



Spring Management

- Boost hay and silage production
- Soil and tissue testing
- Lime pre summer cropping
- Nitrogen post silage
- Nitrogen for maximum summer crop yields

REVIEW OF ENTEC UREA IN WINTER

By Harry Armstrong



Any farm inputs need to be managed to ensure the “best bang for your buck”. An important part of managing these inputs is to minimize any potential loss of nutrients. This is particularly important when dealing with a

critical nutrient such as nitrogen (N).

Winter is a time of critical feed shortages on most farms in most years. Pasture management practices in autumn can greatly influence feed availability in winter. N applications in autumn and early winter to increase pasture growth rates and feeding livestock on sacrifice areas to save pasture and create a feed wedge for winter is widely practiced on beef sheep and dairy pastures throughout the region.

As we get into the colder and wetter months (July/Aug) and soil and air temperatures decrease, growth responses to N are generally much lower than that expected in autumn. While much of the reduced response is obviously due to the lower temperatures and shorter day length a significant amount of N gets lost when soils become waterlogged. This loss is known as “denitrification”. Denitrification results in losses of N to

the atmosphere, much the same as the volatilisation which occurs during the hotter and dryer part of the season. Modern coating technology is allowing us to reduce these losses as well. (See separate article “Nitrogen for Summer Crops”)

Water logging can also see N losses via nitrate leaching

through the soil profile which can also lead to N escaping into the environment (water ways).

Entec is urea coated with an ammonium stabiliser designed to slow down the activity of soil borne bacteria that convert ammonium nitrate into plant available nitrate nitrogen. By slowing down this process we can extend the period that nitrogen is available for plant growth from the usual 6 weeks growth with urea to 8-10 weeks with Entec.

Normal urea will remain the most common (and currently the cheapest) form of N in most situations, but the new coating technologies available to us enable producers to minimise risk and potential loss of this most valuable nutrient.

The last two seasons we have been incorporating Entec coated urea into client’s nitrogen programs to ensure minimal N loss and improved winter production. A typical approach has been to use straight urea through autumn and early winter to maximize growth and then an application of Entec coated urea as we approach the wetter months of July/August. Clients using this program are reporting better than normal N responses over these wetter waterlogged months.

We expect to be using straight urea over August and September and then begin to utilize Agrotain coated urea as daytime temperatures increase from October onwards.

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WHAT TO DO WITH THAT WET PADDOCK?

By James Stewart

As we come out of this winter I am seeing a lot of crops in my travels that have suffered from the wet. Nearly all crops including some raised beds have copped a yield penalty.

Clients with paddocks that weren't sown in the autumn, because of traffic ability, and ones that were sown and

suffered too much moisture must be assessed for suitability for spring sowing options.

The first option that comes to most peoples minds is spring Barley and there are a number of different varieties available such as Unicorn and the traditional Gardiner.

If you are looking at sowing wheat a short to mid maturity would be the way to go. Varieties like Lincoln and Gladius would be suitable.

However the one I would like to explore a little more is Taurus Canola.

Taurus is a new choice for croppers and graziers in high rainfall areas where it can be used as a dual purpose grain and graze option. There are several crops of Taurus that were planted last spring and are planned for harvest later this year. These particular canola crops have been heavily grazed throughout the summer and autumn and are now starting to elongate, flower and go reproductive.

Taurus is a winter canola variety which will not flower until after it experiences long periods of cold weather (very similar maturity to Winfred rape) this strong winter vernalisation requirement makes these varieties common in Europe. A conventional hybrid variety however which means if you have radish issues it is not an option.

Taurus has excellent early vigour and growth with great oil content at harvest time. Canola Breeders anticipates Taurus will have a resistant (R) blackleg rating to be classified later this year.

Grazing management can commence as soon as plants are well anchored. Withholding periods need to be abided by. Livestock may require some roughage during the grazing of canola.

Adding grazing to the Grain & Graze aspect to the hybrid canola can increase, and sometimes double, the profit from canola production.

So if you looking for something a little outside of the square Taurus canola may be an option. A forage crop for grazing for this summer and autumn while using more than adequate supplies of sub soil moisture after the previous 10 months we have experienced, as well as something to harvest the following summer.

If you have any further queries on Taurus canola please don't hesitate to give me a call.

Good luck with your decision making over the next month on paddock and crop selection.



SPRING SOWING

By Bill Freely

Due to the continuous wet over the past 12 months sowing down pastures has been a tough task. Inability of farmers to get on paddocks in the autumn, the opportunity for a spring sow is now possible. Due to the extreme pugging that has occurred over the winter there are no doubt any number of paddocks that could be sown

down to either a summer crop or a permanent pasture. There has always been a reservation about sowing pastures in spring primarily because of the fear of the paddock drying out as the summer dry takes hold. This spring given the sub soil moisture levels are high the likelihood of the soil profile drying out is remote. The fact that permanent pastures can be sown in the spring is ideal as the pasture can be nursed through the summer months ready for grazing in autumn. The only real issue will be what to sow. In view of this a farm plan should be devised with the aim of prioritizing paddocks that will require total renovation to those that will need only a moderate renovation.

The following points are provided to help repair damaged pastures.

- Rolling will help level out the paddock. Paddock can then be oversown.
- Broadcast seed+ harrow or roll – broadcasting allows seed to spread evenly over the ground and rolling or harrowing will ensure good seed to soil contact.
- Drill + harrow – consider this option for paddocks that aren't too rough but have lost plant density and need topping up.

Good way to top up perennial pastures prior to next autumn. Spray with 200mls/ha of Sprayseed

- Roterra (or Power harrow) + drop seed + light roll – use roterra or power harrows to level ground. Set power harrows to 2-3 cm and this will also help aerate and open up soil. Be mindful not to over work or it will result in soil compaction.
- Discing + Roterra+ Drop Seed +Roll – similar to Roterra/Power harrow ,but issue here is that discing in the wrong conditions may create a paddock of hard sods (too dry)or cause smearing (too wet).This option will help aerate the soil to a reasonable depth and would be the best option for the worst pugged paddocks.

Before crops are sown the following minimum temperature should be followed.

- Soil temperature, measured at 9am at 10cm for each class of species
- Brassicas -12 *Celsius, Millet – 14 * Celsius, Sorghum -16 to 18 * Celsius.
- Lucerne -14*Celsius, Grasses -12 * Celsius, Herbs - 12* Celsius, Clover – 12 * Celsius

When sowing ensure appropriate nutrients are applied to give the best chance of a productive crop or pasture.

Watch all crops very carefully at germination and soon after, especially if seed was not treated, for red legged earth mite, Lucerne flea, slugs, diamond back moths etc. as they can decimate crops as they germinate.

The other incentive to spring sow is to take into consideration the cost and quality of the seed. From all accounts seed cost will be similar to autumn pricing and seed viability of stocks held over from autumn shouldn't be affected too much. However if it is left over to next autumn, germination will be an issue plus having to keep it mouse proof over the summer months can be challenging.

The other issue will be whether there will be enough seed available next



autumn, given a wet spring could very well affect perennial grass and clover seed harvests, consequently pushing the cost of seed upwards.

The opportunity to sow permanent pasture this spring is ideal as it will enable the sward to be established and ready for grazing by autumn 2012. Given this scenario on a dairy farm there is the potential in regards to a dairy rotation for at least 2 grazing's to have been undertaken as opposed to none if the pasture was to be autumn 2012 sown.



NUTRIENT MONITORING IN DAIRY

By Bill Freely



Smarter nutrient use could increase profitability on the average dairy property by \$26,000 each year and \$70 million annually across the industry a new DPI – led national study has shown. The study funded by DPI, Dairy Australia and other industry partners revealed significant opportunities to increase the efficiency

of nutrient use on dairy farms. As dairy farms increase their overall productivity and intensity per hectare, nutrient surpluses tend to increase especially given the increase in dairy supplements over the past 30 years.

Of the 2200 dairy paddocks sampled between 65-75 % had surplus phosphorus, potassium and sulphur levels. As expected nutrient levels were particularly high in paddocks close to the dairy shed and where animals are held for extended periods. Since fodder conservation and milk production can remove substantial amounts of nutrient, soil testing needs to target paddocks with different uses across the property.

The study also found that when considering nutrients it was important to take into account the diet fed to cows. The study examined 75 types of feed and found that mineral composition and metabolisable energy varied significantly between and, at times, within types of feeds. Researchers estimated that a typical 300 cow dairy farm, which consumed 450 tonnes of wheat grain and 150 tonnes of Lucerne hay, would be importing in feed the equivalent of 33 tonnes of urea, 23 tonnes of single super and 10 tonnes of potash fertilizer. If you were to put a monetary figure on that it would be around 35K.

The study showed the fact that cows were the forgotten fertilizer spreader. Within the farm, cows play a major part in redistributing large amounts of nutrient. In the 44 herds studied, only 20 % of the nitrogen consumed ended up in the milk. That means 80 % was excreted in urine and dung. Given that cows also excrete large amounts of P, K, S, Ca and Mag it is important that these nutrients

are effectively redistributed to the productive parts of the farm. When dung and urine are not deposited on pasture or crop land this places a substantial limitation on production. This in turn then potentially raises environmental issues. Ideally the regular rotation of cows through paddocks across the farm, even in dry conditions ensures feed nutrients are more evenly distributed.

Taking these facts into account the underlying factor was to monitor paddocks so as to keep a handle on nutrient levels

- Ideally try and get around the farm in 2-3 years.
- Combination of 0-10 cm and 10 -60cm depending on species ie shallow v deep rooted.
- In addition to soil testing incorporate tissue testing to monitor trace elements.
- Soil test paddocks in keeping with individual paddock practice (ie night, day, out paddock etc)

The relatively small costs with undertaking a strategic and on-going soil sampling program are likely to be returned many times through the potential savings in unnecessary fertilizer expenditure.





NITROGEN FOR SUMMER CROPS

By Harry Armstrong

Summer crops are now an integral part of many production systems. However often they are not living up to their full potential. In the last few seasons I have observed crops that could have produced significantly more valuable feed had

nitrogen (N) been applied.

Summer crop yields can be increased significantly when (N) is applied at the correct time. Crops most likely to benefit are those being sown a second time on the same paddock. Likewise crops sown on areas with low fertility or poor fertiliser history and hence little or no sub clover will have substantially less N available for decent crop yields.

Brassicas being such leafy crops use large amounts of N, so it's not surprising that we observe crops not reaching their potential when we grow them on areas with poor fertiliser history.

Another problem I regularly encounter is pastures sown after a summer crop phase that also struggle for adequate N. In most cases N needs to be applied to these new sown pastures at sowing (DAP or MAP) and a follow up application of N at 2 to 3 weeks from germination.

Soil testing

In order to get the most out of N applications P, K & S levels have to be adequate. Taking a soil test prior to establishing a summer crop is essential. Summer crops are almost always sown as part of a pasture rejuvenation program and the crop phase is the ideal time to apply soil amendment materials such as lime or gypsum if required. Phosphorus, potassium and sulphur are the other key elements required by summer crops and subsequent pastures and the summer crop phase is the ideal time to apply capital applications of these nutrients. It goes without saying that correcting nutrient deficiencies can be an expensive process, so soil testing at the normal

0-10cm depth and potentially 10-60cm to find out what your paddock needs and perhaps more importantly what it doesn't need.

Boron deficiency is beginning to become an issue in summer crops. We have seen incidences of "hollow heart" in turnip crops which is an indicator of low boron levels. Boron, being a trace element, is not measurable in a soil test. Tissue testing is the only accurate method of detecting boron status. Recent research indicates there is a link between boron and rhizobium activity in sub clover pastures.

Agrotain coated urea

If N is required on a summer crop it is best applied 2 to 3 weeks after germination. Often this period (Oct, Nov, Dec) coincides with increasing temperatures and hence more risk of some of the N being lost to the atmosphere through volatilisation. Agrotain coated urea can reduce these potential losses by slowing and inhibiting the rate of conversion of urea to ammonium. This slow down in the N conversion process typically keeps the N in its urea form for longer (10-14 days instead of 2-3 days). This significantly reduces losses of N as ammonia gas (volatilisation) and can reduce leaching of N as nitrate, thereby leaving more N for plant growth.



OVERHEAD POWER LINES LOOK UP AND LIVE

In response to Overhead Power Line related deaths and accidents on work sites in Victoria, Vickery Bros is taking a lead role in establishing best practise for all employees. Vickery Bros recognise and understand the risk of overhead power lines to our employees when operating machinery and equipment. We have made a commitment to assess risk and safety with regard to overhead power lines.

In meeting this responsibility we will, conduct operations to minimise risk, maintain employee awareness, maintain

employee training, maintain a safe system of work and implement a "No Go Zone" of 10 metres when operating machinery and equipment in the vicinity of overhead power lines.

We ask all clients to work with Vickery Bros to identify and maintain clearance of overhead power lines that may pose a risk to employees operating machinery. If you require further information please contact Vickery Bros or Energy Safe Victoria at www.esv.vic.gov.au.

GRASS TETANY ISSUES

By Leighton Rees



In light of recent significant losses in this region, the following is a summary of grass tetany and issues associated with it, including symptoms, causes, prevention and timing of treatments.

Grass tetany is generally linked to insufficient levels of magnesium in the blood. This can also be associated with low levels of blood calcium in late pregnant cows as well as cows with calves. These low levels cause the muscles of the animal to stop working. The animal can then die as a result of not being able to breathe.

There are other factors which interfere with magnesium levels in the blood. It is not just purely a deficiency of magnesium.

Some of these factors are:

Potassium can interfere with magnesium absorption generally when cattle graze on pastures with high potassium soil levels.

Cows being deficient in salt (sodium)

A diet change from hay or dry feed to lush pastures.

Changing composition of pastures in late autumn / winter.

Excess grass content in pastures can also increase cases of grass tetany.

Symptoms

Generally the first sign of Grass tetany in cattle is a cow dying. Cattle can also be noticed having froth coming from their mouths and nose. There can be rub marks where the cows legs have rubbed the ground before dying.

Excited animals and muscular spasms are also signs of grass tetany.

In some cases cows can be excessively low in magnesium but no apparent symptoms can be seen (Symptoms can be triggered by mustering, yarding, and trucking which can cause stress on the animal).

In severe cases cattle can be noticed galloping, bellowing and staggering. The cow may shortly afterwards fall on its side and muscle spasms will occur. If the cow survives this it is likely that any further disturbance by touching the animal can trigger another attack.

Grass tetany usually occurs in late autumn/winter. This is due to the fact that the seasonal change alters the chemical composition of the pasture. Pastures that are grass dominant usually have higher cases of grass

tetany. Clover dominant pastures generally have higher concentrations of magnesium and calcium so are less likely to be associated with Grass tetany.

Other factors associated with grass tetany

- Age of the cow (In older cows absorption of magnesium is less)
- Some cows are just poor absorbers of magnesium.
- Fat cows are more prone to grass tetany because they have less available magnesium in their body fluids.
- Breed of the cow.
- Time of calving (autumn and winter calves are more susceptible to grass tetany).
- Stress such as wind, rain, sudden change of feed, lowering temperature, mustering and transport can all increase cases of grass tetany.

Treatment

Grass Tetany is not always caused by a deficiency in magnesium. Straight magnesium supplements may therefore not be the answer.

Calcium and magnesium solutions are available but should be used with care. These solutions can be injected under the skin or directly into the vein. Care must be taken not to administer these applications too quickly, a large dose can be fatal.

The costs of these solution packs are approximately \$11 for a 500ml pack (350ml per dose).

Solution packs should be brought to body heat temperature in a bucket of water. This will make them easier to administer and will be less stressful on the cow.

Follow up injections are quite often necessary a day or two later.

After recovery 60 grams of magnesium oxide (Causmag) should be fed daily to keep the cows magnesium levels up.

Prevention

The most effective prevention is hay treated with magnesium oxide (causmag) This can be done by mixing up a slurry of causmag, molasses and water.

This slurry can be poured over the rolled out hay bale. Ratios are as follows:

Causmag 6kg

Water 2 litres

Molasses 3kg

Daily causmag requirements for cattle is 60g/per head, per day. Up to 100grams may be necessary in some circumstances.

Prices for causmag are \$24 for 20kg.

It will take 2-3 days for this to take full effect. As soon as you cease treatment the cow may then be exposed again to problems.

Magnesium blocks are not recommended because of their high cost and for the fact that it is not easy to know what dose each cow is getting. The blocks available contain approximately 16 per cent causmag. (magnesium blocks are approximately \$32)

Another option may be to use magnesium bullets. Bullets can give protection for 80 to 90 days. Bullets should be administered down the throat at least a week before the high risk period starts. The release rate of these capsules is 2g/day. This may not be adequate considering the daily intake of a cow producing 20lt of milk is 15g/day of magnesium. Bullets cost approximately \$15-16 per capsule.

Keeping high risk cattle (older/fatter cattle or lactating cattle) off paddocks with dominant lush grass pastures towards late autumn and winter as well as feeding out hay during this period can also help to reduce instances of grass tetany.

Avoid grazing pastures that have been recently fertilised with potassium and remove older fatter cattle from prone pastures.

Managing the soil

For ongoing prevention farmers need to look at soils and pastures to prevent acidification. This is because of the relationship that acidic soils and high potassium levels have on higher instances of grass tetany.

Table 1

Paddock factors	High Risk	Medium Risk	Low Risk
Soil test K/(Ca + Mg)	Ratio > 0.1 High K >110) Acidic pH <6.0 Heavy redgum soils Potash fertiliser	0.06-0.10 K 90-110 pH 6.0-7.0	<0.05 <90 Alkaline pH 7+ Light sandy soils Lime, dolomite fertilisers
Plant Tissue Tests More reliable than soil test	K/(Ca& Mg)>2.4	Ratio 2.1-2.4	Ratio <2.0
Pasture	Grass dominant >30% of winter pasture Carry over dry feed	Mixed	Clover dominant pasture 4x better Mg ratio grass
Hay supplementation	Nil	During rough weather	Every 2nd day

Table1: Grass Tetany Risk Factors David Rendell 16th May 2000

Analysis

Pastures which have high cases of grass tetany usually have the following analysis:

Magnesium levels below 2g/kg DM

Calcium concentrations less than 3g/kg DM

Sodium levels less than 1.5g/kg DM

Potassium concentrations above 20g/kg DM

Nitrogen above 50 g/kg DM

Weather conditions:

- Less than 5 degrees celsius (High risk)
- 5-10 degrees celsius (medium risk)
- Above 10 degrees celsius (low risk)

The south west of Victoria is the worst prone area for grass tetany (acid soils)

Asses each paddock well before the crucial time of late autumn/winter to put in progress preventative measures.

Feed out hay early and during bad weather. Ensure high risk cattle are moved to less susceptible paddocks and pastures.

High applications of potassium should be split to reduce risks. Always carry a grass tetany flow pack in your vehicle for on the spot treatment.

The good news is grass tetany is nearly always addressed in the long term with best practise grazing management by incorporating the above management techniques.

Monitoring soils and pastures with regular soil and tissue tests will give the farmer a better understanding of what needs to be done to reduce instances of grass tetany in cattle. Utilise these soil and tissue tests when developing soils and pastures that are at less risk of causing grass tetany.



PHALARIS FOR PERSISTANCE

By Sophie Leonard

Phalaris is a favored species for many south east grazing enterprises. Throughout this area productive phalaris pasture that were sown many decades ago, have become degraded from poor fertility and grazing management. Many of these pastures can be regenerated instead of re sowing through manipulation with herbicides, grazing management and fertiliser.

To ensure persistence of phalaris is important to promote the reproductive phase by late spring. Phalaris does not thicken from seeding due to strong competition; instead it emerges from crown buds that are set at the base of the older tillers.

As Phalaris stems grow and become reproductive, crown buds develop at the base of the stem. It is the crown buds that enable the plant to survive summer drought and reproduce in the autumn. The number of buds that are set and the size of them depend on the number and vigor of the reproductive stems.

By removing the stem through grazing or cutting during the spring the crown buds can be stimulated to re shoot before going into summer, causing the plant to use energy to reproduce leaf area instead of storing energy for survival over the summer and then for the following autumns regrowth. If hot dry conditions follow after crash grazing or cutting the buds will die and therefore reduce the crown size and thinning out the pasture.

To renovate or regenerate

First analyze whether the pasture requires regeneration or renovation. This is done by establishing the average population of the phalaris stand. A quadrant can be used to count plants per square meter and then averaged over the whole paddock. If the average plant count is around 5 plants per square meter then pasture renovation would be the best option. If the plant count is around 10 plants per square meter then regenerations is the best option. And if plant per square meter are around 20 then there is a substantial phalaris stand.

When regenerating or renovating a phalaris stand it is important to monitor available plant nutrients through soil and tissue testing. Soil test should be done at 0-10cm and 10-60cm to have a strong indication of nutrient levels over the entire plants root uptake area.

Regenerating

A rundown phalaris pasture is generally the result of poor grazing management and poor nutrition management, therefore these conditions need to be corrected. When

regenerating it is important to maximize nutritional requirement throughout the recovery time. Annual maintenance application of essential nutrients removed should be applied, as well as any capital nutrients and trace elements if required to maximize nutrient availability to the pasture for maximum production and livestock health management.

If annual grasses are a problem herbicide maybe considered to do a winter clean or spray top and a selective herbicide can be used to control broad leaf.

With grazing management it is important to consider paddock size, stocking rate and the pasture growth stages when planning a grazing strategy on a degraded phalaris stand. Grazing and resting strategically will assist recovery. To increase plant cover and phalaris vigor grazing should be deferred until 1500kg/ha of dry matter is accumulated after the autumn break. Then long rests of around 8 weeks and short grazing for 1 - 2 weeks should be implemented throughout the remainder of the autumn and winter seasons until pasture appears the thicken.

Renovating to a productive Phalaris stand

Sowing time for phalaris can vary from district and season. Phalaris can be sown in autumn to early winter (April to June) or spring sown (August to September). Phalaris germination and seedling growth is best when the average daily soil temperature is between 15 to 20°C. If sown late phalaris seedlings will retard at germination and development when temperatures are below 10°C.

Sowing rates for phalaris in a prepared seed bed with appropriate legumes should be approximately 3-5kg/ha. When establishing phalaris through direct drilling, slightly higher rates should be sown. Before sowing is it important to have an understanding of the seeds germination percentage by running a germination test, this will give you an idea of an accurate sowing rate to achieve adequate plant density. Phalaris seed should be sown at a depth of 5 – 10 mm under the soil surface. Do not sow deeper than 20mm.

In the first 6 to 8 weeks it is critical to monitor new phalaris pastures as they are very susceptible to insect attack, weed competition and grazing damage. In dryer establishment conditions grazing should be avoided until after flowering and seed set has been complete, this will allow the young plants to developed a strong crown and prepare for dormancy over the summer ensuring survival for the following autumn. Where soil moisture is high during establishment a light graze when pasture is about 20 – 25cm tall back down to 10-15cm can enhance tillering.

Contact the professional team at Vickery Bros.

For healthy soils.

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- Boost hay and silage production
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- Nitrogen post silage
- Nitrogen for maximum summer crop yields

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