

# DIGEST

LOWER NORTH ISLAND  
**SPRING 2016**



All set for a successful  
breeding season

**P2**

Making the most of peak  
milk

**P5**

Mastering Nutrients

**P6**





# ALL SET FOR A SUCCESSFUL BREEDING SEASON

## CONTENTS

- 2 ALL SET FOR A SUCCESSFUL BREEDING SEASON
- 4 SMALL BUT MIGHTY
- 5 MAKING THE MOST OF PEAK MILK
- 6 MASTERING NUTRIENTS

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 Whanganui, and supplies custom-blended pelletised feed to farmers throughout New Zealand. It also provides calf feed, mineralised molasses blocks, feed supplements and additives.

Success during the mating season is the reward for getting things right earlier in the year. A timely start to your breeding programme will ensure your cows are in peak condition for optimum conception rates. Animal nutrition specialist, Paul Sharp, shares some insights.

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The factors that determine a dairy cow's mating success are ultimately related to her health. Key indicators include a healthy condition/weight, good mineral status and regular cycling.

"For mature cows, a 4.0 body condition score (BCS) at start of mating is the minimum, while heifers should be at least 60% of mature weight," says SealesWinslow's Paul Sharp. That's approximately 250 kg LWT for Jersey and 320 kg LWT for Friesian heifers.

He emphasises the importance of BCS assessments and weighing in the lead-up to mating. "Timely and ongoing monitoring is critical, because it allows you to tweak things."



The cow's metabolism is already operating at full capacity, with near-peak milk production drawing all available energy; her body is still recovering from producing a calf and has begun cycling in readiness for conception. To cope with the immense metabolic load she needs a solid nutritional base. If this is inadequately met, her metabolic functions become impaired – cycling activity being the first victim.

"Trace element deficiency can often be the culprit, as it can manifest in cycling problems. But it really needs to be addressed early on in the season to take effect," recommends Paul. However, non-cycling may also be the result of calving-related metabolic issues or disorders such as retained foetal membranes (RFM), which calls for veterinary intervention.

Minerals on the whole play a huge role during the fertility cycle. This is particularly relevant as some minerals are deficient in our pasture (copper, cobalt, selenium, zinc and iodine) while select trace elements (manganese and chromium) help to combat metabolic stress, enhance reproductive performance and assist glucose metabolism.

"Mineral supplements should be given in both organic as well as inorganic form to enhance uptake," says Paul. For inclusion in pellets or adding in mixer wagons, he recommends SealesWinslow's LT8 mineral pack as being hard to beat. It allows a targeted approach and eliminates wastage or dosing errors.

Perhaps the most important factor for good mating performance is sufficient quantity of feed. It's also tied to the cow's ability to achieve peak milk production, not to mention weight gains. It's therefore critical to address any pasture shortages with additional dry matter or suitable high-energy supplements as required.

### KEY SUCCESS FACTORS

- 4.0 BCS (mature cows)
- 60% of mature weight (heifers)
- Adequate mineral intake helps cycling - copper, cobalt, selenium, zinc, iodine, manganese and chromium (Recommended: SealesWinslow's LT8 mineral pack)
- Pasture allocation: 4% of LWT daily intake
- Special care and preferential feeding for lighter and at-risk cows
- Supplement with high-energy pellets as required (Recommended: SealesWinslow's Hi Starch or Hi Energy Hi Starch pellets)

Feed-wise it pays to focus on the needs of lighter cows or at-risk cows (e.g. those that may have suffered calving problems or mastitis) so they achieve their target mating condition.

Paul offers some useful strategies to help those animals along. "They may form a once-a-day milking herd," suggests Paul. "If you also keep them close to the milking shed to reduce their daily walking distances, you're effectively diverting energy that would otherwise go into milk production and walking, into weight gain and cycling activity."

A preferential feeding approach also achieves good results by giving those animals a better grass allocation and/or supplementary feed; whether in the paddock, on a feed pad or in-shed. A high-quality supplementary pellet such as SealesWinslow's Hi Starch or Hi Energy Hi Starch pellets would be the perfect answer. If it's distributed to the high-risk herd only, then the cost is apportioned among the very animals that also deliver a direct return.

To discuss your animals' pre-mating nutritional requirements, please contact your friendly SealesWinslow rep.



# SMALL BUT MIGHTY

Minerals – the tiniest of nutrient components – wield a lot of power. That's why it's important to identify any shortcomings in the feed before they cause mineral deficiencies in the animal and subsequent health problems.

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Macro-minerals and micro-minerals (also called trace minerals) count among the most important nutritional elements and are vital for the cow's body structure, cellular processes and immune system. They basically help her body to function like a finely tuned machine.

Problems occur when mineral requirements aren't adequately met, inherent shortcomings in the feed being an obvious cause. A pasture-based diet, for instance, is typically deficient in calcium and magnesium; maize silage and cereal crops lack sodium; while fodder beet is phosphorus deficient. There's also the issue of seasonal variations – both in terms of requirements and availability. Copper, for instance, is present in lower concentrations in pasture during winter. Consequently, copper deficiencies are more common then and during early spring, manifesting in poor conception and growth rates, bone fractures in calves and osteoporosis in cows.

While it's tempting to generalise, SealesWinslow Nutrition and Quality Manager, Wendy Morgan, cautions against it. "It's really important to have a nutritional analysis of your feed. That way you know exactly which minerals are adequately available and you can address any deficiencies with your feed strategy."

Nevertheless, she notes that herbage tests should be viewed holistically. They show what's in the feed; however, this may not necessarily be what's available to the animal, especially when interfering factors, so-called antagonists, come into play. Thus, copper becomes unavailable for absorption if the diet includes high levels of molybdenum, iron, sulphur or zinc. Such secondary deficiencies and their causes become evident when comparing results of blood or tissue samples with herbage tests.

Wendy acknowledges that, in light of the current challenging economic scenario, many farmers will be tempted to respond with sweeping budget cuts

**In addition to the commonly supplemented magnesium and calcium, the following minerals play a role during early lactation:**

**COPPER** – is often deficient in pasture; vital for immunity and reproduction. Watch out for secondary deficiencies when the diet includes high levels of molybdenum, sulphur and/or iron (these minerals prevent the uptake of copper).

**COBALT** – drives appetite (essential to counterbalance the negative energy balance) and therefore growth; helps to achieve a high peak milk production.

**ZINC** – supports the reproductive and immune systems; helps to reduce somatic cell counts; is not readily stored in the body and needs daily supplementation.

**IODINE** – influences energy metabolism, milk production and reproduction; vital for heat detection; is easily leached from wet soils and often deficient over winter and spring.

**SELENIUM** – for disease resistance, placenta shedding, milk production and reproduction; helps avoid retained foetal membranes and promotes better cycling.

to reduce feed costs. "It's understandable, but it's not a productive approach," she says. So, what does she recommend? "It's best to make a decision based on accurate information from blood samples. It gives you more options to weigh up. Besides, you may find that you get best results just by correcting a single limiting nutrient."

Another point worth noting is that dosage is very important. Providing the adequate amount means that you get the maximum cost benefit. Additional levels don't always provide further benefits. Beyond that, toxicity may occur at high levels.



# MAKING THE MOST OF PEAK MILK

Peak milk yield is often cited as a bellwether for the entire lactation performance. Given its importance for profitability, it's an obvious target for optimisation, which revolves around feed management and balanced nutrition.

A strong and sustained early lactation is critical for the health and performance of the cow. It's also a stressful time for the animal that's recovering from the ordeal of calving, not to mention struggling to meet the increased feed demand. Until the rumen returns to working at maximum capacity, it's not unusual for cows to draw on their body energy reserves (i.e. body fat), resulting in a negative energy balance and ultimately loss of condition.

Natalie Hughes, SealesWinslow Science Extension Officer, explains that optimisation starts during the transition period, with a focus on dry matter intake. "Managing the intake post calving is absolutely crucial.

"The key is to provide energy-dense feed, such as pellets, which take up less space in the rumen than bulky feeds."

Natalie emphasises the importance of assessing feed in terms of its overall nutritional balance – metabolisable energy content, fibre and protein. (See "Focus on Nutrition" overleaf)

Dietary starches are important for promoting milk production, while the right mineral mix also plays a big role. Specific minerals to pay attention to include calcium, phosphorus, magnesium, copper, cobalt, zinc, iodine and selenium. They need to be regularly supplemented if they are not present in adequate levels in the feed.

Natalie suggests that best practice feed management should include regular herbage testing. "Because it gives you accurate information about nutrients in your feed," she says, "it enables you to identify and address any gaps that could limit production."

Pasture management during the post-peak decline is an equally important aspect for optimisation. Pasture surplus, which is typically encountered during spring, needs careful management. If not managed properly, it can result in a low-quality pasture over the summer months – a time when it's crucial to have feed on hand to optimise milk production.

Nutritional requirements during lactation	
<b>Dry Matter (DM)</b>	4% Liveweight
<b>Metabolisable Energy (ME)</b>	26MJ ME/kg Liveweight
<b>Crude Protein (CP)</b>	18-22% (of DM)
<b>Soluble Starches and Sugars (SSS)</b>	15-30% (of DM)
<b>Neutral Detergent Fibre (NDF)</b>	>35% (of DM)



# MASTERING NUTRIENTS

Pop quiz: Can you name the three main nutritional components of animal feed? If this question has you scratching your head, read on. This could be one of the most important articles you'll read in a long time.

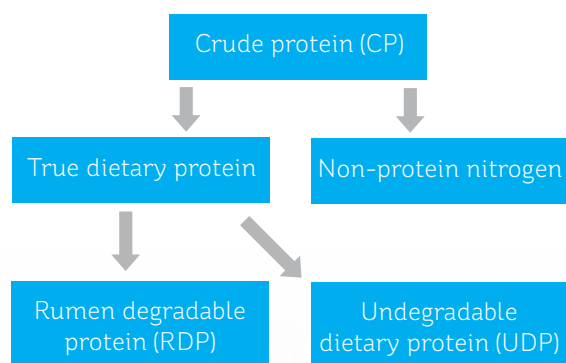
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The premise "you are what you eat" applies universally. Ask any top athlete and you'll hear that optimal health and excellent performance go hand in hand with nutrition know-how. High-performing modern dairy cows are no different.

They aren't merely powered by dry matter (DM) per se, but rather its key components, including protein, fibre and energy (Did you answer correctly?). Each is an indispensable and irreplaceable part of a balanced nutrition.

## Protein – the building blocks

Protein provides essential nourishment for animal growth, maintenance, reproduction and lactation. Generally expressed as percent crude protein (CP %), it is derived from nitrogenous components of the feed. Some of the nitrogen presents as 'true protein', compared to the less efficient 'non-protein nitrogen'. While microbes can convert the latter into true protein, they require much more energy to do so.



True protein consists of 'rumen degradable protein' (i.e. protein that is readily broken down and used by the microbes in the rumen) and 'undegradable dietary protein' (UDP) – protein that's not digested, hence its alternative moniker 'bypass protein'.

The proportion of UDP depends on many factors, including the amount of DM intake, speed of rumen

processing and more. It can vary tremendously, anywhere from 10% to 69% of true dietary protein.

Protein requirement for a dairy cow, as percentage of DM, broadly ranges from 12% (dry cow) to 18% (early lactation).

## Fibre – for a healthy rumen

The structural material of a plant – its cell walls – is made of cellulose, hemi-cellulose and lignin, and represents the fibre content of feed. Also called roughage, it's sometimes expressed as kg of DM, or more accurately as a percentage of the DM.

Fibre comprises digestible and indigestible parts that are collectively known as neutral detergent fibre (NDF). Its poorly digested and indigestible cousin is the acid detergent fibre (ADF). Low ADF values would indicate a high-quality feed that is very digestible. Depending on diet, a minimum of 27-35% of the total DM ration should be supplied as NDF.

## Energy – for performance

Put simply, the energy in the feed helps a cow to function. It comes from carbohydrates (sugar, starch), fats and oils, and to some extent from surplus protein. Once ingested, a part of this energy is diverted to faeces, urine and gases, leaving metabolisable energy (ME) to be utilised for growth, reproduction, milk production, activity, condition and maintenance, once heat losses have been accounted for. Megajoules (MJ) measure the energy content – a high number identifies energy-dense feed.

MJ ME/kg DM values vary hugely depending on the feed quality; from 7 for poor summer pasture (browntop) to 13+ for grain. Thus, to achieve a cow's energy requirement and produce a certain amount

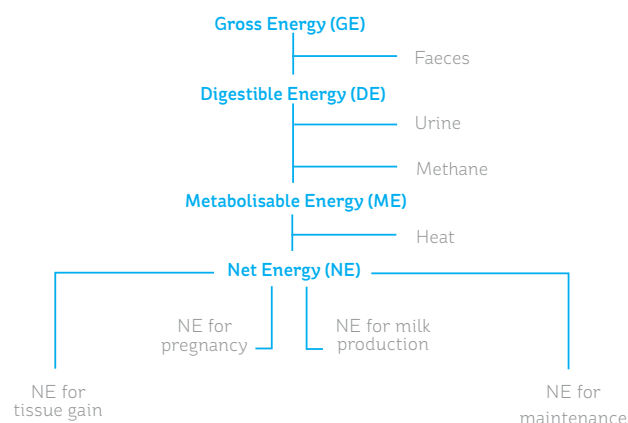


of milk, she would need to consume fewer kilograms of a high ME feed than of a low ME feed.

It's worth noting that ME values derive from lab measurements and exacting conditions. In practice, they can vary substantially, depending on the digestibility of the feed and the combination of feed provided. With the digestibility of pasture being typically around 55–80%, it means that 20–45% of the ME remains unutilised. Given the variables, it's therefore just a rough indication of feed quality!

### Vitamins and minerals

Vitamins and 21 minerals are the proverbial “small things that matter” and are essential for animal health, growth and reproduction.



### EXPERT TIPS - IN A NUTSHELL

**Wendy Morgan, Seales Winslow Nutrition and Quality Manager highlights key success factors:**

**Plan your feed budget** – The importance of planning cannot be overstated. A clear allocation of your pasture, silage, etc. will allow you to match your available feed with the various feed requirements (for maintenance, condition score gain and milksolids).

**Address shortages** – If you are unable to meet certain feed requirements, carefully evaluate the gaps and determine optimal feed solutions for your scenario. Make sure you have the basics covered before getting into details.

**Ensure nutritional balance** – Does your feed meet the balanced demands for protein, fibre and energy? If it doesn't, then plan to correct a deficit or surplus to attain a balance. E.g. if the feed has excess protein, look at balancing it with high-energy starches.

**Make sure mineral needs are met** – Supplement as needed to avoid deficiencies.

## REGIONAL WEATHER OUTLOOK

ENSO (El Niño – Southern Oscillation) neutral conditions are currently present in the tropical Pacific: Sea surface temperatures (SSTs) along the eastern equatorial Pacific are near or slightly below normal, and the atmospheric conditions over the tropical Pacific are generally consistent with an ENSO-neutral state. As a whole the tropical ocean-atmosphere system still shows a leaning towards La Niña.

International guidance still favours development of La Niña conditions (50% chance) over the next three month period (August – October 2016). The likelihood of La Niña conditions becoming established in the Pacific increases slightly later on, reaching 55% in November – January 2016/2017. In summary, this La Niña event, if it develops, will be characterised by a relatively late onset, short duration and weak amplitude.

For August – October 2016, there is no clear guidance or indication on seasonal airflow anomaly. However, weak anomalously low pressures are forecast around New Zealand and are likely to be accompanied with unsettled conditions. Anomalously high ocean temperatures around the country mean warmer and more humid air masses are likely to affect New Zealand, especially the North Island. Consequently, there remains an elevated risk for significant rainfall events and severe storms.

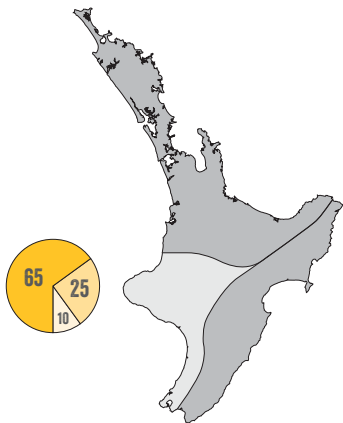
# Regional Weather Outlook Continued

**August – October 2016** temperatures are very likely (65-70% chance) to be above average. Nevertheless, frosts and cold snaps will occur from time to time in cooler locations. Sea surface temperatures are forecast to remain above normal over the next three months, especially to the west of New Zealand.

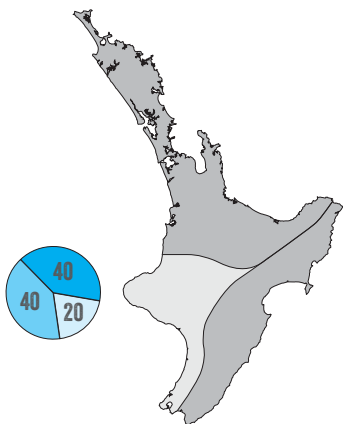
Rainfall totals are likely to be in the near normal range (40% chance) or above normal (35-40% chance) range in the north and west of the North Island. Seasonal rainfall is most likely (40% chance) to be in the near normal range in the east of the North Island.

In the west of the North Island, soil moisture levels are about equally likely to be near normal (40% chance) or above normal (35% chance), and river flows are most likely to be in the near normal range (40% chance). Seasonal soil moisture levels and river flows are likely to be near normal (35-40% chance) or below normal (35% chance) in the east of the North Island.

## Air Temperature



## Rainfall



## Soil Moisture

