

VICKERY BROS.

THE FERTILISER PROFESSIONALS

VICKERY BROS AGRONOMY

THE FERTILISER PROFESSIONALS

Summer 2017-2018



FERTILISER PRICING

Craig Tosetti

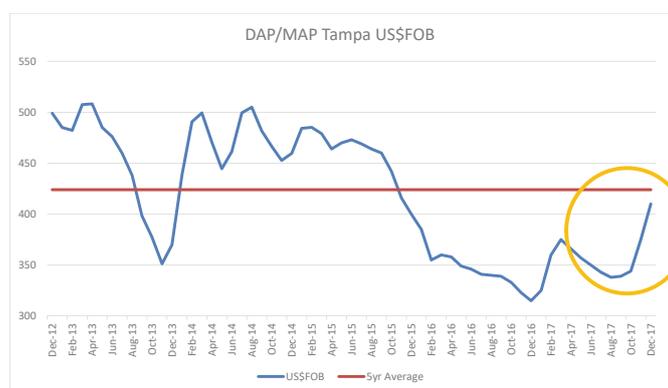
Each year around this time, we are crunching numbers with a view to take strategic positions to purchase part of our Phosphorous and Ammonium Phosphate requirements for the coming

Summer/Autumn spreading and cropping season. Fertiliser importers are busy securing tonnage from international sources to ensure product arrives in Australia at a competitive price for “just in time” delivery. The first ships are bought “spot” with the remaining secured under “formula pricing” which in layman terms is an average of the world price over the last 30 days before ship loading. The main factors globally influencing prices is naturally supply and demand. Fertiliser worldwide is always quoted and traded in \$US under world parity. For us in Australia, the Aussie dollar now being 25% below the \$US makes for another equation. Every day Geoff and I receive fertiliser reports showing what is happening around the world helping us make informed purchasing decisions to secure the best prices and timely arrivals on behalf of our customers. In our weekly agronomy meeting, the feedback coming through is that we are expecting another very strong and busy Summer/Autumn fertiliser season after a great Spring. Vickery Bros ongoing fleet replacement program includes 2 new MAN spreaders for the coming season and a decision has been made to keep the spreaders due to be sold as extra “backups” for the predicted onslaught this Summer/Autumn.

DAP/MAP:

World prices have risen quickly over the last month as seen in the graph DAP/MAP Tampa US\$FOB. However, looking over the last 5 years; we are still below the average. Prices have been affected by the much-publicised hurricane Irma that hit the Florida coast causing damage to fertiliser production facilities. This contributed to Florida’s Plant City production facility that produces 2 million tonne per annum being closed down for maintenance and repairs for the next year or more. Also, the normal exports from China have been dramatically reduced due to massive Chinese local

demand. Chinese producers are achieving domestically \$20t U.S. more than export. This has meant suppliers like WengFu and others have had to look elsewhere for tonnes to fulfil their requirements. All this translates to higher local pricing compared to this time last year. The best deals will be found buying early and storing your cropping fertiliser.



SUPERPHOSPHATE:

Single super pricing usually follows the price of DAP/MAP and this year will be no different. Prices have recently started coming off a low base and will definitely follow the world Phosphorous price. Input costs in manufacturing such as the escalating price of sulphur will also compound this. The best prices this season will be seen in December and January; so don’t miss out on securing your pasture topdressing requirements early. Last season we had a late start due to the prolonged Spring and a heavy early break in the third week of March. The “perfect storm” for a fertiliser distributor which meant there were some late orders that were unable to be completed. We can absolutely guarantee you that early delivery of fertiliser this season will be a lot cheaper than supply March onwards. This newsletter might be a bit repetitive in articles showing the agronomic benefits of early application; but the \$\$\$ that can be saved this year by going early will be a definite added bonus; so get in early and beat the rush and ensure the nutrient is in the soil ready to work before the break.

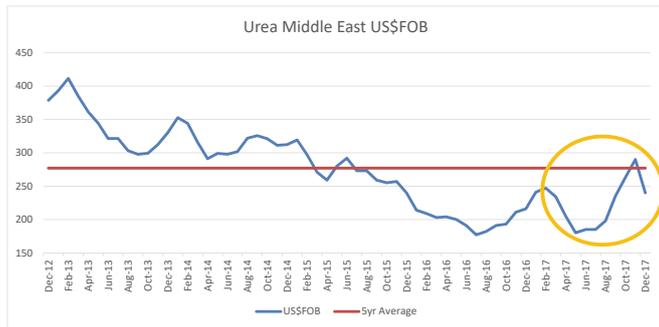
UREA:

After a great winter/spring period where urea prices were at historically low levels, we saw a large spike late September. World demand outweighed supply which increased prices by US\$80FOB in a matter of 2 months (see graph Urea Middle East US\$FOB). This increase has started to quickly reverse after a huge Indian tender was cancelled, and those allocated

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tonnes now have to find a new home. We should expect to see a further downward trend over the coming months and lower prices heading into next year's cropping program.



The best Summer/Autumn seasons prices will be found early so make sure you are in contact with one of our Agronomists who can give you the right advice on your fertiliser requirements.

NEW HAMILTON DEPOT.

Have you been to our new Hamilton depot yet? The depot located at 251 South Boundary Rd Hamilton being shared with our related company Southern Soils Fertiliser has been turned into a state of the art facility containing a 9-hopper double ribbon blender capable of dispatching 3-4 tonne a minute (that's a B Double load in approx. 15 minutes) along with the ability to coat Copper, Zinc, Moly and Flutriafol to every granule. The depot is

conveniently located on the outskirts of Hamilton for easy truck access and quick truck turnarounds and contains all the range of fertilisers Vickery Bros. carries. The friendly staff will be glad to help you with any fertiliser requirements. Go check it out, it's the big blue shed, you won't miss it.

We have also recently purchased the old Coleraine Newsagency building and have been converting it into our new offices. Our current location at 105 Whyte Street whilst being described as "cosy" is not conducive for office administration or customer service and our Workshop administration people will move away from the noise into this building. We expect to be working out of our new offices early in the new year so come and see us at 96 Whyte Street, Coleraine.



LIME DOESN'T WORK OVERNIGHT

When it comes to organising your farms' nutrient plan for the upcoming season it is not uncommon to get your lime applied while the spreader is on farm.

However, consider this; the full effects of lime application take from 6 to 12 months to completely dissociate the acid (H+) ions from within the soil. Compare this time frame to the establishment of a new sown pasture, which only takes a couple of weeks.

The time, effort and costs it takes to establish a new pasture can be huge. Without ensuring the pH and aluminium are at optimal levels, plant germination and establishment will be compromised.

The root system of germinating plants' is very sensitive to soil acidity and aluminium toxicity. Without removing the aluminium levels to what is a safe range (<5% Aluminium Saturation), the plants can be greatly affected right from the beginning of their life cycle. Soils naturally acidify as product is removed off the farm. There is no way that we can reverse

this natural processes of calcium reduction in the soil. As the soil acidifies, nutrients become less available for plant uptake as they become bound up by other ions. Ensuring that the pH is relatively neutral will assist plants in accessing nutrients freely from the soil. For both germinating and establishing pastures, accessing as much nutrient as possible, freely through the solution is essential for growth and development. With all soils; as calcium decreases, aluminium increases and causes problems with root growth. Not only does Aluminium retard root growth, it also binds to phosphate ions and makes them insoluble, therefore reducing plant available phosphorus. Before applying your annual phosphate fertiliser, doesn't it seem logical to alleviate the aluminium issue prior to applying more P?

Ideally, lime should be applied as early as possible the season before to ensure breakdown of the calcium carbonate. There is less demand on spreading contractors at this time and with the current lime deal; payment deferred until April 2018; why not get your lime out and get it working before the bulk of your fertiliser is spread? As always...being proactive rather than reactive is key.



TIMING OF APPLICATION

Roger Gee

The long spring of 2016 followed by a cool summer saw many farms carry a green pick through to autumn, building condition on stock destined for the autumn markets. Interestingly as a result of this, and firm stock

prices, there was a larger demand for lime and fertiliser, which was a great boost for the pastoral industry. Unfortunately it occurred quite late in autumn and throughout the winter, which stretched our operational capacity before wet finally set in.

In an effort to start the fertiliser decision process earlier, we should look at opportunities gained by applying fertiliser earlier in the season. There has been strong interest in the Lime promotion currently running, and discussing 2018 fertiliser requirements is the natural follow on.

Pastures need access to readily available nutrients such as phosphorus and sulphur prior to the autumn break for strong growth. Research by Agriculture Victoria indicates that spreading super is equally as effective in either summer or autumn. It has also shown that applying phosphorus fertiliser earlier than the traditional autumn application does not increase the likelihood of phosphorus losses through run-off.¹

Super does not require rain to move the phosphorus into the soil. A light dew, or minimal moisture from the soil or atmosphere is all that is required for the phosphorus to be released. The phosphorus will then be available when the break comes, and you can sit back and watch your pastures grow.²

Summer/Early Autumn applications are able to increase pasture growth through autumn and winter, when there is usually a feed shortage. Applications to dry firm paddocks help avoid spreading and paddock damage issues.

Pasture fertilisers; apply before the opening rains, and before new seasons clover has germinated, particularly if soil fertility is below optimum levels. When you need feed to finish livestock, it is particularly important to push pasture growth early before

it naturally slows during the cooler months.

Perennial pastures that are deficient or low in Phosphorus will:

- ➔ Be slow to respond to rainfall
- ➔ Produce less feed (dry matter)
- ➔ Be less competitive with weeds
- ➔ Become invaded by undesirable species
- ➔ Likely to become nitrogen deficient, as pasture legumes fall out.

An early planned and timed fertiliser program/application will usually deliver a significant increase in pasture production assuming that other factors, such as moisture, or pasture weeds are not limiting growth. It is important that this increased pasture production be utilised to maximise the return on the investment in fertiliser.

Not knowing when the new season break will occur and missing your optimal window for topdressing pastures, consider the benefits of fertilising pastures in summer. From an operational perspective, it couldn't be better. With your fertiliser job at the top of the list, at this time of the year you can take advantage of good prices and beat the rush with good truck and spreader availability.

While current stock prices have softened, projections are buoyant markets will continue, providing an opportunity to review pasture inputs and fertiliser applications. Therefore increase pasture productivity and carrying capacity. The amount of fertiliser needed and the rates required will depend on existing soil fertility, pasture composition and production targets.

Why not talk to one of Vickery Bros. agronomists today and develop a fertiliser plan for this summer, based on soil and plant tissue testing. Beat the rush!

1 McLachlan, KD. (1961) Time of application of superphosphate and the yield of pasture on an acid soil. Australian Journal of Experimental Agriculture and Animal Husbandry. Vol 1, 81-84.

2 The Agronomy Community, Agronomic Insight, 9 December 2016



**PRICE
RISES
COMING**

As of **1st January 2018** the price of lime will be increasing due to manufacturing costs across all suppliers. Increases from \$2-\$3 per tonne will be seen from all lime producers. Get your lime delivered in 2017 to beat this price rise.

**Uncertain of your soil pH?
Take advantage of our soil
testing offer!**

**Deliver & spread
lime between
November and
January to take
advantage of our
deferred payment
until April 2018**

**Lime
Deal**



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SOIL HEALTH STATUS – WHAT ARE WE SEEING?

Rebecca Stewart

The spring soil testing program has been in full swing at Vickery Bros. with 2018 just around the corner. An increase in rainfall and pasture production since 2016 has seen the soil nutrient status' exacerbated to levels lower than anticipated considering the application history.

As a group, Vickery Bros.' six agronomists have been doing around 2500 soil tests a year over a vast range of soil types; from deep sands to heavy cracking clays. Significant trends have appeared through the analysed data irrespective of the different soils. The levels of deficiencies stated in the following article have been analysed from soils sampled between August and mid-November.

We all know the importance of Phosphorus and the implications P deficient soils have on productivity and profitability. As the key driver in all our systems, this is the most looked at nutrient on our soil tests.

The data illustrates that 68% of soils sampled have an Olsen P level less than 15mg/kg compared to 3 years ago when the soil tests were showing only 51% deficient. It illustrates removal rates of P have increased over the past few good seasons with larger stocking rates throughout the farm to utilise feed. Consuming feed in the paddock by cutting or heavily grazing is not a bad thing; we just need to be mindful that we are removing more nutrient and what you remove...you must replace!

With the amount of hay cut 2016 and two years of wet weather, it is not surprising that the levels of Potassium are lower than optimal in a lot of the soil tests. Optimal K ranges vary throughout soil type with sandy soil types requiring more than 110mg/kg whereas a heavy clay requires a minimum soil level of 180mg/kg.

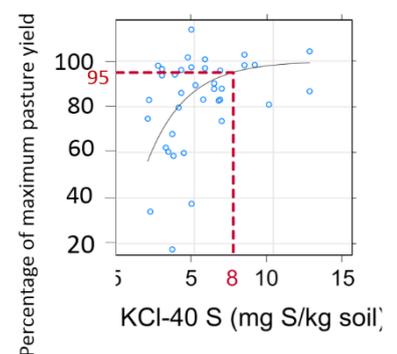
Deficiencies are ranging from 67% on clay loam soil and sandy soils show a massive 87% below desired levels. As a mobile nutrient, K can leach through the soil profile easily under wet conditions when not being utilised. As a consequence, you can start to see weeds such as sorrel and dandelion creep into the paddock. The clover growth within the paddock will eventually reduce and you will be able to see definite potassium responses



within urine and dung patches in the spring time. The cost of K applications in recent years has put people off topping up marginally deficient paddocks. With the cost being as low as it is now (around \$1/kg of K) it has never been a better time to address deficiencies and increase production on farm through K applications. The importance of potassium applications on pastures is somewhat understated and farmers need to be aware of the impact it has on the health and production of plants.

In farming systems pushing clover production and wool growth; Sulphur is a key driver. The importance of S within cropping systems when applying nitrogen must also not be forgotten. The need for nitrogen and sulphur together has shown that a ratio of around 15:1 in plants is required to maintain healthy growth. Sulphur levels will start to inhibit growth when the ratio exceeds 17:1. As with all nutrients, pasture yield is greatly affected when there are deficiencies. As you can see from the graph with the pasture production curve; most of the soil tests I am seeing are lower than 5mg/kg of S. Under these levels the pasture yield will only be between 60-80% of their maximum. As a highly mobile nutrient, sulphur can leach more than potassium throughout the winter, especially on lighter soil types. In the past, the use of Single Super to supply the pasture's P and S requirements has been enough for the season. However, over the past few wet periods, our S levels have been compromised.

83% of soils analysed have S levels less than 10mg/kg! The use of higher analysis P fertilisers with limited S through tougher seasons have led to decreases in the S levels. On lighter country through the wet seasons we have seen the use of elemental sulphur more than the general sulphate sulphur that you get in single super. Elemental Sulphur is not water soluble and can therefore not leach through the soil profile as it is required to be broken down by bacteria into the sulphate form. The elemental sulphur that Vickery Bros. use will break down over a period of 40-50 weeks depending on the levels of bacteria, moisture and organic matter within the soil. Using a blend of the two forms of sulphur has been seen to be making quite a difference on properties that have needed that little bit of extra sulphur to get through the season.



References;

Systems, S. (2017). *Soil Management Systems - Custom Page*. [online] Soilms.com.au. Available at: http://www.soilms.com.au/business/sms/base.aspx?file=1210010920_sulphurn [Accessed 19 Oct. 2017].

McLaren, R. and Cameron, K. (2005). *Soil science*. Auckland [u.a.]: Oxford Univ. Press



PHOSPHORUS CYCLE

Franzi Riegger

Phosphorus (P) is a very complex nutrient. To be more specific it is the most chemically reactive element. Besides this, it is a key ingredient for successful farming as it is required by all plant and crop

types for photosynthesis, energy storage, early root growth, seed formation and much more.

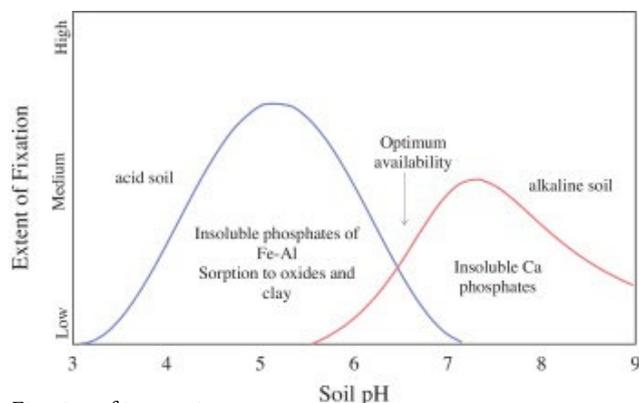
Generally people have two different views on what happens when phosphorus is applied to pastures. Some assume that each application of P feeds the pasture directly and boosts pasture growth straight away; and others view it differently, assuming that most of the P applied to the soil gets “locked up” and cannot get accessed by the plants.

Both views are not quite right, that’s why we need to look at what actually happens in the soil:

PHOSPHORUS - FROM FERTILISER TO SOIL:

When a superphosphate granule first hits the ground, it draws moisture from the air and/or the soil and dissolves. The area around the granule becomes highly acidic causing iron, aluminium, calcium and manganese to dissolve. These then react with the phosphorus forming a solid compound. These compounds will be 10 – 30 times less soluble than the original fertiliser granule and are responsible for some of the phosphorus that becomes less available in the soil.

The greater portion that moves in the soil solution reacts with the surfaces of clay minerals. This process is called adsorption. It initially binds with the most reactive sites that hold the strongest. As more phosphorus is added, these sites saturate and any additional phosphorus then binds to sites that hold it less tightly. This results in every additional unit of P to be more readily available than the last.



Fixation of inorganic phosphorus at varying pH

This process is influenced by the pH and varies according to the soil clay minerals and exchangeable aluminium in the soil as shown in the graph, with the optimal phosphorus availability

at a pH (in water) of 6.5. (Note: most soils in this area are acidic and have a pH of a lot less than 6.5. Check your soil test results. We can manage the soil for a healthy pH by applying lime.)

Now we know that the soil type is one of the big factors that determines the solubility of phosphorus. An index called the Phosphorus Buffering Index (PBI), which is also presented in every soil test result, is a measurement defining how well a soil can buffer the phosphorus availability as new phosphorus is added to the soil. The higher the PBI, the more phosphorus is needed in order to see a change in the availability of P. Contrarily, it takes longer for the phosphorus availability to drop as phosphorus is removed in plant products.

Soil Type	PBI	Amount of P to raise Olsen P by 1 unit (kg/ha)
Sand	0 to 50	6
Sandy loam	51 to 100	8
Sandy clay loam	101 to 300	9
Silty clay loam	101 to 300	9
Clay loam	301 to 400	10
Clay	401 to 500	11
Volcanic clay	501 to 600	13
Peat	Over 600	15

For example: A clay loam with a current Olsen P of 12, a PBI of 320 and a target Olsen P of 15 needs 10kg/ha of P to raise the Olsen P by 1 Unit. So in total we need to apply 30kg/ha of P as a Capital fertiliser application to reach the optimum Olsen P level of 15. This is equivalent to 340kg/ha of Single Super or 136kg/ha of MAP.

To maintain Phosphorus levels it is important to replace the amount of P that is removed throughout the year in animal products. Which generally spoken is around 0.8kg/ha of P per DSE. If you are running 15DSE/ha you are removing 12kg/ha of P and need to replace this with the equivalent of 136kg/ha of Single Super of maintenance application.

A long term history of phosphorus fertiliser applications in excess of plant and animal removal generally means that you will build up a reserve of P, which can be utilised in years to come.

A first step to the right phosphorus application rate however is a regular soil test to assess the current phosphorus and pH levels and to monitor these in the following years.

In terms of timing of the phosphorus application; there is no effect on the availability of the phosphorus as to when fertiliser is spread. Early applications of your ‘autumn fertiliser’ during summer work just as fine, if not better, than applications close to or after the autumn break. The phosphorus is in the soil profile ready for the plant to access with the first rains. In most years, summer is also the time where fertiliser prices are at their lowest.

Take home messages:

- Building up the phosphorus soil reserves will make more phosphorus available to the plant, regardless of how and when it is applied.
- It is not just the plant available phosphorus that is of value. It is the total phosphorus in the soil that is of importance.
- Phosphorus being fixed by most soils is a good thing as it prevents leaching losses.
- There is no need to be concerned about “lock-up”. If a balanced phosphorus regime is maintained, everything that you apply will be used in the long run.



Long term Phosphate trial in 2005, L: 23P - 19DSE, R: 0P - 6DSE



WHY IS MY OLSEN P STILL LOW?

Harry Armstrong

We often hear from clients who are frustrated by soil tests showing Olsen P levels in single figures after what they describe as decades of annual fertiliser applications.

There are a few factors to consider

as to why. Stocking rates have often increased over time and livestock enterprise mixes have also changed in some cases. For example either a complete change from a self-replacing merino flock with a % of wethers to a prime lamb operation running XB ewes. These changes obviously increase the maintenance phosphorus (P) required annually. There have also been changes to the pasture base in some situations via the introduction of improved cultivars. Some of these new cultivars have a higher requirement for not only P but also potassium (K).

The following calculations show what is required to not only maintain but to also increase the soil phosphorus (P) levels.

Using a fairly typical soil test as an example;

Olsen P level of 10mg/kg and a moderate Phosphorus Buffering Index (PBI) of 120. PBI on your soil test is a useful measure that enables you to calculate the amount of capital P required over and above maintenance to raise your Olsen P by 1 unit. (See article by Franz). At an Olsen P of 10 mg/kg and a PBI of 120, it will take 9kg/P/ha over and above maintenance to raise the Olsen P by 1 unit.

A maintenance annual P requirement is calculated from stocking rate. Most soils in SW Victoria have a maintenance P requirement of 0.8kg/P/DSE. This will vary depending on soil type. Lighter soils need less and heavy clay soils need more. At a typical stocking rate of 13 DSE/ha we calculate the maintenance P requirement to be 13 X 0.8 = 10.4kg/P/ha.

To take the Olsen P in this paddock from 10mg/kg to the desired level of 15mg/kg we do the following calculation:

Stocking rate at 13DSE/ha X 0.8 = 10.4kg/P/ha maintenance required. Target Olsen P is 15mg/kg so that's an increase of 4.6mg/kg. 9kg/P/ha is required to raise Olsen P by 1 so 9 X

4.6 = 41.4kg/P/ha + maintenance of 10.4kg/P/ha = a total of 51.8kg/P/ha required to get to the target of 15 Olsen P in 1 year. This is equivalent to 589kg/ha of Single Superphosphate (SSP). If P was applied at say, 13kg/P/ha (148kg/ha SSP) annually to this paddock, which is 2.6kg/P/ha above maintenance, it would take nearly 16 years to reach the target of 15 Olsen P!

The target Olsen P of 15 could be reached all at once (as above) or spread over 2 years @ 353kg/ha, 3 years @ 275kg/ha or 4 years at 235kg/ha. Other strategies regarding capital P applications can involve the use of high analysis P products such as DAP or MAP.

Many years of research done by DPI at Hamilton on the Long Term Phosphate Experiment (LTPE) indicate that the most profitable levels of P were around 15 Olsen P with stocking rates of between 13 and 17DSE/ha. These pastures required between 10 and 20kg/P/ha applied annually to maintain them.

Pasture growth, composition and nutritional value all improve when P levels are raised from 8mg/kg to 15mg/kg Olsen P.

This has been very evident in the recent capital P trial Vickery Bros. have been conducting at Waratah (near Cavendish) over the last 4 years. The Waratah trial will continue to be treated and we will keep you updated as we measure and analyse the results.





SULPHUR

James Stewart

With this season finishing well once again, the soil tests (see article by Rebecca) are consistently showing that Sulphur is deficient. This has been apparent for a number of years now although there have been long

term applications of single super.

A lot of people are asking why is this happening? Well there are a number of reasons...

PRODUCT REMOVAL:

Cropping -

Cropping enterprises remove around 3kg of sulphur per tonne of grain with all cereals. If the stubble is burnt or cut, 1 unit of S per tonne of stubble is removed. As an example, in a 4t wheat crop, you will remove the following amounts of sulphur:

4t wheat crop, using grain/stubble ratio of 1:1.25 means you will be left with 5t/ha of stubble on the ground. If you are to burn this stubble you will be removing 5kg/ha of sulphur.

Grain removal of a 4t/ha wheat crop: $4 \times 3 = 12\text{kg/ha}$ of sulphur. Total removal from crop: $12 + 5 = 17\text{kg/ha}$ sulphur

If we look at another example using canola, it uses quite a bit of sulphur and can range between varieties. Every tonne of oilseed removes between 7 and 9kg/ha of sulphur. Using an example of a 2t/ha canola crop.

Oilseed removal: $2 \times 9 = 18\text{kg/ha}$ of sulphur

With the use of brassicas now as forage for stock, the sulphur requirements on these are the same as above so ensure they are fed adequate levels of S throughout the growing season.

Grazing -

Broadacre grazing farmers should work on figures of 28kg of sulphur per tonne of greasy wool that goes out the front gate. The average sheep cuts around 4.5kgs of greasy wool per year and as an example, if you were to run 6 ewes to the hectare over 1000 hectares you will get the following figures.

$6 \text{ (ewes)} \times 1000 \text{ (hectares)} = 6000 \text{ ewes total}$
 $6000 \times 4.5 \text{ (wool)} = 27,000 \text{ kilograms of wool}$
 $27 \text{ tonnes of wool} \times 28\text{kg} = 756 \text{ units of sulphur.}$

If we divide it by the hectares = 0.76 kg/ha of sulphur out the front gate in wool. You must also consider the sulphur that is



removed in meat production. Meat production removes 4kg/ha of sulphur per tonne removed lamb. Working on the same farm example above:

Average lamb weight = 42kg

$8 \text{ (lambs)} \times 1000 \text{ (hectares)} = 8000 \text{ lambs total}$

$8000 \times 42\text{kg} = 336\text{t}$ of meat

$336 \times 4\text{kg} = 1,344 \text{ units of sulphur}$

Divided by the hectares = $1.344 \approx 1.4 \text{ kg/ha}$ of sulphur out the gate in meat.

LEACHING:

Sulphur like potassium and nitrogen is a mobile nutrient and will leach through the soil profile. Sulphur is held tightly in the soil by organic matter. More than 95% of sulphur found in the soil is tied up in organic matter and the release of this sulphur through mineralisation is the primary source coming from the soil. Lighter textured soils have a high potential to leach sulphur and unfortunately these soil types generally do not have a high organic matter percentage. Under favourable conditions for mineralisation, for every 1% organic matter around 6kg/ha of sulphur will be released per year.

SULPHUR FERTILISERS:

There are two forms of sulphur which are used in fertilisers, sulphate and elemental. Sulphate sulphur is a readily available form available for immediate uptake by plants. It is used in many fertilisers such as single super and sulphate of ammonia (SOA). This form of S can leach in lighter textured soils and areas of high rainfall. Elemental sulphur is slow release and must be broken down by bacteria in the soil for uptake. Elemental sulphur comes in a product called sulphur bentonite which carries the sulphur in a bentonite clay. When applied, moisture is absorbed into the clay particle which then swells and breaks the pastille into small sulphur particles. Using sulphur bentonite on light textured soils with low sulphur levels can assist in reducing losses.

There are many options available using two forms of sulphur in fertiliser blends. Using both forms ensures plants are able to get available sulphur at the start of the season and the slower release of the sulphur bentonite will keep adding sulphur to the system after winter and into the spring.

Call your local Vickery Bros. agronomist to assist you in working out your farms sulphur requirements.





MAINTAINING AN EXISTING SUMMER CROP

Leighton Rees

We sometimes forget to pay attention to our summer crop once established; but the fact is, monitoring your crop throughout the growing season is crucial to ensure performance of the paddock you have spent time and money on; is maximised. The successful monitoring and actions you take to increase production throughout the growing season will, in turn, achieve a positive return on investment.

Failure to monitor your summer crop during this period can lead to a paddock overrun by pests and weeds, or not growing to its full potential because it has a nutrient imbalance. Let's look at some of the issues that can greatly affect the production of your summer crop.

INSECTS

We can all relate to insect pressure where plants have been stripped by diamond back moth etc. This can be very seasonal as insect pests like certain conditions before their numbers get to levels that cause significant damage. As temperatures increase, the pest pressure generally rises.

Diamond back moth is the most common pest we encounter in this area and the first sign of these pests will be larvae or small caterpillars on and underneath the leaves. These can be very hard to spot so get on your hands and knees and inspect both sides of the leaf and look well into the crown of the plant. The colour of the larvae and the caterpillar can be very similar to that of the brassica leaves.

Other pests which can put pressure on summer crops include:

Slugs (mainly an issue at establishment but easily controlled using bait)

RLEM

Lucerne flea

Aphids

Rutherglen bugs

Cabbage moths



DBM Larvae

There are many chemical options available. Sometimes the pest threshold does not warrant a chemical application and the pests can be easily controlled with heavy grazing. You must consider how far away the crop is from the first grazing as this can be almost as effective as a chemical application. If more than two grubs of Diamond Back Moth are present per plant, chemical applications can be warranted. When applying chemicals to a summer crop it is crucial that the correct product, rate and timing are achieved to gain effective control. Consult your agronomist as to chemical and rates required.

Spray coverage is always an issue with summer crops, and coverage of the plant to the point of run off is required to maximise results. This ensures that the chemical gets right into the crown of the plant as well as having as much leaf saturation as possible. This can mean water rates of well in excess of 100lt/ha. Spraying towards the end of the day is recommended as this is when the pests are most active.

Pricing of chemical control can vary from \$6 to \$53 per ha depending on your target pest and residual control required. Dipel is one product available which is soft on beneficial insects. Other chemical options available are:

Success Neo
Trojan

Sumi -Alpha Flex
Karate Zeon

WEED CONTROL

Weed control is critical, especially during plant establishment. Provided that a suitable knockdown was done prior to sowing, the weed burden should be manageable.

There aren't many options available when it comes to controlling broadleaf weeds in a brassica crop but one option is Forage Max which can be used with good results on fat hen and can also work well on other seedling broadleaf varieties. This will cost between \$33 - \$44 per hectare and can be applied during the 4-8 leaf stage of brassicas. Forage Max has a 14 day grazing withhold and should not be used more than twice within the same crop.

Grass selective herbicides such as Verdict & Select are available but grass weeds are not generally much of a problem over the summer periods.

FERTILITY

Assuming that you have corrected any nutrient and pH deficiencies (with the help of a soil test) before sowing, we now need to look at the demands of a summer crop during the growing season.

The removal table below outlines the demands for a 10t/ha summer crop

Crop requirements	10t/ha yield	
N	P	K
250kg	30kg	150kg

Note: some of this nutrient may already be available and therefore not required.

Brassicas have a high demand for nutrient whilst growing and probably the most under-utilised nutrient for promotion of extra yield is nitrogen (N). Some nitrogen can be made available to the plant at sowing (no more than 25 units of N beside the seed) and a top dressing approximately six weeks after, to increase crop yield.

Applying between 30-40 units of nitrogen in one application

will be sufficient for the crop's demand. This can be blended with sulphate of ammonia to supply required sulphur. Sulphur is especially important if a high analysis fertiliser such as MAP was used at sowing which contains very little sulphur. It is recommended that stock be taken off the paddock for around 20 days after an application of nitrogen to avoid any chance of nitrate poisoning.

Tissue testing can be used as a tool in assessing nitrogen levels within the plant and this can determine whether a follow up application of nitrogen will be beneficial. Previous crops grown will also have an impact on what nitrogen is left in the soil profile; eg: no legumes present in previous crop indicates nitrogen levels are likely to be depleted.

Summer crops can also be responsive to trace elements. Boron & Molybdenum are two trace elements that can lead to yield increases in brassicas, if they are deficient in the soil. Just remember, healthy plants will be less likely to be affected by insects than unhealthy plants will.

Introduce animals slowly to give their bodies a chance to adjust to the high protein content and provide a good fibre source such as hay while this is occurring.

An animal's intake can be managed by break feeding and this can be adjusted easily as required.

Brassicas should not contribute to more than 70-80% of the total animal intake once the transition period is over. Utilisation will depend on how quickly you wish to fatten your stock class but can be anywhere from 50 – 90% if grazing a crop such as turnips.

Provided that the above steps have been looked at, you should (if rainfall has allowed) be ready to graze a high protein food source and achieve good animal growth rates throughout the drier months.



DUMPING FERTILISER ON FARM – DOING THE JOB SAFELY.

Bruce Vickery

Vickery Bros. and staff are working hard to embed a strong and reliable safety management system within all professional operations. In our previous newsletter, we introduced the on-farm hazard analysis process

and discussed how this analysis supports our spreader drivers to conduct their on-farm job safety analysis. Spreading fertiliser on farms involves a series of potential hazards and risks that need to be carefully assessed as part of planning and facilitating each spreading job.

Delivery of bulk loads of fertiliser to farms also presents hazards and risk for our road transport employees. Driving and operating a semi-trailer in any environment is a challenging proposal, particularly when the total gross weight can be in excess of 60 tonnes. Think of how this complexity is amplified when operation is off-road in an on-farm situation. Like our spreader drivers, we need all our truck drivers safely home after every job. When it comes to dumping fertiliser on to farms, all potential hazards and risks need to be considered and if risk cannot be eliminated, then the best and safest way to control the risk needs to be established.

For all our clients who have bulk fertiliser dumped on-farm, we ask for support in ensuring the safety and wellbeing of our truck drivers and all other people involved in on farm dumping of fertiliser.

Some things to consider when managing dump site safety:

Entry to the property– Where the driver needs to open gates to access the dump site, space for the semi to pull over off the road is important. Parking and crossing roads on foot can be dangerous.

Exiting the property – Clear vision of oncoming traffic is important. At times, vision can be obscured by tree canopy, road rises or bends. In situations when these hazards are not preventable, a better access point may need to be considered. If this is not possible, it may be necessary for the driver to have the assistance of a spotter.

Site Surface - Check the dump site to make sure the surface is firm, flat and even. A truck or trailer becomes less stable as its bed is raised. Tyres going into holes and ruts can increase risk. Soft ground resulting in a sinking axle can cause the load to be off centre also posing significant risk of tipping a trailer over.

Power lines- Overhead power lines are always a hazard on farms. Contact between overhead lines and raised tipper beds pose a risk to truck operators and bystanders. To manage the risks created by overhead power lines, Vickery Bros. safety management system requires a no-go zone of 10 metres. Better still is to totally eliminate the risk of electrocution by locating dump sites totally away from overhead power lines.

Farm gateways– Gateways need to be wide enough for the truck to pass through. Damage can also result when winds unexpectedly close gates. Mechanisms to fix gates open can be useful.

Roads and tracks – Big trucks and lots of wheels require solid

surfaces and wide enough tracks. Tracks need to be free of overhanging limbs.

Area well cleared – This makes the site clean-up more effective. Fertiliser is a valuable and important product. Flat and cleared dump sites help our spreaders to load and spread what has been dumped on-farm.

“Hindsight is a wonderful thing but foresight is better, especially when it comes to saving life, or some pain!” – William Blake



Well planned and timely soil testing can maximise your fertiliser applications



By Lee Menhenett - Grazing Systems Agronomist

Research by Agriculture Victoria has shown that there are no pasture yield differences whether phosphorus fertiliser is applied in summer or autumn.¹

The movement of water soluble phosphorus from single superphosphate granules into the soil is virtually complete within 24 hours of application,

even when soil conditions are dry and rainfall does not occur. Light dews are enough for the P to move into the soil where it is quite immobile (won't leach). The granule left behind is basically gypsum (Calcium Sulfate), this will dissolve and move into the soil with the next rain event.

While the Agriculture Victoria work also showed that applying phosphorus fertiliser earlier than the traditional autumn application did not increase the likelihood of phosphorus losses through run off, it is still important to follow best practice :

- Avoid applying fertiliser when ground cover is less than 70%. Bare soils are prone to shedding water leading to erosion, taking valuable soil holding P and other nutrients
- Prevent fertiliser entering waterways and water storages
- Do not apply fertiliser if heavy rain is forecast within 4 days

Having phosphorus applied to the paddocks early allows for germinating annual grass and clovers and perennial pastures, to access fertiliser P ensuring a rapid uptake following the autumn break.

Clover plants growing nearer to a fertiliser granule were up to 4 times larger and contained 5 times as much P than those plants growing 2.5cm away.²

The same early application benefits apply for Lime - being quite insoluble Lime needs moisture and time to react in the soil to adjust pH. Generally 2-3 months prior to the autumn break.

Historically Lime and Super applications in pastures are skewed towards autumn and this causes -

- site dispatch delays
- road freight constraints
- contractor spreading constraints

Agronomically there are no penalties in applying early, and logistically there are benefits in getting the product applied in a timely manner, and often early dispatch incentives to take advantage of.

With confidence in when to time fertiliser spreading, the big question is what product, or suite of nutrients are required and at what rate.

The only way to determine these questions is with a well planned and executed soil testing program.

Spending time planning a soil test regime around soil type and topographic variations and understanding past fertiliser and management history will allow for a solid sampling program that provides critical nutrient management detail for allocating nutrients across the farm.

At least 30 soil cores should make up 1 soil sample from each zone identified on farm. Sampling depth needs to be consistent to 10cm, incorrect sampling depth will increase or decrease the nutrient concentration in the sample and give a false outcome.

Sampling in Spring is a great time of year to sample because soil moisture and temperature are typically constant, and any abnormal pasture growth is clearly visible, with urine & dung patches avoided.

With results available well before summer/autumn fertiliser and lime applications, this allows plenty of time for planning and organising your spreaders.

For more information,
feel free to contact me on 0412 565 176
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incitecpivotfertilisers.com.au
nutrientadvantage.com.au

¹ McLachlan, KD. (1961) Time of application of superphosphate and the yield of pasture on an acid soil, *Australian Journal of Experimental Agriculture and Animal Husbandry* . Vol 1, 81-84.

² CH Williams, CSIRO Plant Industry, Canberra, ACT, "Effect of particle size on the availability of the phosphorus and sulphur in single super".

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Mount Gambier 0408 646 220		

Contact the professional team at Vickery Bros.

Where everything's covered.

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- Take advantage of the lime deal to assist cash flow
- Make the most of the early bird incentives
- Make sure your dumpsite has been graded
- Keep an eye out for crickets

SEASONAL REMINDERS

If undeliverable return to:
Vickery Bros. Pty. Ltd.
105 Whyte Street
Coleraine VIC 3315

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