Be on target with calf rearing
Managing triple drench resistance
Handling agricultural chemicals safely
Welcome

Thank you to all our customers who visited the PGG Wrightson site at this year’s New Zealand National Agricultural Fieldays® at Mystery Creek. As always, it is great to see so many farmers from across the country enjoying what is on offer.

With calving underway, this month’s issue of Rural Diary focusses on key topics including nutrition at calving, teat conditioning and an article on the developmental support of ProCalf®. We visit Stacey Walker to catch up on how she is going a year on from the Greymouth Calf Rearing Competition in 2016. The technical expertise of PGG Wrightson Technical Field Representative, Hannah Nicholls and Dairy Nutritionist, Andrea Murphy, were a focal point for Stacey and allowed her calves to achieve top growth rates.

Our two animal experts offer tips on drenching and setting nutrient requirements. Our Vet, Andrew Dowling, discusses drench efficacy testing and finding the right solution for your situation. Animal Nutritionist, Nadine Huitema, gives a report on the recent Sheep Milk New Zealand Conference.

If there are any particular on-farm technical topics you would like us to address in Rural Diary, please send them to enquiries@pggwrightson.co.nz.

Enjoy the read.

Richard Weightman
National Sales Manager, Rural Supplies – PGG Wrightson

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There are strong opinions for all options, and in the end you need to make the decision that is best for your farm. Factors including worm resilience or resistant genetics of your flock, grass covers, Body Condition Score (BCS), twin or single pregnancy pasture larval challenge and the drench resistant status of your farm, all play a part in the decision making process.

A drench that is not fully effective leaves male and female worms carrying the genetic code, which enables them to survive the drench. It is a bit like giving worms a ‘get out of jail free’ card, or the code to the lock. This genetic trait is then passed on to their offspring with the surviving resistant worms having a breeding advantage over the susceptible ones. So in essence, you want to make sure that the product you chose is highly effective at killing the worms in your sheep.

Determining whether a drench active is effective, is done through a drench efficacy test. The test is on all the available actives or combinations; however it does not ensure that all formulations of that active will be effective. If this information is not available, a ‘drench check’ faecal egg count and larval culture 10-14 days after a drench is useful. When using a pre-lamb drench with long persistent activity, take a faecal egg count during the pay-out period. Docking or tailing is a convenient opportunity to do this. The presence of worm eggs indicates that not all worms were killed, and if they are all of the same species then this is highly suggestive of the presence of drench resistance. It may also be due to ineffective drench techniques, for example a faulty or incorrectly calibrated gun.

BCS sheep and collect faecal samples mid-pregnancy or at scanning. Have any eggs present hatched to identify the worm species and burden present in the mob, this provides information that is valuable to make an informed decision. The presence of a significant population of damaging worms may warrant drenching before the traditional pre-lamb period, with their removal helping the ewe to regain or maintain BCS and also reduce pasture larval contamination. If ewe BCS is less than three, then an effective drench can be even more valuable. It may be worth considering the use of a long acting drench at this time to remove the current worm burden and protect against the effects on ingesting more infective larva from pasture. A ewe pregnant with twins or triplets does not need a gut full of worms to contend with on top of the nutritional demand of growing foetuses.

Optigrow mineral analysis on non-pregnant ewes at pregnancy scanning can also give useful information for any supplementation requirements.

Each situation is slightly different. Talk to your local PGG Wrightson representative about the options that are best suited to you. This may include a pre-lamb drench, the use of sheep nuts or strategic use of nitrogen.
Get the best out of your ewe flock

A key component to achieve your target ewe survival, lamb survival and lamb growth rates over lambing is feeding ewes to maintain a Body Condition Score (BCS) of three.

Lamb survival decreases five percent and lamb weaning weight decreases six percent for every half of BCS below BCS of three at lambing1. Ewes with twins or triplets lose BCS if they are forced to graze grass covers below 1,200 kg DM/ha (grass height of 3.5-4 cm) in the final three weeks of pregnancy, and are also ingesting more parasite larvae.

Another key component is a pre-lamb animal health plan to maximise ewe and lamb survival and performance. Vaccinating ewes two to four weeks prior to lambing with Lifeguard® 5 in 1 protects both ewes and lambs against economically important infectious clostridial diseases. Improving ewe survival by just 0.2 percent covers the cost of vaccination.

For ewes experiencing significant parasite challenge, drenching pre-lamb can optimise lamb growth rates and ewe weights to weaning. Worm infestations in both ewes and lambs impact on lamb vigour and growth through compromised liveweight gains and reduced lactation. Protect your most vulnerable ewes and get their lambs off to a better start by drenching them with Cydectin® Long Acting Injection for Sheep, a long acting highly effective drench four to eight weeks prior to lambing.

Trial work has shown that poor condition (BCS of 2) twin bearing ewes treated with Cydectin Long Acting Injection for Sheep were 3.2 kg heavier at weaning and produced lambs which were 2.6 kg heavier than those from untreated ewes. This is equivalent to production gains from drench capsules2. Cydectin Long Acting Injection for Sheep offers producers a fully effective drench with flexibility and extended worm protection against the main worm species.

Delivering a pre-lamb drench not only protects ewes, but in combination with a strategic grazing program, allows you to manage worm burdens and pasture contamination throughout and beyond lambing.

Where ewes are less compromised, for example good condition twin bearing ewes on low pasture covers or poor condition single bearing ewes, a long acting drench may not be justified or cost effective. Ewegian® conveniently does two jobs in one injection; it contains both a six in one vaccination and offers medium term worm protection of up to 35 days. Field trials have shown that ewes treated with Ewegian were 2.2 kg heavier at weaning and weaned lambs were 2 kg heavier than lambs from untreated ewes3.

A strategic annual pre-lamb plan, along with addressing feeding, condition score and animal health optimises the health of your ewe flock and sets your lambs up for success from the start.

For more information on developing a targeted pre-lamb programme, contact your local PGG Wrightson Technical Field Representative.

ARTICLE SUPPLIED BY ZOETIS

1 Beef and lamb NZ. (2013). Ewe body condition score handbook.
3 Zoetis data on file.
Colostrum, the first milk from a cow after calving, is packed full of antibodies that provide protection for the new calf against diseases. After calving, the cow’s udder begins to produce milk and this dilutes the quantity of antibodies over the next 24 hours. Ensuring new calves receive adequate antibodies is reliant on the volume of colostrum drunk, the antibody quantity of the colostrum and the age of the calf. Gold colostrum is the first milk from the cow with the subsequent seven milkings being transition milk, a very good food for calves more than one day old. The aim is to ensure that all calves receive at least 10 percent of their body weight in litres (so for a 30 kg calf this is 3 L) of gold colostrum in the first 12 hours of life and repeated in the following 12 hours. Colostrum intake in calves left in the paddock with the cows is not reliable, resulting in about half the calves not receiving sufficient antibodies to provide adequate protection. Feeding all calves the two meals of gold colostrum rectifies this issue and requires twice a day pick up of calves, a change of practice for many that can be rewarding.

Gold colostrum is collected in the dairy shed into clean containers and then taken to the calf shed to be fed to the new calves twice in the first day of life. The antibodies in colostrum degrade very quickly with most gone in 24 hours and bacteria also start to grow. This can be extended to three to four days when refrigerated. Ensure that all your containers are clean and not damaged as bacteria are very difficult to remove from rough areas of plastic containers. It may be best to replace them. RX Plastics supply a range of strong, robust colostrum tanks. Refer to Stock ‘n’ Save July for offers on their range.

Adding the new gold colostrum to the old colostrum remaining from yesterday leads to poorer quality colostrum being fed to these new calves. Colostrum quality can be checked using a Brix refractometer. Feeding new calves with adequate volumes of high quality gold colostrum gives your calves the best start to life. For more information, contact your local PGG Wrightson representative.

Managing triple drench resistance

I am hearing of and advising on more farms with triple combination drench resistance.

The ability of worms to survive drenching is most likely created by a genetic mutation and the continued use of an ineffective drench that favours their survival. The result is usually an insidious decrease in weight gains and possibly autumn ill-thrift.

Using combinations while the individual actives are still highly effective slows the development of drench resistance, but drench resistance is not simply reversed by changing drenches. Around 95 percent of the parasite population is in the faecal pile and on pasture, so removing five percent of the population in the drenched animal does not suddenly correct the issue. Similarly if triple resistance is present, the use of new actives, such as derquantel in Zolvix Plus, in the drenching programme does not solve the issue, but is the only fully effective drench option left. The best use of combination drenches is not as a last resort. They need to be used strategically before resistance is present and for quarantine drenching.

In essence, changing the drench without changing how you use that drench is likely to end with disappointment. The first step is to check that your current drench is working using faecal egg counts 7-14 days after drenching and annually reviewing your drenching practices including planned refugia management, rather than reaching for a different drum of drench.

For advice on managing triple drench resistance, contact your local PGG Wrightson Technical Field Representative.

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For advice on managing triple drench resistance, contact your local PGG Wrightson Technical Field Representative.
Environmental factors are a main influence on udder health. Water and mud strip the protective natural oils from the skin. Cold, wet, muddy conditions experienced during early lactation induce hardening and thickening of teat skin and cause the drying and chapping of the teat itself. The cow is then cupped for milking, and during this process the teat stretches up to 50 percent under vacuum, which may lead to cracks and sores.

We should not discount the effect that poor performing milking equipment can have on a herd’s udder health. Poor liner selection, high vacuum or over-milking are just some of the challenges that teats may face.

**Signs of an unhealthy udder:**

**Dry, cracked and chapped teats**

Cracks and teat sores are painful. Signs of uncomfortable cows at milking include increased kicking and stomping. Even worse are the associated risks of poor milk let-down and mastitis.

**Redness and ringing**

These signs are easy to spot directly after removal of the cluster. Redness of the teat indicates swelling. Ringing at the base of the teat may indicate a mismatch in liners to teat size. Other factors which may cause redness and ringing include over-milking, heavy clusters, high vacuum and/or faulty pulsation.

**Hyperkeratosis**

Hyperkeratosis is a thickening of the skin that lines the teat canal and surrounds the external teat opening. The visual signs to look for are rough rings at opening of the teat. Hyperkeratosis is caused by over-milking compounded by environmental challenges such as cold, wet and windy weather.

**Tailored teat care programmes**

A comprehensive teat care programme is the key to protecting your cows’ welfare and milk quality. Working with GEA’s FIL Area Managers and your local PGG Wrightson team means you get the best advice on achieving healthy udders.

Looking at the conditions presented on individual farms, we will recommend the best advice and solutions for the challenge presented.

During early lactation or when teat condition is poor, it is important to have additional emollient such as GEA’s FIL Teat Conditioner. This helps improve teat condition during the risk period. GEA’s FIL teat care products contain innovative ingredients, like manuka honey, and contain some of the highest levels of emollient for better teat condition.

Staff training on the importance of healthy udders, the challenges teats face, how to teat score, dilution rates and how to mix and spray correctly should be part of any successful teat care programme. Empowering staff and helping them understand the effects, the signs and how to prevent mastitis will ultimately lead to healthy udders and high quality milk.

To organise a teat health training session on your farm, get in touch with your local PGG Wrightson Technical Field Representative or store.

**ARTICLE SUPPLIED BY GEA FIL**
Calf rearer Stacey Walker had three champion calves in last year’s PGG Wrightson Greymouth Calf Rearing Competition.

Rearing 220 heifers, her strategy was good nutrition and regular weighing to ensure her calves would achieve their liveweight targets. Overall winner, Stacey, weighed her calves every one to two weeks; those not making the desired weight gains were separated and fed more.

The competition aimed to create awareness around growing calves to their genetic potential and celebrate the hard work of calf rearers up and down the West Coast. Organised by PGG Wrightson Technical Field Representative Hannah Nicholls, her chief objective was highlighting the importance of rearing heifers to achieve their liveweight targets for better future performance.

When heifers are not grown to their genetic potential, they may be underweight at first calving. This is associated with reduced fertility and milk production potential. Some rising three year olds (R3) are shipped off as empties, when they should in fact, be at their best production performance says Hannah.

For this competition, Hannah, along with James Penny from PGG Wrightson Livestock Grazing and Mark Thomson from Tru-Test, weighed calves up and down the coast in December. Those weights, in combination with estimated birth weights, were used to predict mature live weight. The winner was the calf that reached the highest percentage of its target mature live weight at the time of weighing. Measuring each calf as a percentage of its individual predicted mature liveweight allowed for an even competition between breeds and varying farm practices.

At the winners announcement presentation, PGG Wrightson Nutritionist, Andrea Murphy, highlighted that the majority of heifers on New Zealand dairy farms fail to reach recommended target liveweights1 and the risk this poses to herd longevity and profitability. She facilitated a discussion with participants about practical strategies as to how this trend can be turned around on-farm.

Sponsor nutrition company, SealesWinslow, gave insight into how feeding with a free access molasses mineral block could supplement the energy and mineral requirements of heifers at grazing.

To demonstrate the importance of weighing calves, competitors were invited to guess the weight of three calves. “The point here was to demonstrate to our calf rearers that judging heifers by ‘eye-o-meter’ is not accurate” explains Hannah. “The activity highlighted how the body weight of calves is often overestimated. Without regular weighing, calf and heifer rearers are ‘shooting blind’ and often don’t realise the issue until performance is compromised.”

Stacey concludes, “We could not have achieved the results we did without the support from all our staff, my husband Brendon, Mike Thompson, PGG Wrightson, Tru-Test and SealesWinslow. A massive thank you to all involved.”

To find out more about liveweight targets and calf rearing, get in touch with your PGG Wrightson Technical Field Representative.

1 McNaughton and Lopdell, 2012.

The results of the ‘guess the calves’ weights’ activity. The variation in guesses highlights the variability in body weight predicted with the ‘eye-o-meter’. Calves estimated to be heavier than they actually are may miss out on preferential feeding to achieve target body weight and subsequently herd longevity may be compromised.
Raise superior calves this season

A new season of calving is just around the corner for dairy farmers.

Donaghys ProCalf® is a premium calf probiotic extract with rennet which includes microbes licensed from AgResearch to promote growth, development and health in calves raised on milk or calf milk replacer. ProCalf is designed to support the early development of a calf’s rumen and establish beneficial microbe populations for digestion of hard feed, pasture and calf milk. An initial 5 ml dose of ProCalf followed by a daily 2 ml dose encourages an increased uptake of feed in your calves.

AgResearch trialled ProCalf under controlled calf rearing conditions at AgResearch Grasslands in Palmerston North. Thirty calves were treated with ProCalf and thirty calves treated as controls. ProCalf calves grew faster during the 42 days leading up to weaning with an average 1.13 kg weight gain per calf (a 5.0 percent increase in growth rate compared to the control calves in the trial). The trial also showed that ProCalf increased the calves’ appetite by 6.3 percent.

On a South Canterbury farm, 30 calves were selected for an on-farm controlled trial1. 15 calves received a daily dose of ProCalf and 15 calves were monitored as controls with no drench. Each calf was weighed weekly until all calves had been weaned. After weaning, the ProCalf treated calves were drenched 10 ml every three weeks with RumenZyme Cobalt Plus and were weighed monthly along with the (no drench) control group. The results showed an average daily gain of 696 g per day (29 kg after 42 days) for ProCalf treated calves versus an average daily gain of 571 g per day (24 kg after 42 days) for untreated calves. This equalled a 21.8 percent weight increase for calves treated with ProCalf. In the trial, ProCalf treated calves were able to be weaned one week earlier than untreated calves.

Farmers wanting to maximise the performance of their calves post-weaning can use Donaghys RumenZyme Cobalt Plus to continue faster growth and weight gain. This is a probiotic extract scientifically formulated for calves after being weaned from milk through to heifer pre-calving. It can be used in situations when rennet is not required and when whey based calf milk replacer is being fed. It activates beneficial rumen microbes aiding in the establishment and activity of beneficial micro flora, promoting continued rumen development, improving microbial function and enhancing digestion and feed conversion.

Trial results of RumenZyme Cobalt Plus (following the ProCalf trial mentioned earlier) showed calves continued to put more weight on (4.9 percent over control group). Treated calves were 9.2 kg heavier than the control group by the end of the trial.

Find Donaghys ProCalf in your local PGG Wrightson store to make sure your calves get the best start this season.

ARTICLE SUPPLIED BY DONAGHYS

Get your phosphorus intake just right

The old adage “you cannot manage what you do not measure” is very relevant when it comes to phosphorus supplementation for cattle.

Phosphorus levels in plants and crops vary significantly, depending on the plant/crop type and how it has been managed. Phosphorus requirements for different classes of stock at different growth or production stages also varies. Inevitably, supply of phosphorus from the forage diet may not always satisfy the animal’s requirement for optimal productivity.

There are a few ‘known’ feeding scenarios where phosphorus levels in the base diet are not likely to meet the requirement for that class of stock. Below are two of them.

> Dairy scenario

Dry, pregnant dairy cow wintered on a fodder beet crop (requiring approximately 0.25 percent/kg DM phosphorus but receiving approximately 0.18 percent/kg DM phosphorus). The level of deficiency depends on the proportion of diet components.

> Beef scenario

R1 growing beef steer offered a maize silage dominant diet (requiring 0.27 percent/kg DM phosphorus but receiving approximately 0.2 percent/kg DM phosphorus) where the phosphorus levels of the pasture may vary. Supplementing with fodder beet may further exacerbate the phosphorus deficit.

An ‘Extended Feed Test’ is highly recommended to quantify how much phosphorus is provided in the base diet, to then calculate what supplementary phosphorus is required.

Measure to manage

Until now the New Zealand ruminant feed phosphorus industry has been limited to ‘Dicalcium Phosphate’ (DCP). Unfortunately DCP contains more calcium (24-30 percent) than phosphorus (16-18 percent) compounded by a poor bioavailability of the phosphorus. Given the powdered form of DCP, farmers have tended to ‘dust’ crops with it or mix it into a slurry to apply to silage. These applications may not suit all farming operations, and dose rates are often estimated. See Table 1 for dose rates.

Through PGG Wrightson, BEC Feed Solutions now offer Kynofos 21, a highly bioavailable feed phosphate in granule form with a slightly acidic taste that cattle find palatable. Kynofos 21 can be offered as a ‘free access’ phosphorus supplement. It provides a rich source of phosphorus (21 percent) with far less calcium (16 percent) compared with DCP. The high bioavailability of phosphorus (97 percent bioavailable) in Kynofos 21 means that it can be used to bridge a phosphorus deficit very effectively.

Contact your local PGG Wrightson Technical Field Representative to organise an ‘Extended Feed Test’ and a ‘Phosphorus Quick Check’ to assess how Kynofos 21 can help balance the phosphorus for your stock.

ARTICLE SUPPLIED BY BEC FEED SOLUTIONS

Table 1: Phosphorus provision for various dose rates

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<th>Kynofos 21 dose rate</th>
<th>Elemental phosphorus</th>
<th>Bioavailable phosphorus (based on solubility)*</th>
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<tr>
<td>30 g/cow/day</td>
<td>6 g</td>
<td>5 g</td>
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<tr>
<td>50 g/cow/day</td>
<td>10.5 g</td>
<td>8 g</td>
</tr>
<tr>
<td>60 g/cow/day</td>
<td>12.5 g</td>
<td>9.5 g</td>
</tr>
<tr>
<td>80 g/cow/day</td>
<td>17 g</td>
<td>12.5 g</td>
</tr>
<tr>
<td>100 g/cow/day</td>
<td>21 g</td>
<td>16 g</td>
</tr>
</tbody>
</table>

*Phosphorus supplied by Kynofos 21 is 75 percent soluble in water, indicating excellent phosphorus bioavailability for ruminants. Numbers are rounded.

Diagram 1: Kynofos 21 directions for use

<table>
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<tr>
<th>DRINKING WATER</th>
<th>MINERAL DISPENSERS</th>
<th>FEED BLEND/SILAGE</th>
<th>FREE ACCESS</th>
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Poor feeding and management during the transition period at calving can result in a host of problems such as dystocia (difficult calving), retained placenta, milk fever, grass staggers and ketosis. These metabolic diseases can be significantly reduced if we can manage a transition system to optimise the cows’ own ability to metabolise nutrients correctly.

Maximising drymatter intakes post-calving must be a key outcome from a transition system. Having a high intake post calving helps minimise negative energy balance, and supports production and fertility. It can take until 10 weeks post calving before cows reach peak intake. Meanwhile cows will peak in milk yield at approximately six to eight weeks post calving. This dynamic creates negative energy balance and weight loss.

Whilst feed quality and management are key components, animal health should also be considered a first limiting factor. For example when a cow experiences a case of milk fever, she is then far more likely to experience ketosis (chronic energy deficiency), displaced abomasum (twisted stomach), retained cleansings and even higher cell counts. The same can also be said for sub-clinical milk fever which by its nature, is difficult to see and treat but can have a similar effect.

Milk fever is expensive, in both money and time. Clinical milk fever is believed to reduce milk yields by 14 percent, on a $6/kg MS payout that is equivalent to $402 per case of lost milk sales alone. Taking into account other costs such as fertility and treatment, milk fever is thought to cost the New Zealand dairy farmer $8,000 per 100 cows (based on five percent clinical and 33 percent sub-clinical).1

Dietary Cation Anion Difference (DCAD) is a nutritional method of stimulating the cow’s own metabolism of calcium reserves. Low DCAD diets can increase calcium utilisation and reduce milk fever, both clinical and sub clinical. However, we often feed high DCAD diets made up of pasture and grass silage as opposed to low DCAD diets such as maize silage, wholecrop silage, hay and straw.

Nutritech International have developed a low DCAD product called NutriMin® Springer Cow Balancer, made up of a blend of anionic salts. This product reduces dietary DCAD more than a conventional approach of feeding magnesium chloride or sulphate. Lower DCAD diets can increase calcium mobilisation and help reduce milk fever issues.

Assuming the cow has calved successfully, she must now achieve an increase in milk yield without entering a state of ketosis. The most serious period of negative energy balance is generally experienced two to three weeks post calving and this is the period farmers should focus specific attention on ‘bridging the energy gap’ to ensure a healthy rise to peak production. JumpStart™ is a liquid source of high energy, calcium and magnesium designed to be supplied as a drench in the early part of lactation to help cows pass through the most dangerous period of negative energy balance.
So, what is the mature liveweight of our cattle? How large would our animals (dairy or beef) be if we grew them out fully? This is an interesting question. Are our young stock nutrition and growing conditions restricting the growth potential of the animal? We often cull animals (particularly beef) before they have reached maturity. Therefore due to different rearing and finishing practices, it can be difficult to determine a true mature liveweight.

Liveweight breeding values can give an indication of genetic potential, however there is no guarantee that the liveweight characteristics of sire and dam are inherited equally in the offspring. An option is to weigh a subset of cattle that are representative of the mature liveweight of your herd. As a guideline for cows (beef or dairy), choose animals that are at least six years old, and are at a Body Condition Score (BCS) of 4.5 (dairy 1-10 scale) or 6.0 (beef 1-10 scale). For bulls or steers the weight of the stud bull sire would be the best indication.

Why is it relevant?

> Animal size affects maintenance energy requirements

Energy requirements for maintenance are calculated as a proportion of the animal’s size. A beef cow for example requires approximately 0.62 megajoules of metabolisable energy per kilo of liveweight\(^1\), which means that more energy is required to ‘run’ a larger animal than a smaller animal. When calculating an annual feed budget for a herd, this difference in maintenance requirement can add up to a significant amount of feed.

> Animal maturity affects protein requirements

As body weight increases, the energy content of the gain increases and protein content of the gain decreases as more energy is deposited as fat\(^1\). Therefore as a general rule, higher protein feeds such as lush pasture, clovers or lucerne silage would be better suited for young stock that are further away from maturity, rather than a more mature animal that has a lower protein requirement.

> Mature liveweight affects timing of puberty

Mating start date should be relative to mature liveweight, not age. Liveweight relative to the mature body weight of the particular breed is a key determinant of the onset of puberty\(^2\). This is particularly important in a highly crossbred herd, where farmers need to consider that animals of different mature liveweights reach puberty and mating targets at different weights. For example, 60 percent of 550 kg mLWT is a 330 kg mating target whereas 60 percent of 450 kg mLWT is 270 kg mating target.

Mature liveweight has a number of implications for both dairy and beef cattle. For more information on weighing and nutrient requirements, please contact your local PGG Wrightson Technical Field Representative.

Nadine Huitema MSc, BMS (Hons), BSc
Member of NZARN
PGG Wrightson Technical Specialist – Animal Nutrition

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New Zealand dairy sheep production systems vary from small scale, artisan cheese producers to large commercial flocks with over 3,000 milking ewes. As the New Zealand sheep milk industry continues to grow, both in size and in value, opportunities to connect and learn are essential to move forward.

The Sheep Milk New Zealand Conference 2017 presented attendees with such an opportunity and hosted speakers from a variety of backgrounds including research, farming, commercial and food service.

Three presentations stood out.

1. Selenium enriched dairy products

Approximately 45 percent of New Zealanders are deficient in selenium\(^2\). We know that many ruminants are also deficient in selenium thanks to the low selenium content of our soils. Jenifer Ross (BEC Feed Solutions) posed the idea that if we increase the amount of selenium fed to milking ewes, could we help both the ewe and the selenium status of the human consumer? Current advice from the New Zealand Nutrition Foundation is for humans to consume one to two brazil nuts each day to meet our daily selenium requirement\(^3\). However, what if a selenium enriched sheep dairy product(s) could be available as a home-grown alternative?

2. Pecora Dairy, Robertson, NSW

Nothing beats hearing it straight from the perspective of a farmer. With 200 acres, red basalt soil and over 2,000 mm of rain, the story of Pecora Dairy is fascinating. Their cheese products are sold to chefs in Sydney who “know they are not going to have a cookie-cutter consistent cheese”, it changes through the season. Ingeniously, they invited 100 of Sydney’s ‘who’s-who’ chefs to a ‘paddock party’ to showcase their products, an event that proved a massive success. The trend towards food that is local, seasonal and has a strong customer connection continues to provide opportunities for sheep dairy producers.

3. The need for shelter

On a recent tour of small ruminant production systems in Italy, I learned that the European milking sheep breeds struggle when temperatures get below 30 degrees Celsius. This has significant consequence for New Zealand sheep milk producers who need these European genetics to improve performance, but have cold and exposed climates. Interestingly, both Maui Milk and Spring Sheep Milk Co (both situated on the Central Plateau) have realised the need for shelter for their ewes, whilst keeping the forage fed attributes of their production systems. This was an important reminder for all New Zealand farmers of how shelter from wind, rain and heat is essential for the health and performance of livestock.

For any technical information on sheep nutrition and animal performance, get in touch with your PGG Wrightson Technical Field Representative.

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Member of NZARN
PGG Wrightson Technical Specialist – Animal Nutrition

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More firepower to tackle your insect problem

Crop remains have many advantages to growers, including reduced soil and water erosion, increased soil moisture and improved soil tilth to name a few, however they also provide a favourable habitat for slugs and snails.

Slugs and snails avoid sunlight and tend to be more active at night. People often do not see these pests, but you find their distinct signs: plant damage (such as holes in leaves) or slime trails. Laying the bait is all about the catch, so timing and uniform spread is critical when spreading slug bait to protect your crops.

Slug and snail baits are widely available and can be harmful to people, pets and the environment if they are not used properly. The Vogal Baitmax spreader can be used to assist with spreading slug and snail bait in a safe and controlled manner. This broadcast spreader boasts some very functional and high quality features that make it one of the most versatile and friendly to use on market.

Weighing in at only 18 kg, the spreader can easily be mounted to either a horizontal or vertical platform with the fully stainless steel frame with pre-drilled holed for bolts. So if your Baitmax is mounted reasonably high, like on the back of a seed drill, the spread width can easily be adjusted by changing the angle of the spreading vanes and the angle of the disc. When mounted in the level position (as shown in the above photo), a uniform 18 m spread width can easily be achieved.

The Vogal Baitmax spreader is designed to apply slug bait with an application range from 2-20 kg/ha through a calibration leaver. Once this is set, the aperture is simply opened and closed using the hand held controller and the operator drives forward at the desired speed, on paddocks that are within the optimum spread width range of up to 18 m. The 12 volt power requirement can be sourced from a cigarette lighter or wired directly to the battery. With the hand held controller, the motor can then be turned on to drive the spreading disc.

Like all Vogal products, the Baitmax comes ready to go with wiring loom and a 24 month warranty. Contact your local PGG Wrightson representative for more information.

ARTICLE SUPPLIED BY RATA INDUSTRIES
Sulphur is taken up by plants to fuel growth. In early spring, plant demand for sulphur can easily outstrip supply if soil levels are low.

Clover is a comparatively poor competitor for sulphur. If sulphur supply inhibits clover growth, this can affect the proportion of clover in your sward and accordingly your pasture quality. It can also affect the degree to which clover can supply nitrogen to other pasture species.

Why is sulphur supply likely to be lacking in spring?

Sulphur exists in two forms in soil: slowly available organic sulphur and readily available sulphate sulphur (SO₄). Organic sulphur makes up around 95 percent of the sulphur pool. Soil microbes convert organic sulphur into sulphate, a process called mineralisation. Sulphate is soluble and can be taken up by plants from the soil solution.

Its solubility also makes it vulnerable to leaching. This is why applying large amounts of sulphate in autumn is not recommended, particularly on farms with free-draining soils and high autumn/winter rainfall. In such conditions, your pasture uses only a small proportion of the applied sulphate as temperatures drop and growth slows. Depending on drainage levels, the remainder may leach away. Because the microbes that convert organic sulphur to sulphate are also sluggish over winter and early spring, it is unlikely that mineralisation will fill the gap.

What are your fertiliser options?

Fertilisers contain sulphur as sulphate and/or elemental sulphur.

Sulphate is immediately plant-available. Elemental sulphur must be converted into sulphate by sulphur-oxidising bacteria before plants can take it up. The size of elemental sulphur particles influences the speed of oxidation: the finer the particle, the faster the process. Soil moisture and temperature also play a part: oxidation rates are generally low when soil temperature drops below 10 degrees Celsius.

The optimal sulphate sulphur soil test range is between 10 and 12 and because you can’t build capital levels of sulphate sulphur, it must be applied annually.

Fertilisers commonly recommended for spring application usually include nitrogen, for double-barrelled growth-boosting impact. Sulphate of Ammonia (SOA) contains 22 percent sulphur and 19.5 percent nitrogen. The sulphur is immediately available. Soil bacteria convert the ammonia to nitrate in a matter of days to weeks, depending on soil temperature, soil moisture and organic matter levels.

SustaiN Ammo combines nitrogen (as SustaiN) with SOA to provide immediately available sulphur along with nitrogen. Sustain Amm0 30N contains 13.7 percent sulphur and 30.0 percent nitrogen, SustaiN Amm0 36N contains 9.0 percent sulphur and 35.4 percent nitrogen.

PhaSedN Quick Start combines SustaiN, SOA and elemental sulphur, providing nitrogen, immediately available sulphur and slow-release sulphur to address both short and medium-to-long term sulphur needs. It contains 17.0 percent sulphur and 31.3 percent nitrogen. PhaSedN Quick Start is a good late-winter and early-spring option on soils prone to sulphur leaching.

The best product for your farm depends on your soil fertility, production goals, application timing and your constraints in terms of soil, environmental factors and budget. Sulphur needs, products and application rates should be considered in the context of your overall nutrient management, based on a solid soil testing programme and sound advice. Your Ballance Nutrient Specialist or your local PGG Wrightson Technical Field Representative can help. Do not hesitate to ring them.

ARticle supplied by Ballance Agri-Nutrients
Land production

Handling agricultural chemicals safely

Agricultural chemicals are an important part of current farming systems but need careful attention to ensure the safety of handlers and the environment.

Each year crops are sprayed to control weeds, insect pests and plant diseases among other things, and to achieve this requires a lot of technology, all working properly, to get the result you paid for.

Here are some key considerations to ensure smooth running and a good result.

The first thing I suggest to anyone is to read the label. Agricultural chemicals are purchased in clearly labelled containers which have information about correct use of the product. It is important that you read this information. The scenario you have purchased the product for will be covered on the label, which also gives you useful hints on how to get the result you are after. After all, you have paid for these products and it is in your best interest to get the best outcome.

The second consideration is to make sure containers of agricultural chemical stay correctly labelled. If a container is not labelled or product has been put in another container, this can lead to problems. Make sure products stay in the properly labelled containers they were purchased in. To ensure this happens:

1. Use up the products in your shed and do not let them get old. Your local representative can help you prioritise using old products so your shed does not fill up with old containers.

2. Make sure original labels stay on containers so you can identify its content.

3. If you are unsure of what is in a container, then it needs to be disposed of safely. Book the container in for collection by going to the AgRecovery website: www.agrecovery.co.nz/programmes/chemical-disposal/.

When spraying a crop with agricultural chemicals, the sprayer usually moves from one paddock to the next. For example, spraying new pasture for the weed shepherd’s purse and then forage brassicas for a different weed, nightshade. The herbicide which is in the sprayer for the first job will cause crop damage if any is left in the tank, pipes or boom when spraying the second paddock. To avoid this, ensure a good clean down of the spray equipment between jobs.

Where required, clean down the tank, pipe, boom and nozzles using the appropriate cleaning agent listed on the product label to ensure no agricultural chemical remains to contaminate the following crop.

You can help streamline the clean downs by spraying all similar paddocks as a block, for example, treat all new pasture paddocks, before moving to the brassica crops. Also, you can transition through jobs to help manage risk before requiring a full clean down at the change of crop type.

And finally, on-farm storage needs to be well organised. Firstly, store the products in a clean organised shed which will allow easy identification of products. Think about:

> Storing all products so their labels can be clearly seen to avoid confusion.

> Keeping herbicides away from fungicides and insecticides.

> Storing powder above liquids to avoid risk of dripping down.

> Storing large (20-60 L) containers on or near the floor for ease of handling.

There are many more aspects to safely handling agricultural chemicals on farm and getting a good result. If you want to know more, talk to your local PGG Wrightson representative and take a look at www.growsafe.co.nz.

Matthew Crampton MSc (Hons) BSc
Technical Specialist – South Island Agronomy
PGG Wrightson

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Limited supply available.

For more information contact one of the Ballance Horticulture or Arable specialists or your local PGG Wrightson Representative.
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.

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