



EXTREME DRY

MANAGEMENT TOOLKIT

January 2018

-  You and your team
-  Animal health and welfare
-  Management strategies
-  Feeding strategies
-  Financial support



This resource is laid out in three sections:

1. **Leading into extreme dry**
2. **As the extreme dry intensifies**
3. **Recovering from extreme dry**

In this way, you can cut to the section that is relevant to you at a particular point in time.

Within each of the three sections, the information is grouped into:

- **You and your team**
- **Animal health and welfare**
- **Management strategies**
- **Feeding strategies**
- **Financial support**

The key message you will find repeated throughout this resource is:

Make decisions early.

This will minimise the impact of the extreme dry on your business and increase the likelihood of containing any financial losses to the current season.

All downloadable resources in this publication are available from B+LNZ's "Knowledge hub" or from an external source (if specified).

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Whenever you see this icon visit www.knowledgehub.co.nz to find the resource by searching the key words like the example.

 Trees for the farm

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1

LEADING INTO EXTREME DRY

You and your team

The most important resource on your farm is the people. Farmers are increasingly recognising that “gritting it out” isn’t a smart long-term approach. You need to prioritise your own health and that of your team, if you want the best out of the livestock and overall operation. This is particularly important in times of pressure, such as extreme dry.

Stress management

What is stress?

Stress is a normal physical response to changes or events that make you feel threatened or upset. When you sense danger – whether it’s real or imagined – the body’s natural defences automatically kick into high gear; this is known as a “fight or flight” reaction, or stress response. It’s the body’s way of protecting you from harm.

This response helps you to stay focused, energetic, and alert, improving your ability to respond intuitively to a situation.

Beyond a certain point, stress stops being helpful and starts causing damage to your health, your mood, your productivity, your relationships, and the quality of your life.

Warning signs of stress

Every person has a different reaction to stress. Here are some of the more common warning signs that it’s time to manage your stress and consider getting help:

- **Loss of enjoyment** and interest in activities usually enjoyed.
- **Loss of energy** and constant tiredness.
- **Persistent worrying** about little things.
- **Changes in sleeping patterns** sleeping difficulties despite physical exhaustion, or sometimes sleeping too much.
- **Indigestion or stomach upsets.**
- **Muscle tension and pains** (for example, lower back, chest, shoulders, joints, nervous “twitches” or muscle spasms).
- **Skin itches** or rashes for no apparent reason.
- **Frequent sickness** (for example, cold, flu and stomach bugs).
- **Shortness of breath** or shallow breathing.
- **Memory or concentration problems.**
- **Doing risky or careless things** (excessive drinking, gambling, drug use).
- **Continuous feelings of anxiousness** and tension for no obvious reason.
- **Feeling irritable**, impatient or teary with no apparent reason.
- **Finding it hard to make decisions** and concentrate.
- **A sad mood that will not go away** despite good things happening.
- **Loss of appetite** or over-eating.
- **Isolation** by avoiding people, places and events.



What can you do about stress?

In some instances you may be able to remove the cause of stress. However, it is not always practical to change your workplace, where you live, or your relationships. But you can manage your body's reaction to stress by learning new ways to manage or cope differently.

Here are some ways to help manage stress:

1. **Talk about your worries:** Spend time with someone you trust.
2. **Limit your expectations:** Be selective and use your energy to do the most important and achievable tasks.
3. **Eat well.**
4. **Make time to exercise, take time out, and spend time with family and friends.**
5. **Organise your work habits:** Get up 5-10 minutes earlier, so you don't have to rush. Break large projects down into more manageable smaller tasks. Spend 5-10 minutes at the end of the day preparing for the next day. This helps you gain control of your life.
6. **Solve problems:** Try to find a solution to conflict. Learn to be more assertive and say NO.
7. **Get sufficient sleep:** To help sleep, take a walk in the evening, practise relaxation, make your bedroom a sleeping space only (remove the TV).
8. **Put fun and laughter in your life.**

Who to go to for help

The first step is to acknowledge that stress might be getting on top of you. Tell someone – your partner, a friend or your GP.

Do make an appointment to see your GP. You can stand back and determine where you're at and discuss options to get you back to yourself.

Other rural-specific support networks include Rural Support Trust and Farmstrong.

Rural Support Trust: The 14 trusts across New Zealand are each run by local people who know the area, are familiar with agribusiness, and are well networked and trained. If life feels like it's getting on top of you, or you're concerned for a family member or friend, simply call 0800 787 254 for a free, confidential chat.

Visit: www.rural-support.org.nz

Farmstrong is an initiative designed to give farmers the skills and resources to live well, farm well and get the most out of life. Farmstrong focuses on wellbeing and what you can do to maintain and improve your health.

Visit: www.farmstrong.co.nz

Team management tips

- If you have a reasonable-size team, consider appointing a Crisis Manager early on – to handle people-related matters.
- Lead by example. Your team will look to you for reassurance and confidence.
- Look for excuses for a bbq or get together – a chance for the team to relax and enjoy each other's company.
- Don't let your health and safety standards slip. Long, hot days can be tiring and are compounded by the stress and concern for animals.
- Be "sun smart". Supply sunblock, broad-brimmed hats, and a supply of good drinking water.

Common strengths of successful farmers

A Ministry for Primary Industries (MPI) drought recovery publication from 2003 identified farmer strengths that tend to improve their overall performance:

- **Motivation and determination:** This is the key common factor found in studies of successful farmers. Do not lose interest during hard times – minimise losses and look forward to positioning yourself to take advantage of the good times with positive thinking.

- **Decision-making skills:** Develop an ability to plan, decide on which steps to take and stick with your plan while constantly updating it. This differs from continually changing your mind as circumstances dictate.
- **Record, monitor, prioritise:** Take pride in keeping useful records, focus on high impact priorities and look for continual small improvements.
- **Gracious with people, ruthless with money:** Remember the people around you including partners and children can also be affected by the situation.
- **Spouse/partner closely involved in decision-making, consultation and planning.**
- **A problem shared is a problem halved:** Talk with friends, neighbours, Rural Support people, bankers, advisers, discussion groups, Federated Farmers, community support networks or anybody prepared to listen.
- **Seekers of information:** High earners recognise it is what you learn after you know it all that counts. Listen to top advice, then make up your own mind whether to follow it.
- **Work hard and smart:** Recognise that planning, discipline and goal setting are just as important as hard work.
- **Look after yourself:** Make shade available and take extra breaks when doing physical work. Schedule any jobs requiring heavy protective gear for the cooler parts of the day.



Animal health and welfare

Responsibility for the health and welfare of animals rests with the stock owner or person in charge. If you need advice, ask for it from your vet, consultant or an expert in the particular issue you're facing.



Water

Stock must be given sufficient good-quality water to maintain body weight within the normal physiological range for their type, age and sex.

Sheep should not be deprived of water for more than 48 hours and, in hot weather, for no more than 24 hours. Factors which increase water requirements include lactation, pregnancy, hot and dry weather, sparse and dry feed. If these conditions apply, individual sheep may drink six litres of water daily..

For cattle and deer, water is even more critical and, essentially, they must have access to water at all times.

CLASS OF STOCK	WATER (litres/head/day)
Cattle	45
Sheep and goats	4
Red deer	5

[Source: Government guidelines]

Keep an eye out for stock milling around troughs. The trough may be broken or stock demand for water is exceeding supply.

 www.knowledgehub.co.nz

- **Fact sheet:** Economics of stock water on hill country
- **Resource book:** Economic evaluation of stock water reticulation on hill country

Shade/shelter

Normally an animal living in its natural habitat would find its own shelter, but farmed animals may not be provided with sufficient options, especially if they are in a paddock surrounded only by a wire fence. In that situation, there is no protection from the sun, wind or rain.

It's your role to ensure stock can seek shade protection from the sun.

Do you need to look at a strategic tree-planting programme, to introduce shade and shelter into exposed paddocks?

 www.knowledgehub.co.nz

- **Fact sheet:** Shelter
- **Resource book:** Trees for the farm

Ill-thrift

Ill-thrift describes stock growing at significantly slower growth rates than expected, given their feed allocation.

Historic on-farm data indicates that, over summer and autumn, ill-thrift occurred 36% of the time in cattle and 62% of the time in sheep.

The most common reasons for stock growing slower than farmers expect over summer and autumn are poor pasture quality and parasitism. Other causes are possible (such as endophyte toxin, facial eczema, fusaria fungi, trace elements and pneumonia), but it is recommended you address pasture quality and parasitism as a first step.

 www.knowledgehub.co.nz

- **Fact sheet:** Ill-thrift - identifying the causes and measuring their effects



Adequate feed

Calculate the daily feed demand of your stock and compare this with the food value of the ration you are currently providing.

Tip: As an insurance and assurance, also weigh stock regularly to ensure they are not losing weight.

Calculating stock feed requirements

To estimate dry matter (DM) and energy (as ME) intake requirements for sheep and cattle, use the FeedSmart calculator (www.feedsmart.co.nz). Check out the User Guide for instructions.

Once you have an estimate of DM and ME, look up the NDF (neutral detergent fibre) percentage and crude protein requirements in the table below to refine your decision making.

Calculating potential DM intake of feed

How much feed can an animal eat? To calculate dry matter intake accurately, you need to consider feed quality. This is done starting with the NDF percentage. This tells you the digestible fibre portion of the plant.

How do you find out a feed's NDF? Simply send a sample to a plant analysis lab and ask for its NDF percentage. (NB: NDF is generally part of a standard test.)

Once you have the NDF figure, plug it into this equation:

$$\text{Potential DM intake} = (120 \div \text{NDF}) \div 100 \times \text{liveweight}$$

[Source: van Soest (1994) Nutritional ecology of the ruminant]

Example:

On lucerne with a NDF of 55%, a 40kg lamb has a potential DM intake of:

$$\text{DM intake} = 120 \div 55 \div 100 \times 40$$

I.e. = 0.872kg/day = 872g/day

Livestock nutrient requirements: NDF and protein

65 kg ewe	Crude protein	NDF	Ca	P
Adapted from NRC, 2007	g/day	% of DM	g/d	g/d
Maintenance of LW & BCS	84	70%	2.3	1.9
Early preg: Av. Tw + S	126	56%	5.3	3.9
Mid preg: single	132	50%	5.1	3.8
Mid preg: twin	160	46%	7.3	4.8
Mid pregnancy: singles & twins	146	48%	6.2	4.3
Late preg: single	149	46%	5.9	4.2
Late preg: twin	183	45%	8.5	5.1
Late pregnancy: singles & twins	166	45%	7.2	4.6
Lactation: single	220	43%	6.3	5.3
Lactation: twin	294	41%	7.7	6.6
Lactation - singles & twins	257	42%	7.0	5.9

Assessing feed situation

Now that you're armed with the DM intake figure, follow these two steps:

1. Assess paddock feed on offer (FOO).
2. Consider quality, in the following order:
 - a. How much can the animal actually eat (use NDF equation on pg 8 to work this out).
 - b. How much ME and protein are supplied in the amount they can eat, compared with how much is required? (NB: ME and protein are both important. ME influences body condition, while protein influences growth, milk production, muscle deposition and digestion.)

Example:

Step 1: Estimate feed requirement. FeedSmart calculates a 65 kg ewe in mid-pregnancy requires 10.3 MJME/day for maintenance.

Step 2: Estimate how much of the pasture / hay / silage (roughage) a 65kg ewe in mid-pregnancy (pre-pregnancy scanning) can physically consume in 1 day by using the NDF equation:

Potential DM intake =
 $120 \div \text{NDF} \div 100 \times \text{liveweight}$

Assume the quality of the hay is 48% NDF;
ME 8.4; Crude protein 9.1%

DM intake = $120 \div 48 \div 100 \times 65$
i.e. = 1.63kg/day

Is the energy (ME) requirement being met?

$1.63\text{kg} \times 8.4 \text{ ME} = 13.7 \text{ MJ}$

Is the protein requirement being met?

$1.63\text{kg} \times 91\text{g protein (9.1\%} \times 100 = 91 \text{ grams/kg)} = 148\text{g protein}$

In summary:

- The feed test above is meeting the requirements of a 65kg ewe in mid pregnancy (averaged for a twin or single-bearing ewes). However, if the NDF exceeds 48%, the ewe will not be able to eat as much.
- If the energy of the tested feed is below 8.4 ME, then daily energy requirements will not be met and supplementary feeding with cereal grain may be required.
- If the protein test of the roughage is below 9.1%, protein requirements will not be met and supplementation with legume hay or grain may be required.

 www.knowledgehub.co.nz

- **User Guide:** FeedSmart App User Guide
- **Resource books:** Guide to New Zealand Cattle Farming; A guide to feed planning for sheep farmers
- **Modules:** Principles of feeding: From weaning to mating (sheep); Principles of feeding: Growing and grazing pasture

Minimise stress

Stressed stock are generally fairly obvious. They are lone animals that have wandered away from other stock, lethargic stock, or stock running up and down fence lines.

Climatic extremes place livestock under considerable stress. This in turn leads to animals becoming more vulnerable to the effects of disease.

Activities such as mustering, transportation and prolonged yarding should be avoided in periods of extreme temperature.

Internal parasites

Extreme dry or not, managing internal parasites is one of the biggest challenges facing farmers. If you haven't already attended a Wormwise workshop, contact your B+LNZ Extension Manager (beeflambnz.com/contact-us) to see if one can be held in your area.

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- **Resource book:** Wormwise
- **Fact sheets:** Worm management; Worms in refugia
- **Podcast:** Dave Leathwick: Animal health, internal parasites

Pneumonia

Young sheep can be susceptible to pneumonia, particularly when they are under stress. Be sensible about handling stock in extreme heat and dusty conditions. Avoid yarding for long periods in cramped conditions. Don't shear lambs immediately after weaning. The transition into winter can be a period to watch, especially.

Trace elements and minerals

Forage tests highlight any mineral and trace element deficiencies (as will blood tests), such as Vit B12, selenium and zinc deficiency. Use liver biopsies, if copper deficiency is suspected. These tests guard against sales pitches for products you don't necessarily need.



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- **Fact sheets:** Trace element nutrition of cattle;
Trace element nutrition of sheep

Fusarium fungus toxin

The fusarium fungus toxin, zearalenone, lives on dead material in the pasture and it depresses ovulation rates in ewes in the autumn.

High risk conditions are difficult to predict using spore counts or climate patterns, but toxin levels can be measured in grass and urine samples.

Grazing management is the only treatment. It is best to avoid grazing dead material with ewes approaching mating. A fast rotation before and during mating helps avoid zearalenone.

Transport

Where planning to move stock for grazing from a drought-stricken farm, only fit and healthy animals should be selected for travel. Consider body condition, clinical evidence of disease or parasitism, injuries or other physical defects.

Animals must be able to stand and bear weight on all limbs and be fit enough to be able to withstand the journey without suffering unnecessary pain, suffering or distress.

If there is any doubt, contact a veterinarian for advice or do not transport the animal.

Carefully consider biosecurity risks, such as drench-resistant internal parasites, 'Hairy shaker disease' for pregnant or young ewes and M. bovis.



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- **Fact sheet:** Drystock biosecurity guidelines



External resource

- MPI: Factsheet on [“Mycoplasma bovis and moving stock in a drought”](#) and [“Are your animals fit for transport?”](#)





Management strategies

Have a plan and set cut-off dates and feed levels which trigger action. Then stick to the plan. Collecting information and monitoring are particularly important in the lead up to and during dry periods. This includes livestock growth rates, forage tests and monitoring each enterprise's cost of production.

Overall business

An overarching plan will guide you, so it's a good idea to draw up a plan early. It will prompt you to consider timeframes and triggers around feed levels, potential feed costs, stock weights and other variables. In this way, you can objectively work through your options, with a clear head. Share the plan with your staff.

Talk to your accountant and bank re cash flow – just so you're aware of options and lead-in times, should you need any bridge financing in the medium term.



External resource

ANZ cash flow forecaster <https://bizhub.anz.co.nz/resources/video-managing-your-cash-flow.aspx?cid=sem--business--c>

Land management

Review the adequacy of water supply and shaded areas for stock. If you farm in an area often affected by extended dry periods, increasing shaded areas through plantings should be included in your long-term management plan.

Consider sacrifice paddocks to avoid over-grazing and reduce the dry's impact on the following year's pasture production.

Soil structure, fertility, and therefore stability, are at risk as moisture levels reduce. Soil loss can also occur with reduced organic matter and increased exposure to wind. Consider re-balancing soil nutrients.





Keeping an eye on the weather

There is good, free and localised information available as follows:



External resources

- [MetService - www.metservice.com](http://www.metservice.com)
 - [Drought Decisions video](#)
 - [NIWA daily climate maps](#)
 - [Weather forecast for New Zealand](#)
 - [NIWA outlook for seasonal climate conditions](#)
 - [Pasture Growth Forecaster](#)
-

Decision making principles

These principles are useful when making decisions in extreme dry conditions:

1. It is usually more economic to sell stock than buy feed.
2. Don't feed any animals that will not be in productive condition next spring (i.e. 35-40 kg ewes are better sold).
3. It is more important to maximise income after the drought, than minimise costs during the drought. In simple terms, losing weight on ewes and cows now by under-feeding will cost far more in lost production next season.
4. It is vital to do some scenario analyses - consider the big "What ifs". ("What if it doesn't rain until 25 April?"). Solutions need to be identified for these and implemented when necessary.
5. Use destocking as an opportunity to consider future stocking and structural options (e.g. reducing cow numbers, increasing deer, switching sheep breeds).
6. Monitor the condition of your stock and pastures regularly. In particular, you must know bodyweight and body condition of stock. Usually, we over-estimate stock weights, if we don't measure.



Inverary Station Manager Bert Oliver advocates early decision making and not delaying action. "You might think you are missing out on things, but it's when you don't make those early-decisions that you wish you had."

During the 2015/16 extreme dry event, the station weaned five-year ewes early at 60 days, which allowed the sale of 1100 cull ewes on a higher schedule in December. Other mobs were assessed week-by-week. To protect the performance of future breeding stock, 1500 hoggets and 140 heifers were wintered off-farm.

"Well before the start of lambing and calving, it's important to identify which trading mobs can be first "first cab off the rank", when the need arises. Which mobs are your lowest priority? When will you decide to act?"



Reducing livestock demand

De-stocking and using supplements allow higher pasture covers to be retained. These pastures will build quickly after rain, as opposed to chewed-out paddocks, which take much longer to recover.

Delaying mating

Good drought management ensures that the maximum numbers of ewes retained actually conceive and produce at least one lamb next spring. If you need time to bring weights up, consider delaying mating by 3-4 weeks.

Ewe liveweight change in the three weeks before ovulation influences the number of eggs shed across the ewe flock. Weight loss, especially in light ewes, is detrimental and results in poorer ovulation rates, more dry sheep and fewer oestrus periods. However, some weight gain in light ewes is extremely beneficial and may result in higher ovulation rates than heavier ewes being held at maintenance or slowly losing weight.

Of course, you are also lambing further into spring and should benefit from more feed availability.

Selling stock early

Reduce stock progressively, starting with the class of sheep and cattle most expensive to maintain – typically young stock. Compared to replacements, older ewes and cows cost less to maintain and are the easiest to get back in lamb or calf and rear their offspring successfully.

Genetically superior younger animals are usually worth more at sale, yet the most expensive to keep. In most breeding programmes, it is possible to breed another generation of similar genetics the following year.

Not mating hoggets

Opting to not mate your hoggets – assuming you normally do – is a simple way to reduce feed demand for this class of stock. It also means they have every chance to grow out to optimal weights during a challenging, dry season.

Grazing off

Grazing off comprises three main costs:

1. The transport cost in getting stock to and from grazing.
2. The grazing charge per week.
3. The number of weeks stock are away.

Off-farm grazing is a viable option when the animal's feed requirement must come from grain and hay. The cost of transport is an insignificant part of the total cost. The two key factors are the time grazed off-farm, to avoid using supplements that are more expensive, and grazing cost per week.

If grazing off, the earlier, the better. This gives you the greatest benefit.

When conditions are particularly dry, send the twin-bearing ewes to off-farm grazing and concentrate on the single-bearing ewes. The twin ewes are more expensive to maintain on-farm and the losses will be greater if their feed requirements are not met. Off-farm grazing is always more cost-efficient than supplementary feeding.



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- **Resource books:** Guide to New Zealand Cattle Farming; A guide to feed planning for sheep farmers; Making every mating count; Hogget performance

Fertiliser use

If finances are limited: You may have little option but to withhold fertiliser applications for a year. Don't panic if this is the case: Think of it as skipping a meal – it is only when you make a habit of it that you are likely to suffer.

If feed supply is expected to be adequate for current stock numbers: Aim to maintain present soil fertility levels. Because pasture production during a drought may be down by 50% on light soils and 25% on deeper soils, normal fertiliser applications can possibly be reduced by this amount in the next year.

If shortage of feed is your main issue and you do have finances available: Try to at least maintain present phosphate and sulphur inputs, and increase them if soil tests are low. Use nitrogen at about 30-60 kg N/ha in the early spring in the form of urea if soil tests are okay, or a Cropmaster fertiliser of phosphate, sulphur and potassium. Generally, you should top-dress the best paddocks first, as they will give the best response per kilogram of fertiliser.



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- **Editable PDF:** OVERSEER nutrient budget form



External resource

- [Fertiliser use on New Zealand Sheep and Beef Farms](#)

Body condition scoring

The level of stress caused by adversity is influenced by stock condition. So, while extreme dry may only be threatening at this point, having good condition stock will provide you with a valuable buffer.

Body condition scoring (BCS) is simple, free and can significantly improve the productivity and profitability of a ewe flock. It involves putting your hand on each and every ewe and using the balls of the fingers and thumb to assess the fat cover over the last (13th) rib and backbone. The fat cover is then given a score of between one and five, with one having no fat cover (starvation) and five having excessive fat cover.



North Canterbury farmer Tim Hawke finds body condition scoring more valuable than weighing.

Over a particularly dry summer, Tim made the decision to BCS his 1000 ewes four times, pulling out and strategically feeding the lighter ewes on grain.

Previously he had just been condition scoring at weaning, tupping and before lambing. At scanning, there were only two or three ewes with a BCS below 3. Maintaining ewes at a BCS of 3 meant that despite the tough summer, his ewes scanned a very respectable 192% (including two-tooths).

“If more people did it then they would realise that it really does affect the bottom line.”



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- **Resource books:** Beef Cow Body Condition Scoring; Ewe body condition scoring
- **Fact sheets:** Strategies used by farmers in drought; Ewe BCS; Condition scoring at flushing
- **Module:** Body Condition Scoring (Sheep)
- **Podcasts:** Peter Young – More Profit from Sheep. Discusses the benefits of BCS, and managing sheep flocks in difficult times; Paul Kenyon – Hogget Lambing
- **Videos:** Body condition scoring (introduction); Body condition scoring (demo); Body condition scoring game changer; How to condition score ewes; Why you should condition score your ewes; Benefits of body condition scoring your ewes; Best time to condition score your ewes; Condition scoring powerful driver of flock profit; Condition scoring will boost your bottom line.

Feeding strategies

Create a feed budget now. Start by measuring or estimating your available feed (don't forget hay and silage). You have options – including supplementary feeding, early weaning, grazing off, share farming, selling stock early – so don't be timid about spending time on a budget now and reviewing it weekly. It will empower you and give you valuable information for coming months.



Feed budgeting

If you haven't already attended a B+LNZ FeedSmart workshop, now is a good time to get along to one. Contact your local Extension Manager (www.beeflambnz.com/contact-us) to see if one can be held in your area.

When assessing feed on hand in dry conditions, be conservative, as feed is likely to be of a lower quality than normal.

Compare your feed budget to your financial budget and adjust your expenditure accordingly. Be realistic. Completing a cash flow will help you allocate extra money to products you need or other options you have highlighted (e.g. off-farm grazing). You may need to sit down with your bank manager or accountant to complete this, or at least keep them informed.



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- **Resource book:** A guide to feed planning for sheep farmers
- **User Guide:** FeedSmart app (www.feedsmart.co.nz)
- **Fact sheets:** Energy requirements of cattle; Measuring pasture covers using the sward stick; Bull live weight gain and pasture quality
- **Modules:** Feed Fundamentals; Principles of feeding: Growing and grazing pastures
- **Podcast:** San Jolly: Feed quality

Feed quality

Dry matter drives profit, but quality drives performance and determines what supplements are required (if any).

Forage tests

The only way you can know the nutritive value of crops and forages is by testing them. It also highlights what – if anything – is missing so supplementary feed can be used to off-set any nutritional deficits.

Collecting a sample: It's important the sample is representative of what the animal is actually eating. I.e. If sheep are likely to consume the entire allocated pasture, then the sample should be cut to a low level. If rotationally grazing, then the sample should be more selective – just as stock would be more selective.

Sheep: The best time to start testing forages for protein, energy and NDF (neutral detergent fibre) is 10 days before weaning. Tests should be repeated every four to six weeks over summer/autumn.

Supplementary feed

Supplementary feed is a simple way to overcome feed deficit, with the benefits usually outweighing the cost.

Buy in supplements early and plan to continue supplement feeding, even after the dry breaks, to help pasture recovery.



SEE PAGES 20-21





Crops

Summer crops

The drop-off in feed quality for a few weeks over summer is a major constraint with perennial pastures and forages. This can be off-set by establishing crops and forages that don't go reproductive over summer – the time when you typically want high lamb growth rates.

Sometimes a change of species is all you need to tweak your system and get the results you want without introducing supplements. E.g. Sowing oats into lucerne, and feeding when the oats are ripe (not green) will provide energy at a time when the lucerne is energy deficient.

Cereal crops

Sown in winter, cereal crops use reliable winter rainfall and provide high quality sheep feed in spring and summer, hence reducing the risk of exposure to sub-optimal spring rain.

As grain is knocked out of the heads during grazing, you may get two years out of a single-sowing, with rapid germination the following autumn. This double-crop system keeps the cost of production down.

If lambs start grazing the cereal when the grain is at the milky-dough stage, they should avoid acidosis. They then stay on the crop, as it ripens. Mowing a strip around the perimeter of the paddock allows lambs easy access to water.

Ensure access to lime and salt and, where grain proteins are low, supplement with legume hay or grain.

Because cereals are low in calcium and high in potassium, they should not be relied upon as a sole feed for ewes in late pregnancy, as calcium and magnesium deficiency can cause problems.

If you are planning to sow cereals to fill winter feed gaps for ewes, include an annual legume (such as Balansa clover) in the mix.

Specialist pasture species suitable for dry conditions

To achieve pasture persistence, one species is not enough. The interaction and complementary traits of several plant species and pasture types is the key to creating a productive, persistent and profitable dryland farming system.

Subterranean (sub) clover: In a mix, sub clover complements cocksfoot and provides clover dominant lactation feed in most years. It sets seed in late spring to survive dry summers and regenerates from seed following autumn break rains. In a recent Lincoln University trial, this pasture was still productive after nine years.

Lucerne: Lucerne is an efficient user of water in spring and is able to extract water from depth in times of shortage. Dry matter production continues into summer months and it can respond rapidly to any summer rainfall.

Legumes: Legumes are the most important component of pasture mixes. The duration and frequency of summer/autumn drought provides the basis for selection of the best legume. It is recommended separating your property into zones (dry, moist, etc. – see Fact sheet below) and select the appropriate legume to optimise production in each zone.



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- **Resource books:** Summary papers for establishing and maintaining lucerne; Management practices for forage brassicas; Summary of the fodder beet profit partnership experiences; 400 Plus
- **Fact sheets:** Production and persistence of dryland pastures; Pasture mixes for dryland farming systems
- **Podcasts:** Derrick Moot: Lucerne and other dryland legumes; Jim Gibbs: Making the most of fodder beet
- **Txt alerts:** Pasture pests and weeds (AgPest); Lucerne management updates

2

AS THE EXTREME DRY INTENSIFIES

You and your team

It may feel counter-intuitive, but is 'now' a good time to get off farm and encourage your staff to take a break – particularly if stock numbers are reduced and the farm is looking a little quiet? Get away and enjoy a different outlook, even if it's just for a few days.



SEE PAGES 4-6

Animal health and welfare

Responsibility for the health and welfare of animals rests with the stock owner or person in charge. If you need advice, ask for it from your vet, consultant or an expert in the particular issue you're facing.



SEE PAGES 7-10

Management strategies

Information is power. As the dry intensifies, keep monitoring pasture quality, livestock weights, etc. Stick to your plan and the timeframes you have set yourself for decision making. Remember: an early decision is a good decision.

Managing stressed stock

Keep an eye out for stressed stock (e.g. lone animals that have wandered away from other stock, lethargic stock, or stock running up and down fence lines). Determine what is stressing them and take action to address it.

Culling breeding stock

 SEE PAGE 13



Reducing feed demand by selling or grazing stock off

It's generally more profitable and effective to reduce stock numbers – by selling or grazing – than to buy in feed. Furthermore, taking a hit on sale prices now is usually better than compromising future performance of capital stock.

Prioritising stock

In a drought, priority stock are those that are essential for your medium- to long-term recovery. In most instances, this will be capital stock.

Prioritising stock at the outset helps decision making around selling stock, feeding supplement or sending stock away to grazing.



Use this table to list the different classes of stock on your farm.

Stock Class	Priority Rank	Current Condition

Now rank each class/mob in terms of its medium-term importance to your farm system and your longer-term recovery from drought. Rank the most important stock class as 1, through to your least important stock class.

The current condition of each class of stock is also an important consideration. In the far right column, state the current average condition – Very Light, Light, Good, Very Good, Fat.

Weaning lambs early

With the right quantity of legume-based forages, early-weaned lambs can grow as fast – if not faster – than their unweaned equivalents on traditional ryegrass and clover pastures.

Early-weaned ewes can either be sold early, which frees up feed for other stock, or benefit from having more time to recover body condition before mating.



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- **Resource book:** Innovation farm programme 2012-16
- **Fact sheet:** Early weaning lambs
- **Modules:** Principles of feeding: From weaning to mating (sheep); Principles of feeding: From lambing to weaning



Biosecurity

They may be your own animals, but stock that has grazed off should still to be treated with caution on their return to your property.

Recommended practices:

- Before you send stock to graze off, check the health status of the property the stock are going to, including internal parasite resistance.
- As a minimum, hold returning stock in quarantine (isolation in separate pens) for 24 hours to ensure they have had time to empty out prior to release from the yards.
- Do the sheep need a quarantine drench on their return?
- On release from quarantine pens, monitor new stock in separate paddocks (ideally for seven days) and treat if necessary before integrating them with other mobs.
- Always comply with your legal requirement around Animal Status Declaration (ASD) forms and NAIT obligations.

Taking weight off cows

Cows with body condition score 7 at weaning can safely lose up to 2 BCS in autumn and early-mid winter.

Running beef cows at too high a BCS wastes valuable feed resources. There is usually a compromise between fat on the back and feed in the paddock. It is better to take body condition off earlier post-weaning to preserve covers in winter, than to eat the grass in autumn/early winter and be forced to take the condition off the cows just prior to calving.

Grazing off

Contracts

Successful grazing arrangements are based on good communication, integrity, mutual benefits – and a contract.

While related to heifer grazing, DairyNZ's website has questionnaires that help you partner with the right people, a checklist to agree on responsibilities, tools for planning for adverse events, templates for communicating regularly and what to do to keep things on track.

Visit: www.dairynz.co.nz/animal/heifers/contract-grazing/

Talk to your farm consultant to source a base contract and go from there.



Photo credit: NZ Farm Life

Based on past experience, Tom Maxwell of North Canterbury has found money spent grazing a proportion of his ewe flock off farm is money well spent.

The ewes returned home in good condition and fed their lambs well. The good pre-weaning lamb growth rates allowed Tom to skim-draft (to 34kg) and wean his August-born terminal sire lambs in early November.



www.knowledgehub.co.nz

- **Fact sheet:** Drystock biosecurity guidelines

Feeding strategies

Decision dates and setting priorities are critical. E.g. If it doesn't rain by the 20th, sell R2 cattle. Keep the calculator on hand, so you can crunch the numbers and make objective business decisions around when to sell, buy in supplements, graze off, etc. Your networks will be valuable at this time, whether it be to source additional hay or silage, find suitable grazing or seek a second opinion.

Feed budgeting

 SEE PAGE 15



Summer crops

 SEE PAGE 16



Supplement options

Whatever supplementary feed is given, let stock adjust to it gradually.

When buying in feed, store it correctly. Poor storage leads to extra problems at a time when you can least afford them.

Palm kernel extract (PKE)

Palm kernel extract (PKE) should be introduced slowly and not exceed a feed rate of 30% of the total daily intake for ewes and 20% for lambs. While it is a safer feed than grain, sheep need to retain access to fibre in order to chew their cud. Straw, hay or pastures remain the best options. A concern with PKE is the high copper content. PKE typically contains 20-30 mg/kg DM, while copper levels in New Zealand pastures range between 3.5-18 kg/kg DM. Sheep cannot excrete copper, so it accumulates in the liver and is released into the blood stream when the animal is placed under stress. Excess copper causes tissue damage and kills red blood cells, with death often the only symptom. N.B. Crossbred sheep (Texels, in particular) will only tolerate 5 PPM, before becoming toxic.

Sheep nuts

Sheep nuts are typically more expensive than PKE, but can be fed straight onto the paddock with minimum wastage. They also contain a full range of minerals and have a high metabolisable energy (ME).

Grain

Introduce grain slowly (25-50 grams per day) and increase gradually to give the rumen time to adjust and avoid acidosis.

With care, supplementary grain feeding rates can be as high as is economically viable and/or as required. Typically 200-300 grams per ewe is a good maximum in New Zealand conditions.

Grain type	ME concentration (MJ ME/kg DM)	%DM
Wheat	86	13.5
Barley	85	13.1
Oats	86	12.0
Maize meal	86	13.9

Legumes

Young stock have a higher protein requirement than unmated ewes or ewes in early pregnancy. The most cost-efficient ration to feed them should contain a legume grain, such as lupins, peas or beans. (Lupins and beans are the safest to feed.)

Ideally, the hay, silage or dry feed available should be tested, with the grain mix only included to make up the difference between what is available and what is required.

For very low protein hay or dry feed, legumes should make up at least 50% of the diet; where higher quality roughage is available, 25% will be adequate.

NB: Beans are approximately 10% lower in protein than lupins, so more need to be fed.

Hay and silage

The nutritional value of hay and silage varies dramatically. Hay and silage are usually high in fibre and low in protein. When feeding hay or silage, the higher the nutritional value, the higher the productive gains. Pit silage made from semi-wilted pasture usually has a DM content of 30-35%, while fully-wilted pasture cut for silage usually has a DM content of 18%. Hay from pasture usually has a DM content of 80-85. Hay and silage don't need to be introduced as slowly as other supplements, but it's worth taking some time increasing the amount gradually.

Stock losing condition?

If stock are losing condition or not gaining weight when they should be, ask why. Avoid the tendency to feed more of the same. Instead, investigate why the feed is not meeting the animals' requirements and choose the right supplement. This will be more cost effective.

 www.knowledgehub.co.nz

- **Fact sheets:** Rumen acidosis; Growing cattle fast on pasture; Using PKE blends to improve young cattle growth rates



Financial support

If the dry begins to bite, financial support generally becomes available. There are several factors to be considered before Ministry for Primary Industries (MPI) declares an official drought. There are steps you, as a farmer, can take to alert leaders to the reality of the situation, including the formation of a local drought committee.

Official definition of “drought”

From MPI’s perspective, a drought event is when the lack of rainfall has economic, environmental and social impacts on farming businesses and families and the wider community. MPI considers climate and hydrological data, as well as information on crop and animal production performance.

MPI is responsible for making an assessment of the potential impact of a drought, and advising government of the scale of the event: localised, medium or large-scale. The availability of government assistance measures varies with the scale of a drought event.

Drought committee

In an official drought situation, MPI finds a local/regional drought committee useful for the co-ordination of drought response and recovery activities. It also indicates to the community and government that the event is outside the norm.

What does the committee do?

A drought committee acts as a channel to collate information, is a contact for media, generates ideas for drought response and recovery activities, organises social functions and handles requests for MPI funding assistance.

When is the best time to form a committee?

A committee is best formed at the early stages of a drought. The following factors can indicate the need for a drought committee:

- The local Rural Support Trust or Federated Farmers deem that a drought committee would be beneficial
- Farmers start looking for support measures
- Drought conditions become a hot topic of conversation in the community
- People in the farming service sector, such as farm consultants, vets, stock agents and trade suppliers, start to raise concern

- A general mood in the community that “we need to do something”
- MPI makes enquiries about local impact and responses to the dry conditions/drought and offers assistance as part of the Primary Sector Recovery Policy
- Local media start making enquiries.

If you believe it a drought committee is needed, talk to you local Rural Support Trust, who are familiar with the MPI criteria for providing support in adverse events.

Government support

Working for Families

You may be eligible to receive extra money through Working for Families. Financial support is available for:

- Almost all families with children, earning under \$57,000 a year
- Many families with children, earning up to \$74,000 a year
- Some larger families earning more.

The Working for Families package is made up of three components and you may qualify for one or more depending on your personal situation:

- 1) Working for Families tax credits – paid to families with children aged 18 years or under to help with the cost of raising a family.
- 2) Childcare assistance – to help with the cost of childcare for pre-school and school-aged children.
- 3) Accommodation supplement – can help with the cost of your rent, mortgage, board and other essential household costs. NB: You don’t have to have children to get an accommodation supplement.

To see if you’re eligible for Working for Families, use the online calculators at

www.workingforfamilies.govt.nz



Call **0800 774 004** (housing and childcare) or **0800 227 773** (tax credits).



Tax relief

Tax relief and income assistance are available for farmers affected by drought. Inland Revenue has a range of measures to help, depending on personal circumstances.

If you are concerned about tax payments, changes in income, refunds or filing dates, contact your tax agent or Inland Revenue's emergency helpline 0800 473 566.

Tax assistance could include late deposits or early withdrawals from the income equalisation scheme, extensions of time for filing, installment arrangements, and remission of penalties. Talk to your accountant.

Income equalisation scheme: Farmers who have money deposited in this scheme may be able to make an early withdrawal, or deposit funds from forced sale of livestock.

Provisional tax: Where income is down compared with the previous year, provisional tax can be estimated or re-estimated downwards up until the last installment is due. If, after that, it seems that provisional tax is overpaid, early filing of the tax return will be appropriate.

Tax outstanding: Inland Revenue will consider installment arrangements for outstanding tax in some circumstances.

Late filing and late payment: Extensions for some income tax returns may be available. Extensions can't be granted for GST and PAYE returns, but any penalties for late filing may be remitted. Penalties charged for late payments caused by the effects of drought may also be remitted.

Child support: If you will have trouble making payments by due dates, call 0800 221 221 to discuss the situation.

 Visit www.ird.govt.nz or call IRD's emergency helpline **0800 473 566**.

Work and Income

Financial assistance may include:

- **Emergency Benefit** – provides financial assistance for people who are in hardship and unable to earn enough to support themselves and their family and cannot receive another benefit. In some cases this is because of sickness, injury, disability or caring responsibilities.
- **Special Needs Grants** – provide non-taxable, one-off recoverable or non-recoverable financial assistance to people to meet immediate needs. A person does not have to be receiving a benefit to qualify for a Special Needs Grant. This assistance is income and asset tested.
- **Recoverable Assistance Payments** – provide non-taxable, interest free, financial assistance to non-beneficiaries to meet essential immediate needs for specific items or services. This assistance is recoverable (that is, will need to be paid back at a later stage). The person must be able to identify a particular immediate need for an essential item or service. This assistance is income and asset tested.
- **Rural Assistance Payments** – applicable to farmers who have a land-based industry that is in financial hardship and is not producing sufficient income to meet basic living expenses. Farmers must meet additional criteria that apply to these payments, including an income test for other significant income, personal (non-farm) assets and cash asset test. Contact your local Rural Support Trust on 0800 787 254.



Visit www.workandincome.govt.nz or call WINZ general enquiry line on **0800 559 009**.

3

RECOVERING FROM EXTREME DRY

You and your team

Throughout the recovery period, people are your first priority. You may be through the worst of the adversity, but be aware that you and your team have been operating under pressure for several months – so keep an eye on each other.



SEE PAGES 4-6

Animal health and welfare

In the wake of extreme dry, you can see a new parcel of animal health issues – issues that are compounded when stock are underfed and losing weight. They will be more susceptible to internal and external parasites, mineral deficiencies and diseases. Talk to your vet and neighbours and keep an eye on vulnerable stock.



SEE PAGES 7-10

Internal parasites

Monitor young stock in particular for any signs of internal parasites, and take regular faecal egg counts.

If stock have been grazed off the property, ensure they get their quarantine drench immediately on returning. You don't want to introduce resistant internal parasites to your property.



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- **Resource book:** Wormwise
- **Fact sheets:** Worm management; Worms in refugia
- **Podcast:** Dave Leathwick: Animal health, internal parasites

Flystrike

Depending on the time of year that the dry breaks, watch for fly.

Flytraps can help with monitoring but are often ineffective for control.



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- **Fact sheet:** Flystrike



Facial eczema (FE)

When rain falls post drought, it can result in perfect conditions for facial eczema (FE).

FE is caused by spores of a fungus growing on the litter in the base of the sward. They release a toxin which attacks the liver. This serious disease affects sheep and cattle and has traditionally been mostly a North Island issue, but its geographical reach is spreading.

The fungus is in the pasture and sheep ingest it in small quantities. Then, when temperatures and moisture levels are high and minimum night temperatures remain more than 12°C, the fungus goes on the rampage, growing rapidly and producing vast numbers of toxic spores.

If you are in a known FE area, monitor spore counts and talk to your neighbours regularly.

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- **Resource books:** Facing up to Facial Eczema; Better Sheep Breeding: Ram buying decisions
- **Podcast:** Dr Neale Towers and Robert Carter: Facing up to Facial Eczema
- **Fact sheet:** Facing up to Facial Eczema; Preventing FE by pasture species selection and grazing management

 **External resource**

- [AsureQuality FE weekly spore count monitoring of hot spot regions during FE season](#)

Nitrate poisoning

Be aware of the possibility of nitrate poisoning, especially on crops that have come away well after the drought. Test crops before grazing. Don't allow hungry stock onto a break – feed supplement first or shift fence before previous break is completely eaten. Allow frost to lift off crop before shifting.

Pulpy kidney

Ensure hoggets have been vaccinated against pulpy kidney. A good autumn will be dangerous for unvaccinated animals.

Liver fluke

If stock have been grazed on liver fluke country (e.g. the West Coast), make sure they receive liver fluke treatment once they return.

Endophyte toxicity

With the majority of New Zealand's sheep pastures being perennial ryegrass-based, endophyte toxicity is a threat, particularly over summer and autumn. This can present as ill-thrift or, in more severe cases, grass staggers.

 www.knowledgehub.co.nz

- **Fact sheet:** Endophyte update

Johne's disease

There is often an increase in cases of Johne's disease in ewe flocks about 3-6 months following a drought.

 www.knowledgehub.co.nz

- **Fact sheets:** Johne's disease – sheep; Johne's disease – cattle

 **External resource**

- [Johne's disease research and development record, June 2016](#)

Metabolic conditions in late pregnancy

Low pasture covers in late winter can put ewes and cows in late pregnancy at an increased risk of milk fever, pregnancy toxemia and grass staggers.

 www.knowledgehub.co.nz

- **Fact sheet:** Metabolic disease in ewes
- **Resource book:** Guide to New Zealand Cattle Farming





Management strategies

Good planning – including timeframes – will serve you well during the recovery phase. Share your plan with the team, so everyone is aware of the priorities and timelines. And review the plan regularly. It's ok to reprioritise, if you need to. And congratulate the team (including yourself), when you tick off significant milestones. Finally, don't be too proud to call on your networks, accept offers of assistance and make use of expertise.

Pasture management

Paddocks that have survived months of drought and hard grazing will need careful management to make it through the winter without becoming thin or infested with weeds and volunteer grasses.

Nitrogen fertiliser

Nitrogen is worth considering as a short-term tactical response, when in recovery mode.

After a period of dry, there is some natural release of nitrogen in the soil, but a small amount of nitrogen fertiliser (25-30kgN/ha) applied to growing grass with adequate soil moisture – ideally immediately before rain – will boost growth.

Note that applying nitrogen to growing grass means you benefit from a multiplier effect, as opposed to using nitrogen to “trigger” growth, which will be less effective. The best responses occur where there is already good leaf cover – at least 50mm high.

Assuming adequate temperatures and moisture levels, you can budget on 10kgDM per kgN/ha applied.

Be aware of local regional council and catchments guidelines and follow good practice during application.

Repairing drought-damaged pastures

When it's extremely dry, clover and ryegrass plants or lucerne are in hibernation. With the onset of significant rain, the plant is stimulated back into growth and root reserves are depleted as nutrients are pumped into new shoots. These new shoots expand to capture energy from the sun and this energy is then pumped back into the roots.

If the young shoots are eaten off as soon as stock can get hold on them, the plant will exhaust the root reserves and put up very small leaves to just maintain itself. If the plant is left to re-establish, then the root reserves are built up so that re-growth is possible.

Hold stock on sacrifice paddocks and feed supplements, until good ground cover is achieved in some paddocks. Stock can be then rotated around the paddocks, but your aim should be to build up feed ahead of the mob.

Note that some pasture plants can be toxic early after a dry period. Phalaris is a good example, as are a number of weed species. Nitrate poisoning is a risk with all early growth.

Total production from spelled paddocks will be far ahead of paddocks that are grazed immediately after the drought. Weeds and volunteer grasses will not be so prevalent. The cost of feeding for a couple of weeks, while you wait for ground cover to build up in some paddocks is a cost of the drought. The re-establishment of a good pasture without having to go through a renewal programme is your saving in return.

Tips:

- Don't graze the new shoots.
- Wait until you have good ground cover.
- Feed supplements to allow pastures to recover.
- Rotational graze – don't set stock.
- From spelling paddocks, you can maximise grass growth by making sure enough fertiliser has been applied, or by applying nitrogen.

Re-sowing pastures

A good renewal plan is essential for pastures which will not survive the extreme dry, to get your farm back up to full productivity as quickly as possible.

Once you've identified the pastures which need to be re-sown, decisions include:

- Which pasture species should I sow?
- Is winter cereal an option?
- Should I undersow or cultivate?

A good pasture renewal plan will typically use two to three pasture species. Options include:

- Annual ryegrass establishes very quickly, producing large volumes of feed in a relatively short time to help you post-dry.
- Use annuals for paddocks which you plan to crop this coming spring (as they only persist until the start of November).

- Italian ryegrass is a great 12-18 month option, with the same fast growth as annual ryegrass, but better persistence.
- Hybrid ryegrass also establishes rapidly and cultivars with endophyte will provide a two to three year pasture. New cultivars can produce more yield over 12 months than an Italian and give the flexibility of another year or two of grazing.
- Perennial ryegrass is still the backbone of our farming systems, with the best persistence and long term dry matter (DM) production.

Winter cereal: For some paddocks due to be sown into a spring crop later in the year, a cereal forage crop (e.g. oats, triticale) may be suitable to provide a bulk of winter feed.



Prioritising tips

Focus on profitability

Concentrate on tax-paid cash, not on how much tax is paid.

Successful farmers, like other business operators, only have a few irons in the fire which are profitable and well-managed in their own right. Look after your most profitable enterprise first and be prepared to sell the least profitable ones.

Focus on maximising income, rather than reducing costs. The scope to improve profitability by reducing costs is limited as most farm costs are fixed. With good planning and management, the small amount of money available during difficult times can be targeted to achieve the best return on each dollar spent. The result is a series of small improvements at low risk which together, over time, add up to a significant improvement. Top farmers spend relatively more on productive inputs, such as fertiliser, animal health, and weed and pest control.

Sell stock early

In previous droughts, high income earners have preferred to sell stock rather than buying in feed or grazing-off. A survey showed 65% of above average farmers sold capital ewes which, in normal circumstances, would not be sold. They prioritise, plan sales and carry them out at predetermined dates, always matching feed demand to supply to maximise profit.

Feed stock as well as possible

Concentrate on per-head performance to maximise profit in the medium term. The best stock, fed well, will produce better offspring, giving better growth rates of both trading and replacement stock, and therefore better future reproductive potential.

Importance of weighing

Weighing a sample of animals out of a mob and taking the average weight will give you critical information about how they are tracking over time. You will see a change in the scales long before your eye picks it up and this will give you a head start of weeks to adjust your management and make key decisions ahead of others.

Restocking and future income

Immediately rebuilding stock numbers when everyone else is doing the same will inevitably raise stock prices. Identify and explore other suitable options. For example, if stock prices are so high there is no profit for the coming year, an option may be to put the equivalent funds into a term investment and bring in grazers, make hay or grow crop.

Use irrigation water efficiently and profitably

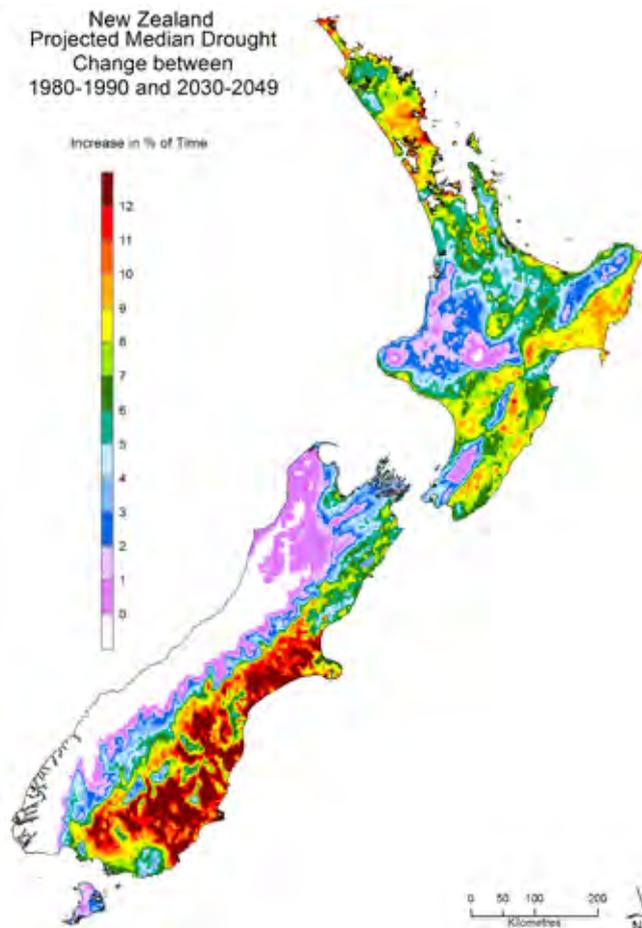
Where irrigation is used, make sure irrigation performance is top notch, use soil moisture budgeting and allocate water to the most profitable enterprise. Irrigate in the morning or evening to get the most out of the water applied and to prevent irrigation worsening sun damage. Keep irrigation systems up to date with maintenance and ensure intake pipes/pumps are clear of debris. Plan for the consequences of consent restrictions being imposed.

Long term: Preparing for next time

What does the future hold?

Climate scientists at the National Institute of Water and Atmospheric Research (NIWA) considered a range of different climate change projections for New Zealand.

The most likely scenario sees farmers in most North Island regions, as well as those in eastern regions of the South Island – especially Canterbury and eastern Southland – spending 5-10% more of the year in drought by the middle of this century. This means that if you spend an average of 10% of your time in drought at the moment, by 2040, you might expect to spend as much as 20% – although this figure will naturally vary from year to year.



External resource

- [NIWA climate information and resources](#)



Marlborough couple Jo and David Grigg aren't strangers to drought.

Recognising that, under climate change, droughts were likely to occur more frequently, Griggs knew that their farm system had to change and that they needed to transform pastures, stock policies and their attitude.

They invested in 30kms of fencing, spent \$150,000 on a water scheme, reduced ewe numbers by 400 and added 100 cattle.

But the most important change was learning to manage the subterranean clover endemic in their hill country pastures. The clover can produce at least 3000kgDM/ha annually, but in a drought year this is reduced to 1800kgDM/ha.

To encourage the clover in a specific block, the grasses are put under grazing pressure by cows and calves through January and February.

Once it rains in autumn, most of the resident, buried clover seed strikes and grows.

After scanning in June, they identify the twin-bearing ewes and put them on the now lush clover and grass pastures-behind a hot wire.

The break is shifted daily and cows follow the ewes to clean up residuals. This reduces grass competition for the clover.

The high quality feed ensures the ewes are maintaining a minimum body condition score of 3 going into lambing; and having the clover blocks means the Griggs can spell the lambing areas and build pasture covers.

After lambing, the clover-rich pastures drive lamb growth rates.

The couple stress the importance of growing lambs quickly in a drought-prone environment. "We've got to have lambs growing from day one," says David.

Using the subterranean clover, lamb pre-weaning growth rates can hit up to 450g/day and the average Corriedale weaning weight is 34kg.

Strategies for the future

Back in 2008, MAF commissioned two scientists, Dr Rob Burton and Dr Sue Peoples, to talk to 20 farmers, who had experienced serious drought. The key message was that farmers need to adapt and develop drought resistance. Three adaptation strategies were identified.

Drought adaptation strategies

1. HAVE STRATEGIES TO SURVIVE DROUGHT	Structure the farm for drought	Distribute land over different areas or climate zones Select vegetation and livestock to suit drought and farm Plant shelter belts Invest in irrigation and/or water storage
	Build up reserves	Ensure there is sufficient stored feed Use capital wisely during good years
2. MAKE THE FARMING SYSTEM DROUGHT RESISTANT	Implement flexible farming systems	Diversify production types on farm Develop a system with a pivot point for drought Keep spare capacity to allow flexibility
3. HAVE STRATEGIES TO SURVIVE DROUGHT	Respond quickly to drought	Make decisions fast and take action early Wean lambs early Adjust stock grazing depending on drought conditions Cull surplus stock immediately
	Raise capital to survive drought	Use land to raise capital for farm Sell stored feed to take advantage of high prices Off-farm employment for farmer or spouse
	Reduce costs	Reduce household and farm expenditure Increase family workload (and decrease labour)
	Find extra feed for stock	Buy in feed Agist stock Put stock on the roadside (if possible)
	Maintain networks	Talk to other farmers and listen to what they are doing Keep in close contact with industry
	Deal with stress	Get away from the farm Play sport Keep making decisions (be positive) Talk to people



Investing in stock water reticulation

In 2016, B+LNZ commissioned analysis of stock water reticulation's cost in a hill country environment. The key findings were:

- Economic returns averaged 53% and the a three-year pay back period (based on a combination of increased stock numbers and improvements in stock performance).
- Management during a drought was significantly enhanced.
- Most of the farmers also reduced their environmental impact.

The general sequence of events leading up to improved stock numbers/performance was:

1. Installation of the water reticulation scheme
2. Increased subdivision
3. Better grazing management
4. Improved pasture utilisation, and/or better pasture production, and
5. Improved stock numbers and/or performance.

 **Feeding strategies**

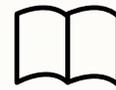
Feed budgeting is as important now – post dry – as it is leading up to and during the dry. Keep measuring pasture covers, growth rates and livestock liveweights. Keep feeding supplements, so your pastures have a chance to build up quickly post rain. The more grass cover, the quicker the pasture will grow – just as more solar panels generate more energy.



SEE PAGES 15-16

 **Financial support**

Just because the dry has broken, doesn't mean your cash flow magically comes right. Keep talking to your accountant, bank and relevant government agencies, so you can manage the transition back to “normal” without unnecessary stress.



SEE PAGES 22-23



