



Rules and regulations
Teat sealing heifers “it is a no-brainer”
Copper testing: why liver is better
Housing for the future?

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Teat sealants: an early but relevant priority message

Background comments

Historically, Vetlife has despaired over the nasty calving mastitis that we have seen repeatedly in our clients’ replacement heifers. All the effort, genetics and cost that go into creating excellent heifers, to only have them calve down with nasty mastitis. Some of our clients were experiencing up to 30% of heifers affected, with one or more quarters.

We got so desperate to create some sort of control, that we even tried pre-calving antibiotic treatment, as you can imagine there were some serious complications with that (e.g. milk and bobby calf withholding periods), but we were desperate.

The solution

Along came Teatseal, a product that had been tried some ten plus years before, and was shelved because of a number of negative issues.

With a fresh look at how Teatseal could be used, we suddenly demonstrated value in controlling mastitis in heifers – huge value, essentially, 99% effective in managing calving down heifer mastitis. (I say 99% as claiming 100% is always dangerous.)

Since then we have refined administration systems and techniques to the point where it is a massive, smoothly operating pre-calving procedure across two thirds of our client base.

Our mobile trailer yards have new adaptations with every new model we build and the process has almost become clockwork.

The effect

The outcome is that once a client starts using teat sealants (about four to six weeks pre the planned start of heifer calving), the procedure becomes a non-negotiable i.e. a must happen prior to every spring, activity.

This procedure is one where the outcome is physically obvious and easily measured.

If you are not one of those clients currently using teat sealants in heifers, have a fresh look at the mastitis rates in your heifers (calving mastitis is up to and including three days post-calving). If those mastitis rates are anywhere near eight to ten percent you will have a strong economic case to use teat sealants without even considering the positive welfare impacts and staff treatment/time saving in the spring.

Every spring, our antibiotic mastitis sales are reducing, this is largely due to the fact that heifer mastitis at calving is reducing, and could well be almost non-existent if all of our clients used teat sealants.

Vetlife’s strong and unequivocal recommendation

Some heifer herds do not seem to get much mastitis, and as a result they are not being teat sealed, we respect that really good situation.

But if your heifers are getting greater than five percent calving mastitis, think seriously about this procedure (there are still benefits below five percent), you will not be disappointed and once started you will be so persuaded you probably will not stop annually thereafter.

I urge all existing and new users of teat sealant and our insertion service to book well ahead. We have a very small window of time to achieve a relatively large-scale task, and by booking early we can guarantee that we can help and most likely be able to carry out the task when it is most convenient and appropriate for you.

I take this early opportunity to wish everyone a good spring and trust that the autumn/winter will be kind to your livestock.

Regards, Adrian Campbell.



Practice Principal
Adrian Campbell (Vet)

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TBfree MEETING ON ROLLESTON RANGE ERADICATION

Dr Mark Neill will be presenting the TBfree strategy for the Rolleston Range and the Northern South Island. Dr Neill will also cover how TBfree have done so far and future options to fight bovine tuberculosis (TB).

DATE	TIME	LOCATION
Monday 25 May 2015	11.30am	Billiards Club, Riverview Terrace, Lake Coleridge

REGISTRATION IS ESSENTIAL

Please respond to Hazel Wills
by 18 May 2015 on
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Rules and regulations

Dairy shed inspections have been the subject of much discussion in the office lately with the familiar mix of rueful acceptance and mild frustration at yet another compliance issue.

And yet, a moment's thought shows just how important this process is and how little anyone wants to be in the firing line for culpability over export bans or trade restrictions.

At a recent public meeting I was lucky enough to hear the President of Federated Farmers defend the importance of export markets to New Zealand and the rural sector. Our export markets are unquestionably concerned with food safety and that this is true from Brussels to Beijing. I think in the past we have all been guilty of assuming that as a commodity the consumption of milk powder in those important export markets is driven primarily by price. The recent food scares that have hit the press show just how wrong that perception can be with perceived issues around food safety having an immediate and dramatic impact on our exports.

In this context it is vital that we are able to show that all stages of the food chain within New Zealand are accountable and geared towards production of a safe product. Dairy shed inspections may seem a long way from international markets and global food trade but

they are an essential part of the auditing and compliance trail allowing us to continue to supply those markets. To this end, Fonterra and the other milk supply companies need to be able to show a clear and coherent approach to issues such as drug residues and usage in animals producing food for human consumption.

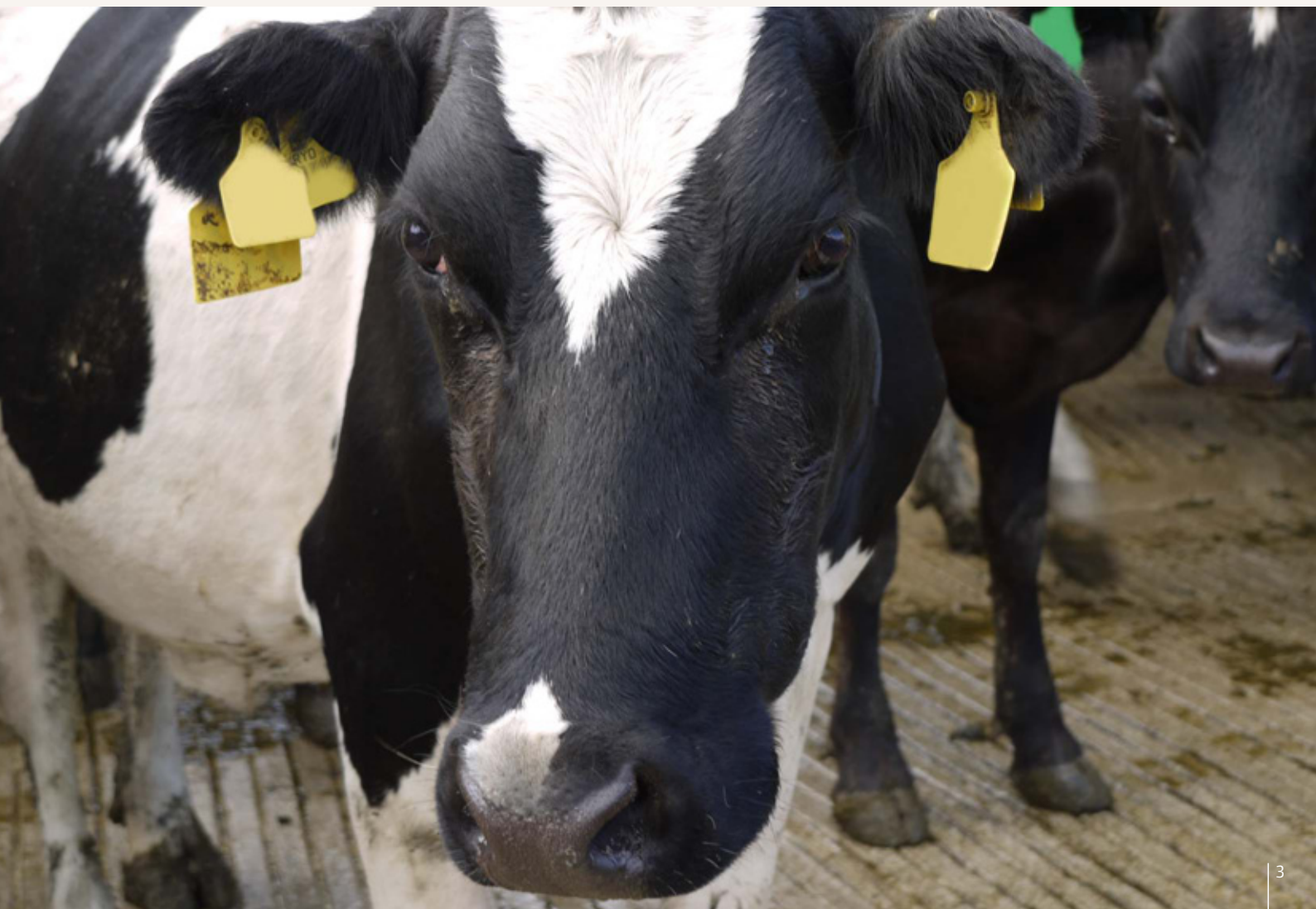
And yes, this does create extra work for all concerned and therefore extra costs. And yes, it can sometimes seem like a tick box exercise and bureaucracy gone mad. But at the end of the day, it does not matter what we used to do, it is what our customers want from us now that is important. After all there is plenty of competition out there with European farmers coming off quota and the shift away from biofuels translating into cheaper costs of feed for American dairymen. So, give those inspections the credit they deserve: the milk that you pulled out of a cow this morning might end up in a baby's bottle in Beijing or a latte in Brussels and they will care about what drugs the cow was given and whether the milk that they are using has been associated with safety issues in their local media.

Stick to label recommendations, fully observe milk and meat withholds and keep adequate records that show that you are doing this.

Beware of dosing off-label and in particular of combining different antibiotics - for example using injectable and intramammary antibiotic in the same cow at the same time. This is a real compliance issue for Fonterra as the majority of combinations are unlicensed which means that no official milk or meat withhold has been set. Potential nightmare material for Fonterra executives: large Asian trade delegation visits New Zealand dairy farm and whilst being shown around take a quick look at the treatment records and discover unlicensed combination of injectable and intramammary antibiotics. In this situation the statutory withhold of 35 days for milk and 91 days for meat can be applied but what would they find on the majority of NZ farms?

There are one or two licensed combinations of injectable and intramammary antibiotics but outside these the safest rule is do not double treat without a conversation with your Vetlife vet first. It may well be that there is no need and the expense and uncertainty can just be avoided.

Andrew Bates
Vetlife Temuka



What if “she’s NOT right”?

New Zealand as a whole, and especially our agricultural sector, are renowned for a, “she’ll be right” optimism. It is an approach that has fostered innovative solutions and driven our small country to succeed on a global scale in various spheres. However, this cheeky indifference can be harmful if left unchecked.

In a current case, a Taranaki dairy farmer is being investigated for signing a false export declaration, suggesting stock were of different origin to that which he knew to be true. While there are other aggravating factors to this case, this farmer’s laissez-faire attitude resulted in a number of stock in transit to China having to be “off-loaded” at sea which caused a temporary halt to exports and had the potential for significant ongoing effects on our trade with China. At best this farmer took signing a document all too lightly and this case, and its eventual outcome, should serve to remind everyone that signed documents are legally binding; a wee white lie could easily turn into a major headache. Cases such as this are especially disappointing as they have the potential to do even more damage than some activist with some 1080 in his garden shed. In the eyes of the importer an activist can be explained away to a point but an individual inside the system trying to cheat the system is surely of more concern.

Recently, there have been a number of quad bike accidents in the media and the agricultural sector is recognised as one of the highest risk for injury and death in New Zealand. Just days before I write this article a colleague had a rib

broken by a cow on farm. Partly in response to the Pike River Mine tragedy enquiry, workplace health and safety laws are in the process of changing. Signs are that these changes will move some more of the culpability for serious harm onto employers and company directors. Ignorance of one’s obligations will not be sufficient defence. It may be necessary to devote more time, money and effort to ensuring staff and on farm contractors are safe rather than assuming that they all know what they are doing because they have done it for years without coming to harm. The predicted timeframe will have these law changes in effect by the end of 2015 and we are already seeing moves made by companies such as Fonterra in preparation.

As the current milking season winds down, staff and farm managers start looking forward to a bit of time off (or at least a few sleep-ins) over winter. However, the next six to eight weeks are recognised by milk companies as a major risk period for inhibitory substances. This is a function of reducing milk yields but more importantly increasing presence and use of dry cow therapy (DCT) products on farm while farms are still in supply. Carl Finnegan wrote a very good article about avoiding inhibitory substance grades in the July 2014 issue of this publication. A few key points relating to DCT to consider are:

- Store DCT away from the milking shed to ensure it is not inadvertently used on a lactating cow.
- If drying off some individuals early ensure

they are very well-marked and kept in a paddock as far away from the shed and the remaining milkers as possible.

- When drying off:
 - EITHER milk all cows then shut down the vacuum plant before bringing animals back into the shed to treat
 - OR discard all milk collected on the day of dry off.
 - Both aim to ensure no one is inadvertently milked after being treated (they should be marked anyway, but just in case).

The drought conditions we have experienced over the last few months have resulted in some fairly reduced winter crops. This will obviously put winter feed at a premium this season. It will be important that graziers and stock owners have clear expectations of each other this season more than others. As above, there is some pride in our tradition of taking people at their word but the little pain of signing a contract should give both parties some comfort that they are clear on what will happen over the grazing period. Likewise throughout winter it will probably be a good idea to keep up good communication. Owners cannot afford to assume that all is well just because they have not heard otherwise and graziers must not assume that the owners will understand weight gains did not eventuate just because of the dry back in summer. Inevitably there will also be some animals that come through winter in less than desirable condition. Remember that the Code of Animal Welfare for Dairy Cows dictates that an owner or person in charge of an animal in body condition score of 3.0 or less must have a plan in place to improve that animal’s condition.

Furthermore, the recently published photos of light condition Jersey cows in a stock crate on the Interislander ferry shows that in the age of cellphone cameras it is very easy for the public to share their concerns with the world. Investigations into those animals revealed no concerns on the farm of origin but the photos were out by that stage. Consider carefully how paddocks close to roads (especially tourist routes) are grazed. Think about the direction in which break lines run, which stock mobs are on them and whether they are grazed in the early or late part of the winter as all can affect perception from the roadside.

While it is enjoyable working in an environment where a significant degree of informality exists, it is a reality that certain aspects and expectations are changing. We must put some of that innovative skill into accommodating these changes if we are to continue to compete globally.

Duncan Crosbie
Vetlife Temuka



Teat sealing heifers “it is a no-brainer”

For many years dairy farmers and vets alike had to deal with the ever-present problem of heifer mastitis in the spring with time consuming and largely ineffective preventative strategies. Not so many years ago mastitis researchers began trialling the use of a teat sealant in first calvers in an effort to prevent mastitis around calving time. Like most brilliant ideas over history, this one had its doubters and I have to admit to being one of them. The thought of going anywhere near a heifer's udder by choice was less than inviting.

I am happy to say I am much older and wiser now. The use of teat sealants is not only preventing mastitis in first calvers, but it is also having a significant effect on the nature of all mastitis problems seen in dairy herds in recent years (more on that another time). The process of teat sealant application is also a lot less daunting than first thought. With good facilities teat sealing heifers can be achieved with minimal fuss. It requires some planning and must be performed with stringent hygiene to prevent the introduction of infection into the udder. It is recommended that teat sealants be applied by trained personnel or under strict veterinary supervision.

Most heifer mastitis occurs in the first few days after calving and many factors are involved. Leaking, swollen and painful udders pre-calving and the stress of all the changes around calving

add to the heifers' susceptibility to an environmental mastitis. A heifer is also more likely to have multiple-quarter mastitis at this time.

Trial work has shown that an approved teat sealant applied around four to six weeks prior to the start of calving will prevent up to 84% of calving mastitis in heifers and around 68% of cases in the first two weeks of lactation. The cost of treatment, lost quarters and a reduction in lifetime productivity in these animals is significant. These animals represent the future of the herd and are most likely the best genetically. Heifer mastitis is also stressful and time consuming to deal with for the staff.

The teat sealant effectively “plugs” the teat canal preventing the bacteria from gaining access to the udder. It needs to be physically removed at the first few milkings (there is a milk withhold period of eight milkings). It has the consistency of “No More Gaps” and should not be confused with mastitic clots on the filter.

There is a cost benefit calculator on the www.dairywellness.co.nz website which can show the potential return on investment on your farm. This takes into account the incidence of heifer mastitis on your farm, the number of heifers to infuse with teat sealant, mastitis treatment costs, teat sealant infusion costs etc. Generally, it is considered economically



worthwhile to teat seal heifers when the incidence of mastitis at calving has been 10% or higher.

Vetlife has a team of experienced trained technicians and vets that are able to administer the teat sealant with “best practice” technique. The teat sealing of heifers has become the mainstay of heifer mastitis prevention with a huge demand on the teams of technicians and equipment in June and early July. If you are considering teat sealing your heifers contact your Vetlife vet soon to avoid disappointment. If you are not considering it, why not? It is a no brainer!

Carl Finnigan
Vetlife Oxford

Copper testing: why liver is better



It is that time of the year again when you go through your checklist to prepare your stock for the cold winter months: dry cow therapy, teat sealant, supplementary feed etc. Trace element monitoring should also be somewhere on that list, and in particular copper. It is important to test copper levels pre dry off to ensure levels are going to be sufficient to carry stock through winter and into spring, and if not, allow enough time to administer any additional supplementation. But the question remains... which test will give you the best results?

As we all know, copper is a very important trace element in all species. It is a crucial part of the immune system and plays multiple major roles in promoting growth, bone, skin and connective tissue development. Symptoms of copper deficiency in adult cattle include weight loss, scouring, reduced milk yields, reproductive failure, coat problems and anaemia. These deficiencies occur most commonly over winter, due to the lower availability and greater demand during late pregnancy, as well as an increased level of exposure to other minerals that negatively interact with copper such as molybdenum and iron that subsequently affect copper absorption. For this reason, soil or pasture analysis is typically not sufficient or accurate in determining how much copper is available to your stock.

When assessing copper levels, serum (blood) and liver are the two most common samples used. Which sample is taken depends on what the reason for testing is. For diagnosing clinical copper deficiency, serum copper is a useful and quick method. When copper concentration is low in the circulation, this would indicate that the copper reserves in the liver have been depleted and thus clinical copper deficiency develops. However, this is different to

diagnosing marginal or developing copper deficiency, which can be difficult as serum copper levels have little correlation with liver copper levels. When monitoring for adequate reserves over autumn and winter, testing liver samples is the best method to assess copper status. This is because copper is stored and then mobilised from the liver into the circulation to maintain blood copper levels. Therefore, even though serum copper may be adequate at the time of testing, the copper levels in the liver may be starting to “run out” and thus copper deficiency occurs later on in the season when no supplementation is provided. This is why we strongly recommend testing for liver copper concentrations during autumn, rather than just serum copper levels. The aim at the autumn testing is to ensure copper reserves are sufficient to get the animals through the winter months, and into spring when they return back to the dairy platform and are receiving maintenance minerals again.

For further information around the options available for assessing herd copper levels, please contact your Vetlife vet.

Matthew Wong and Lynlee Kueh
Vetlife Ashburton

Housing for the future?

New Zealand's (NZ) dairy industry has been revolutionised over the last couple of decades and yet it has largely retained its trademark pasture-based systems. Emerging pressures could, however, see this change in the coming years and perhaps challenge us to consider housed cows having a bigger role in NZ dairying.

Over the last 20 years inflation-adjusted dairy land prices have more than doubled which is inevitably going to curb the current trend of expansion and select for greater productivity from the available space. One way is housing cows to protect them from thermal stresses to enable lower maintenance energy requirements resulting in a more productive individual and increased average number of days in milk. It can be easier to achieve more optimal body condition score at calving in housed systems thus leading to increased health benefits. As well as productivity, environmental impact is an ever increasing consideration for the industry with soil damage, nitrate leaching and water quality higher on the agenda than ever before. Coupled with this public concern for the environment is an increasing focus on dairy welfare standards; whether or not we should be providing adequate shelter through inclement weather is inevitably going to be a part of that.

Housed systems have long been utilised in parts of the northern hemisphere such as the United Kingdom (UK) where only a scattering of year-round grazing systems exist in the southern-most parts of the country. Most commonly, summer grazing is utilised alongside winter cubical housing to prevent pasture damage and bridge the energy gap that would exist in winter grazing a year-round calving herd. A small but gradually increasing number of zero-grazed herds are emerging in the UK and proving popular, with even more opting to house high-yielders. These systems bring their own challenges in disease control, lameness prevention and stockmanship although a recent independent FAWC (Farm Animal Welfare Council) report concluded that these systems, when well-designed, provided few disadvantages to cow welfare.

Closer to home, housed systems are on the increase in the South Island, with the highest concentration in Southland. These range from zero-grazed herds, winter freestall barns or hybrid systems or "open gate farming systems" whereby cattle are free to seek sheltered/housed areas at will. Housed NZ systems average 700 kg MS/cow whilst causing on average 50% decrease in nitrate leaching according to one Massey University study. A

government-funded biosecurity study of dairy farms that had converted from traditional NZ pasture systems to housed systems showed favourable response to the new-style farming by the farmers involved. 83% of farmers questioned perceived an increase in animal condition and pasture condition and 58% perceived a decrease to animal health costs attributed to housing.

Whether or not increased housing is the answer, the questions of productivity, environmental impact and dairy welfare are not going to go away. Obviously, these changes in system are accompanied by large capital investment and are highly dependent on feed availability. There is no one system to fit all solution; however it is hard to imagine that the issue of housing is not going to play a part in the future of dairying.

Alex Warner
Vetlife Pleasant Point





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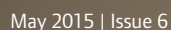
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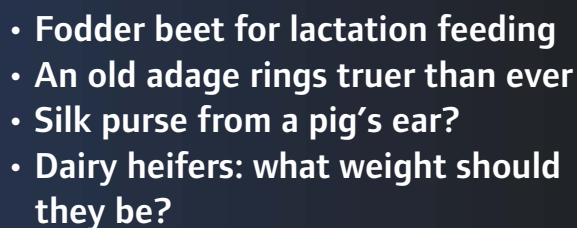
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Dairy Consultancy Services



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of fodder beet (FB) in
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Fodder beet for lactation feeding

The recent rapid increase of fodder beet (FB) in New Zealand is a demonstration of the success of the crop not only as a winter feed but also as a shoulder feed during lactation. As FB is a cheap (6-15c/kg DM) feed due to its high yields, and a high metabolisable energy (ME) content (ME 12MJ/kg DM) it is a competitive feed compared with traditional shoulder supplements in pasture systems such as grass silage (ME 10-11MJ/kg DM, 35-40c/kg DM) or maize silage (ME 10.5MJ/kg DM, 32-35c/kg DM). Furthermore, the low crude protein (CP) content of the beet complements autumn grass that normally is high in CP but is low in energy. The easy use of FB on platform either by grazing or on pasture through harvested FB and silage wagon, with its high utilisation (over 95%), mean this crop typically represents excellent value to most operations.

FB (bulb) is high in sugar (>40%DM) content, but low in CP (8-12%DM), fibre (10-12%DM vs. 35%DM on the leaf) and phosphorus (P) content (<0.24%DM). However, the use of FB bulb in conjunction with the leaf increases the CP content of the diet (11-13% DM) whereas P remains still low. Therefore it is recommended to use a maximum of 5 kg DM of FB as a shoulder feed in grass only systems in lactation, because thereafter a correction of the total diet is needed to balance the requirement of CP, Ca/P balance and fibre of lactating dairy cows.

Lactating dairy cows can graze the FB directly on the crop or harvested whole beets can be fed out through a silage wagon where the cows are grazing their daily pasture allocation. The

first option is the cheapest; however the use of a FB bucket and silage wagon to harvest the beets reduces the increased walking distances that result with on platform grazing. In both instances bulb and leaf are grazed together. However, commercial harvesting of bulbs is also very common, as it can be done in large volumes for simple windrow storage, and done in either autumn or spring windows to enable other land use. With commercial bulb harvesting, the leaf is lost. While this is an additional cost of the process, the leaf material does contribute to soil fertility for subsequent use.

If you are planning to use FB this autumn here are a few practical recommendations that can make the difference in the successful use of FB.

- Start all cows at 1 kg DM and then increase in 1 kg DM every second day to 5 kg DM.
- In general, do not offer more than 5 kg DM to lactating dairy cows on grass only diets without discussing the whole diet with a professional.

Do not let the cows walk to the FB directly from the shed after milking, but hold them off the FB until all can go at once. Cows getting there early are going to get more than their daily allocation. So hold the mob until all the cows are ready and open the electric fence to give the access to the beet.

Bernardita Saldias
Centre for Dairy Excellence



An old adage rings truer than ever

Cash is king. It is an old adage that is well-known by those in business and I can remember this being stressed to students during their study towards commerce degrees.

One of the great attributes of the dairy industry over the past few years has been its ability to generate a regular flow of cash over most of the season. With the current forecasts, this flow of cash is about to dry up to a trickle, and we struggle to see it returning to anything significant until later in the 2016 season at the earliest. With this in mind, cash, or access to cash, will be critical over these next few months.

This will come as no shock to those in the industry, as one of the other great attributes has been the communication of the forecast pay-out. Budgets will have been completed and belts will have been tightened where possible to ensure that operations will be able to get through.

Something that is often overlooked when completing a budget, is adjusting it for the purpose for which it is being prepared. We often see some sensitivity analysis completed on various pay-out levels but very seldom see expenses also being adjusted. In the ideal world, we would have three budgets. The first would be our actual expectation for the year, and how we honestly see the business performing. The second would be a best case scenario and most likely used for taxation purposes to try and avoid any use of money interest being charged by the Inland Revenue.

The third would be prepared to assess any funding requirements that may be needed. This would be a budget where some worst case scenarios may come into play such as a tough winter, an increase in feed costs, or large repair bills.

When there is a drop in the forecasted income of any business, the first reaction is often to try to trim any excess out of the expenditure in the budget. After the last couple of seasons, this could result in some dramatic reductions to certain expenses. There has to be some careful attention as to whether these reductions are realistic or indeed achievable. If not, there is most likely going to be a short fall between the budgeted and actual funding requirements of the business.

It is important of course to take due consideration of some baseline costs and to not reduce costs which will jeopardise farm productivity for when the situation improves. Expenses such as machinery maintenance, staff wages, animal health and maintenance fertiliser applications are important to ensure that when the wheel does turn, your operation is in a position which can capitalise on the gains and your herd is not being held back due to a busted silage wagon for example!

We recommend that dairy businesses work closely with their banks and accountants over the upcoming months. Businesses should be looking at getting banking facilities in place now if they have not done so already. It is easier to have these confirmed in advance rather than

being cap in hand later in the season when the pressure comes on, at which stage other options for finance will be limited.

Some thought will also need to be given to taxation. The first provisional tax payment will be due late October for most, but may be as early as August for some depending on their balance date. Most farms will be receiving their second or third milk cheque by the time this is due, but it is likely that this will only be covering costs rather than providing much needed relief. These provisional tax amounts due will be based on either your 2014 or 2015 income tax results which will most likely be well ahead of any 2016 budget. Talk to your accountant as there are other options such as estimating the taxation that will be due, or financing it through a tax intermediary.

Over the next few months, the old saying of cash is king is going to be truer than ever, especially for those whom are relative newcomers to the industry. Therefore, if you anticipate difficulties with your cash-flow, ensure you have arranged a line of credit in advance.

Greg Wall, CA
Associate
Brophy Knight Ltd



Silk purse from a pig's ear?

The present feed situation across the South Island's east coast is tight at best. Some areas south of the Rangitata have had some good rains of late which, accompanied with fairly warm temperatures, should kick the life back into many dryland kale and fodder beet crops. Across the board many fodder beet crops have performed better but whilst operators may not get their 20 t budgeted dry matter (DM) figure, crops appear to be around that 12 to 15 t DM mark. This is of course the same for many kale crops, initial winter feed budget figures might have been 12 t DM but many will fall short of this even with a reasonable autumn/early winter period, while others have been lost completely and replaced with an annual green-feed crop.

All this, accompanied with diminishing silage availability, leaves a lot of questions in operators' minds of where the shortfall will be replaced. In terms of DM, there is a reasonable quantity of cereal straw available on the market. This is a combination of an increased area sown this season and the fact that some growers were not able to burn off their paddocks due to the fire restrictions, hence they bailed up the remaining straw post-harvest. Some operators may well be forced into a situation where they need to feed a higher quantity of straw to the herd than would usually be considered optimal, i.e. five to six kg DM rather than the usual two to three to limit feed intake shortfalls. This certainly is not ideal but, short of other feed options and the requirement to preserve existing silage for the spring, that is all they have available.

As the title suggests, cereal straw is a pig's ear, very high DM and fibre characteristics, very low feed quality as the table below broadly demonstrates.

Typical cereal straw feed characteristics	
Dry matter %	85+
Crude protein content %	8-9
Fibre content %	65-70
Digestibility %	45-50
ME (MJ/kg DM)	7-9

So then, if you are faced with a situation where you have a plentiful supply of straw, are there some things that you can do to make small improvements in the feed quality characteristics of the straw? Well yes, there are. Firstly, the easy stuff, make sure it is under cover as best as possible. As you well know, straw is not cheap any longer and in many instances it is a staple part of a cow's diet over the winter; keeping it dry means it will hold what quality it has, reduces exposure to the elements and moisture where fungi and bacteria can begin to degrade it. This also, of course, reduces the potential for it to go on fire if stored for long periods of time!

If we look through international literature resources, our rural colleagues through North Australia, Malaysia/Indonesia and through Africa utilise feeds fairly effectively which make our cereal straw look like a silk purse! The grasses and straws they have available are probably twice as poor as the cereal straws we have available, mostly due to the types of grasses and feeds that typically grow in these arid environments!

As we should hopefully know, cows use bugs in the rumen to breakdown feeds and then the cows utilise these bugs for their own source of protein. In a very general sense, these bugs in the rumen only really care about two things: energy and nitrogen. Energy is supplied through sources of carbohydrate, for example degradable fibre, sugars and starches; nitrogen is usually supplied through sources of proteins. Our grass-based systems of production rely on using grass protein and energy to feed the bugs, however these bugs will just as happily use sources of nitrogen such as urea to sustain their requirements in situations where crude protein is limiting. So then, cutting to the chase, there are situations where the crude protein content of a typical diet is deficient such as when feeding high quantities of cereal straw. In these situations, we can supplement the cows with additional sources of nitrogen such as small quantities of urea to fulfil the bug's requirements for nitrogen which increases their ability to breakdown the cereal straw. This is where operators need to be extremely careful as when things go wrong with supplementing urea, it goes very wrong very quickly. Urea toxicity can occur which is not pleasant to say the least.

Urea is widely used as an additive to feeds to improve the digestibility of the diet for cattle consuming very poor quality feeds. This can be used as a spray on feed or injecting a urea solution into ensiled straws, whilst this can be effective, it is time consuming and can be very dangerous if not applied correctly leading to urea toxicity issues.

Operators in North Australia have a product which is widely used to complement the diets of cattle in drought conditions and, given good manufacturing and processing conditions, it can be safely used as a supplement to increase the energy and protein content of the diet.

It is called M8U and is a molasses-based supplement with an 8% urea content.

The critical thing with the use of such a supplement is ensuring that the urea is thoroughly mixed; hence it requires commercial-scale mixing pumps and hosing etc. Typically it is watered down to physically limit the intake of the molasses lick product. This could be widely used in situations where the straw is a major component of the diet as an attempt to improve the quality of the diet and digestibility of the straw. Let us be clear here, it will have an effect



but we certainly would not expect to see cows performing better than when fed a typical diet i.e. 11 kg DM kale and 2 kg DM straw.

A typical roller drum mix to feed approximately 50 g of urea and 225 g molasses to 400 cattle for one week is:

- 450 L molasses.
- 900 L water.
- 120 kg urea.

The water and molasses are mixed first and the urea is added last to ensure it is dissolved thoroughly. The effectiveness of a molasses/urea-based mix will be greatest where feeding less than say 8 kg DM kale and at least 6 kg DM straw in the diet. It will of course have some constraints as the ability to feed out lick drums of this molasses/urea mix will be difficult in mud conditions. In terms of the aim for daily consumption, ideally the cows would consume around 0.5 kg of this mix per day so therefore supplying a reliable source of energy and protein available to the herd.

The supplementation of a well-mixed urea and molasses supplement to cows in the face of a feed situation where straw will be a higher component of the diet than what would be considered normal is an option to try and improve the overall quality of the diet leading to improvements in cattle BCS gain in what otherwise is a difficult wintering season. In a situation where this is the case, only relatively minor gains can be made but it may be enough to see you through what will be a tight feed situation otherwise. If you may be interested in this as an option, make sure to talk to a nutritionist; feel free to ring the office and discuss options for your enterprise. Extreme care is required to ensure urea is mixed thoroughly and used at the correct rates so to avoid potential issues with toxicity.

Craig Trotter
Centre for Dairy Excellence

Dairy heifers: what weight should they be?

Top dairy farmers in New Zealand are getting more than 75% of their heifers calved within three weeks and 92% by six weeks. In order to do this, heifers need to be well-grown at mating and weigh 60% of their mature body weight. If any of the following sound familiar:

- Too many empty heifers.
- More than 25% of your heifers calving after the third week of heifer calving.
- More than 25% of your non-cycling mob as heifers.
- More than 25% of your culls as first calved heifers.

Then you may need to look at the weights your heifers are achieving during rearing.

What does a target weight mean?

The graph shows a mob of R1 dairy heifers weighed in early October 2010. Nearly all the animals were above target weight **for their age** and the average weight for this mob was 290 kg. With a mature weight of 500 kg, this means that the **average weight** was on target for 60% of mature weight at the start of mating two weeks later.

However, the target applies to each individual animal. A heifer that is below 60% of her mature weight at mating will be less likely to cycle and conceive, irrespective of the average weight of the mob. It is great to have a good average weight for the mob, but it does not help the lighter heifers in that mob. In the herd above, if the heifers keep growing at the same rate that they have been, 33% will be below

target weight at mating (300 kg for a mature weight of 500 kg). Some of this is because there is a seven week spread in the ages of the heifers, but:

- The ages are evenly spread between the youngest and the oldest.
- The youngest heifers still have to reach 60% of mature body weight at the start of mating if they are to get in calf early.

To get 75% of these heifers conceiving in the first three weeks of mating, they ALL need to be up to target at the start of mating. This means that the youngest and smallest animals have to grow faster in order to catch up.

This is one of the reasons why regular, monthly weighing is so important and why it is vital that graziers and owners do not rely on average weights but look at:

- The range in weights.
- The rate of gain for that month.
- The number of animals below the minimum weight for that month.

You want to get all your heifers in calf early, not just the older ones. Set the minimum weight each month so that target weights at the start of mating and the start of calving are met for all the heifers, not just the older ones.

Andrew Bates
Vetlife Temuka

Body weight achieved against age: October

