

DIGEST

SOUTH ISLAND
SUMMER 2015 – 2016



Pasture to the fore

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PASTURE TO THE FORE

Pasture is king in New Zealand and the cheapest feed available on dairy farms. Skilful pasture management will ensure pasture quality is maintained and maximum value is gained out of this essential on-farm resource.

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SealesWinslow is a recognised leader in the production of high-performance compound feeds and feed additives. A fully owned subsidiary of Ballance, SealesWinslow has manufacturing sites located in Morrinsville, Ashburton and Wanganui, and supplies custom-blended pelletised feed to farmers throughout New Zealand. It also provides calf feed, mineralised molasses blocks, feed supplements and additives.

The shift from spring to summer

The emphasis in late spring and early summer is usually on controlling pasture surpluses so that pasture quality is maintained. The aim is to consistently graze to residuals of around 3.5-4 cm height (1,500-1,600 kg DM/ha); this means ryegrass plants will have 2-3 leaves for pre-grazing cover.¹ Grazing to lower levels than this knocks pasture growth as plants do not have adequate leaf area to intercept sunlight efficiently, and sunlight, along with moisture, are key drivers of plant growth. It also prevents plants from producing tillers and laying down stores of carbohydrates in the roots, these are needed for plants to survive the summer ahead. Letting residuals rise above this is not a good idea either, as dead matter will start to build up, tillering will drop and plants will become stemmy, all of which will decrease pasture quality.

If sufficient stock are not available to keep a lid on pasture levels then deferred grazing is an option. This can result in a loss of pasture quality, so conservation is the best policy to maintain



good-quality pasture. Conserved pasture, i.e. silage or baleage, is the next best feed to pasture, in terms of economics (recently estimated by DairyNZ at 1.77c/MJ ME eaten), and allows the transfer of high-quality feed with good protein levels to later in the season. With a dry summer looming, this feed source may be particularly valuable this year.

Of course, the value of silage will be affected by the quality of the product to start with; timing is of the essence when cutting silage. It also needs to be managed correctly after cutting to ensure its quality is maintained; poor management can result in fermentation losses during storage or high wastage when it is fed out.

The mineral make-up of pasture is also worth monitoring as deficiencies, excesses, and the interactions between minerals can all affect animal health and production. The mineral levels in pasture can vary from season to season, on different soil types, in different regions, and from farm to farm. Herbage samples are generally taken in spring, when pasture is actively growing. Once the test results are back, a suitable supplementation programme can be developed if any imbalances have been revealed.

Later in the season

As the season progresses and ryegrass plants become reproductive the energy content and growth rate of pasture will drop and fibre and dry matter levels will rise. ADF (acid detergent fibre) and NDF (neutral detergent fibre) are measures of the fibre content of pasture. At high fibre levels rumen microbes can struggle to break down the strong lignin, cellulose and hemi-cellulose elements that up the fibre in pasture. This can have a negative impact on an animal's ability to process pasture nutrients, with a flow-on effect to milk production.

Maintaining good-quality, leafy pasture will help to minimise this effect.

Component	Green leaf	Soft stem	Hard mature stem	Dead material
Digestibility	70-85%	65-75%	40-50%	40-50%
Energy MJ ME/kg DM	10.5-12.5	10-11	6.5	6.5

Table 1. Technical Series, August 2014

The protein levels in pasture will also drop in summer. Protein is measured as crude protein (CP) and in research carried out at Massey University, CP was measured at less than 15% in summer pasture. Again, good pasture management helps to keep protein levels up complement this by using the high-quality silage made earlier in the season or a supplement with high protein levels, like protein pellets, cottonseed meal or soya bean meal.

If conditions become dry the goal of keeping residuals above 3.5 cm can be difficult to maintain. Some of the water-soluble carbohydrates in pasture are stored in the first 4-5 cm of plant material above the ground and these reserves can literally be eaten into, resulting in slower pasture recovery after autumn rain. This is another situation where good-quality supplements can be used to help rebuild pasture residuals to target levels.

In any season the ultimate goal is to manage pasture to maintain its quality. Making silage, as part of the strategy, supports this aim, and ensures supplies of a good-quality, low-cost supplement are on hand when pasture supply becomes limited in summer.

References:

- *Lee, J, Hedley, P & Roche, J (2011), Grazing management guidelines for optimal pasture growth and quality, DairyNZ Technical Series, Issue 5, September



MANAGING MYCOTOXINS

When stock graze pasture or eat supplementary feed, they get more than just the plant matter you feed them. They inevitably ingest a few insects, a few billion bacteria and a range of other, less obvious substances, including mycotoxins. Of all these 'extras', it's the mycotoxins that can cause the most trouble

The prefix 'myco-' means fungus, so mycotoxins are toxins produced by fungi. Fungi are found everywhere – including in pastures and in bought-in feed. That means that mycotoxins can also be found in pastures and feed. Mycotoxins can have beneficial effects: some of them provide plants with protection against insect attack. However, some mycotoxins have the side effect of causing animal health issues.

In ryegrass-based pastures, troublesome mycotoxins can build up in leaf sheaths and flower stalks. They are produced by the endophyte *Neotyphodium lolii*, a fungus that grows inside ryegrass plants. This endophyte produces two mycotoxins – lolitrem B and ergovaline. Lolitrem B causes the characteristic tremors seen in ryegrass staggers, while ergovaline reduces the heat tolerance of animals.

Animals affected by endophyte mycotoxins eat less, so milk production suffers. Stock can also become more temperamental and may be more inclined to kick off the cups while in the shed.

The endophyte grows mainly in the seed, seed head, tillers and leaf sheaths, rather than in the actual leaf blade. This means that stock are more at risk of developing problems if they graze hard into the base of the pasture, or graze seed-heavy pasture. In addition, the risk increases when there is a long, hot period of weather followed by rain.

There are a few simple strategies that can help reduce the chance of stock being affected by ryegrass mycotoxins:

- Avoid grazing pastures hard, so that stock have less chance of ingesting high levels of mycotoxin
- Top pastures to remove seed heads
- Graze stock on pastures that contain either no endophyte, or one of the newer, novel endophytes that offer the plant protection but do not carry the same level of risk to stock

- Encourage clover growth in pastures: this helps to dilute out the concentration of mycotoxin ingested by stock
- Take special care after a drought, as mycotoxin levels are likely to be higher
- Feed a high-quality supplement such as silage, hay, turnips or maize

Young stock are particularly susceptible to the effects of mycotoxins, so extra care should be taken with their grazing set-up.

Mycotoxins can also be found in supplementary feed, and are produced by different fungi to those found in ryegrass. Any conditions that promote the growth of fungi in the feed will increase the chance of mycotoxins being present. Warm, humid storage conditions are most likely to increase fungal growth.

Any type of supplementary feed can be affected: blended feed, pellets, cereals, silage and baleage. Feed can be affected if it is bought from vendors or made on farm. Reputable vendors of supplementary feed ensure that their product is well managed throughout its life: from growing, through harvesting, processing and storage. The same precautions should be taken for feed produced on farm.

Good storage conditions are essential: protect the product from damp and use it as soon as possible.

If you suspect stock have been affected by mycotoxins, move them onto safe pastures (e.g. tall fescue, lucerne, chicory) and/or feed high-quality supplement. Leave them undisturbed as much as possible, and separate them from the main herd. If milking, reduce the frequency to once a day.

If you have concerns, talk to your vet, farm consultant or SealesWinslow animal nutrition specialist.

TOP TIPS FOR SURVIVING A DRY SUMMER

Without the benefit of a crystal ball, it is hard to predict whether summer will see us needing to break out the sunblock or buy a new pair of gumboots. While it's easy to prepare ourselves for both eventualities, we also need to think of the needs of the cow.

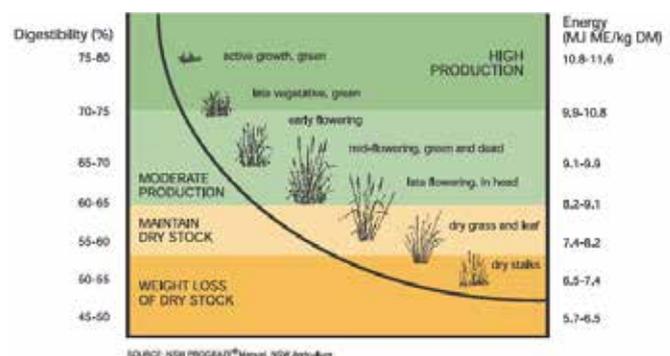
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This year, we must consider the likelihood of a dry summer, with NIWA predicting El Niño conditions, it seems a likely possibility.

During periods of high temperatures and low rainfall, changes may be seen on the milk docket and at the same time, the pasture quality will start to drop off. As pasture changes from vegetative to reproductive and the number of seed heads increases, there will be a decrease in digestibility of the feed and the energy available in the pasture. The cow will need to eat more to meet her energy requirements, a difficult task with such bulky, rumen-filling feed. If the cow cannot consume sufficient energy – a common limiting factor in dairy cows – milk production will be reduced and condition will not be regained at the rate needed to dry off at the required body condition score (BCS). If this is the case, an energy-dense supplement should be considered to balance the diet.

Pasture protein levels are often lower in summer, especially in dry conditions. Although the protein requirements of cows decrease through the lactation cycle, by late lactation the pasture protein content may be lower than the cows need – at this time they require 16% dietary protein. However,

What happens in pasture?



protein is an expensive nutrient so it is important to monitor the pasture analysis and only add supplementary protein when needed.

Rather than energy or protein being the limiting factor, it could be that there is a "Vitamin F" deficiency (F standing for feed). Dry matter (DM) is the first consideration when balancing diets for dairy cows. They are a ruminant first and foremost so they must have sufficient fibre to keep the rumen working at optimum levels. Concentrates should be introduced slowly to allow the gut microbes to change in order to breakdown these new feeds; too much of a good thing rings true in these situations.

TOP TIPS FOR SURVIVING A DRY SUMMER CONTINUED

Palm kernel (PKE) is a good option to consider in times of a feed shortage. It is considered a "safe" feed due to the low levels of starch not causing acidosis or rumen dysfunction when fed ad lib in the paddock. It can contain low levels of calcium and sodium and so these may need to be supplemented. Whilst PKE has a high NDF level, this fibre is very finely ground. Physically effective (long) fibre should still be fed to the cows. Silage would be the most common forage supplement for cows in times of pasture shortage. It is important to know the nutrient levels of this when feeding to cows; it cannot be assumed to be the same as the grass that was cut for silage as there will have been some deterioration during storage. Maize silage is a good option where available; care must be taken to balance out the mineral levels as it is deficient in calcium, magnesium, sodium and phosphorus. Maize silage is also low in protein so should be balanced with a feed containing protein, such as grass silage, soya bean meal or cottonseed meal.

Water can be easily overlooked, but considering milk is almost 90% water, it is clearly invaluable. A cow requires around 120 litres of water per day, more in hot and humid conditions. Troughs should be checked on a regular basis to ensure they are full and clean so the cows are not without water at any time.

Heat stress can also be an issue. Whilst we may consider this as only an issue for milk producers in areas like Queensland and Florida, the combination of heat and humidity means that cows start to be affected at temperatures of 25°C with 50% humidity, or even 24°C with 65% humidity.

As the cow tries to cool down, her metabolic priority moves away from digesting feed. Feed intake decreases and at the same time, the requirements for maintenance increase, leading to a drop in milk production. Help can be given by altering milkings to allow the cows to walk in cooler times of the day, offering paddocks with shade where possible and considering the use of yeast additives to help improve rumen function.

Temperature		% Relative Humidity																			
°F	°C	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	
72	22.0	64	65	65	65	66	66	67	67	67	68	68	68	69	69	70	70	71	71	71	
73	23.0	65	65	66	66	66	67	67	68	68	68	69	69	70	70	71	71	71	72	72	
74	23.5	65	66	66	67	67	67	68	68	69	69	70	70	70	71	71	72	72	73	73	
75	24.0	66	66	67	67	68	68	68	69	69	70	70	71	71	71	72	73	73	74	74	
76	24.5	66	67	67	68	68	69	69	70	70	71	71	72	72	73	73	74	74	75	75	
77	25.0	67	67	68	68	69	69	70	70	71	71	72	72	73	73	74	74	75	75	76	
78	25.5	67	68	68	69	69	70	70	71	71	72	72	73	73	74	74	75	75	76	76	
79	26.0	67	68	69	69	70	70	71	71	72	72	73	73	74	74	75	75	76	76	77	
80	26.5	68	68	69	70	70	71	71	72	72	73	73	74	74	75	75	76	76	77	77	
81	27.0	68	69	70	70	71	71	72	72	73	73	74	74	75	75	76	76	77	77	78	
82	28.0	69	69	70	71	71	72	72	73	73	74	74	75	75	76	76	77	77	78	78	
83	28.5	69	70	71	71	72	72	73	73	74	74	75	75	76	76	77	77	78	78	79	
84	29.0	70	70	71	71	72	72	73	73	74	74	75	75	76	76	77	77	78	78	79	
85	29.5	70	71	71	72	72	73	73	74	74	75	75	76	76	77	77	78	78	79	80	
86	30.0	71	71	72	72	73	73	74	74	75	75	76	76	77	77	78	78	79	80	81	
87	30.5	71	72	72	73	73	74	74	75	75	76	76	77	77	78	78	79	79	80	81	
88	31.0	72	72	73	73	74	74	75	75	76	76	77	77	78	78	79	79	80	81	82	
89	31.5	72	73	73	74	74	75	75	76	76	77	77	78	78	79	79	80	81	82	83	
90	32.0	73	73	74	74	75	75	76	76	77	77	78	78	79	79	80	81	82	83	84	
91	33.0	73	74	74	75	75	76	76	77	77	78	78	79	79	80	81	82	83	84	85	
92	33.5	74	74	75	75	76	76	77	77	78	78	79	79	80	81	82	83	84	85	86	
93	34.0	74	75	75	76	76	77	77	78	78	79	79	80	81	82	83	84	85	86	87	
94	34.5	75	75	76	76	77	77	78	78	79	79	80	81	82	83	84	85	86	87	88	
95	35.0	75	76	76	77	77	78	78	79	79	80	81	82	83	84	85	86	87	88	89	
96	35.5	76	76	77	77	78	78	79	79	80	81	82	83	84	85	86	87	88	89	90	
97	36.0	76	77	77	78	78	79	79	80	81	82	83	84	85	86	87	88	89	90	91	
98	36.5	77	77	78	78	79	79	80	81	82	83	84	85	86	87	88	89	90	91	92	
99	37.0	77	78	78	79	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	
100	38.0	77	79	79	81	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	
101	38.5	77	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	
102	39.0	78	79	80	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	
103	39.5	78	79	81	82	83	84	85	86	87	88	89	91	92	93	94	95	96	97	98	
104	40.0	79	80	81	83	84	85	86	88	89	90	91	93	94	95	96	98	99	100	101	
105	40.5	80	80	82	83	84	85	87	88	89	91	92	93	95	96	97	99	100	101	102	
106	41.0	80	81	82	84	85	87	88	89	90	91	93	94	95	97	98	99	101	102	103	
107	41.5	80	81	83	84	85	87	88	89	91	92	94	95	96	98	99	100	102	103	104	

- Key:**
- Stress Threshold
 - Mild-Moderate Stress
 - Moderate-Severe Stress
 - Severe Stress.

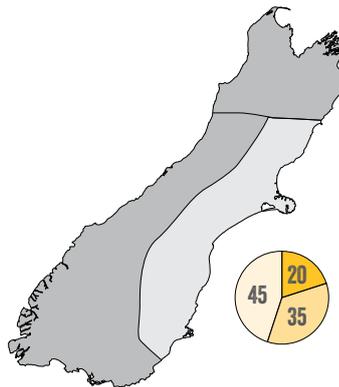
It is possible that the weather forecasters have got it wrong. Instead of sweltering through milking, it might be more a case of sheltering through it. With sufficient preparation, it should be possible to smoothly ride out the changeable weather conditions and have a successful conclusion to the season. Contact your local SealesWinslow representative to discuss feed and management planning over the summer.



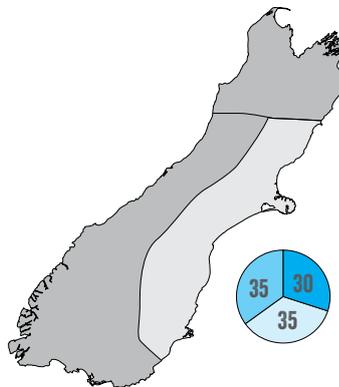
REGIONAL WEATHER OUTLOOK

NIWA's latest Seasonal Climate Outlook states that November 2015 - January 2016 temperatures and soil moisture levels in the east of the South Island are most likely to be below average (45% chance). Rainfall totals and river flows are about equally likely to be in the near normal (35% chance) or below normal (35-40% chance) ranges.

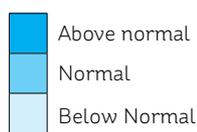
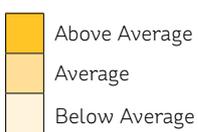
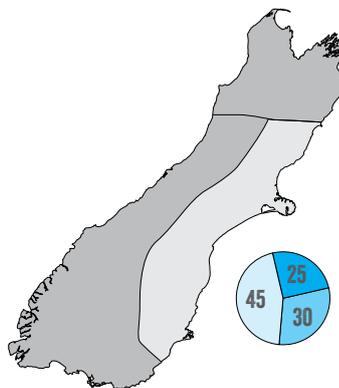
Air Temperature



Rainfall



Soil Moisture



REGIONAL WEATHER OUTLOOK CONTINUED

Likely impacts of El Niño this summer

International guidance indicates that El Niño is certain (100% chance) to continue over the next three months. The current event is slightly weaker than the 1997/98 El Niño (the strongest since 1950) at this stage, but is expected to intensify further and peak in the summer months.

El Niño events are typically (but not always) associated with stronger and/or more frequent south-westerly winds during spring, (turning more westerly during summer) in New Zealand. Such a circulation pattern usually leads to cooler conditions in most regions of the country, and potentially wetter than normal conditions to the west of the Southern Alps and drier conditions in northern and eastern regions of both Islands.

For reference the figure to the right shows the average rainfall amounts, in percentage of the 1981–2010 normal, that were recorded for the summer season (December – February) during the three strongest El Niño events since 1950 (1972/73, 1982/83, 1997/98). It should be noted that each event was slightly different and the average of the three events is shown. Based on this record, an elevated risk for drought Canterbury and Otago is anticipated later during summer, in particular northern Canterbury was hard hit by all of the last three strong El Niño's. Rainfall in Otago during strong El Niño conditions has been a bit more variable with the 1982/83 El Niño bring near normal to slightly wetter than normal summer conditions. Stay informed on the latest El Niño conditions by checking NIWA's Seasonal Climate Outlook which is updated every month.

Mean December - February rainfall during
72/73, 82/83 and 97/98 El Niños

