



PGG Wrightson

# rural diary

PROFITABLE PERFORMANCE FARMING

North Island | August 2017



*Focus on ewe hoggets lifts **flock performance***

*Driving production from the grass roots up*

*Good planning key to **success with fodder beet***

*Helping grow the country*

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## Welcome

In this month's Rural Diary, we head to Aria in the Waikato and visit sheep and beef farmers Blair and Anna Nelson. They have driven their ewes' performance by significantly increasing mating rates for hoggets over the last few years. Quality feed and a targeted approach have been instrumental to their success.



With nutrition top of mind, we focus on optimising peak milk performance and supplementation. Effective planning during lambing to boost pasture growth and flystrike protection for lambs following docking are explained.

We also review planning for spring pasture and cropping programmes. Our agronomy specialist covers pre-emergence weed control. We also look at the evolution of forage brassicas, maize nutrition and fodder beet varieties.

If you are thinking about setting up new pastures and crops this spring and would like the latest agronomy information or to simply talk through your plans, get in touch with your local PGG Wrightson team. I also encourage you to visit our YouTube channel to view more Tech Tips from our Technical Team.

Enjoy the read.

Stephen Guerin  
Group General Manager  
Retail and Water – PGG Wrightson

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**Cover:** Blair Nelson talks with PGG Wrightson Technical Field Representative, Russell Smith on the Nelson's farm in Aria.

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PGG Wrightson Technical Field Representative, Russell Smith talks with Blair and Anna Nelson about forage options.

## Focus on ewe hoggets lifts flock performance

Sheep and beef farmers Blair and Anna Nelson are on a mission to increase their farm profit to compete with dairying. Key to this has been increasing the lifetime performance of their ewes – by growing every hogget to a target weight of 48 kg by tuppung.

Nelson Farms Partnership is 1,100 ha effective in Aria, Waikato, with equal proportions of hill country, rolling hills and flats, with pasture mainly ryegrass-clover sward. Stock includes 3,600 breeding ewes, 1,200 hoggets, 300 breeding cows (including 70 first calvers) from which they finish all progeny, currently 270 R1 bulls and heifers. They also bring in 500 Friesian bulls annually, mostly as one year olds, to provide flexibility in the system.

In 2011, the Nelsons had 441 hoggets mated and 451 hoggets unmated. The average mating weight was 38.9 kg. In 2015, they mated 1,343 hoggets at 49 kg, only 22 were not mated.

“We have achieved these results on the back of four years as a Beef + Lamb NZ innovation project, where we were set up to succeed with the hoggets” explains Anna. “Getting hogget mating right has lifted the expectations and goals we set ourselves.

“We believe that if we grow good ewe hoggets, they easily achieve target two-tooth tuppung weights, and this basically takes care of the rest of their life performance. Growing more quality feed and feeding the stock better has been the basis of all improvements.”

Continuous improvement is very much a part of the Nelsons management style and they rely on a team of trusted advisors to help them, including Technical Field Representative, Russell Smith, Technical Manager – Animal

Health, Andrew Dowling and Technical Specialist – Animal Nutrition, Nadine Huitema from PGG Wrightson. Russell pays monthly visits to the farm from spring through to late summer, specifically to keep an eye on crop performance. He brings the others in as required.

With quality feed as a focus, the Nelsons set aside part of the farm as a high-performance cropping area, specifically for the hoggets. Crops grown this year include red clover, kale and Pallaton Raphno® (a new raphanobrassica from PGG Wrightson Seeds). The crops change regularly as they look for the most sustainable options to suit their soil type and to provide high quality feed through winter.

“It is common knowledge that mating underweight hoggets results in poor lifetime performance” states Russell. “The high-performance area has enabled the Nelsons to grow the ewe lambs through summer, so they mate nearly all of them as hoggets and again as two-tooths.”

Anna adds that their targeted approach is instrumental in their success. They spend time drafting and weighing the hoggets, targeting the lighter ones that are not performing to give them an advantage, pushing them along for better long-term performance. Red clover plays an important role here. “One quarter of the smallest hoggets were grazed on red clover to achieve target weights. The real benefit was lambing the hoggets on the clover and continuing to grow those mothers and the lambs at foot at a much better rate than we have before. This is important in helping us achieve target two-tooth weights.”

By pushing along the hoggets in the bottom 10-20 percent, the Nelsons have achieved much better mating rates over all. “There is a jump in the performance of the whole flock” confirms Anna. “The lighter ones drag you down and we had not realised how much.”

## Boosting B12 levels in cows and calves

*Vitamin B12 is essential in all livestock. Ruminants rely on their intake of cobalt from pasture which is then converted by microorganisms in the rumen to vitamin B12.*

While the Volcanic Plateau is the largest area known to be deficient, most areas in New Zealand have developed cobalt deficiency due to the impact of increased farming intensity. Without sufficient cobalt to enable B12 production, animals' appetites are reduced leading to weight loss. B12 deficiency can also affect the development of the calf and their immune system, leading to increased instances of diarrhoea, weepy eyes and ill thrift. It may also have subclinical implications for fertility and milk production.

When treating animals that are deficient in vitamin B12 you can expect to see improvements in appetite, growth rates, better energy levels and increased milk-production. Vitamin B12 supplementation in both cows and calves can also help lessen the impact of parasites and help the repair process after heavy worm burdens are removed.

Vitamin B12 recommended treatment for cows is 4-6 ml pre-calving, and in calves 2-3 ml from two months of age. In areas where pasture cobalt levels are known to be exceptionally low, re-treatment may be necessary after four to six weeks.

**For advice on a suitable product to help increase vitamin B12 levels in your stock, contact your local PGG Wrightson Technical Field Representative.**



Andrew Dowling BVSc  
Technical Manager – Animal Production  
PGG Wrightson



### CobalJect

The CobalJect B12 range at PGG Wrightson is also approved by AsureQuality for use on organic farms. Conditions apply and farmers must refer to their individual management plan.

**ARTICLE SPONSORED BY HORIZON**

## Flystrike protection for lambs following docking

*Lambs are at high risk from flystrike and in areas where blowflies routinely cause problems, preventative treatments are commonly applied to lambs in the spring, usually at docking/tailing.*

Research has shown that even relatively small strikes cause a marked loss of appetite in the affected animal with a resulting rapid loss in weight. Recovering this lost weight can take significant time.<sup>1</sup> As the wounds caused by docking/tailing act as an attractant to flies, it is important that any treatment applied provides protection until these wounds have completely healed.

### What products and why?

Ready to use, water based insect growth regulator formulations containing the potent active ingredient dicyclanil (for example, CLiKZiN Spray-On and CLiK Spray On) are favoured by many farmers for use as a docking/tailing flystrike preventative treatment.

A significant issue during docking/tailing is that as the young lambs are handled closely and contact with the chemical used is unavoidable; using an effective product with a wide margin of safety to both operators and livestock is important. Using the approved CLiKZiN or CLiK 10 ml docking/tailing applicator helps ensure the effective application, protecting the docking/tailing wound. Remember that where the product is applied is the area protected against strike, if back or shoulder strike is anticipated the product should also be applied in these areas.

**For more information on flystrike protection around docking/tailing, contact your local PGG Wrightson Technical Field Representative.**

**ARTICLE SUPPLIED BY ELANCO**

<sup>1</sup> Heath et al, NZ Vet J. 35: 50-52.

### CLiKZiN Spray-On and CLiK Spray On

Available in 5 L  
and 20 L packs.



# Making sure cyathostomes have nowhere to hide when worming horses

Some equine gastrointestinal worms are more difficult to kill through their life stages than others.

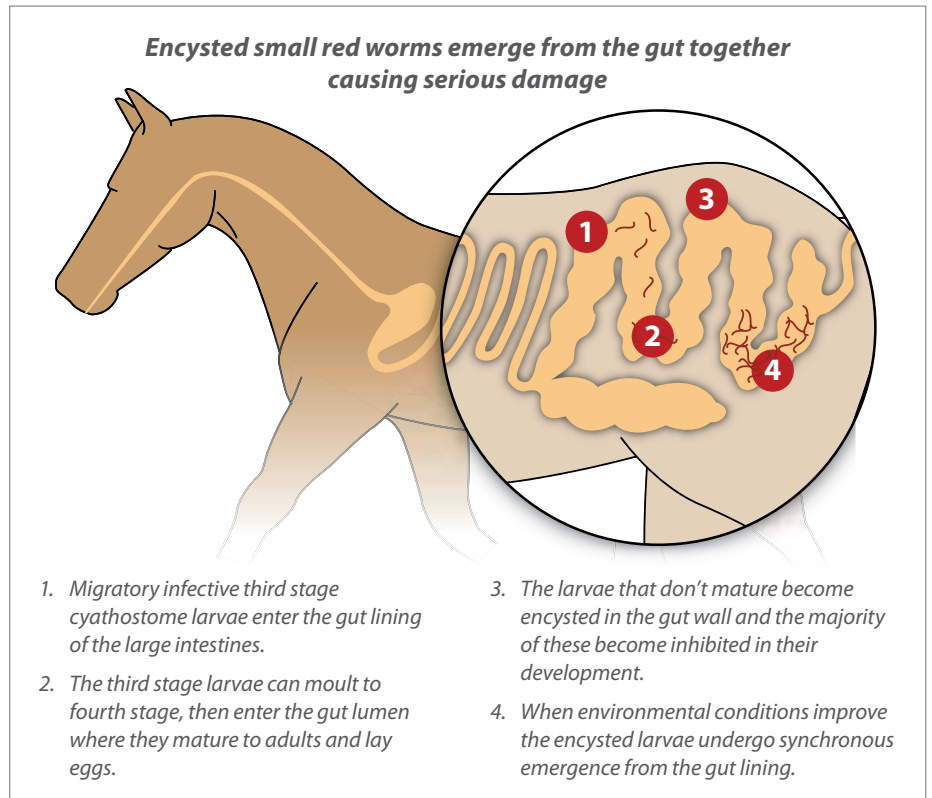
Cyathostomes, otherwise known as small red worms or small strongyles, have a direct lifecycle including a free living stage and a tissue migratory phase, with the potential to encyst in the gut. Unlike the large strongyles that migrate into blood vessels, migratory cyathostome larvae enter the large intestinal gut lining as infective third stage larvae. They can then either moult to the fourth stage and enter the gut lumen to mature to egg laying adults, or become encysted and the majority of these become inhibited in their development.

Only when environmental conditions improve, which is typically in spring in temperate regions, do the encysted larvae undergo a synchronous emergence from the gut lining. The larvae then enter the lumen of the large intestine to complete their lifecycle. This emergence termed 'larval cyathostomosis' can cause acute and severe damage to the intestinal wall, leading to diarrhoea, colic and potentially death.

Diagnosis of cyathostome infection can be difficult. Eggs from small and large adult strongyles are almost impossible to differentiate apart and during emergence of inhibited larvae, there may be no eggs detectable. All ages of horses may be affected, but younger horses are considered more susceptible. Consequently, even horses with low or negative faecal egg counts should be treated for encysted cyathostomes at least once a year, preferably in late winter or early spring.

Cyathostome larval stages encysted in the wall of the large intestine are protected against the action of nearly all worming drugs including the majority of macrocyclic lactones (MLs). The one exception is moxidectin. Repeated doses of fenbendazole at twice the recommended dose rate given daily for five days can also be used.

Some studies have shown that the die-off of inhibited larvae after fenbendazole



treatment causes severe inflammation of the colon. This is not observed following use of moxidectin. Moxidectin is highly effective against all stages of cyathostomes including encysted larvae, and has the added advantage of the longest period from treatment to re-emergence of strongyle eggs in faeces. This reduces the burden of infection on the paddock and increases the time between treatments which is associated with reduced selection pressure for anthelmintic resistance.

Resistance can develop with any anthelmintic, so correct drenching technique should be used. It is also advisable that resistance tests or checks be conducted regularly when using any parasite treatment.

**Ask your local PGG Wrightson representative for advice on a parasite management plan.**

**ARTICLE SUPPLIED BY  
BAYER ANIMAL HEALTH**

**Ultra-Mox**  
New Zealand's only moxidectin 3 in 1 combination wormer, making it leading choice as part of any worming strategy. Contains moxidectin, praziquantel, and oxfendazole. Available in 30g, 250 ml and 1 L pack sizes.

# The case for an early peak

*The peak milk performance of a cow is widely regarded as a benchmark indicator for her overall success for the season.*

The secret to maximising improvements lies in driving production with a view to achieve peak milk early and maintain it. A considered nutritional strategy helps to attain this goal and promises positive outcomes for the season's production.

As a cow approaches peak milk, her body has undergone tremendous changes that subject her metabolism to stress. She has grown a calf, coped with reduced rumen space and has even lost valuable body weight.

And just as her energy demand increases tremendously while her rumen expands and her uterus retracts post-calving, the right nutritional support delivers a welcome boost to her natural performance.

## Feed for production and health

Providing the right feed after calving is of two-fold importance: to stimulate milk protein production, and to meet all the physical and metabolic demands of early lactation. Feed fundamentally makes a huge difference.

So, what do you need to look out for? "First of all, dry matter intake is a top priority," says Natalie Hughes, SealesWinslow Science Extension Officer. "Given the reduced rumen capacity, it is best to opt for energy dense feed as it can meet the animal's elevated energy requirements during this period."

The next nutritional focus is providing a balanced diet. "Bear in mind that a cow has very different nutritional requirements before and after calving," explains Natalie. "Springer cows for instance, need less protein and calcium compared to cows during the first four weeks post calving." This should be reflected in the nutritional mix.

While first round pasture is an excellent feed, the quantity may be hit or miss. At the same time, the cow has not yet achieved her full dry matter intake potential.



Therefore, in order to drive peak milk to occur 40-60 days from the mid-point of calving, it is important to consider the nutrient density of any supplemental feed options. In light of rumen constraints, the best bet is high quality pelletised feeds. SealesWinslow offers a range of options to best match individual farm systems; including balancing mineral requirements. Nutrient dense feed options promote peak milk production and persistency.

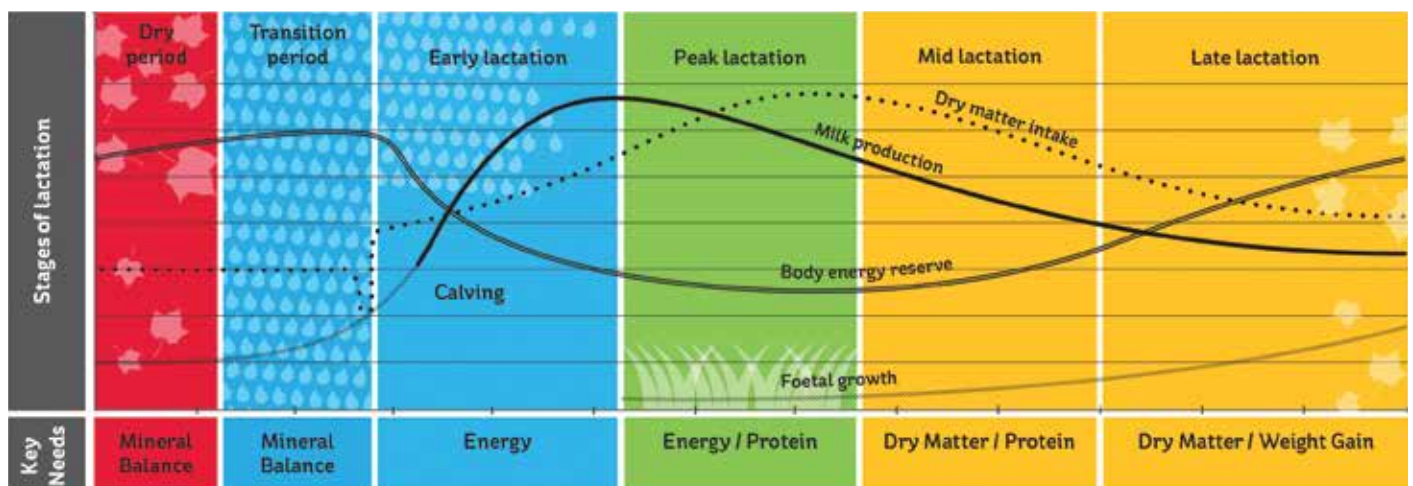
## Quality and quantity for optimal body condition

"Be sure to provide adequate amounts of high quality feed" recommends Natalie, "because insufficient quantities invariably cause the animal to mobilise body reserves to meet nutritional demands." While negative energy balance is inevitable, it is important to manage body condition loss, not least because of the inherent metabolic issues involved such as fatty liver and ketosis.

Having a sound feed strategy is a key step towards reaching peak milk potential early and achieving improved performance throughout the season. Best of all, it is possible to mitigate potential animal health issues and set up your cows to be in ideal condition for mating.

**To discuss your peak milk feed requirements and to assess first round pasture quality through feed testing, contact your local PGG Wrightson representative.**

ARTICLE SUPPLIED BY SEALESWINSLOW



# Driving production from the grass roots up

*Do I need to feed a supplement? Which supplement should I choose? How much supplement is required?*

The answers to these questions can be found quite literally from the grass roots up. All feeding decisions are centred on the pasture quantity and quality in relation to the nutrient requirements of cows in early lactation.

To achieve peak milk production at approximately 40–60 days from the mid-point of calving, a typical 450 kg KiwiCross cow peaking at 2.2 kg milk solids is capable of consuming approximately 16 kg Down Her Throat (DHT). Accounting for a moderate level of utilisation, this means this animal needs to be offered 19 kilograms of Dry Matter (kg DM).

**Does the August pasture budget provide for this level of intake?**

In many situations across the country, the allocation of pasture in early lactation does not meet the demand and supplemental feeding is warranted. To incrementally improve performance, the next step is to understand the profile

of nutrients provided by the pasture allocation through feed testing.

From here Liebig's law of the minimum<sup>1</sup> applies. Using the diagram of a barrel as an analogy (below), the height of the barrel represents the production potential of a cow and the associated nutrient requirements. The staves in the barrel represent the profile of nutrients provided to the cow via the allocation of pasture.

For example, if the allocation of pasture is 10 kg DM DHT and the quality of pasture is 12 MegaJoules of Metabolisable Energy per kilogram Dry Matter (MJ ME/kg DM) and 20 percent Crude Protein (CP), the animal will receive 120 MJ ME and 2.0 kg of protein from the pasture. To achieve the target peak milk performance of 2.2 kg milk solids, the requirements (the top of the barrel) equates to approximately 208 MJ ME/day and 3.15 kg CP. Therefore, to optimise performance early in the lactation,

supplements providing 88 MJ ME and 1.15 kg CP are warranted.

In other words, the optimal supplementation rate would be 6 kg DM DHT of exceptional quality feed (for example 14.6 MJ ME/kg DM and 19 percent CP). In reality, it is difficult to provide supplement at this level of energy density. When there is a shortfall of energy in the diet, the animal will metabolise body fat to make up for the deficit.

However they will only do so if they have enough of the next most limiting nutrient, CP. Protein is a critical nutrient in the drive to peak milk. Meeting CP requirements during this stage stimulates feed intake and allows body condition to be mobilised efficiently for milk production.

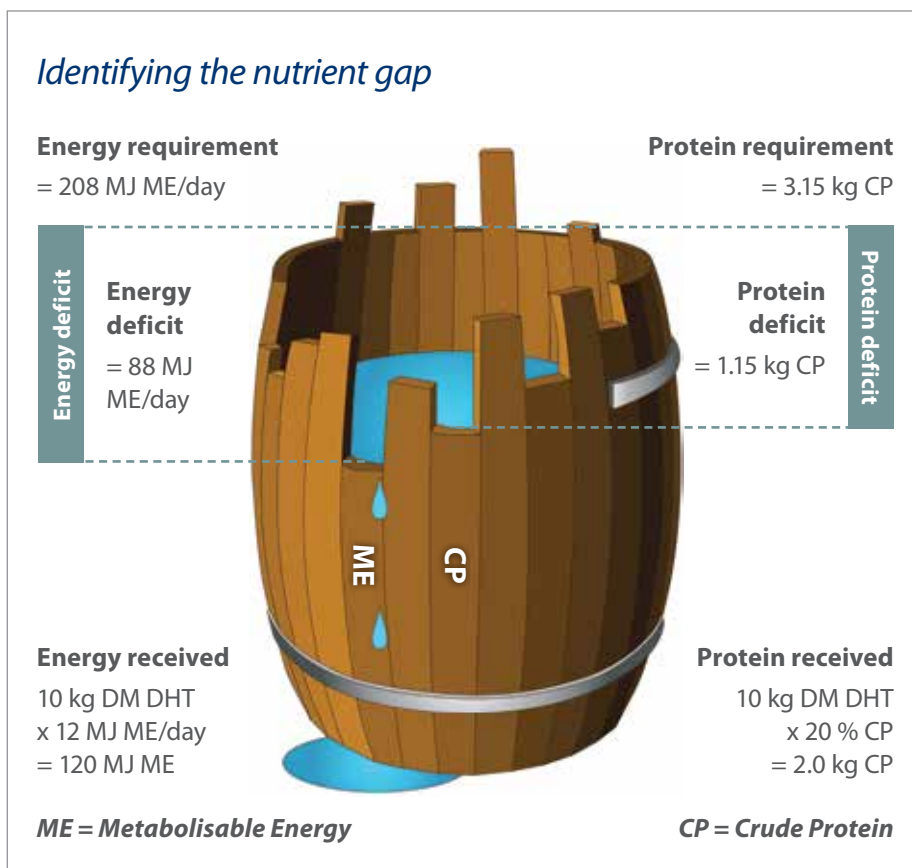
The PGG Wrightson nutrition team have developed a ration check calculator modelled on Liebig's law of the minimum. Using pasture testing, the model helps paint a picture of the profile of the staves in the barrel (for instance, nutrients provided by the pasture). Identifying where the biggest nutrient gaps exist helps answer questions about the quantity and quality of supplements required to achieve peak milk objectives.

**To optimise herd peak milk performance, contact your PGG Wrightson Technical Field Representative and arrange pasture testing to paint the saves of the barrel for your cows.**



**Andrea Murphy** B.Sc. (Agr) (Hons) M.Sc. Member of NZARN PGG Wrightson Technical Specialist – Animal Nutrition

<sup>1</sup> [http://en.wikipedia.org/wiki/Liebig%27s\\_law\\_of\\_the\\_minimum](http://en.wikipedia.org/wiki/Liebig%27s_law_of_the_minimum)



# What supplement to choose, grain or PKE?

What nutrients are your cows looking for in spring? Protein or starch? Let's take a look and see if we can compare some of the options.

Crude Protein (CP) levels in spring pasture, as outlined in Table 1 below, are typically much higher than the dietary requirement of the cow and may contribute to cows losing bodyweight in early lactation. This is due to the cows' high energetic requirements to excrete excess dietary protein as urinary urea and/or milk urea. High levels of dietary protein can also be a contributing factor in reducing the fertility of dairy cows, so under these conditions feeding grain is a preferred supplementary feed due to its much lower levels of CP compared to PKE.

All grain options contain high concentrations of starch and low concentrations of CP (see Table 1 below). This provides nutritional 'balance' to a spring pasture-based diet and increases daily intake of energy to better match the energy demands of lactating dairy cows during peak lactation and mating.

Always compare grain with other feeds on a starch-equivalent and Neutral Detergent Fibre (NDF) basis, not just based on cents per kilogram of Dry Matter (kg DM) or cents per MegaJoule of Metabolisable Energy (MJ ME). Comparing feeds on a DM basis only is of limited value because DM does not

acknowledge the diversity of quality. MJ ME comparisons are of greater value than DM but remain limited because MJ ME does not factor in the differences in starch, protein, fibre, and water-soluble carbohydrate levels between feeds.

### So what is the more cost effective option on a cost per kilogram (\$/kg) of starch basis?

At \$230 per tonne PKE would deliver DM at \$0.26 per kg DM. ( $\$230 \div 0.90 = \$255.50$  per tonne). Barley would deliver DM at \$0.43 per kg DM ( $\$370 \div 0.86 = \$430.23$  per tonne).

The next step is to calculate the value of the starch on a per kg basis.

PKE at \$0.26 per kg DM, divided by starch content of PKE (4 percent starch or 0.04 starch per kg DM) = \$6.50/kg starch.

Barley at \$0.43 per kg DM, divided by starch content of barley (55 percent starch or 0.55 starch per kg DM) = \$0.78 per kg starch.

The cost per kilogram of starch in grain is approximately **eight times** more economical than starch from PKE.



Undertaking this type of analysis clearly demonstrates the value of including grain to balance high protein, low starch spring pastures.

For further information on grain feeding and to calculate the cost per kilogram of limiting nutrient for your situation, contact your local PGG Wrightson Technical Field Representative.

ARTICLE SUPPLIED BY  
PGG WRIGHTSON GRAIN

Table 1: Grain feed specifications compared to PKE, spring pasture and high performance dairy cow nutrient requirements

|   | Daily cow nutrient requirements | Maize           | Wheat           | Triticale       | Barley          | PKE                 | Spring pasture |
|---|---------------------------------|-----------------|-----------------|-----------------|-----------------|---------------------|----------------|
| Dry Matter (DM)%                          | 35 - 50                         | 86 - 90         | 86 - 90         | 86 - 90         | 86 - 90         | 90                  | 9 - 18         |
| Soluble carbohydrates (starch and sugars) | 30 - 35 (% diet DM)             | 70 - 75% starch | 58 - 70% starch | 60 - 67% starch | 50 - 60% starch | Less than 4% starch | 2 - 4% starch  |
| Crude Protein (CP)%                       | 18 - 22                         | 8 - 12          | 9 - 16          | 9 - 16          | 9 - 16          | 15 - 18             | 18 - 35        |
| Neutral Detergent Fibre (NDF)%            | 28 - 35                         | 8 - 13          | 9 - 15          | 13 - 16         | 13 - 30         | 50 - 65             | 28 - 45        |
| Palatability                              | High                            | High            | High            | High            | High            | Moderate            | High           |

Source: PGG Wrightson Grain Feeding Handbook





## Nutritional quality of maize silage

*Like all ruminants, cows need four key ingredients to live, reproduce and produce milk. These are energy, fibre, protein and water.*

### Energy

Maize silage provides energy from two sources, the cob (grain plus core) and the stover (the green part of the plant). Maize grain contains high levels of energy-rich starch found in the inner part of the maize seed and other high-energy components such as oil found in the maize kernel. At 13.5 MegaJoules of Metabolisable Energy (MJ ME) per kilogram of Dry Matter (kg DM), the grain accounts for approximately 70-80 percent (depending on season and grain content) of the energy in maize silage. As well as driving total energy content, the starch found in maize silage may contribute to improved milk protein percentage and milk volume.

### Fibre

Maize silage is a great source of fibre which stimulates cows to chew their cud. Most of the fibre in maize silage comes from the stover. While the stover is considerably lower in energy than maize grain (7.5 MJ ME per kg DM), it still plays an important part in cow nutrition. While the grain portion of the plant is smashed

by the kernel processor in the harvester, the stover is chopped into 8-15 mm pieces by the knives. These larger pieces of the maize plant need to be processed by the cow into around 2 mm pieces in order to pass out of the rumen. This is done through cud chewing. Cud chewing by the cow is essential for rumen health as the minerals produced in the saliva buffer the acid produced by the bugs in the rumen as they digest the grain.

### Protein

Maize silage at around eight percent Crude Protein (CP) is not fed as a protein source. There is simply not enough protein for the cow to produce milk. Depending on stage of lactation and production expectation, cows require a diet of between 14-18 percent CP<sup>1</sup>. However, pasture nearly always has too much CP<sup>2</sup>. When fed with pasture, maize silage can be used to reduce the negative impacts that too much dietary protein can have on both the cow and the environment. For example, let's say the cow is in early lactation and ideally requires 18 kg DM at 18 percent CP. However, the pasture is 23 percent CP

but there is not enough of it. How much maize can be added without affecting milk production? A diet of 13 kg DM pasture and 5 kg DM maize silage would still mean that there is enough protein in the diet to achieve target milk production.

### Water

There are times when too much water in the pasture can limit intake and therefore limit the amount of energy a cow can eat. This usually occurs in spring and autumn when pasture DM may fall below 14 percent. Maize silage at between 30-40 percent DM is sometimes used to increase the amount of feed a cow can eat, simply because it is drier.

**For more information on maize silage and its nutritional quality, contact your local PGG Wrightson representative.**

**ARTICLE SUPPLIED BY  
PIONEER BRAND PRODUCTS**

<sup>1</sup> Protein requirements for Dairy Cows. Dairy NZ Nutrition [www.dairynz.co.nz/feed/nutrition/](http://www.dairynz.co.nz/feed/nutrition/).

<sup>2</sup> An evaluation of major nutrients in New Zealand dairy pasture and their effects on milk production and herd reproductive performance. Soren Moller 1993 Massey University Thesis.

# Making the call

## Plan ahead to use pasture effectively during lambing.

Having enough feed to support the demands of the lambing period is a perennial sheep farming challenge. Boosting pasture growth with nitrogen is a good option provided you plan ahead and factor in an appropriate amount of time for pasture response.

“The earlier you apply nitrogen, the slower and lower the response,” explains Ballance Science Extension Officer Josh Verhoek. “In late winter you will get a moderate response at best. This increases the cost of the grass grown. However, the value is higher if it fills a feed gap.”

Table 1 (below right) provides a guide to pasture responses, time needed to achieve them and related nitrogen fertiliser costs.

“Ideally, you would compare stock energy needs with the energy value of available feed and be able to spot and fill the gaps accordingly,” says Josh. “However, most just want as much grass as possible in early spring. As a rough guide you should aim for pasture covers of 4-5 cm (more than 1,400 kg DM/ha) to support lambing ewes. Common application rates range between 20 and 50 kg/N per hectare, depending on whether pasture needs a little boost of growth or a big one. “This could be achieved by using roughly 43-109 kg/ha of SustaiN.

“The most likely feed alternative to pasture is hay or baleage,” says Josh. “While the cost of this feed option fluctuates, it can easily hit \$0.30 to \$0.40 per kg DM, which is already at the upper end of the cost for nitrogen-boosted pasture.”

The quality of hay or baleage may also be uncertain. At best, hay and baleage deliver around 8-10 units of ME/kg DM, whereas fresh pasture sits at 10-12 units of ME/kg DM or more.

When using nitrogen in set stocked paddocks it is hard to judge the pasture response. “Grass is grazed as fast as it grows, so you often do not see a big flush.



The impact of nitrogen application shows in growth rates and the weights of ewes and lambs when sold. Animals are heavier and gain weight earlier.”

### Protect your investment

Following best practice application methods (ensuring soil temperatures are above 9 °C at 9 am, avoiding application to waterlogged soils, applying the right product at the right rate, etc.) will also help you use nitrogen efficiently and economically.

Eight to ten millimetres of rain within eight hours of application is critical to reduce the risk of nitrogen loss from volatilisation, “Using SustaiN reduces your volatilisation losses by up to 50 percent,

providing you with more flexibility around the timing of application. This is particularly useful if you use contract spreaders or aerial topdressers.”

If sulphur is a limiting factor, particularly for spring clover growth, consider a product combining SustaiN with sulphur. PhaSedN Quick Start or SustaiN Ammo are possible options depending on sulphur needs and application conditions.

**For more advice on spring nitrogen, talk to your Ballance Nutrient Specialist or local PGG Wrightson Technical Field Representative.**

**ARTICLE SUPPLIED BY BALLANCE AGRI-NUTRIENTS**

**Table 1: Pasture growth and applied nitrogen costs**

| Pasture growth rate | Pasture growth (kg DM/ha/day) | Response (kg DM/ kg N) | Time for full response | Cost (\$/kg DM)* |
|---------------------|-------------------------------|------------------------|------------------------|------------------|
| Slow                | 10                            | 5:1                    | 10-14 weeks            | \$0.30           |
| Moderate            | 20-40                         | 10:1                   | 6-8 weeks              | \$0.15           |
| Fast                | 50-70                         | 15:1                   | 5-6 weeks              | \$0.10           |
| Rapid               | 80                            | 20:1                   | 3-4 weeks              | \$0.07           |

\*Assumes cost of N is \$1.20/kg N and cost of application is \$0.30/kg N.



PGG Wrightson Seeds Product Specialist, Emma Bell and Technical Manager, Fiona Foley discussing Pallaton Raphno.

## Continued development of forage brassicas

Spring 2016 marked the first release of Pallaton Raphno<sup>®</sup>, a raphanobrassica which is the first new forage species New Zealand farming has seen since Pasja (leafy turnip) back in the early 1980s.

Developed by PGG Wrightson Seeds under the Forage Innovations joint venture with Plant & Food Research, Pallaton Raphno is a hybrid between *Brassica oleracea* (kale) and *Raphanus sativus* (radish).

The goal of the breeding programme was to create a forage that would yield in challenging environments. PGG Wrightson Seeds brassica breeder Andy Dumbleton has been able to use the cross of the radish and kale to combine a number of desirable traits that would perform for New Zealand farmers within increasingly challenging growing conditions.

**Pallaton Raphno is a forage which combines six stacked traits, including:**

- > **High yield from cumulative grazings**  
New Zealand trials<sup>1</sup> have shown an average increase in yield of 14 percent compared to Goliath rape.
- > **Persistence under multiple grazings**  
Farmers are able to achieve four to five grazings over a 12 month period under good grazing management.
- > **Grazing flexibility**  
Pallaton Raphno can be grazed like a

leafy turnip (50 days after sowing) or forage rape (80-120 days after sowing).

- > **Water use efficiency**  
Pallaton Raphno is 38 percent more water use efficient compared to Goliath rape<sup>2</sup>.
- > **Aphid tolerance**  
A 32 percent increase in aphid tolerance relative to forage rape<sup>3</sup>.
- > **Clubroot tolerance**  
Pallaton Raphno has the highest level of tolerance to clubroot in PGG Wrightson Seeds' current brassica portfolio.

This past season, Pallaton Raphno has been grown across the country from Northland to Southland in a range of different environments. The positioning of the product is initially in dry stock systems, commonly with lamb finishing over the summer and autumn, and cattle grazing over the winter.

A second limited release of Pallaton Raphno this spring will be offered to an accredited group of PGG Wrightson Technical Field Representatives for placement on farms throughout New Zealand.

### New additions to the Cleancrop™ Brassica System range

This spring, two exciting additions to the Cleancrop Brassica System range will be released to the market. Cleancrop Hawkestone swede is a high yielding yellow-fleshed, medium maturity swede with similar dry rot and clubroot tolerance to Aparima Gold. The cultivar has shown good leaf disease tolerance and is performing well in agronomic trials.

Cleancrop Firefly kale is finally here, but will be only available in limited quantities for spring 2017. It is a high yielding intermediate kale with a high leaf-to-stem ratio, bred for a softer stem. Cleancrop Firefly can be used as a second crop option, but only in the absence of disease.

**Contact your local PGG Wrightson representative to discuss your forage brassica options.**

**ARTICLE SUPPLIED BY  
PGG WRIGHTSON SEEDS**

<sup>1</sup> Stage two research and development trials.  
<sup>2</sup> Plant & Food research trials, Ashley Dene.  
<sup>3</sup> Stage two Agronomy trials, North and South Island.

# Hit weeds hard and fast

*When spraying out existing pastures or old crop paddocks, achieving an effective kill across a wide weed range can be challenging.*

Hammer Force® is a new and improved formulation of the popular Hammer® herbicide, available in 1 L and 4 L pack sizes. No herbicide or glyphosate formulation offers the perfect solution and as such, many growers turn to a spike partner to broaden the range of control and the speed of kill. Hammer Force offers flexibility for growers with a nil grazing and a nil plant back period.

Hammer Force is an improved formulation of the active ingredient carfentrazone-ethyl and offers the following benefits to farmers:

- > Faster weed brownout.
- > Better broadleaf weed control.
- > Less down time.
- > Nil grazing and drilling withholding periods.
- > Low odour formulation.
- > Short rain fast period of one hour.
- > Low environmental and toxicology profile.

Matt Strahan from Etec Crop Solutions says "Whether leading into cropping or pasture renovation programmes Hammer Force provides real muscle and flexibility

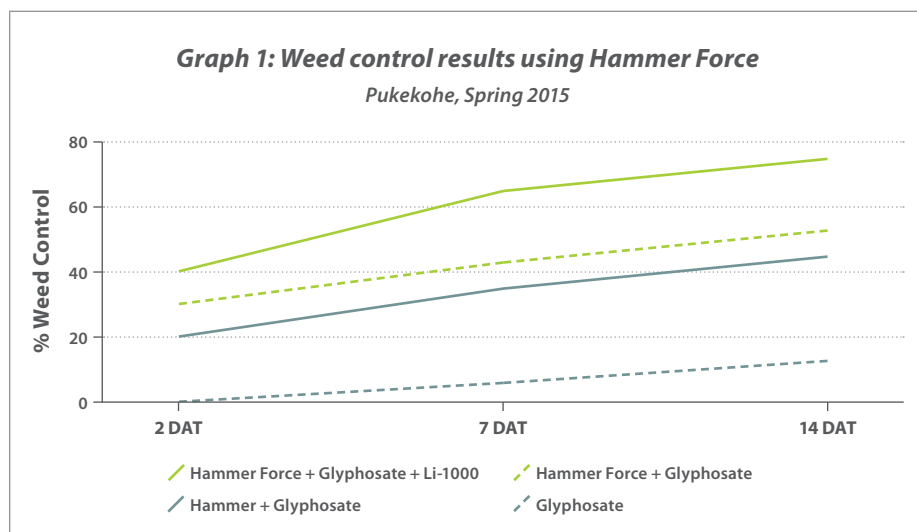
to your herbicide programme". In trials conducted in the North Island (Graph 1), Hammer Force has demonstrated faster, more effective control of many broadleaf weeds over other tank-mix herbicides. It is highly effective on a range of 'hard to kill' species, including cleavers, cornbind, speedwell and willow weed.

When using the product, ensure that target weeds are fresh and actively growing, and that the correct rate is used (somewhere between 50 ml and 100 ml per hectare) based on the weed

size and spectrum present. By tank mixing Li-1000® with Hammer Force and glyphosate, penetration and performance of these herbicides can be increased (Graph 1).

**For more information, or for advice developing a suitable herbicide programme for your farm, talk to your local PGG Wrightson Technical Field Representative.**

**ARTICLE SUPPLIED BY ETEC CROP SOLUTIONS**



**Purchase Hammer Force® between 1/8/2017 and 30/4/2018 and be automatically entered in the draw to win a Hammer S Victory motorcycle.**

Conditions apply, visit [www.pggwrightson.co.nz/hammer-force](http://www.pggwrightson.co.nz/hammer-force) for more information.

# Good planning key to success with fodder beet

*Feeding fodder beet to R2 heifers and R2 steers on their sheep and beef property, Philip and Alexander Holt of Napier are into their second season using this crop and are rapt with the results.*

The versatility of fodder beet makes it an attractive forage option in many farming systems throughout New Zealand. Predominantly a high yielding feed for wintering dairy cows, farmers such as Philip and Alexander are now successfully using beet to put liveweight gain onto beef cattle. Fodder beet can also play a role in holding body condition of dairy cows on the shoulders of the milking season, and has been used effectively within the beef, sheep, goat and deer industries.

Philip and Alexander feed R2 home breed Angus steers on an 8 ha beet crop and have had good results. Focusing on getting the inputs right for their crop, Philip strongly advocates for making a plan and getting the timings right to get a quality crop. "Don't cut corners, follow your plan well and focus on using exactly what is required to achieve your targets," explains Philip.

It all starts with a well prepared and consolidated seedbed. If you can get this right and obtain an even plant establishment, weed control becomes much easier when the beet is at a similar

growth stage. Precision sowing their preferred Agricom variety fodder beet at 50 cm row spacing in October 2016, Philip and Alexander have found the crop to have good tolerance in the hot and windy January and February conditions. Yielding approximately 27 T in mid to late May this year, these conditions have been a positive for the pair.

The R2s are all killed off fodder beet and some lines of Angus steers achieved growth rates of above 1.8 kg/head/day last season. Philip and Alexander have a well-planned use of lucerne balage, and as part of their robust planning process, take the time to calculate stock intake and what would be required to achieve their high growth rate targets.

"We target the schedule at peak time for better returns" explains Philip. "We feed supplements out in the paddocks versus in the racks as we find this is more efficient and gets an equal diet to more animals."

During the transition phase Philip and Alexander fed the baleage out in strips on the runoff 'night' paddock. Now that the cattle are transitioned they are on

the fodder beet paddock all the time, and the baleage is fed out in strips on the grazed fodder beet standing area just before the new daily break of fodder beet is opened. "We keep an eye on feeding habits and condition, and if and when required we will also install basic roughage in holders in the paddock to allow extra *ad lib* fibre," explains Philip, "we believe that we get better utilisation of baleage using this method."

Learnings from last season's 32 T crop has meant that this season, the brothers take the stock off the paddock in adverse weather to prevent pugging and reduce potential damage to the soil structure.

Good planning for fodder beet includes ensuring time to plan paddock crop rotations. Considering these help support the long term use and success of fodder beet crops by minimising the risk of soil born disease build up, paddock contamination from old bulb chips or bolting fodder beet plants that could set viable seed.

In many cases, a rotation of four or more years is advised and if the rotation length is shorter between crops, care must be taken to ensure the roguing of bolting beet plants. For the last few years the true effect of bolters has been overlooked by many in the sector and their relevancy underestimated. If bolting plants are not removed or destroyed before they complete their life cycle, they can produce up to 6,000 seeds per plant, which can fall to the ground and potentially remain viable over several years. There is the risk that bad cases prevent future fodder beet plantings in those effected paddocks as re-seeded beet establishes at very high populations, and herbicides used in your sown beet crop does not control re-seeded beet, resulting in severe suppression of yield.

**For more information on integrating fodder beet in your system, talk to your local PGG Wrightson representative.**



Alexander Holt (far left), Philip Holt and PGG Wrightson Technical Field Representative Mark Walwyn.

ARTICLE SUPPLIED BY AGRICOM

# Don't underestimate the value of early weed control in maize

*With spring just around the corner, our thoughts now turn to cropping. Attention to detail in your crop's establishment phase is crucial to its success.*

Maize in its early establishment phase is relatively slow growing and because it is planted in wide rows, takes a long time to canopy cover. This is when it can shade out and compete with weeds. During this establishment period, the crop is susceptible to weed infestation which robs yield. It is essential that early weed control is a focus and even just a few weeds can have a drastic impact on yield reduction. Just one Fathen (*chenopodium album*) plant per square metre has been shown to reduce yield by 12 percent. That is 2.4 T DM/Ha on a 20 T crop.

The first piece of the jigsaw is the spray-out. Use an appropriate rate of a good quality glyphosate and add in a broadleaf spike if required. This ideally needs to happen well before your drilling date (four to six weeks) to allow the vegetation from the previous crop to die down. In some cases a second glyphosate pre-drilling will be needed to remove any re-green up. If possible, cultivate to create a fairly fine and firm seedbed free from weeds and trash. This helps the maize seed grow as there is improved



seed to soil contact and it also helps with the efficiency of residual herbicides.

Always spray post plant and pre-emergence of the crop to ensure the crop gets the best start, free from weed competition. Most pre-emergence herbicides start to run out of steam after a few weeks and are usually not effective on many grass species. It is important to walk the crop and identify the number, size and species of weeds present in order to select the correct herbicide mix. Some herbicides can have a residual life of up to six weeks, preventing further

weeds from emerging. Weeds need to be sprayed before the crop reaches the six leaf stage (V6). Make sure there is not too much canopy shading the weeds and by spraying before the crop has six leaves it prevents damage to the growing point of the maize crop from the spray.

FAR New Zealand have done work looking at the impact of weeds in maize crops. Their research has shown a range of 15-80 percent reduction in maize DM yield. More commonly, 20-30 percent yield deficits are observed. If we compare this to the cost of post emergence herbicides, it pays to control weeds throughout the lifetime of your crop (see Table 1).

For more information on a suitable weed control programme for your maize crop, contact your local PGG Wrightson Technical Field Representative.

**Table 1: Example of yield Dry Matter (DM) comparison on the cost of weeds**

|                      | Clean crop – pre and post emergence herbicide | Weedy crop (yield -12%) – pre emergence herbicide only | Weedy crop (yield -20%) – pre emergence herbicide only |
|----------------------|---|--|--|
| Yield DM/ha          | 21,000 kg / ha                                | 18,480 kg / ha   | 16,800 kg / ha   |
| Value                | 23 cents / kg                                 | 23 cents / kg  | 23 cents / kg  |
|                      | \$4,830                                       | \$4,250  | \$3,864  |
| <b>Cost of weeds</b> |   | <b>\$580</b>   | <b>\$966</b>   |



Gary Bosley NDA (Farm Management)  
Technical Specialist – North Island Agronomy  
PGG Wrightson

# What is in a drum of Roundup Ultra<sup>®</sup> MAX?

*Farmers face many challenges when working on the land, and trying to produce high quality feeds to create greater returns for the capital investment in land is important. We are pushing boundaries when it comes to preparation times, we are looking for faster turnaround times, and challenging hard the quality of our inputs.*

Weed control is one such area where it pays to make informed decisions, and particularly when choosing a glyphosate product, it is important to know that not all formulations are the same. Under favourable conditions, a generic product likely works. But when the weather turns and the rain hits or when there is a risk of resistance, the quality of the surfactant within the glyphosate formulation is the key factor. Particularly when comparing lower and higher-load products it's important to consider the quality of surfactant in the drum.

The unique surfactant system in Roundup Ultra MAX allows the glyphosate to penetrate even tough weeds, and translocate rapidly throughout the plant for maximum performance. The surfactant in Roundup Ultra MAX is also responsible for many other inherent benefits to the formulation, such as;

## Quick turnaround to graze, cultivate, or drill

Roundup Ultra MAX users have the flexibility of time between renovation and stock rotation or prior to planting crops, with a one day turnaround for annual weeds and just three days for perennial weeds.

## 30-minute rainfastness

Roundup Ultra MAX, when used in tank mixtures with an approved penetrant, should deliver commercially acceptable weed control even if moderate rain occurs just 30 daylight minutes after spraying. For most 360 g/L formulations, this window is at least six hours.

## Reduced water rates

New Zealand trials<sup>1</sup> conducted in both North and South Islands sites have shown there is actually a benefit to using a lower water volume when spraying Roundup Ultra MAX. In the study, weed survival rates showed no significant difference when spraying out in a 100 L/ha water volume compared to 200 L/ha. Lowering water rates provides a significant time and cost saving.

## Effective under sub-optimal conditions

To simulate the toughest of conditions a trial was conducted on annual ryegrass biotypes that were exhibiting differing levels of glyphosate resistance. It compared Roundup Ultra MAX and a generic formulation. At equivalent rates Roundup Ultra MAX resulted in significantly greater biomass reduction and control of the resistant biotypes. These results suggest that even in situations where glyphosate is inhibited, Roundup Ultra MAX is able to maintain a high standard of performance driven by its powerful surfactant<sup>2</sup>.

**For advice on whether Roundup Ultra MAX is suitable for your farm-system, contact your local PGG Wrightson Technical Field Representative.**

## ARTICLE SUPPLIED BY AGRITRADE

<sup>1</sup> Trials conducted by Peracto New Zealand Ltd in summer 2015, involving species of annual and perennial ryegrass in multiple sites across the North and South Island.

<sup>2</sup> Target 100% Weed Control – Glyphosate Resistant Annual Ryegrass Trial, Tech Note, Sinochem Australia.

## Roundup Ultra<sup>®</sup> MAX

Roundup Ultra MAX is the latest in Roundup<sup>®</sup> technology, containing 570 g/L glyphosate present as the potassium salt, and a proprietary surfactant system.



Visit your local PGG Wrightson store for stock food, animal health supplies, farm merchandise, apparel and so much more. Our expert team of Technical Field Representatives is also here to help you choose the right products for the best results in the months ahead. Talk to your local team today.

North Island Stores and Technical Field Representatives

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