

# Drought Guide



Drought definition, recognition and assistance measures

February 2009

## Introduction

Droughts are a feature of farming in New Zealand, particularly on the East Coast of the North Island, and in Marlborough, Canterbury and Central Otago. Predictions are that droughts will occur more frequently in the future due to climate change effects.

The purpose of this guidance document is to outline:

- MAF's definition of drought events in New Zealand;
- the role of MAF in the recognition of droughts;
- the role of MAF in the implementation of the government's assistance measures during drought events;
- suggestions on how local communities might initiate and implement drought response and recovery activities.

## Building rural capacity to respond to adverse events

### On-farm readiness and recovery plan for adverse climatic events and natural disasters

In all adverse climatic events, including droughts, it is the event's impact on the agriculture, horticulture or forestry sectors that concerns MAF. Therefore, from MAF's perspective, a drought event is when the lack of rainfall has a physical, economic and social impact on farming businesses and families.

The principle that individuals and communities have primary responsibility for risk mitigation and preparedness in adverse events, underpins the Government's on-farm readiness and recovery plan for adverse climatic events and natural disasters.

In the case of a drought this means that farmers and growers will consider and prepare for the risk of drought as appropriate to their region, seek advice and take management measures early to mitigate the impact of developing dry conditions.

It is the responsibility of communities to work together to manage local and regional impacts of an adverse event. In the case of a drought there are indicators that give lead time for the community to take action; some of these indicators are described in later sections of this guidance document. In a situation of prolonged dry conditions the community should identify leaders to represent its interests and form a group to discuss, manage and co-ordinate any local response activity.

The role of central government agencies in a drought will depend on the scale of the event. The types of support measures offered by central government agencies often rely on input from the local community to deliver, so some form of local organisation is desirable.

## Rural Support Trusts

New Zealand has a nationwide network of Rural Support Trusts that take leadership in their communities, in conjunction with other industry and community organisations, whenever an adverse event like a drought occurs.

Rural Support Trusts have plans for their response to adverse events. Included in these plans will be a list of indicators that signal the onset of a drought and a list of response activities specific to that region that could be undertaken in a drought event.

## What constitutes a drought?

Generally there are three concepts of drought: meteorological, hydrological, and agronomic/agricultural.

### Meteorological drought

*“The state of the climate system that creates abnormally dry weather, prolonged enough for the lack of rainfall to cause serious hydrological imbalances”*

The environmental variation that results can be analysed in relative terms, for example the rainfall over a defined period, could be analysed as percentiles of the historical data distribution, or deviations from normal.

The Australian Government (Bureau of Meteorology) classifies droughts into two categories, based on rainfall deficiency over a period of three months or more. Rainfall deficiencies are identified only when the last three-month (or more) rainfall is below the lowest 10 percent of records.

- A “serious rainfall deficiency” is when the rainfall lies above the lowest 5 percent of recorded rainfall but below the lowest 10 percent of records.
- A “severe rainfall deficiency” is when rainfall levels are amongst the lowest 5 percent.

### Hydrological drought

*“A deficit of water in the landscape, either in ground water reserves or in the surface hydrological system such as rivers, streams, lakes, etc”*

Relevant indicators are rates of groundwater recharge and soil moisture deficit, or more accurately, potential evapotranspiration deficit.

The National Institute for Water and Atmospheric Research (NIWA) uses a model to track the soil moisture deficit of an average soil type, with no irrigation, that reaches field capacity when it has 150mm of water available. Soil moisture deficits greater than 110mm are regarded as significant, meaning that agricultural drought conditions will be experienced where there is no irrigation. Soil moisture deficits over 130mm are regarded as severe.

### Agronomic/agricultural drought

*“A protracted period of deficient precipitation resulting in extensive damage to crop/pasture growth and production”*

Generally, an agronomic drought will follow a hydrological drought, but not always. This will depend upon the season and management practices such as irrigation, supplementary feed, and stocking rate practices. Useful indicators are grass growth rates, crop yields and livestock condition.

A definition of a drought event that has been historically applied by MAF in New Zealand is evapotranspiration exceeding rainfall for a period of 100 days or more. However, this definition is no longer used by MAF.

## How does MAF define a drought?

From MAF’s perspective, a drought event is when the lack of rainfall has economic, environmental and social impact on farming businesses and families and the wider community.

MAF uses a “basket of descriptors” to make an assessment of the impact of a potential drought (Table 1.1). The descriptors include climate and hydrological data as well as information on crop and animal production performance.

Table 1.1: Descriptors used by MAF to assess the onset and impact of a drought event

<p>All is not well with rainfall patterns locally/regionally. Examples are:</p> <ul style="list-style-type: none"> <li>– Deviation of rainfall levels from average.</li> <li>– Lowest rainfall level on record for this month or period?</li> <li>– Is there evidence of low rainfall over consecutive seasons?</li> </ul>	<p>All is not well with soil moisture deficit (SMD) patterns locally/regionally. Examples are:</p> <ul style="list-style-type: none"> <li>– Deviation of continuous SMD from average.</li> <li>– Significant SMD i.e. <math>\geq 110\text{mm}</math>.</li> <li>– Severe SMD’s i.e. <math>\geq 130\text{mm}</math>.</li> </ul>
Pasture growth levels less than previous years for the same time period.	Probabilities of median rainfall during the next 2 to 3 months are less than 50 percent.
What is the upcoming season? For example, is it summer and natural dry period, or winter and low growing temperatures?	Unseasonal increases in stock numbers for sale (due to de-stocking).
Unusual increases in the number of capital stock for sale (indicative of further de-stocking).	Some dams below 40 percent capacity, rivers and natural water points drying up.
Irrigation consents withdrawn or withdrawn earlier in the season than usual.	Stock condition deteriorating.
Failure of supplementary crops.	Several districts affected.

In a pending drought situation, MAF will, in discussion with the local Rural Support Trust and drought committee, or industry and local government representatives where a committee is not yet in operation, make an assessment of the physical, economic and social impacts on farming businesses and families, and the wider community. On the basis of this assessment, MAF will advise government on the scale and severity of the event, which in turn triggers any programme of recovery measures.

## Recognising that a district or region is in drought

MAF is responsible for making an assessment of the potential impact of a drought, and advising government of the scale of the event. The scale of the event is guided by the matrix of government response table (Table 1.2). A drought event can be determined either a small-, medium or large-scale event, depending upon the physical impact, the degree of economic and social impact, and the availability of risk management options.

The availability of government assistance measures varies with the scale of a drought event. Measures that are more targeted to rural businesses and families are available in events that

MAF recognises as being medium- to large-scale. Further details of government assistance measures in drought events are provided later in the guidance document.

Where the Government accepts MAF’s categorisation of a drought event as being either medium or large-scale, a joint announcement recognising a district or region is in drought will be made by MAF and the relevant local authority, and the local/regional drought committee if one exists. The announcement is likely to include details of the government assistance measures available. MAF is unlikely to be involved in an announcement of small-scale drought events. However, regional and district councils may initiate or implement a drought response. They may do this under Local Government Association (2002) legislation, which provides council advocacy functions for their respective communities. In this case, their role would be in communications regarding water use and in managing water consents/water restrictions, etc.

This public announcement and recognition that an area is in drought provides the affected community with a sense that others have recognised and acknowledged their difficult situation.

Table 1.2: Matrix of government response to adverse climatic events including droughts, and natural disasters

		SCALE OF ADVERSE EVENT		
		SMALL-SCALE (The majority of the criteria sit within this column)	MEDIUM-SCALE (The majority of the criteria sit within this column)	LARGE-SCALE (The majority of the criteria sit within this column)
THEMES	CRITERIA	ASSESSMENT/CLASSIFICATION OF THE EVENT		
RISK MANAGEMENT OPTIONS	Availability of options	Readily available	Moderately available	No practical options available
MAGNITUDE OF EVENT	Likelihood of the event	Frequent	Infrequent	Rare
	Scale of physical impact	Local level	District level/multi-district level	Regional/national level
CAPACITY OF COMMUNITY TO COPE	Degree of economic impact	Local level	District level/multi-district level	Regional/national level
	Degree of social impact	Local level	District level/multi-district level	Regional/national level
EXAMPLES		2006 Whangaehu Valley flood 2005 Gisborne flood	2007 Northland storm 2007 North Island East Coast drought 2006 Canterbury snow 2004 Eastern Bay of Plenty flood	2008 National drought 2004 Lower North Island floods 1988 Cyclone Bola
POSSIBLE GOVERNMENT ASSISTANCE		Small-scale event recovery measures	Small-scale event recovery measures + Medium-scale event recovery measures	Small-scale event recovery measures + Medium-scale event recovery measures + Special recovery measure

## Setting up a drought committee

MAF encourages community members to work together to manage local and regional adverse events. In a drought, a local/regional drought committee is useful for the co-ordination of drought response and recovery activities.

As a result of the 2008 national drought, a national adverse events committee has been formed. In the situation where a drought affects multiple regions this committee would be convened to provide advice to MAF and government on assistance measures. The national adverse events committee is not a replacement for regional or local committees.

### When should a drought committee be formed?

Experience from previous drought events indicates that a committee is best formed at the early stages of a drought when response activities are most effective and early decision making critical. A drought committee may be initiated through a preliminary meeting of interested parties to assess the situation in a local or regional area. The following factors could be considered in determining the need for a drought committee:

- the local Rural Support Trust chairman or co-ordinator, or local Federated Farmers president, deems that a drought committee would be beneficial;
- farmers/growers start looking for support measures;
- drought conditions become a hot topic of conversation in the community;
- people in the farming and horticulture 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”;
- MAF makes enquiries about local impact and responses to the dry conditions/drought and offers assistance as part of the Adverse Events Policy;
- local media start making enquiries.

### Who should set up and be involved in the drought committee?

Communities generally look to local authorities and farm industry leaders to take the initiative to set up a drought committee. The local Rural Support Trust network should be one of the groups that initiate the establishment of a drought committee, in particular because they can contribute to the response capability and they are familiar with the MAF criteria for providing support in adverse events. In recent drought events, committees have been chaired by regional council chairs, district council mayors, or by Federated Farmers local branch presidents. Local authorities are well placed to provide a meeting venue for drought committee meetings.

There is no prescription for who should sit on a drought committee but a broad representation of the community and supporting agencies is advisable to ensure that response and recovery resources are used to best effect. A broad representation also helps gain a more accurate picture of the impact of the drought i.e. how bad are things now and will they get worse?

The committee could include representatives of:

- regional or district council, who might act as chairperson;
- industry leaders (e.g. chairperson/president of local Federated Farmers or industry associations);
- Rural Support Trust and Agriculture Recovery Facilitators;
- Ministry of Agriculture and Forestry;

- government agencies, such as Work and Income and Inland Revenue;
- industry good organisations (e.g. Meat and Wool NZ, DairyNZ, HortNZ);
- CDEM groups;
- Rural Women New Zealand;
- veterinarians;
- stock agents;
- banks;
- accountants.

There is a danger of inertia with a large committee. This can be overcome by appointing a small action-focused group that are delegated tasks, while the wider group acts in a governance and information-sharing role.

### **What useful things might a drought committee do?**

Forming a drought committee indicates to the community and Government that the event is outside the norm. It provides a collective voice for discussion with MAF around the impact and scale of the drought event, and what assistance measures might be required.

The formation of a drought committee offers the community a psychological boost in recognising the drought, and giving assurance that stakeholder groups and government agencies are working together and doing what they can to help. The presence of a committee encourages the local community to offer support such as organising fundraising events.

Activities of a drought committee could include:

- Acting as a channel to collate information from various stakeholders/agencies to help assess how bad things are and are likely to get. Such information can be used to make a case to MAF and the Ministry of Social Development to determine what central government assistance measures could be made available and over what time period.
- The committee chairperson could be the contact point for local radio and newspapers.
- Co-ordinating technology transfer messages and agencies who deliver technology transfer activities. This may include preparing media releases and articles.
- Generating ideas for drought response/recovery activities that could be supported by MAF e.g. leaflets and technical seminars.
- Organising local social functions and seek local sponsorship.
- Helping to assess and prioritise requests for MAF funding assistance, outside of the funding assistance provided to the Rural Support Trusts.
- Generating ideas for future drought mitigation activities.
- Holding a debrief meeting shortly after a drought event is over to record learnings from the event.

## Support available from Rural Support Trusts in drought events

Rural Support Trusts provide assistance to rural communities in times of hardship, including during adverse events such as drought and floods. Rural Support Trusts can provide services such as:

- coordinating an initial response to a drought event such as the setting up of a drought committee;
- helping farmers decide on business options;
- acting as advocates for financial assistance; and
- providing stress management services (or making referrals if appropriate).

The Rural Support Trust will have a good network of contacts in the region and should be able to help co-ordinate extension activities and community social activities. If the scale of the event is medium or large, MAF will fund the Trusts to provide support and co-ordination services for the community as outlined in Figure 1.

## Government assistance measures in drought events

Central government is advised by MAF on the impact of adverse climatic events or natural disasters under the auspices of the Adverse Events Recovery Policy, which came into effect in April 2007. The range of assistance measures varies depending upon the scale of the event, the degree of economic and social impact, and the availability of risk management options.

Assistance available in a small-scale or localised drought event includes tax relief, income support and counselling assistance, which is available from government agencies to support any New Zealander or business facing adversity. More targeted assistance measures are available in medium to large-scale drought events. Further details of the types of government assistance available in a drought event are outlined in Figure 1.

### Further information on government assistance measures in drought events

On-farm readiness and recovery plan for adverse climatic events and natural disasters.

<http://www.maf.govt.nz/mafnet/rural-nz/assistance/adverse-events/onfarm-readiness-and-recovery-plan-web.htm>

Need help with Drought Relief?

<http://www.maf.govt.nz/mafnet/rural-nz/emergency-management/droughts/>

## Contacts at MAF Policy

Location	Telephone	Mobile
Hamilton	07 957 8314	029 957 8313
Rotorua	07 921 3400	029 921 3407
Hastings	06 974 8814	029 974 8811
Wellington	04 894 0100	029 894 0470
Nelson	03 543 9182	029 943 1025
Christchurch	03 943 1703	029 943 1706
Dunedin	03 951 4700	029 951 4716

Figure 1: Government assistance measures available in drought events

