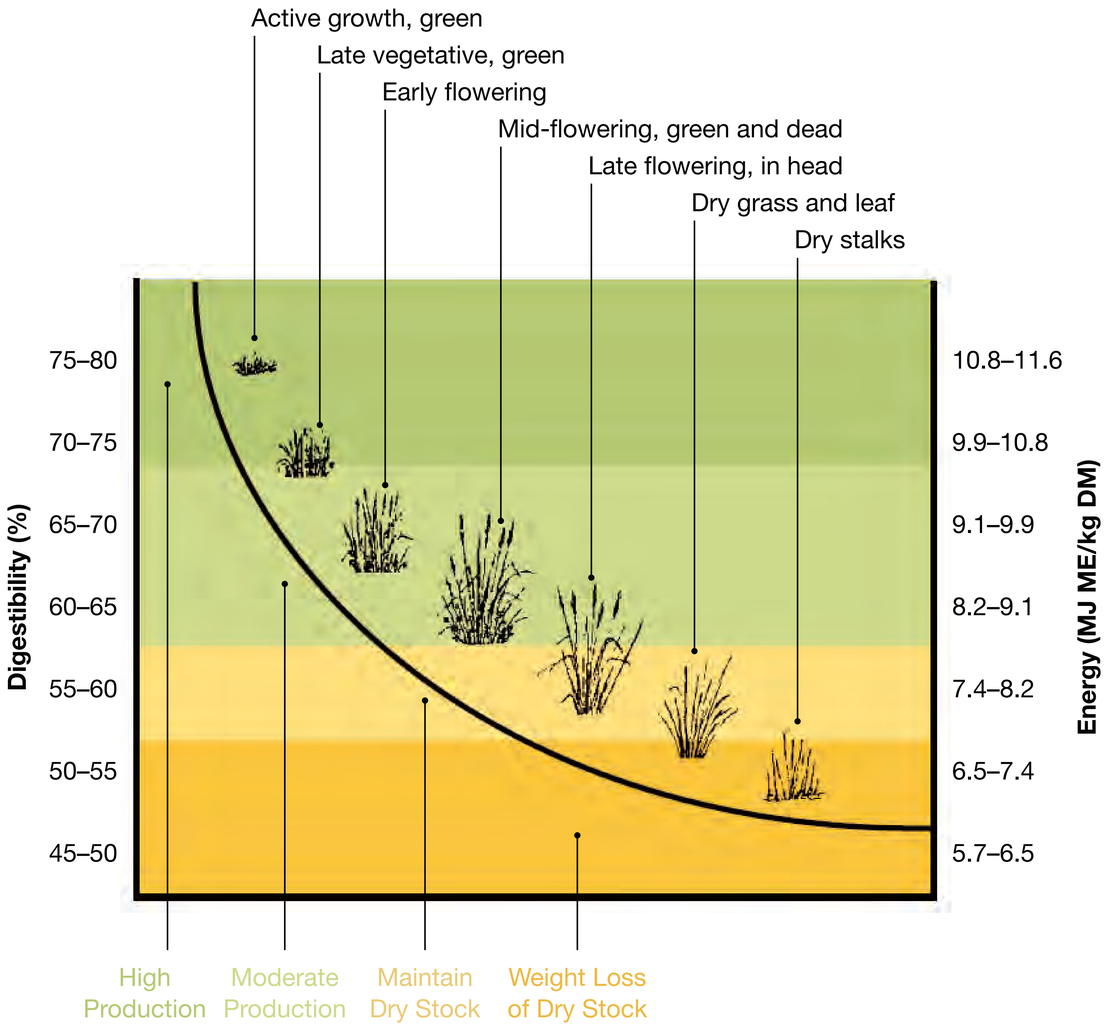
Moving into the summer season stimulates plants to switch from their vegetative or leafy tillering stage, to that of reproduction. This change can decrease feed quality significantly as the stemmy growth has a lower nutritional value and offers less energy, protein and essential minerals. The lower the growth quality, the greater impact on stock production performance and health. For example, the green leafy portion of the plant it has an ME (Metabolisable Energy) of ~12MJ ME/kgDM, whereas the stemmy proportion has an ME of ~10MJ ME/kgDM. Whilst young leafy grass can support high levels of weight gain and milk production, as grass matures the feed value and potential animal production it will support falls rapidly. In a dry season plants focus on reproduction for survival which accentuates the drop in feed quality.

During a drought it is important to identify what the limiting factors of your system are in order to choose the supplement that will work best for your different classes of livestock e.g. young growing animals and lactating animals have a need for more protein than mature dry stock.

Dietary limiting factors



Guide to digestibility decline as temperate pastures mature



The single most limiting feed requirement for livestock is **metabolisable energy** (ME MJ/kgDM), particularly in a drought, followed by **protein** (growing muscle, bone or wool and fibre, producing milk, or reproduction), **fibre** (roughage) measured in terms of NDF (neutral detergent fibre) and ADF (acid detergent fibre), **water, minerals** and **vitamins.** Ash is simply the inorganic component in the feed which includes useful minerals and trace elements along with contaminants that cannot be utilised by an animal such as sand or clay on silage.

Know your supplements

Purchasing supplementary feed can help fill the gap but not all supplements are created equal and their relative merits should be considered to make an informed decision. We recommend considering the following when deciding on supplementation.

The quality of the supplement

Be cautious when purchasing baleage and silage —it can be useful to support rumination but there may be a lot of high priced yet poor quality conserved forage for sale when a region is besieged by hot, dry conditions. Even if a poor-quality supplement seems cheaper on face value, in the long run it may be more efficient to purchase a higher quality supplement.

The energy content of the supplement

Energy is normally the first limiting factor for productive animals. Often high energy supplements such as grain-based feeds are more cost effective than lower energy supplements such as baleage. Baleage can be expensive and hard to source during a drought. It can also have an unknown degree of fermentation losses and varying quality, depending on the maturity of the crop at harvesting. Not all energy is created equal —starch-based feeds are used with greater efficiency for weight gain and milk protein production than high fibre feeds. Low quality forages like maize stovers (the stems from maize grain crops) have very low energy and protein — they may help support rumination but should be priced according to their feed value.

The protein content of the supplement

Protein in supplements may be important when pasture has been stressed and is low in protein, or if there is minimal pasture available. Consideration of the different protein requirements when buying in supplement is important as growing and lactating animals have a greater protein requirement than dry, mature animals. Pasture tests can be easily done and quickly give an indication of the quality of the grazing available — the protein level in dry standing grass may be much lower than expected.

The dry matter content of the supplement

Nutrients are in the dry portion of feed; be careful that lower dry matter feeds can be a costly way to buy water which would be cheaper supplied from a water trough

The dry matter (DM) of baleage depends on the maturity of the crop (young grass has lower dry matter) and the degree of wilting prior to baling — estimating the true value of baleage is difficult unless you have a good understanding of both dry matter and digestibility.

Vegetable waste can look very cheap but things like carrots are typically only 12% dry matter so you pay for carting a lot of water which limits how far they can travel economically.

Calculate the cost per tonne of dry matter e.g.

If two bales of baleage are of equal quality and both weigh 450kg but one is 35% DM and costs $80 whilst the other is 50% DM but costs $105 which is the better value?

- The wetter bale contains 157.5kg DM (450x35%) so you would need 6.3 of them for a tonne of dry matter (1000/157.5) so would have to pay $507.94/tonne of dry matter.
- The drier bale contains 225kg DM (450 x 50%) so you would need 4.4 of them for a tonne of dry matter (1000/225) so would have to pay $466.66/tonne of dry matter.

In this case the more expensive bales would be better value and if cartage was per bale you would get more dry matter delivered per unit.

The ability you have to store the supplement

Ensuring feed remains fresh and mould free is important. Some supplements store better than others, e.g. feed with higher moisture such as vegetable waste may mould over time, whereas pelleted feed low in moisture will store well if kept dry. Chopped silage and wholecrop silage must be used quickly if moved from the pit after the initial fermentation has ended.

The ability you have to feed out the supplement

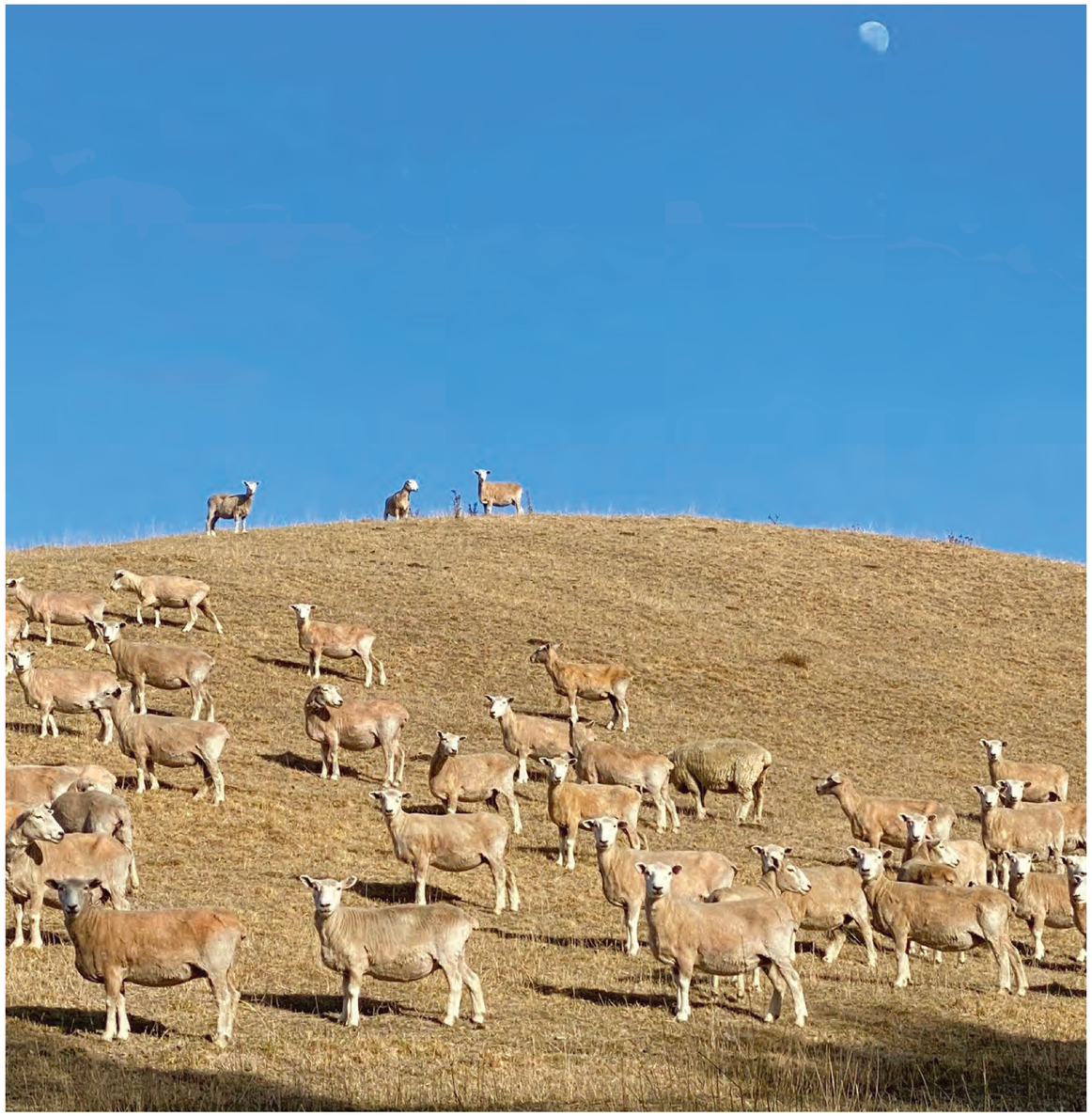
Think about the type of supplement and how it needs to be fed out in order to minimise animal health issues. More readily fermentable supplements such as grain-based feed need to be fed out in a way that limits how much individual animals can consume. Feeding pellets in a long line that allows all animals access can also be a good option for all animal classes. There are many novel ways of doing this, with a ‘chute on a ute’ being one, through to various trailed hoppers on wheels. Care must be taken, as if a few dominant animals eat more than their fair share acidosis could be an issue, but practical solutions can be found relatively easily. Low acidosis risk feeds such as palm kernel and soy hulls can be fed out in troughs in the paddock with free access. Even then, adequate trough space and trough numbers need to be considered, so that all animals have a chance to consume the supplement.

Potential wastage of a supplement

eed that makes it to the farm but doesn’t make it down an animal’s throat is costly. When feeding on the ground, you need to ensure the feed is in a form that is easy for an animal to pick up and eat, with little feed left behind. When feeding crushed grain on the ground, wastage will be much more significant when compared to feeding a pelleted nut. Silage can be associated with high wastage both in the bale and in the paddock, so in some situations a more concentrated feed associated with less wastage may be better bang for your buck.

Hard feed supplement options

Dry feed options range from straights (grains and by-products) through to blends (mixtures of straights) and compound feeds (mineralised blends of straights and processed grains) formed into pellets or nuts. Available options vary by region and season — for the best current options in your region contact a regional based NRM Nutrition Specialist.



Know your animal

Milking cows, dairy goats and sheep

Lactating animals have the highest nutritional requirement of any ruminant on a pasture-based system and will be the quickest to respond to a drop in the quality or quantity of forage on offer. Mature grazing and conserved forages typically contain less protein than young leafy grass so supplementary protein may become necessary in addition to energy to support milk production. Milk quantity and composition provide a real-time assessment of the diet actually being consumed and should be reviewed to determine if supplementary feed is required or needs adjustment.

Nutritional support

Nutritional support during mating is critical to maintain 6-week in-calf rates and not-in-calf rates which impact the following season. Generally, droughts bite after spring calving cows have been mated but may impact the fertility of early-autumn calving cows. Milk production drives appetite so there can be a real problem in if milk production drops too far below the herd's typical lactation curve it may not recover to make use of autumn growth if the drought has broken. A series of dry summers gave many dairy farmers—especially in the North Island — experience with supplementary feeding which many have retained support of higher levels of milk production. As global warming may expose different regions to unexpected hot, dry periods it is likely that more dairy farmers will become equipped with storage and feeding systems to increase their options.

Feed methods

In-shed feeding at milking time is a logical opportunity to deliver supplements to cows, milking sheep and goats as they have to be in the shed for milking anyway. A single or multiple silo connected to a feed trough in the milking platform allows feed to be stored and delivered to animals without additional labour or energy to fuel tractors. If compound feed is already being fed to dairy cows the rates can often be increased – some NRM dairy feeds come in LTE (Low Trace Element) options which allow higher feeding rates with less risk of over-delivering trace minerals and magnesium. Blends can be a good option where lower rates of starch and higher protein levels are required and can help fill a greater feed deficit over a longer period.

Feed pads and feed-out trailers provide a range of options to deliver supplements which often comprise over 50% of the dry matter intake of the animals when pasture is limiting. Straights, blends and compound feed, used on their own or in combination, provide great flexibility but feeding the right feed to balance diets, rather than the cheapest, can often provide the most profitable outcome. NRM Nutrition Specialists are experienced at working through the best options in each region and can be contacted for customised advice.

Comparison of some supplementary feed options for dairy cows

	Baleage	Maize Silage	Hay	Palm Kernel Expeller (PKE)	Simple blend *(50% PKE, 30% Soy hull, 20% maize DGGs with added magnesium, calcium, and sodium)*	NRM Dairy Standard Pellet
Palatability	Variable. Can be poor if silage is not good quality, particularly if there is moulding present.	Variable. Can be poor if silage is not good quality, particularly if there is moulding present.	Usually good provided the hay is not mouldy. Provides effective fibre which may lift intake of the total diet if rumen function enhanced.	Animals can initially take time to get onto PKE but once used to the unusual flavour they are fine.	Good - although animals new to supplementary feed may take time to get used to it.	Very good - although animals new to supplementary feed may take time to get used to it.
Quality	Variable depending on the quality of harvested crop and the ensiling process. Maturity of the crop, species harvested and moulding can impact feed value.	Variable depending on the crop, height of cutting, ensiling process and use of inoculants and speed of use across the pit.	Low. High lignin level in mature forage decreases digestibility.	Medium. High lignin level. Not as high as hay though. Energy level can vary a little depending on the fat percentage but generally a consistent feed.	Good. Adding in the soy hull and maize Distiller's Dried Grains with Soluble' (DDGs) decreases the lignin which increases the overall digestibility.	Excellent. Ingredients have been hammer-milled and conditioned with steam and pressure during the manufacturing process.
Macrominerals	Usually adequate levels of major minerals.	Low in calcium, sodium and phosphorous. Supplementation required especially when feeding over 3kgDM/day.	Generally low.	Good source of phosphorous but low in calcium and sodium.	Very good – added Ca, Mg and Na increases major minerals to support milk production.	Very good - added Ca, Mg and Na increases major minerals to support milk production.
Microminerals	Usually adequate very variable.	Generally low.	Generally low.	High in copper.	Reasonable copper levels due to PKE content.	Trace element and vitamin premix added to reduce deficiencies.
Dry matter %	37% (can be variable)	35% (can be variable)	85%	90%	90%	87%
Typical Metabolisable Energy, ME (MJ/kgDM)	9-10 ME Very variable depending on quality. Stalkier, more mature silage will have a lower ME.	10.5 ME	7-9 ME Too low to support lactating cattle as a large part of the diet.	11 ME	11.5 ME	12 ME
Typical crude protein (% DM)	15-17% Very variable depending on quality.	8%	7-15% Variable depending on quality	17% But some protein in indigestible kernel fraction.	17%	13%
NDF (% DM)	45-55%	50%	55-80%	60-70%	55% But portion of the NDF in soy hulls is very fermentable.	30%
Wastage/Losses when fed out	20% when fed on ground in paddock. Up to 40% in poor conditions.	5-25% when fed in troughs. 25% when fed on the ground in the paddock. Up to 40% in poor conditions	20% when fed on the ground in the paddock. Up to 40% in poor conditions.	Fed in-shed minimal losses <5% Fed in troughs in paddock 10-20% Fed in paddock on the ground 30-40%.	Fed in-shed minimal <5%. Fed in troughs in paddock 10-20%. Fed in paddock on the ground 30-40%.	Minimal due to pelleting and emphasis on minimising fines. <5% when fed in-shed.
Summary	A good option for filling a feed deficit but quality of purchase in silage can be extremely variable so you never really know what you are paying for and prices tend to increase during a dry period.	A good option for filling a feed deficit but does have some downfalls such as low in protein and low in macrominerals so requires balancing for lactating cattle. Not available in all regions of NZ.	A low energy, low protein option. Not suitable to make up a large component of the diet in lactating cattle during a dry period but useful to balance high energy supplements.	A moderate energy option, good at filling a feed deficit – however the amount in the diet needs to be capped for Fonterra suppliers due to Fat Evaluation Index (FEI).	The next step up from straight PKE with a higher energy level due to the inclusion of soy hulls and maize DGGS. More balanced for lactating cows in terms of macronutrients. A good option for a farmer looking to fill a feed deficit in a dry period that wants to keep FEI levels lower.	A good option for a farmer with an in-shed feed system. High energy due to the presence of grains. Balanced in terms of macronutrients and micronutrients. Low wastage when fed in-shed so more expensive per kg of dry matter initially however less feed is wasted, and feed is of a higher ME.
Things to consider if buying in	Make sure you check quality of baleage and avoid poorly fermented or mouldy silage. Feed value can fall if carried between seasons.	If feeding high levels make sure to balance the diet for protein, calcium (Ca), magnesium (Mg) sodium (Na) and phosphorus (P). Not easily traded once in the pit as deteriorates rapidly if moved.	There is a risk of heating and moulding if baled wet.	Keep an eye on your FEIs if a Fonterra supplier. If feeding out in the paddock, make sure there is adequate trough space otherwise some animals may get a lot more than others.	If feeding out in the paddock, make sure there is adequate trough space otherwise some animals may get a lot more than others.	Make animals are transitioned onto the pellet sufficiently due to the grain content.

Heifers and young stock

It is important that calves, growing heifers and beef cattle continue to meet liveweight growth targets, even in a feed shortage. Reliable grazing off-farm could be an option but may be hard to come by in a drought. Giving animals a pelleted calf feed is also a good idea and can be an effective, safe, low wastage way to help young stock meet their energy and protein requirements for growth. Mineralised compound feeds and blends for milking cows may have excessive trace mineral levels for growing stock if used for an extended period.

First lactation cows are still growing and need extra feed to support growth and milk production (if they are part of the milking herd). Heifers may also be lower in the pecking order, so they may not compete as well if feed is limited — especially if they are last out of the milking shed. Separating cows according to age and condition can allow preferential treatment — such as grazing paddocks closest to the milking shed or feeding higher rates of supplements to help support weight gain and growth. If this is not possible, heifers can be a good group to dry off early, therefore ensuring they are in good condition in the next season. However, it must be remembered they still need to be adequately fed even if dried off.

Sheep and beef

Consider selling lambs and cattle at lower carcass weights in order to get them off the farm, thereby reducing the pressure on remaining animals. The carry-over effect on the subsequent winter and spring should not be underestimated as poorly-grown animals will compete with the next crop of lambs or calves if carried over into seasons where they would normally be long gone. De-stock other animal classes depending on the level of feed deficit.

Supplementary feeding with NRM Pre-tup Nuts should be considered to help flush ewes to help next years lamb crop if body condition and pasture quality is sub-optimal prior to the preferred mating period.

Testimonials

Rachael and Greg Hartree, Puketapu, Hawke's Bay

Although we tend to farm towards drought conditions in Hawke's Bay, we hadn't ever experienced conditions like 2020. We are early lambers, counting on spring feed to finish lambs before the bay goes dry, and it was already bare. We were extremely fortunate to meet with an NRM feed specialist at a critical time, offering support and advice with balanced feed solutions for our in-lamb ewes.

We knew we had made the right decision within 48 hours of feeding our ewes with the NRM Summer Dry Nuts. There was no wastage on the ground, proving palatability was no issue. The ewes held and maintained their condition during their gestation, and 4 weeks prior to lambing we changed to NRM Sheep Nuts for higher energy. We had good feedback via our vets, explaining the crucial timing of stepping in with a balanced feed, growing good healthy lambs and laying out the groundwork for a great milking udder. The lambs, when born, were healthy and vigorous, the ewes full of milk.

Over the whole experience, we were 100% satisfied with our feed options and advice from NRM and would utilise as a tool again. We also have peace of mind that NRM has a Multifeed nut with added Zinc that we can use during facial eczema times, this being a new challenge in recent years, especially as we know our ewes will happily eat the nuts!

Erin Train, Napier

Stoked said Erin. Sam and I went to feed out to the main mob who are in a gorge so not the best place to try and get them onto new feed. There wasn't a nut left!!

Karen Fraser's feeding advice to Erin for transitioning onto a nut feed during the drought:

- Always feed in a line (you have this sorted!) so that all sheep can feed at once so that animals don't over-consume or others miss out.
- Stick to the feeding recommendations when it comes to introducing the feed and stick to the feeding rates. We do this to avoid acidosis (health issue from gorging). Easily avoided by sticking to the recommendations.
- Be patient with the animals while you are introducing this new feed, it can take a few days as it is a learning process. Perseverance is needed.
- Can be really helpful when shifting sheep once they are used to the daily feeding (your dogs can have a holiday!).
- Always make sure that your water supply is handy and plenty of it, the nuts compliment the diet so some long fibre i.e grass, baleage or hay.

Transitioning:

- Transitioning fully will happen over 3 weeks.
- 50g/sheep/day for 7 days.
- Increase gradually over the next 14 days till you reach 250g/sheep/day (50g per lift, per sheep. 4 lifts evenly spread over 14 days say 50g every 3–4 day intervals).
- Once fully transitioned by then then can be fed up to 500g /sheep/day — Summer Dry Nuts are higher in fibre hence great feed for feed deficit times but still with a good level of protein, minerals etc. A good way to deliver essential nutrients to keep the sheep as healthy as possible now that they are in lamb also.

Erin stayed on Summer Dry Nuts right through.

Some supplementary feed options for sheep

	NRM Sheep Nuts	NRM Summer Dry Nuts	Whole Grains *(Maize or Barley)*	Grass Silage	Hay
Palatability	Good –although sheep new to supplementary feed may take time to get used to it.			Variable. Can be poor if silage quality is not good quality.	Usually good provided the hay is not mouldy.
Digestibility	Excellent – ingredients have been hammer-milled and conditioned with steam and pressure during the manufacturing process.		Good providing sheep chew sufficiently and break the seed coat when eaten.	Very variable depending on quality of silage. Lower if silage is stalkier and/or mouldy.	Low – high lignin level in mature forage decreases digestibility.
Major minerals	Fortified with extra calcium and sodium.		Low in calcium and sodium.	Usually adequate levels of major minerals.	Generally low.
Trace minerals	Premix added to reduce the risk of deficiencies which might limit health and appetite.		Background levels of trace elements may be limiting.	Usually adequate levels of trace elements but very variable.	Generally low.
Vitamins	Added vitamin A, D & E.	Added vitamin A, D, E (particularly important to complement low levels in standing hay and poorly conserved forage).	Generally, a poor source of vitamins.	Generally low – the ensiling process decreases vitamin levels.	Generally low.
Losses when fed on the ground	Minimal due to nut size and emphasis on minimising fines. Considerably lower wastage compared to feeding out whole grain, straights and silage.		May contain up to 15% screenings so wastage is generally higher than a nut.	10-20% wastage when fed in the paddock, more in poor conditions.	
Typical Metabolisable Energy, ME (MJ/kgDM)	12.2 ME Reflects the high grain content.	11.5 ME Lower energy than Sheep Nuts due to lower grain inclusion, which allows for an increased feeding rate and faster introduction when pasture quantity and quality are severely limited.	Barley 13 ME Maize 14 ME Higher energy then most sheep nuts, but not as well-balanced and with a higher risk of acidosis.	9-10 ME on average, but very variable depending on quality. Stalkier silage will have a lower ME.	7-9 ME on average. Too low to support weight gain in sheep.
Typical crude protein (% DM)	12.2% Perfect for balancing green pasture.	15% Formulated to help complement the low protein of standing hay or lower quality conserved forages.	Barley 11.5% Maize 8.5% Can be very variable. Sold without protein declaration.	15-17% on average but very variable depending on quality.	7-15% on average but very variable depending on quality.
Feeding Instructions ***(Always provide some long forage and acccess to clean drinking water)***	Typically fed to sheep at 150g/head/day. Can be fed at up to 250g per day if required, but transition to this rate is important.	Typically fed to sheep at 250g/head/day but can be fed at up to 500g if necessary (excluding Texel or Texel crosses which should be limited to 250g/head/day due to increased susceptibility to copper toxicity).	Typically fed to sheep at around 150g/head/day. Can be fed at higher rates but practice caution as high starch level.		
Summary	A good choice to balance green pasture during a feed pinch or when stock require a lift in body condition or require more support in the lead up to lambing.	A good choice when pasture supply is severely limited during dry conditions.	A high energy option, but not well-balanced compared to formulated compound feed options.	A good option for filling a feed deficit but quality of purchased in silage can be extremely variable so you never really know what you are paying for.	A low energy, low protein option. Not suitable to make up a large component of the diet in sheep that need to put on weight/are in late pregnancy.

Deer

An early drought can especially impact lactating deer with young fawns because they are born later than calves and lambs. In a dry season consider weaning youngsters early. Weaning is a significant opportunity to reduce overall energy demand. It reduces condition loss for females and gives them a better chance at getting pregnant again.

- Prioritise feed to youngstock. Young deer do not compete well with adults when pasture is short, therefore they need to be weaned and run separately to them.
- Get rid of any stock class intended for sale.
- Feed supplements — high energy, high quality supplements are best.
- Herbs like chicory and plantain are high yielding summer feeds that perform well in dry conditions and are often a higher quality forage than summer pastures, providing good liveweight gains for deer.
- Train weaners to feed on supplements such as crops, pellets or grains prior to weaning while still on their mothers, so as to ease their transition back onto such feeds after weaning.
- Bring culling decisions forward and consider whether you may want to cull more at-risk animals (older stock and lower condition animals) or cull unneeded weaner stags.
- Use poplars and willows as fodder as mentioned in the sheep section.

The NRM Deer range are formulated from non-GM ingredients and are PKE free to meet the requirements of some processors for sellers to achieve premiums — always check the conditions of your intended meat works before buying supplements.

Suggested priority for de-stocking:

1. Prime animals.
2. Store stock, including calves and lambs.
3. Sell annual-draft ewes early and any dry ewes or cows after pregnancy scanning.
4. Capital stock, e.g. old, low performing or poor condition animals.
5. Cattle versus sheep —cattle generally trade easier than sheep during a drought.

Know your animals: summary

Wean lambs and calves early to decrease the energy requirements of dams.

Buy in extra feed to ensure you maintain the performance of breeding stock in the future. Most economic analyses confirm that this is profitable. Bringing in extra feed protects your pasture from overgrazing and animals grazing low residuals can't satisfy their energy requirements anyway. The benefits of purchased feed usually outweigh the cost.

Graze animals off-farm if possible — earlier is better than later.

Cull low performing breeding stock (including replacements). This may provide an opportunity to improve the long-term efficiency and performance of the farm, provided effort is made to identify low performing animals.

Consider offering free access mineralised blocks to complement lower quality forages to help maintain the health and vigour of capital stock – some blocks contain meaningful levels of protein which can help utilisation of low protein roughages like ryegrass straw and mature hay.

Consider delaying ewe mating if you need time to get weights up. This is based on the assumption that the situation will change and expected rain will lift ewe condition. The other option is to mate before ewe liveweights drop any lower.

Some sheep that have never been fed supplements before can be a little slow to catch-on — especially hardy, self-reliant breeds. Mixing mobs with animals that are experienced at eating supplements and confining to smaller paddocks can help shy feeders to get started. NRM have a range of nuts designed for feeding on the ground with energy, protein and added mineral levels pertinent to different classes of sheep. There are now a range of free-access feeders for use in paddocks which physically limit intakes of supplements. Free access molasses blocks with added protein and minerals can be useful at lower levels of feed deficit e.g. when pasture is available but more mature than ideal for the class of stock being kept.

Avoid mustering, yarding, or transporting livestock unnecessarily during the 'heat'. This will place unnecessary stress on them while wasting precious energy reserves and potentially resulting in liveweight loss or predisposing them to associated animal health problems when yarding or moving them along dusty tracks and roads.

Feeding conserved forages helps by diluting intake of high nitrate pasture.

Dealing with the dry on smaller blocks

When on a smaller piece of land with few livestock there is often not the same weight of financial pressure facing commercial farmers. Small farmers can easily buy conventional bales of hay or mini baleage locally as they do not have the same unit lots of feed requirements as the large producers need to fill a feed deficit. However, it pays to think forward and re-stock forage stocks before the dry really bites. De-stock where possible — perhaps put lambs in the freezer rather than carry them to bigger weights (which may have been be achievable in a wet season). Keeping breeding stock in a good (but not fat) condition is good for them in the long run — obese stock can be more of an issue on small blocks than dry stock that have been fed a limited diet — provided it is balanced.

Keeping ruminants fully fed

The seasonality of pasture growth means that grazing animals are designed to gain and lose weight but ideally they should never be allowed to become too fat or too thin. It takes more energy to store energy as fat than is recovered when fat is mobilised so it's worthwhile to keep animals within a narrow band around their optimum depending on breed, stage of production and time of the year. It may be beneficial to devote the best grazing and supplementary feed to growing and finishing stock. Would a neighbour who does not want the trouble of lambing be happy to summer dry stock?

When dealing with grazing ruminants such as cattle, sheep, goats and deer or pseudo-ruminants (alpaca and llama) caution needs to be taken when looking to fill a large feed deficit when pasture becomes tight. Due to the presence of a rumen in these animals (where the feed they eat is fermented) care needs to be taken when offering feeds that are high in starch (e.g. grain-based feeds). Although a great tool for dealing with a dry period, they should be introduced to animals gradually if they are new to grain in the diet, and they should never make up all of the diet at any one time (see feeding rates on product labels and stick to them). **There still needs to be long, effective fibre (hay, baleage or grazing) in the diet to keep their rumen healthy and keep them ruminating.** Weed seeds in hay can contaminate paddocks so ideally hay should be purchased from a reliable source — whilst some broad-leaved species may be acceptable, the ingress of gorse and thistles may be less appealing.

As grain-based feeds are high in energy, they are a good compliment to lower energy summer dry grass and can increase the energy intake of animals very successfully as well as ensuing they get extra vitamins and minerals to help stay healthy.

Note: Follow feeding instructions on bag labels. Introduce to animals slowly and don't overfeed. Make sure when it's fed out to animals that all have equal access to the feed to reduce the risk of goring by more dominant animals.

Grain based feed options to consider: NRM Multifeed Nuts (sheep, cattle, deer and goats), NRM or Reliance Sheep Nuts (sheep), NRM Pre-Tup Nuts for flushing ewes

pre-tupping, NRM Alpaca Pellets (alpaca and llama), NRM Deer Elite and NRM Deer Performance (deer, sheep and goats), NRM Dairy Goat Pellets (milking goats).

So what other options are available if feeding a grain based feed is still not quite covering the feed gap?

Farmlands stock a range of high fibre options from soy hull based feeds through to chaff and compressed baleage such as FibreFresh which can be used to supplement the diet of stock if the maximum feeding recommendations of compound feeds have been reached.

Necessity is the mother of invention — if nature is telling you that you have ryegrass struggles on your dry block consider other grass species or legumes that might fare better on a dry block. Farmlands staff have a lot of local knowledge about what works in a region.

What actions should you take once the drought has broken?

The drought is considered broken only when there has been enough rain to take the soil to within about 15% of the field capacity (generally > 50mm of rain).

Things to do:

- Slow the rotation to ensure grass builds up and plants develop root mass.
- Continue to feed supplement. Half the grass available is lost after rain because it is dead and decays quickly. Even if there is plenty of fresh feed available, it may be of a low dry matter content due to its rapid growth.
- Wait several weeks after rain before applying nitrogen to promote pasture growth.
- Plan pasture restoration. Burnt off patches of pasture will be filled with hardy but low feed value grass and weeds. Do this strategically by assessing what paddocks are most in need of attention. Using the 50% rule may help (test the pasture by doing a minimum of 20 observations in front of where you place your right boot. Are there live grass tillers present at the front of the boot? If the answer is no in more than 50% of cases, the paddock definitely requires renovation).

Nitrate poisoning

Cloudy days and cooler temperatures are usually welcome in a drought year but if they follow some rain over the autumn-winter period, they can be a herald to deadly nitrate poisoning for livestock grazing on rapid-growing green feed. Nitrate poisoning is probably one of the worst and most widespread causes of poisoning reported in livestock because affected stock can die quite suddenly and at times in multiples. Nitrate poisoning affects cattle, sheep, deer, goats, and pigs (which are the most susceptible).

Animals can develop nitrate poisoning and die within minutes from consuming crops or feed high in nitrates. Feeds include pasture, brassicas, and other green feeds and even those that have not been ‘fertilised with nitrogen’ but because of how the plant takes up nutrients from the soil and converts them into proteins. Nitrate poisoning is caused by high nitrate levels in feed and it usually occurs in late autumn or winter, particularly during a flush of growth after a dry period, and/or during overcast cloudy days and lower ambient temperatures. Nitrate levels build up in herbage when nitrate is taken up by the plant faster than it can be converted into protein.

Nitrate poisoning risk factors:

- Animals rapidily consuming feed high in nitrates is the greatest risk factor.
- Physiologically stressed stock (e.g. hungry, pregnant or sick).
- Grazing ‘at-risk’ forage too hard or low down the sward.
- ‘Risk’ forage species: maize, fodder beet, turnips, kale, re-growth brassicas, rape, ryegrasses and immature green oats.
- When it rains after a drought, rapidly growing plants quickly uptake nitrates from soil to become ‘toxic’.
- Stressed plants (when in dry or low-moisture conditions) with higher nitrate levels.
- Less sunshine hours, cloudier and colder weather can induce elevated plant nitrate levels that persist into July/ August.
- Plant age (e.g. young, immature plants).
- Use of high rates of nitrogenous fertiliser later in the season.

Parasitism during and post drought

In New Zealand pasture-based systems, two main groups of internal livestock parasites cause the most economic impact — nematodes (which include all gastro-intestinal worms and lungworms) and liver fluke. It is important to realise that of these parasites, over 95% of the worm population at any point in time is living out on the pasture, not inside the animals. Further, one of the main factors restricting farmed livestock productive performance on controlled grazing environments is the continuous daily larval parasitic challenge which grazing animals encounter, especially young stock.

Animals that are well nourished are far less likely to suffer parasitism and if animals are underfed, they are far more likely to get worms. Young stock are the most at risk because they are have not yet developed full immunity. As they are still growing they will have a higher bodily demand for any dietary energy and protein than mature dry stock. Well-fed animals can withstand parasites more readily because they are well supplied with amino acids which are available to replace losses rather than having to draw off its own body reserves. Any parasitised animal deposits parasite eggs onto the paddock within their faeces. During times of extreme dry weather the parasite egg numbers continue to build up into quite large amounts on the paddocks. Unhatched eggs survive in a ‘suspended’ stage sitting under a dung pat or living just under the soil surface, due to the lack of moisture which they need to complete their lifecycle. Dry conditions confine parasites to their dormant egg state but once it rains eggs can hatch in large numbers and within 2-3 weeks any animals grazing these paddocks suffer a very high worm challenge. With higher parasite egg burdens being deposited onto pasture, pre-lamb ewes grazing paddocks later in winter can also expose subsequent spring born lambs to a very early worm challenge.

Animals grazing low pasture covers coming out of a drought may be exposed to a high worm larval challenge on top of a lack of feed nutrients. Therefore after a drought, lambs and calves can quickly succumb to parasitism, showing signs of weight loss and in some cases even death at a time when they would be expected to start doing better. Drenching should be considered to alleviate the challenge. Management tools to utilise if possible are feeding crops to avoid grazing youngers on infective worm pastures, or graze older cattle after sheep or vice versa, or graze adults after youngsters to ‘vacuum’ as many infective worms off the pasture.

For deer and calves, lungworm is the parasite of real significance and is often particularly observed in weaners over the autumn period, especially if they are stressed. Generally speaking, lungworm is not a problem in sheep but young cattle or deer grazing heavily infective pasture in the spring, autumn or even winter can be can be vulnerable especially where an effective parasite control programme has not been used.

In a drought stock may give more attention than normal to the grassy perimeter edges of paddocks and/or where ditches may offer a fresh green pick of grass due to the slightly higher moisture levels. These regions may become infested with higher numbers of infective worm larval stages. Likewise, in certain recognised parts of New Zealand where slow running streams and small meandering waterways are grazed from late summer through to the winter period, infective stages of liver fluke parasites may reside. Liver fluke do not need to be in high numbers to cause significant impact on young animals and should be considered whenever animals show definite ill thrift with a slower than expected growth rate for their age and breed. Vaccination of stock to protect them against the Clostridial bacteria that causes Black’s disease is highly recommended in areas where liver fluke is known to occur.

Other things to consider

Ensure animals always have adequate access to water.

Watch out for drought related animal issues, such as tooth wear from grazing short pasture and nitrate poisoning when stock are grazing crops that come away well after the drought.

Managing cash flow

Extreme dries that occur across large swaths of the country can seriously impact on short-term cash flows. If you are experiencing cash flow pressures in your farming operation, you should know that you are not alone.

Managing cash flow is an extremely important part of any farming business as knowing that “cash is king” keeps it front of mind. A key message is that if you are experiencing or expecting cash flow pressures as the year unfolds then early engagement with your professionals (rural supply professional, farm advisor, accountant, banker, etc.) and talking this through with them will pay dividends.

Joint discussions and acting early can lead to finding solutions that can help you manage through the tight cash flow period. Reviewing your operations, planning for the short, medium and long term and then re-reviewing as conditions change is critical. Once reviewed then act, doing nothing is not an option. This may involve seeking additional financial support, reviewing expenses (discussing what is critical and is discretionary when maintaining farming operation performance) and reviewing your asset base for any non-critical items that could be sold to support your core operations. But whatever it is, rest assured it will be different for everyone and that is why discussions with professionals early and ongoing will help.

Top finance tips during a drought:

- Engage early with your professionals.
- Plan, plan, plan – then act!
- Review and re-review your plans as conditions change.

Farmlands also has options available to their shareholders to help support cash flows. If you’re like to learn more about how Farmlands can assist then phone 0800 200 600 to learn more.

Call in and see us!

There are a number of different factors to consider in preparing for and responding to drought. For advice on all of these factors, tap into the huge amount of knowledge and experience at your local Farmlands store.