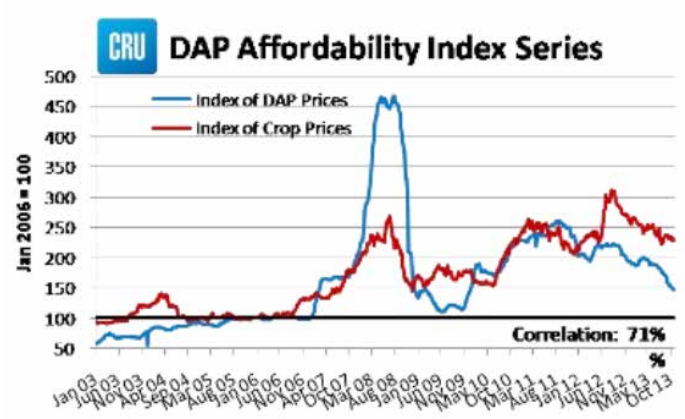
FERTILISER PRICING

Craig Tosetti

Over the past year we have seen a general reduction in the amounts of phosphorus applied in the western district, some farmers opting not to put out any, some choosing to reduce their application rates and others continuing as normal. To generalise the last 12 months, it has been a tough one for everybody but with a good spring under our belt and a better outlook on commodity prices, optimism is on the rise. To add to this optimism, world fertiliser prices have been falling resulting in cheaper fertiliser prices for the coming season. The price of phosphorus is approximately 10% cheaper than this time last year.

World DAP prices have steadily fallen from a high of US$517 FOB Tampa in April to US$350 FOB Tampa at the end of November. This equates to a large price reduction locally but part of this reduction has been offset by the fall in the Australian dollar from a high of $1.04 in April to where it is now sitting around the $0.91 range. Every 1 cent fall in the Australian dollar equates to an extra $5/tonne increase in the local DAP price. Even still, all forms of phosphorus whether it be cropping or pasture P will be very attractive this coming season, the lowest it has been in many years.

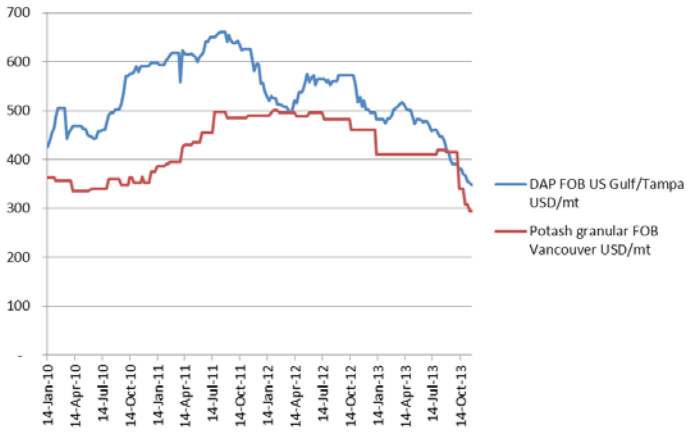
Below is a graph showing DAP affordability. When the fertiliser index falls relative to the crop index, this means that nutrients are increasingly affordable to farmers, as a share of the return they will receive for their production. As the spread narrows or even inverts, this suggests that fertilisers become less affordable on farm. For the past 12 months, DAP has maintained its affordability.



Source: CRU International

The next graph tracks the price movements of DAP & MOP over the past 3 years. You can clearly see the DAP price steadily reducing over the last year which will lead to very affordable phosphorus fertilisers for the coming season.

Potash use in South West Victoria has declined dramatically since the GFC, and whilst our soils have traditionally had low levels of K, we are now starting to see some very alarming potash deficiencies in a range of soils across our region. The graph shows a sharp reduction in the MOP price since August 2013 partly due to instability within the potash industry, this will lead to cheaper prices which will hopefully increase usage to address these potash deficiencies.



If you had to reduce your fertiliser application last year, this is the year to take advantage of the cheaper fertiliser on offer and get back on track with your soil nutrient levels to maximise your productivity and profit.

Contents:

IT'S NOT TOO EARLY TO APPLY PHOSPHORUS

Leighton Rees

There is much debate on when to apply phosphorus based fertilisers. This can quite often lead to confusion amongst growers who are concerned that incorrect timing and application can lead to loss of phosphorus.

Questions most commonly asked include:

- Am I wasting phosphorus?
- Will I get the full benefit out of applying phosphorus now?
- If I apply phosphorus now and get heavy rain will any of it be lost?
- Does phosphorus tie up occur in the soil?
- How long before it is available?
- Can I unlock tied up phosphorus?

Application of phosphorus generally occurs during summer and early autumn, to generate enough available phosphorus in the soil to supply and maintain the plants' growth needs over the peak growing periods. If applied too long after the break, plant growth can be restricted due to insufficient nutrient at peak plant growing periods. Studies have shown that summer applied superphosphate favours clover production but autumn applications favour grass species. Total yield and maturity however was no different.

Phosphorus fertiliser is unlike nitrogen as it will not volatilise or be lost into the atmosphere if applied before the autumn break. Most soils readily fix applied phosphorus which means that phosphorus remains within the top few centimetres of where it was applied. When a phosphorus granule is applied to the soil, it quickly absorbs moisture from the air and soil even in dry conditions. The process of phosphorus moving into the soil will start with very little rain, but rainfall will speed up the process. The phosphorus moves out of the granule and into the soil within 4 -7 days. Once at this stage, the phosphorus is held safely in the soil. What you see left on top of the ground is what we call the carrier which is the gypsum that holds the granule together. The chemical process which takes place at this time (fixation) causes the phosphorus to be tightly held by the soil. Applying fertiliser during the summer period means that phosphorus will be in a form that can be utilised by the plant and will be available when it is needed.

Phosphorus trials conducted at the Long Term Phosphate Trial in Hamilton showed that the highest losses caused by run off were at 0.3%. Research also showed that no difference in pasture yield occurred between applications in summer and autumn meaning that phosphorus can be applied a lot earlier than our traditional autumn application without any risk of loss at all.

In terms of tie up or fixing, the timing of application has no direct effect on the availability of phosphorus. Availability of phosphorus will vary with soil pH. Soils which typically tie up phosphorus are generally high in iron and aluminium and are at the lower end of the pH scale. Therefore applying lime to increase pH will help in reducing phosphorus tie up. Phosphorus is most available at a pH of 6-7. Avoid applying lime on high pH soils as this can lead to certain elements becoming less available. A long term history of phosphorus applications in excess of plant removal generally means that you will build up a reserve of P which can be utilised in years to come.

There are products on the market today that claim to unlock tied up phosphorus in the soil. There is no decent trial data to suggest that this actually works. Any depletion of phosphorus will need to eventually be replaced.

Avoid applying phosphorus if high rainfall is predicted within 4 days of application to eliminate any chance of loss or run off. Well fertilised pastures are generally well protected from phosphorus loss due to better groundcover.

In conclusion, we can see that early applications of phosphorus work just as well, if not better than applications close to or after the autumn break. The phosphorus is in the soil profile ready for the plant to utilise when the break arrives. Most years, fertiliser pricing is at its lowest during the summer period. So make the most of any early incentives offered and avoid the rush come autumn time.

CRICKETS

Rebecca Stewart

This coming season, once again there will be a need to control cricket populations on your property.

To effectively control the crickets for the upcoming season and years to come, timing is critical. Crickets are most effectively and efficiently controlled when they are at the late nymph and early adult stage. This means that you should be monitoring the populations at Christmas time although they could be hard to detect. By placing a hessian bag in areas where crickets have been active in the past, the numbers can be monitored weekly and you can get an idea of the severity of the population. When counting the numbers, 5-10 crickets/m2 are economically damaging.

If the crickets are not taken control of early and baited in Autumn, you have simply wasted time and money because the adults have already laid their eggs for the following season. One female adult cricket can lay between 500 and 1500 eggs over two to three months. If you are unsure of the amount that crickets consume: in a grazing situation, over one hectare, two crickets per square metre will consume the equivalent of one sheep. On a dairy pasture, an average density of 25 crickets per square metre can be responsible for 2000kg DM/ha/yr of lost production and in plague situations losses of up to 30kg DM/ha/day can occur. This can cause great losses within your pastures and you can even find yourself running short of feed. The damage which is done to crops by the crickets will vary depending on the availability of the food sources.

CONTROLS

To control the crickets there are two options that you can choose from, you can use a non-residual synthetic pyrethrin insecticide via a boom spray or spread baited grain. In a pasture which has green pick available for the crickets to eat, it is recommended that the paddock is sprayed with an insecticide but if there was no green pick available in the paddock it is recommended that baited grain be used because the crickets are guaranteed to eat it when there are no other food sources available.

Grain can be treated at our depot and spread by Vickery Bros. spreaders directly (usually at 15kg/ha) or if you are getting a fertiliser blend out of our depot, the baited grain can be added. Last year Vickery Bros. spread over 5000 hectares of baited grain with devastating effects on the cricket populations on those properties. Speak to your Vickery Bros Agronomist about taking these preventive measures as soon as possible.

SULPHUR IN PASTURES

Harry Armstrong

Many of the lighter sandy soils in our region are sulphur (S) responsive. For many years Single Superphosphate (SSP) has been widely used to provide available phosphorus (P) for our pastures. SSP is made by adding sulphuric acid – which contains S - to phosphate rock. Phosphate rock contains no S. The result of this process is SSP with an analysis of 9% P and 11% S, which is close to a one to one P and S ratio.

The regular use of SSP will usually keep S levels in pastures at reasonable levels.

S levels can fall in our pasture systems for many reasons, including the use of low S fertilisers, missed applications or wet winters and long springs which can leach S from the root zones of pastures.

ROLE OF SULPHUR IN PLANTS:

Nitrogen is a principal component of all amino acids used to make plant proteins and S is a principal component of three of them. S is essential for symbiotic fixation of nitrogen (N) by legumes, where rhizobia bacteria in root nodules use atmospheric N to produce amino acids and proteins.

Bruce Lewis discovered some interesting responses to N and S applied over winter and early spring in dairy pastures this year in the Heywood area. Responses were noted even in soils with adequate S levels. See Bruce's article in the previous newsletter.

SOIL SULPHUR:

Between 85-95% of a plant's S requirements are obtained from the organic matter present in the soil. Plants can only uptake S if it is in the sulphate form. This is called inorganic S. Elemental S (organic sulphur) requires biological breakdown (called oxidation) to convert it to the sulphate form, before it can become available for plant uptake.

Factors influencing the rate of breakdown or oxidation of organic S in the soil are:

1. Particle size
2. Temperature
3. Moisture and aeration
4. Soil pH
5. Organic matter
6. Microbial population

Of the above list, particle size is the most important. Particle size is the largest factor influencing the rate of oxidation from elemental S to plant available sulphate S. Oxidation occurs on the surface of the granule. Therefore, the surface area of the particle of S is vital. The smaller the particle the greater the relative surface area.

The elemental S sold in blends by Vickery Bros. is sulphur bentonite which is 90% pure elemental sulphur wrapped in bentonite clay. When sulphur bentonite is applied, the moisture in the soil is absorbed into the bentonite clay, which swells and breaks the pastille particle into very small sulphur particles in the range of 20-500 micron. Then bacteria naturally occurring in the soil convert the elemental sulphur into sulphate form, making it available for plant nutrition.

Elemental Sulphur + Oxygen + Water in the presence of bacteria = Sulphate Sulphur

The extremely fine particles (<75microns) can oxidise (become plant available) within days in ideal conditions, while the slightly larger particles provide S to the plant over the full length of the growing season.

WHICH IS BEST ELEMENTAL OR SULPHATE?

There is no good and bad, right or wrong when it comes to S. Each situation is different. Some of each is often the best strategy. Identifying your soil's S requirement is the starting point, so regular soil or tissue testing is useful. Given that S deficient soils are often also prone to low potassium levels, particularly in wet years, a blend containing phosphorus, potassium and sulphur can be formulated by Vickery Bros to meet your exact requirements year in, year out.

POTASSIUM (K) FOR PASTURES

Sophie Leonard

For optimum clover growth in pastures potassium is an important nutrient. Clover is less able to source potassium than grasses; so one of the first effects of low potassium is poor clover content. Clover drives the productivity of beef and sheep pastures due to nitrogen fixation. Higher animal performance is achieved on pastures with high clover content due to digestibility and protein.

While many soils have adequate soil potassium, there are still many that don't. We are also seeing large variations in potassium within paddocks . This is more noticeable on the more undulating lighter grazing country where slopes will often be low while the tablelands have adequate levels. This is due to nutrient transfer by stock as well as soil type changes. Dairy farms generally require much higher levels of potassium due to higher rainfall and higher nutrient removal and transfer. Low potassium levels can also seriously affect the longevity of a Lucerne stand.

Another common signs of potassium deficiency is paddocks continuously being overrun by insects. Potassium is known to affect the susceptibility of plants to pests and diseases by influencing tissue cell structures and biochemical processes. Physical resistance to pests is improved because adequate K supply ensures complete closure of plant stomata and increases lignifications of vascular tissue. Potassium deficient plants have low carbohydrate content.

The amount of potassium removed by cutting hay and removal from the paddock is quite dramatic. A tonne of hay can remove about 15 - 20 kg of potassium. A single hay crop could remove 40 – 80kg/ha of potassium (80 – 160kg/ha of potash). Cutting

a paddock regularly over couple of years can result in a run down of potassium resulting in weaker pastures.

Soil testing is the best method to monitor if potassium is required to be applied with the annual topdressing. Where Potassium is required, an application of 15-30 kg/ha would be most common in a beef/sheep operation. This year potash prices are much cheaper on the world market so it will be a good time to review your potassium status.

The photo's below show a potassium responsive hay paddock which received 200Kg/Ha of Hayboosta. This applied 47Kg/Ha of actual potassium nutrient.

10th September, 1 day before spreading

25th September, 14 days after spreading

31st October, 50 days after spreading

LIME OR GYPSUM

Rebecca Stewart

Lime and gypsum, known as soil conditioners, are two products that can be used to improve overall soil health and combat issues caused by the general wear and tear of farming life. They can be likened to a general tonic for soil, not to be confused with the specialised dietary requirements taken care of by other fertilisers.

Soil acidification (or a lowering of soil pH) in pastures occurs naturally when certain elements are leached from the soil. This occurs on a regular basis as agricultural commodities of wool, hay, meat and grain are shipped out the farm gate. The rates of acidification can vary depending on soil type, type of product removed and the frequency of removal. As a general rule, clover based pastures with little to no deep rooted perennial grasses present tend to acidify the soil more rapidly than pastures containing high levels of perennial grasses. This is because perennial grasses utilise the nitrate nitrogen in the soil that, when leached beyond the root zone of plants, has an acidifying effect on the soil.

Another issue we can encounter is a high sodium percentage within the soil, often caused naturally and by poor drainage, which therefore causes the soil to be dispersive (structurally unstable). Having a dispersive soil restricts root growth and reduces porosity of the soil, hence reducing crop growth and yields.

Lime and gypsum can be used to counteract these issues and increase the productivity of your land. However, it is crucial to conduct soil tests on your farm to ensure your money is not being wasted on incorrect products. A soil test will show the fertility status of your soil, predict how much lime/gypsum your soil requires for optimum health and can pick up problems that may arise in the future. There are many benefits of applying lime and gypsum but it must be understood the differences between the products.

Applying Lime:
- Reduces aluminium and other metal toxicities
- Helps improve the physical condition (pH) of the soil
- Stimulates microbial activity
- Increases the availability of several nutrients
- Supplies calcium
- Improves symbiotic nitrogen fixation by legumes in acid soils

Applying Gypsum:
- Supplies calcium to the soil when pH levels are high and lime is not required.
- Effective source of sulphur
- Helps in saline and sodic soils with the exchange of calcium for sodium in affected soils
- Improves soil structure

To arrange a check up of your soil's health before the peak season commences, contact your Vickery Bros. Agronomist today.

Table 1: Limestone required to lift the pH of the top 10cm of soil. Colour codes group limestone rates to the nearest 0.5t/ha

Soil test ECEC (cmol (+)/kg)	Lime required (t/ha) to lift the pH of the top 10 cm: From 4.0 to 5.2	From 4.3 to 5.2	From 4.7 to 5.2	From 5.2 to 5.5
1	1.6	0.8*	0.3*	0.2*
2	2.4	1.2	0.5*	0.4*
3	3.5	1.7	0.7	0.5*
4	3.9	2.1	0.9	0.6
5	4.7	2.5	1.1	0.7
6	5.5	3.0	1.2	0.8
7	6.3	3.3	1.4	1.0
8	7.1	3.8	1.6	1.1
9	7.9	4.2	1.8	1.2
10	8.7	4.6	1.9	1.3
15	12.5	6.7	2.8	1.9

*It is recognised that low rates of lime are impractical to apply, but over-liming can cause nutrient imbalances, particularly in these light soils.

KEY: Limestone rates per hectare

0.5 t/ha	1.0 t/ha	1.5 t/ha	2.0 t/ha	2.5 t/ha	3 to 4 t/ha	Split applications advised **

** Do not apply greater than 4 t/ha in a single application, so as to minimise any problems that could arise from over liming.

From: AgFacts NSW DPI, Soil acidity and liming

THE HIGH INPUT P STORY

Bruce Lewis

Farm profitability is closely linked to the correct use of fertiliser. Successful pasture production is achieved when well fertilised, high quality pastures are stocked at the appropriate grazing pressure.

Phosphorus is the key nutrient in SE Australia and the key nutrient in grazing systems in South West Victoria and South East S.A. The other important nutrients, potassium and sulphur, also need to be adequate to achieve the full benefit from applied phosphorus. Trace elements like copper and molybdenum also need to be adequate in an efficient grazing system. In alkaline soils zinc can be important.

It is about 25 years ago when I began working with Pivot and became involved with the Grassland Society of Victoria. At around that time the Department of Agriculture had been using a program called super rate which calculated the best economic rate to apply super to pastures. I found that some farmers were saying super rate was flawed. Commonly, super rate was telling farmers to reduce their super applications or in some cases to not apply any super. Some farmers had reverted back to applying higher rates that they had previously used. Some farmers stayed with applying much lower rates of super. It was about then that the results from the long term phosphate experiment at the PVI began to become available. This trial was originally set up by John Cayley, a dedicated scientist with a lot of knowledge and integrity who has since retired. It became apparent that much higher levels of fertility were the most profitable due to the interaction of grazing animals, pasture species and soil fertility. The higher phosphorus paddocks grew more pasture but also higher quality pasture with higher fertility species more dominant. Field days were held with the Grasslands Society and field walks over the phosphate experiment with speakers explaining why the large production gains were achieved. The high fertility paddocks were able to run higher stocking rates with the sheep still maintaining good condition. The high input P story had begun. High Input was probably an incorrect term as it was applying the most profitable and productive nutrient rate.

An experiment in taking the concept out to farms in the district was developed where paired paddocks with optimum nutrition were compared to existing practice. The project was managed by Geoff Saul from the PVI at Hamilton. Sites were selected at Vasey, Apsley, Lismore and Hamilton. The project found other issues were also important in these sites. The concept was later extended further to many farms from a wider area of Victoria under the triple P project under the management of the Grassland Society of Victoria.

Phosphorus recommendations have now become more refined than 20 years ago. Soil testing now determines the phosphorus buffering capacity as well as the plant available phosphorus (Olsen method or Colwell method). Soil testing also tests for a range of other important nutrients such as potassium and sulphur as well as pH and cations plus some selected trace elements. Tissue testing is the most accurate method of assessing trace element status of elements such as molybdenum, copper and zinc.

The long term phosphorus experiment at Hamilton found that the most profit occurred when applying 0.9kg of phosphorus per DSE. The figure is relatively insensitive to the changes in the cost of fertiliser and the price of meat and wool. The experiment found that stocking rate (DSE/ha) was a better indicator of the most profitable nutrient rate. Nutrient should be applied on a per DSE basis. This ensures that paddocks with the highest stocking rates receive the most fertiliser.

Phosphorus in the soil will react with iron and aluminium (in acidic soils) to form insoluble compounds. This phosphorus is known as fixed or sorbed phosphorus. It cannot be used directly by the plant but over time may become available through weathering of the soil particles. Most soil tests now test for the phosphorus buffer index (PBI). This test determines how reactive the soil is to applied phosphorus. Soils with a lower PBI will require less phosphorus to maintain and build up an adequate available soil phosphorus level.

A high proportion of the phosphorus consumed by livestock is returned to the soil in dung and urine. However much is transferred to stock camps within the paddock, leading to a rundown of phosphorus in the main area of the paddock. Stock camps are more pronounced on hilly terrain and set stocked areas. Stock camps are less pronounced on flat areas or where paddocks are rotationally grazed.

In 2005 John Cayley and Paul Quigley produced a publication with the DPI titled 'Phosphorus for sheep and beef pastures'. This publication explains all the issues discussed in detail and works through the phosphorus calculation based on soil type, grazing system and rainfall. If anyone would like a copy of the publication, contact me at Vickery Bros.

In association with soil and tissue testing, a sound fertiliser program can be developed covering the critical nutrients and also taking account of requirements for lime etc. The long term phosphorus experiment initiated a change in thinking and practice, which in the last 20 years has had a significant effect on the profitability of grazing properties in the region.

STUBBLE MANAGEMENT, WHAT TO DO?

James Stewart

As we get ready for harvest which is looking great in most places, apart from the odd wet patch, I am going to look at a topic that a lot of clients ask my opinion on.

Stubble!!

There are several options when tackling stubble. These include burning, physically removing (cutting, baling), or retaining it in the paddock. Wether it be standing or incorporated.

Let's start with burning.....

The main advantage of burning is it's a cheap option, while at the same time being quick and most of the time easy. It's a great option for long term cropping paddocks that have become dirty with weeds. Not being able to use herbicide sprays on wet areas the last couple of years has meant weeds such as ryegrass and radish have become heavily populated in certain cropping paddocks.

It improves insect control. I don't have to remind certain clients the problems they had with slugs at the start of this year.

And finally it improves disease control. Diseases that are carried over in retained stubble. Diseases such as scald, net blotch-net form and spot form and powdery mildew are all diseases related to barley. Wheat diseases carried through retained stubble are septoria and yellow leaf spot.

After hearing all that, you are probably thinking why aren't we burning every year?? As with all agricultural practices we have advantages and disadvantages.

The main disadvantage out of several is the loss of nutrients.

Unburnt soils contain nearly double the amounts of carbon and nitrogen and much more phosphorus than burnt soils. Unburnt soils have double the microbial biomass, and CO2 respiration is 3 times higher in unburnt soils.

WHAT IS THE VALUE OF CEREAL STRAW?

The grain/straw ratio of cereals varies with factors such as variety, seasonal conditions and soil fertility. This ratio is usually within the range of 1:1.5-2.

That is, a 4 tonne crop of wheat produces 6-8 tonne of straw per hectare.

So the way the season is panning out with mild temperatures and some spring rain, 5t/ha should be achievable (if you didn't get too wet) which will produce 7.5t/ha stubble.

AMOUNT OF NUTRIENTS IN STUBBLE (KG/HA)

Working on an average of all these nutrients, 62% of these amounts are lost during a hot burn.

Nutrients	Amount	Nutrients	Amount
N	56	Ca	9.7
P	5.9	Cu	0.015
K	109	Zn	0.23
S	7.2	Mn	0.26

Ref: Australian Farm Journal (December 2003).

So the amount of fertiliser needed to replace lost major nutrients (kg/ha)

Nutrients	Units
N	21.3 = 46 kg/ha Urea
P	2.3 = 26 kg/ha SSP
K	41.4 = 83 kg/ha MOP
S	2.7 = 17 kg/ha Gypsum
Ca	3.7 = 23 kg/ha Gypsum

Does not include trace elements Copper, Zinc, Manganese.

In hot fires, some surviving phosphorus and potassium which is not included above can be lost off-site in wind blown ash. You can also expect to lose 80% of the carbon from the stubble. So a 7.5t/ha stubble gives you around 3450kg/ha of carbon. Minus 80% meaning 2760kg/ha of carbon is lost in a hot burn.

So now you've got to this point of the article, you're wondering with the removal of all those nutrients maybe I should look at retaining stubbles. Let's look at the pros and cons of standing (retained) stubble to stubble incorporation.

Standing retained stubble...

Standing stubbles are great at protecting soils from losses due to wind and water erosion.

Standing stubbles normally work best with low stubble loads (2-3t/ha), in this case a small amount of stubble remains at the start of the following season to cause problems such as nitrogen tie-up, increased pest pressure (eg slugs, mice) or difficulties with ground preparation. Standing surface retention of stubble usually works better in dryland cropping systems in low rainfall areas meaning not all that suited for our area.

As stubble loads increase pest pressure also increases (eg slugs, snails & mice). Direct drilling into wheat stubble can reduce growth and yield of canola by 25%.

Reasons for this can be:

- Nitrogen is tied-up by microbes as they decompose the stubble and is not available for plants.
- Shading of seedlings by the standing stubble.
- Toxic by-products of decomposition affect seedlings.

To reduce some of these issues use wider row spacings, narrow points and press wheels, as a lot of you have already implemented.

Stubble Incorporation...

Every year more and more farmers are purchasing incorporating machines and there are a number of different manufactures making them.

Stubble incorporating means another implement that needs to be purchased on top of sowing/seeding gear. Otherwise contractors that have purchased incorporating machines should be available, meaning another pass of the paddock, meaning another cost.

Cultivation does cause a slight degradation of soil structure compared to soils with surface retained stubble, but soil structure is often better than in traditionally tilled soils where stubbles have been burnt. Cultivation can lead to an increase in the decomposing rate of organic matter.

In situations, where high surface stubble loads can cause problems such as affecting crop emergence or increased pest pressure, stubble incorporation may be a viable option?

There are some factors to consider.

Ploughing stubble in can mean there is less nitrogen available for the crop as micro-organisms use it to break down the crop residues. However, this hasn't been found to effect yields at crop maturity. Applying nitrogen to systems with incorporated stubble doesn't affect the organic carbon levels but does increase microbial activity which may in turn speed up the process of the stubble breaking down. Extra urea may be required to offset reduced nitrogen uptake efficiency, where there are low levels of soil nitrogen.

Other advantages of retained stubbles are:

- Increased moisture retention. Not that we needed it this year!!
- With increased organic matter which has been mentioned worm activity will increase.
- And of course the recycling of valuable nutrients retained in stubbles.

The several stubble management options that have been mentioned each have positives and negatives relating to them. They need to be studied in relation to your particular cropping system to determine the best approach. The issues you need to consider include:

- How convenient/efficient is the system.
- How the soil is affected.
- How it affects yield and plant establishment.
- How much does it cost?
- What environmental impact does it have?
- Does it make other problems worse (weeds, slugs)?

Good Luck and happy harvesting!!

TALL FESCUE, FRIEND OR FOE?

Harry Armstrong

KEY POINTS

- Tall fescue has greater summer growth than perennial ryegrass, with at least similar nutritive value.
- Grazing of tall fescue needs to be more strictly managed than perennial ryegrass to achieve its potential nutritive value.
- It is better adapted to hot and dry conditions than perennial ryegrass due to its deeper root system and higher temperature ceiling. This gives it some drought tolerance and a potential role in low rainfall regions.
- It can grow in less-fertile soils, but can also thrive in highly fertile situations, is tolerant to a wider range of pH and water logging conditions, and can achieve higher persistency than perennial ryegrass.
- Fescues can tolerate cricket damage much better than rye grass. Rye grass based pastures will not survive heavy cricket populations. Crickets should still be controlled in fescue paddocks though.
- Tall fescue is better suited to irrigation than rye grass as it tolerates hot conditions and actually grows when watered over summer rather than simply staying green (Summer active varieties).

SOWING TIMES AND RATES

The normal sowing rate for tall fescue is between 20 and 30 kg of seed/ha. The ideal soil temperature is between 12 and 15°C. The choice between autumn and spring sowing depends on the cultivar's seasonality of growth, the region's reliability of seasonal rainfall, the weed management plan and the soil's capacity to retain moisture from the previous crop.

In general, spring sowings are quicker to establish but weed infestations can be a problem and the plants are more exposed to summer droughts. Autumn sowings are slower to establish but less exposed to weeds and drought as the plant will have a more developed root system by the start of the summer period.

Tall fescue takes longer than perennial ryegrass to become established and start producing a substantial amount of feed. Germination is normally slower and soil temperature has more influence in the first year.

Care must be taken during the first year of a tall fescue pasture to ensure a successful establishment. The first grazing should not occur until the plants are at least 10 cm in height and firmly rooted.

If sown in a mix with other grasses, tall fescue may be out competed by other species that establish more vigorously.

PADDOCK PREPARATION

The target soil fertility for a good establishment of tall fescue is from 20 to 30 ppm Olsen P, 15 ppm sulphate S (KCl40) and 250 ppm Colwell K. Weed control before sowing is crucial because tall fescue's establishment and growth during the first year is slow and any competition from weeds can reduce the density of the pasture. Tall fescue can be sown either by conventional or direct drilling, going no deeper than 10 mm.

SUMMER OR WINTER ACTIVE VARIETIES?

There are two distinct types of fescues available.
Summer active (Continental)
Winter active (Mediterranean)

Summer active varieties are well suited to high rainfall, heavy textured or clay soils and can cope with water logging and mild salinity. As the name suggests summer active fescues will provide green feed in late spring, early summer when ryegrass pastures have dried off. Suitable for irrigation.

Winter active types are mostly quite dormant over summer and suited to more lighter textured soils than the summer active types. Very light sandy or gravelly soils are usually better suited to phalaris and cocksfoot. It's the summer dormancy that gives the winter active fescues their drought tolerance. Because they don't respond to summer rainfall events like ryegrass will, there is no danger of overgrazing them at this time of year. Winter active types (particularly Fraydo) have quite good seedling vigour compared to the summer active types, but they both need to be carefully grazed in the establishment phase to avoid pulling and overgrazing. Some of the winter actives have quite an erect growth habit when young which can lead to overgrazing.

COMPATIBILITY

Fescue based pastures are very compatible with clovers, particularly in their early years where they are often clover dominant until the fescue thickens up. But even when mature, fescue based pastures seem to have high clover content.

Phalaris and fescue are often sown together successfully.

LIVESTOCK PERFORMANCE AND GRAZING MANAGEMENT

During early-mid spring, tall fescue pastures must be grazed more frequently and severely than for the rest of the year to control pasture cover and seed head formation. Failure to do so leads to a loss of pasture nutritive value and associated palatability issues. The failure to control fescue growth in spring is a major reason for it having such a poor reputation

with many farmers. Keeping it in a vegetative state for as long as possible in spring with very high stocking pressure is a real challenge, so you would not want to have your whole farm sown to it. If you are losing the battle to control spring growth of your fescue paddocks you can always resort to the mower and make some silage or hay from it. See photo.

Earlier this season we saw many cases of phalaris sudden death and phalaris staggers. A couple of fescue based paddocks on your farm can give you somewhere to go while the phalaris is in its toxic stage. Even mixing fescue and phalaris as mentioned earlier in this article could help in this regard as it may dilute the phalaris enough to reduce the incidence of phalaris toxicity.

MYTH BUSTERS: DOES SUPERPHOSPHATE KILL EARTH WORMS?

Sophie Leonard

During my travels to Field Days and visits on properties, I have talked to clients and various professionals and have noticed that there are some questions that have not been able to be answered satisfactorily. These questions have turned into farming "Myths". I will endeavor to shed light on these "Myths" and will make this a regular "Myth Buster" article in the Vickery Bros. newsletter.

The first question to tackle is: "Does superphosphate kill my earthworms?"

The record has been set straight by Dairy New Zealand, stating after various intensive studies that soluble fertilisers, such as superphosphate does not kill worm life; it actually increases worm population.

So, there is a mistaken belief that urea and superphosphate destroy earthworms, when actually fertilisers such as these often increase earthworm populations by providing a continual food supply. Earthworms are primary decomposers feeding on organic matter such as dead plant material and dung; growing their numbers as quality and quantity of organic matter increases. An example provided by the Dairy NZ study was an undulating pasture, grazed by sheep that had received 375kg/ha/year of superphosphate since 1980. Earthworm populations were recorded in excess of 1000m2, whereas a pasture that had no fertiliser for 26 years had half the population.

Most damage to earthworm populations is done in the winter through soil pugging; so there should be an emphasis on management practices to maintain healthy earthworm population. Winter and early spring are when earthworms are most active, but also most vulnerable to pugging damage which can reduce numbers and activity. Reducing stock off these very wet areas and maintaining ground cover should reduce this. Maintaining good soil fertility will increase the overall health of soil, organic matter, livestock and earth worms.

If you would like a specific topic discussed or a myth to be busted in the next newsletter, please let me know.

LEG BINS NOW DIRECT FROM VICKERY BROS

Due to the sale by Jamie Compton of his bin delivery service (which included bins we owned) and the subsequent demise of the people who took it over, Vickery Bros. are once again delivering leg bins to the farmers who use this service. To demonstrate our commitment to this part of the business we have recently built 16 new user friendly bins as well as purchased a rigid truck and 2 trailers to continue the service in our dairy market which runs from Warrnambool through to Millicent S.A.

DAIRY PASTURE NUTRITION

Bruce Lewis

With improving seasonal conditions and prices for the dairy industry, it's time to reassess soil nutrient statuses and put together a nutrient plan for 2014. With tight budgets over the past year, many farms have kept productivity as high as possible, working at minimum cost which in some instances has meant not fully maintaining nutrients such as phosphorus and potassium. Nutrients can be shifted around the farm with dung and urine or imported into the farm with feeding fodder and concentrates. The best way to assess your farm's present status for these macro nutrients is to conduct soil tests.

Soil nutrient status will decline from optimum levels if insufficient nutrients are applied to match nutrients removed with product sold off the farm or paddock. Nutrients are also required to balance soil loss factors such as leaching and fixation. Nutrient levels may build up where extensive feeding has taken place such as in sacrifice paddocks. Applying effluent back onto the pasture also reduces losses through transfer.

Maintenance fertiliser applications are the required nutrients to keep the soil nutrient status at a steady level. To work out the amount of fertiliser to achieve maintenance, a nutrient budget can be developed taking into account nutrients sold off the farm such as milk, fodder etc. Nutrients imported onto the farm with feed and soil losses also need to be accounted for.

Capital fertiliser applications are where nutrients are applied at a greater rate than is needed for maintenance. Capital fertiliser can be calculated to take the soil nutrient status from the present level to the target level. This can be calculated to occur over a single year or over several years.

Soil phosphorus is an important nutrient that is naturally low in most Australian soils. There has been extensive research carried out for dairy situations in Australia with the Phosphorus for Dairy Farms project. The optimum soil phosphorus has been found to be 18 to 22 mg/kg using the Olsen soil test method. At an Olsen P of 22, 98% of the production has been achieved as related to phosphorus nutrition. The soil test service provided by Vickery Bros through Nutrient Advantage measures Olsen phosphorus plus the soil phosphorus buffer index. The phosphorus buffering capacity is a soil characteristic that influences reactions between soil and phosphorus fertiliser. A soil with a high buffering capacity requires up to 3 times more phosphorus to give the same result as a soil with a low phosphorus capacity. Soils with high iron and aluminium levels such as red volcanic soils (red Krasnozems) and acidic peats generally have a high phosphorus buffering capacity. Lighter textured soils such as sandy loams tend to have a low phosphorus buffering capacity. The amount of capital P required to raise the soil Olsen P by 1 unit is variable depending on the soil buffering capacity. Table 1 shows this relationship.

Table 1 - The amount of Capital P (kg/ha) required to raise soil Olsen P by one unit

PBI Class	PBI Value	Kg P/ Unit of P	Equivalent Rate of Superphosphate
Very Low	0 to 50	5	57
Low	50 to 100	7	80
Moderate	100 to 200	9	102
High	200 to 300	11	125
Very High	300 to 600	13	148
Extremely high	Over 600	15	170

The amount of capital potassium required to raise soil levels of available potassium range vary depending on the amount of clay in the soil. Table 2 shows this relationship.

Table 2 – The amount of capital potassium (kg/ha) required to raise the nutrient level by one unit (1mg/kg)

Soil Type	Potassium (kg K/Unit of K)
Sand	1
Sandy Loam	1
Clay Loam	1
Clay/Red Soil	2
Peat	2

For example, to raise the level of potassium (K) by 30 units in a clay loam soil, approximately 30kg of K above that required for maintenance.

Sufficient sulphur is generally applied if single superphosphate is used to apply phosphorus. Lighter textured soils have a higher requirement for sulphur than clays as sulphur is mobile in the soil and easily leached. Sulphur will also enhance nitrogen responses in mid late winter when sulphur mineralisation is minimal.

Target 10 developed a nutrient budgeting tool called NutriMatch. NutriMatch is a spreadsheet that will calculate maintenance nutrient requirements based on production levels and nutrient exports and imports. The program will also calculate capital requirements based on nominated target levels and over a nominated time (years). If you would like to have your farm's production details run through NutriMatch, give your Vickery Bros Agronomist a call.

References; Fertilising Dairy Pastures – Target 10

Contact the professional team at Vickery Bros.

Where everything's covered.

Agronomy Team

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Depots

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Mount Gambier 0408 646 220 Frances 0418 330 267 Casterton 03 5575 2777

SEASONAL REMINDERS

- ☐ Establish farm nutrient plan
- ☐ Ensure your fertiliser dumpsite is graded
- ☐ Control crickets early
- ☐ Falling potassium levels need to be addressed
- ☐ Take advantage of the Lime deal

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