



Making money in good seasons

Dunblane field day

Tuesday 11th October 2011



Stocking rate is a critical profit driver



Stocking rate is a critical profit driver

It is more important than

- genetics
- breed
- animal type

The ability to adjust stocking rates to match the season – especially increasing stock numbers in the good seasons depends on:

- Land condition
- Feed on offer
- Confidence in the season holding
- Desire to improve land condition/recover from drought
- Attitude to risk (e.g. caution over the next drought)
- Availability of stock



Good seasons provide the opportunity to:

- Increase stocking rates
- Improve land condition
- Prepare for the next drought through land condition and finances i.e. build business resilience
- Paddocks in good to fair (A to B) condition can carry extra stock safely, due to the extra feed on offer
- Paddocks in poor (C) condition can be improved, to take advantage of future good seasons



To recap from this morning, land in good condition:

- Is dominated by 3P (palatable, productive and perennial) grasses
- In Downs country, there is a high density of vigorous Mitchell grass tussocks (a tussock every 1-2 paces)
- Has a range of other plants
- Directs rain into the soil
- Most efficiently converts rainfall into pasture
- Will grow 80-100% of the potential feed in response to rain
- Will carry the most stock in the long and short term

- Is more likely to recover from severe drought
- Provides more options
- Is a key profit driver in both the short and long-term through stocking rates

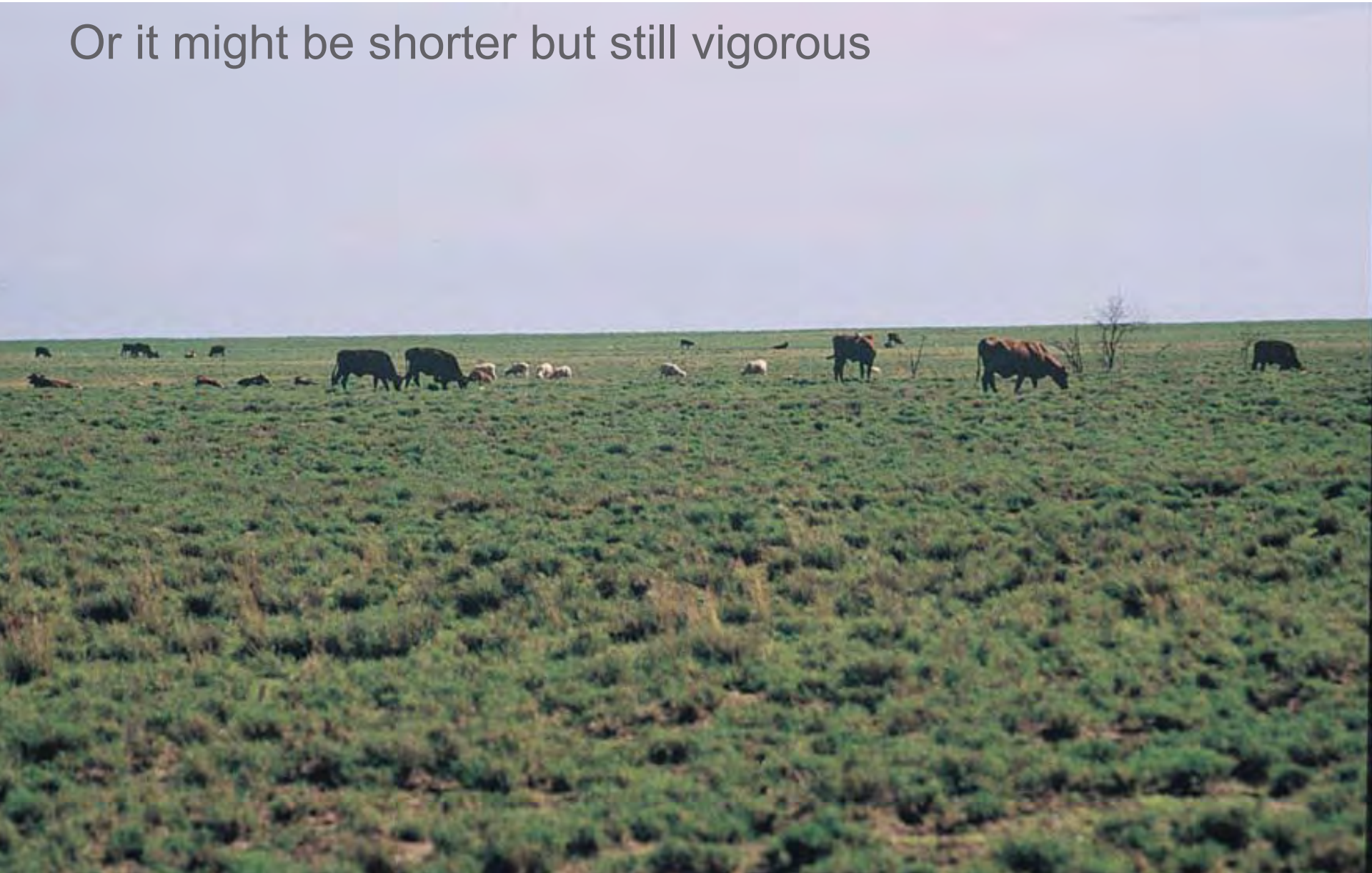


The Mitchell grass may be tall, or have carry over feed





Or it might be shorter but still vigorous





In other land types, the 3P grasses may be different

- They will still be perennial, palatable and productive
- And still occur at high density and contribute to the bulk of the feed on offer

91 3 18



Land in good condition grows more feed because there is a good density of healthy 3P grasses able to use the rain and seek out soil nutrients – rain is used most efficiently





Stocking rate strategies for good condition paddocks

- Increase stocking rates to take advantage of good seasons
- Decrease stocking rates in poor seasons to maintain land condition
- Infrequent early wet season spelling to improve the mix of species, especially in sheep paddocks
- Occasional winter rain spelling to encourage herbage, especially in sheep paddocks
- Follow heavy grazing with early to full wet season spelling to prevent loss of land condition e.g.
 - When Mitchell grass grazed down too low (10 cm or less)
 - When Mitchell grass grazed heavily in previous wet season
 - After pugging
 - Following fire
 - Following baling



To recap from this morning, land in poor (C) condition:

- Has few 3P (palatable, productive and perennial) grasses
- A low density of Mitchell grass tussocks (one every 20-30 paces)
- Other plants dominate, often unpalatable ones
- More rain runs off over the surface, less into the soil
- Converts a limited amount of rainfall into pasture
- Will grow about 45% of the potential feed
- Often can't carry stock for 12 months and has low potential numbers in the long-term

- Is less likely to recover from severe drought
- Provides few options for livestock
- Leads to reduced profits – due to reduced stocking rates



The main point is that poor condition country is not able to respond as well to rainfall or grow feed that will last





Or may be dominated by unpalatable plants





Poor land condition = poor productivity and poor returns on your non-renewable asset (your land)

e.g. estimated impact on profit before tax, because of reduced carrying capacity in the early 2000s:

	Carrying capacity (head)	Profit before tax (\$)
Good condition	503	35,210
Poor condition	227	15,890



Stocking rate strategies for poor condition paddocks

- Conservative stocking rates in good seasons
- Plus frequent full wet season spelling to improve land condition
- Rapidly reduce stock numbers during drought to prevent further degradation

- Wet season spelling is followed by dry season grazing
 - to stimulate the Mitchell grass plants to respond and to keep the business profitable
 - ‘wet season grazing rest’



How long to spell for? With good condition country, through the first two to three phases of growth

Phase 1:
mobilising reserves
very sensitive to grazing





Phase 2:
rapid growth
sensitive to grazing





Phase 3:
tussocks seeding
less sensitive to grazing



18 4 38



How long to spell for? With poor condition country, the full wet season - through to the fourth, dormant, phase

Phase 4:

seed returned to the soil

tussocks dormant and insensitive to grazing



Tools to assist with adjusting stock numbers

- Benchmarking:
 - land condition
 - current stocking rate against historical stocking rate or long-term carrying capacity
- Feed budgeting – know your animal intake and feed on offer
- Monitoring – land condition, residual yield, forage quality, Mitchell grass vigour, Mitchell grass seed production, seedling establishment
- Climate and pasture growth information, probabilities and forecasts



Benchmarking stocking rate against historical averages or long-term carrying capacity

- Know how you are travelling compared with your recent and longer history
- Know how you are travelling compared with your potential
- Be prepared and ready to exceed your historical average or your long-term carrying capacity
- Long-term carrying capacity can be exceeded in good years – so long as prepared to quickly reduce stock numbers in poor seasons
- Economic studies for the Mitchell grasslands estimate that being responsive to the feed on offer can improve whole property Gross Margin by up to 25% in the long-term
- This is not promoting overgrazing – it is about making sensible use of the feed on offer and still protecting your land condition



Historical stocking rates





Historical stocking rates

- Your own historical SR should be the simplest to calculate based on your own stock records
- You need to ensure that you compare apples with apples by bringing all stock types back to a standard such as:
 - DSE (dry sheep equivalent) – a dry 50 kg sheep
 - AE (Animal Equivalent) – a dry 450 kg beast
 - LSU (Livestock Unit) – a dry 400 kg beast
- AE tables have been provided in your handouts



Calculating long-term carrying capacity

- The long-term carrying capacity is based on the average pasture growth for the land types within a paddock accounting for:
 - Land condition
 - Tree cover
 - Safe utilisation rate
 - Demand of different types of animal
 - Evenness of grazing within the paddock e.g. excluding inaccessible areas within a paddock and discounting for distance from water
- Can be done within the Stocktake software, in spreadsheets or manually
 - Training is available e.g. GLM workshop
 - Fact sheets and possibly YouTube guides will be available within six months



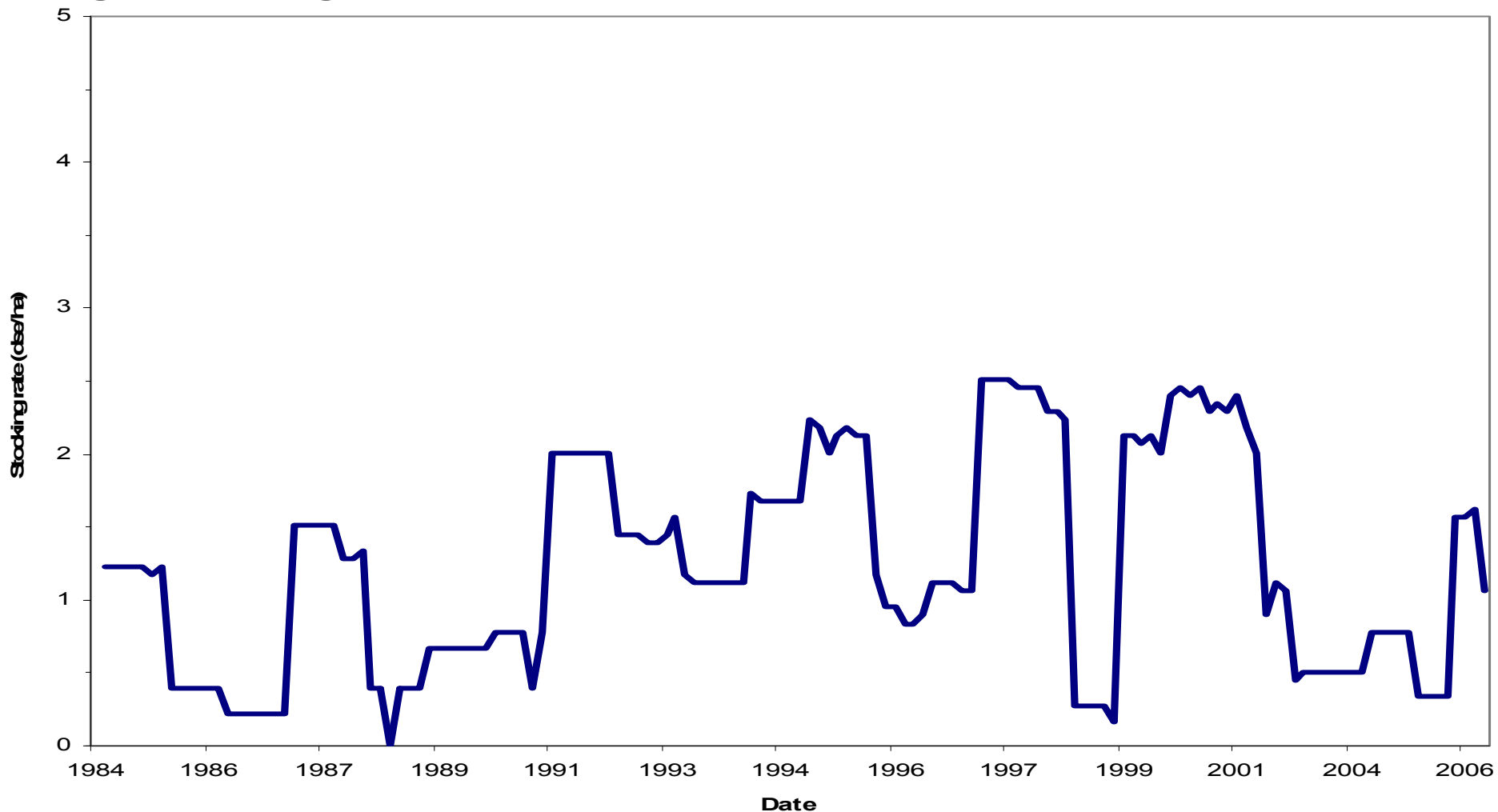
Long-term carrying capacity can be exceeded

- Long-term carrying capacity can be exceeded in good years in paddocks that are in good condition;
 - our research suggests up to 40-50% above the long-term average is still safe
- Long-term carrying capacity is based on average pasture growth, and average rainfall (and other factors e.g. humidity)
 - if the year has 50% above average pasture growth, then can safely go above the long-term carrying capacity
- What can be achieved in any year depends on the feed present, on land condition and drought recovery
 - e.g. allow one full summer for drought recovery before increasing stock numbers



Long-term carrying capacity can be exceeded

e.g. stocking rates at moderate utilisation at Toorak





Forage budgeting

- Existing forage supply
 - Depends on rain and land condition
- Anticipated forage supply
- Forage quality
 - Too many stock reduce the amount available to individual animals
 - Eating into stalk e.g. below 15-20 cm height reduces quality





Residual yields/tussock height targets for Mitchell grass

- Aim for a minimum of 15-20 cm at the end of the grazing period
- Grazing to 10 cm or lower will damage Mitchell grass tussocks
- If grazed lower, then spell in the next wet season



Residual yield during a run of good seasons

Aim for 1,500kg/ha or more





Factor in the effect of supplements when doing a feed budget

- Urea or protein supplements in the dry season:
 - Allow for 15–30% increase in intake
- Phosphorus supplements:
 - No adjustment necessary
- Energy supplements:
 - May reduce intake of pasture





Stocktake is a handy forage budget tool

Stocktake Database

Forage Budget

Choose Paddock **Winton Trucking Pdk** 1000 hectares Main Menu

Current stock numbers from records: Cattle Nos Sheep Nos AEs Print

DATES	PASTURE	ANIMALS
Start Date <input type="text" value="1-Apr-06"/>	Start Pasture Yield (kg/ha) <input type="text" value="3240"/>	<input checked="" type="radio"/> Cattle <input type="radio"/> Sheep
Target Date <input type="text" value="1-Dec-06"/>	Residual Yield (kg/ha) <input type="text" value="1000"/>	Class <input type="text"/> Number of Wet Stock <input type="text" value="0"/>
	Unpalatable (%) <input type="text" value="10"/>	Class <input type="text" value="Bullocks"/> Number of Dry Stock <input type="text" value="200"/>
	Detachment (%) <input type="text" value="15"/>	Start Weight (kg) <input type="text" value="500"/>
	Estimate Pasture Growth (kg/ha) <input type="text" value="0"/>	Finish Weight (kg) <input type="text" value="550"/>
Grazing Days <input type="text" value="245"/>	Useable Pasture (kg/ha) <input type="text" value="1479"/>	Total Stock Numbers <input type="text" value="200"/>
		Adult Equivalentents <input type="text" value="225"/>
		Dry Matter Intake (% of AE) <input type="text" value="2.2"/>
		DMI increase with supplement (%) (usually 15%) <input type="text" value="0"/>
		Amount Pasture Eaten (kg/ha) <input type="text" value="546"/>

RESULTS

Feed eaten as a proportion of palatable pasture = Amount Pasture Eaten / (Start Pasture - Unpalatable - Detachment + Estimated Pasture Growth) x 100

How long will feed last with current stock numbers? = Useable Pasture * Area / DMI * 450 * AEs

How many AEs will the paddock carry to end date? = Useable Pasture * Area / DMI * 450 / Grazing Days



Monitoring

- Monitoring – land condition, residual yield, forage quality, Mitchell grass vigour, Mitchell grass seed production, seedling establishment
- A range of information out there – including the fact sheets and booklets provided today



Climate and pasture growth information, probabilities and forecasts

Land Type Pasture Growth Tables	
Central West Queensland	
Climate Zone	Barcaldine
Land Type	
Soil type	Open Downs Grey, brown and red cracking clays

- Open Downs in fair to good condition grows an estimated 2300-3100 kg/ha of pasture in a year at Barcaldine

Mean Pasture Growth

Tree basal Area	Annual Growth (last 109 years)	Annual Growth	Annual Growth	Annual Growth
(m ² /ha)	Land Condition A	Land Condition B	Land Condition C	Land Condition D
0	3100	2300	1400	600
1	2300	1700	1000	500
2	1800	1400	800	400
4	1300	1000	600	300
6	1000	800	500	200
8	900	700	400	200
10	700	500	300	100
12	700	500	300	100
15	600	500	300	100
20	500	400	200	100
Rainfall	491			



Probability of pasture growth at Barcaldine

- In the top 30% of years, fair to good condition country can grow 3200-4200 kg/ha
- In the lower 30% of years, expect 1300-1700 kg/ha

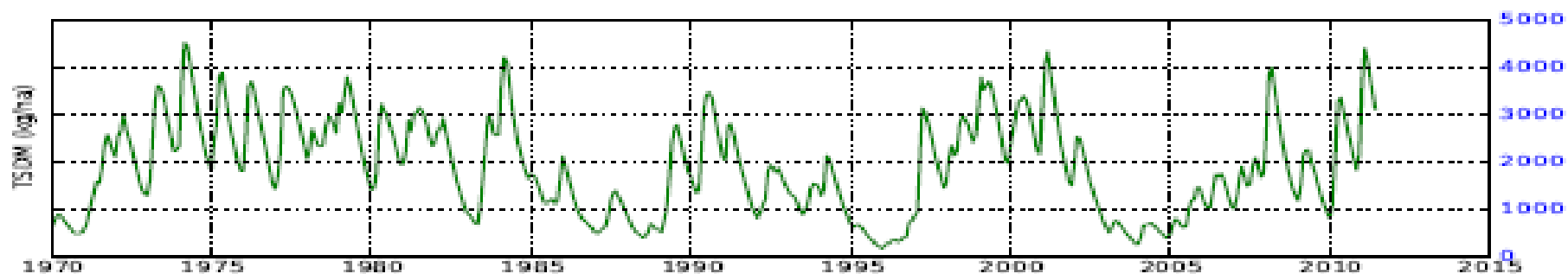
Pasture Growth by Rainfall Decile

Tree basal Area (m ² /ha)	median				70%				30%			
Land Condition	A	B	C	D	A	B	C	D	A	B	C	D
0	2800	2100	1300	600	1700	1300	800	300	4200	3200	1900	800
1	2000	1500	900	400	1200	900	500	200	3300	2500	1500	700
2	1600	1200	700	300	1000	800	500	200	2600	2000	1200	500
4	1200	900	500	200	800	600	400	200	1800	1400	800	400
6	900	700	400	200	600	500	300	100	1500	1100	700	300
8	800	600	400	200	500	400	200	100	1200	900	500	200
10	700	500	300	100	500	400	200	100	1000	800	500	200
12	600	500	300	100	400	300	200	80	900	700	400	200
15	600	500	300	100	400	300	200	80	800	600	400	200
20	500	400	200	100	300	200	100	60	600	500	300	100
Rainfall	441				373				594			



Forecasting and modelling tools

- Temper with common sense
 - e.g. at the moment, there are still high pasture yields and moisture in the soil
 - Barcaldine received 1001 mm for the 12 months ending in May 2011, which grew an estimated 3600 kg/ha of feed, about 1000 kg/ha more than the average



- The risks of a forecast of a good summer being wrong are not too severe – even average rain will produce good growth
- During drought, the risks of a forecast of a good summer being wrong are drastic



Latest Southern Oscillation Index values

- **Date: 05 October 2011**
- Average SOI for last 30 days: **11.7**
- Average SOI for last 90 days: **8.0**
- Monthly average SOI values:
 - **July 9.1**
 - **August 2.6**
 - **September 11.1**



Odds firm for a La Niña in 2011

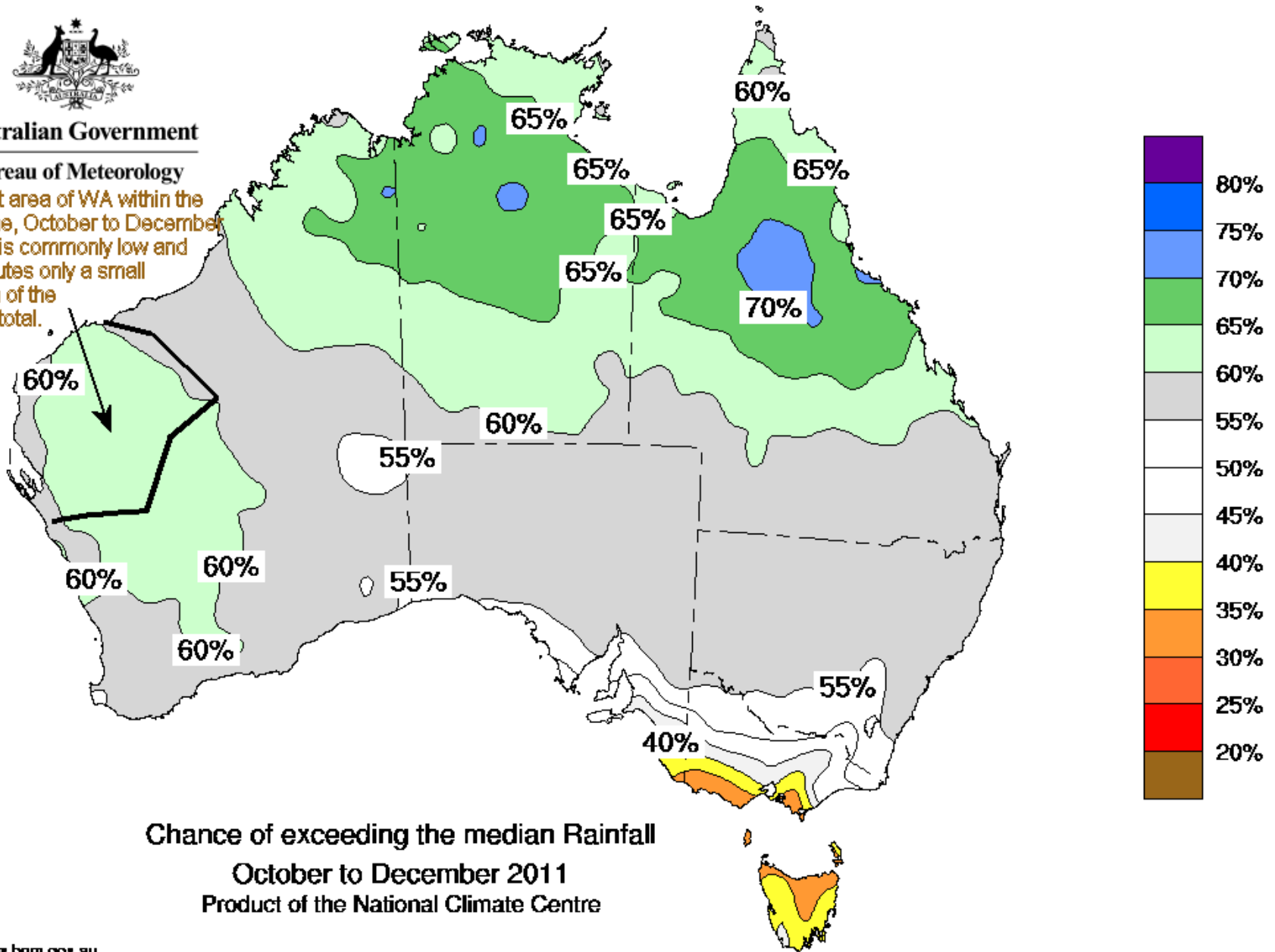
- World meteorology organisation, BOM and QCCE all agree
- “The continuing cooling trend in the central Pacific Ocean since early winter is consistent with a developing La Niña event.”



Australian Government

Bureau of Meteorology

For that area of WA within the thick line, October to December rainfall is commonly low and contributes only a small fraction of the annual total.



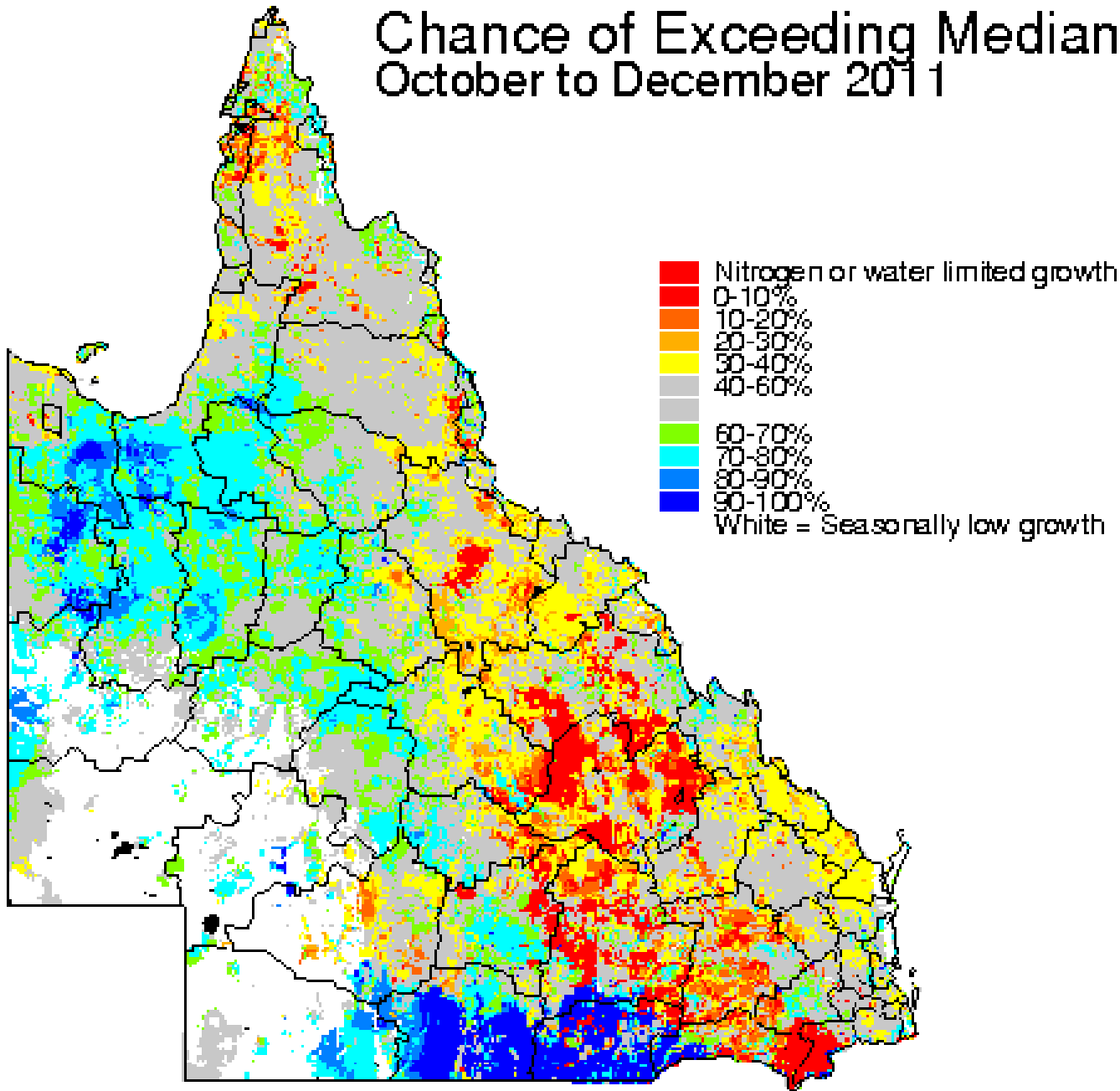
**Chance of exceeding the median Rainfall
October to December 2011
Product of the National Climate Centre**

<http://www.bom.gov.au>

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Chance of Exceeding Median Growth October to December 2011





Have effective systems in place

- Plan strategically and implement tactically e.g.
 - plan to spell, but be responsive to conditions across the property and perhaps alter the order of spelling
 - be ready to increase stock numbers during improved summers; this might include having cash reserves ready for buying stock
- Be responsive to the feed on offer
- Use adaptive management – its proactive not reactive
- Monitor, learn and adapt
- Make sensible use of the forecasting tools

- Destock more aggressively than restock – e.g. after drought, give a summer with no to little increase over drought numbers to allow the pasture to respond



Decisions for 2011/12 wet season

- Taken in isolation, the current SOI and promise of a weak La Nina may not be too exciting – but coupled with high carry over pasture yields and good soil moisture – the prospect of a good season is high
- How to do it?
- Every business is different, but today we have seen one example of a property using the guides, tools and systems that available
- We hope this will stimulate your own planning over the 2011/12 wet season, and beyond