VICKERY BROS & SOUTHERN SOILS FERTILISER

Geoff Vickery

After approximately 14 months of due diligence and business planning: interests including staff members of Vickery Bros have purchased the biological fertiliser business of Southern Soils at 251 South Boundary Road Hamilton.

Peter Ham a respected local agronomist with years of experience in biological interactions has also taken a sizable stake in the business and will be the face of Southern Soils out in the field along with Neville Simcock who will transition out in 6 months to more of a part time role. We are currently in the process of looking at other biological agronomist resumes who we think could cover Neville and work in conjunction with Peter. Jarrad Simcock will initially be doing some research that we have all identified whilst supervising the Super 7 biological activation process that is currently happening. He will also transition out in 6 months to farm in Penola and look after clients in S.A.

Research and Development with biologicals is gaining huge traction and becoming increasingly important especially in the crop protection segment. BASF recently stated that while biologicals at the moment are only 2% of the world market, it is predicting it will grow at 11% per annum and has consequently allocated most of its R&D budget on the biology side. No one within our business has observed this traction with interest more than me in the last 5 or 6 years; as I had been concerned that we were alienating certain clients, some we'd been servicing for 3 generations because we weren't 100% addressing their desire to investigate this avenue of production. We went part way to addressing this with our 60/40 Pasture Extender range, but with no biology. The industry was so secretive that it was hard to get an answer that I could actually understand or believe as a "layman"; but, like a good detective if you keep asking the same questions in different ways the lights start to turn on and a chain of events unfold to the point where you can present it to a jury as very credible evidence.

By far and away the biggest light that turned on for me was what biology had done in the soil of Bluegum plantations that were about to be returned back to pasture. These plantations were found to have massive populations of Mycorrhizal fungi that absorb Phosphorous and other nutrients from the soil environment. Mycorrhiza have been found to improve plant uptake of Phosphorous. This is thought to be due to the vast "collection structure" provided by the hyphal network of fungi. Large populations of Mycorrhizal fungi also secrete huge amounts of acid and this explains why copious amounts of Phosphorous and Lime are needed on ex Bluegum sites. Whilst current research programs are looking at the opportunities that mycorrhizae offer to agriculture, this fungi has long been used by Southern Soils and others in their P digesting biology.

A big part of the due diligence was actually understanding the biology involved and that was needed for it to past the credibility criteria for us to invest. As it turns out the business of P digesters and microbial stimulants is so small in Australia that all the cards being held close to the chest by the people that I have deemed credible are not that different at all. Most (including Neville) have either been in partnership or worked on projects together in the early days. It's just that one company with more resources behind it have invested heavily in independent statistical analysis and trial data. Independent statistical analysis lends itself to credibility and as I said this was our main criteria in the due diligence process. So, with that in mind we have re-cemented a relationship with Bio Ag (Neville's old colleagues); an Australian company with branches around the world to use their P digesting microbes as an extra addition to the biology and bio stimulants that Southern Soils produce.

Super 7 the biological pasture blend that has been Southern Soils trademark product competing with superphosphate will now be enhanced even more with the addition of extra P digesting microbes to make Phosphorous more available

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both from the product and the soil. Everybody involved also agrees that after the extremely wet season we have encountered that the Super 7 product should now include as standard, 2 forms of Sulphur, both sulphate and elemental for sustained release throughout the year. The Super 7 range of products that Southern Soils now market will include 2 forms of Phosphorous, 2 forms of Sulphur and more P digesting microbes that agronomically should release all year round as the plant requires to take the nutrient up.

VICKERY BROS ROLE AT 251 SOUTH BOUNDARY ROAD HAMILTON.

Vickery Bros have leased from the holding company approximately half the shed and our maintenance boys are currently installing tilt up panels and concreting floors so that the entire granular fertiliser range can also be despatched to better service our clients that are closer to Hamilton than our Coleraine or Heywood depots. We have invested heavily in the latest technology in fertiliser blending with the purchase of ribbon blenders, spray systems, rotary valves and blending software . This should make the system truly the best available keeping up with innovation being released as to how products can be better blended for nutrient use efficiency. Our welding staff have been given the drawings to make 9 hoppers plus the under bin and out loading conveyors and are on track for the technicians from the USA to commission in March. In the mean time we will keep most straight products in Hamilton with any blends required to be picked up x Hamilton coming into store from either Coleraine, Heywood, Geelong or Portland.

Vickery Bros will also handle all the freight and spreading logistics for Southern Soils which we know will better integrate for a more timely application for Southern Soils clients.

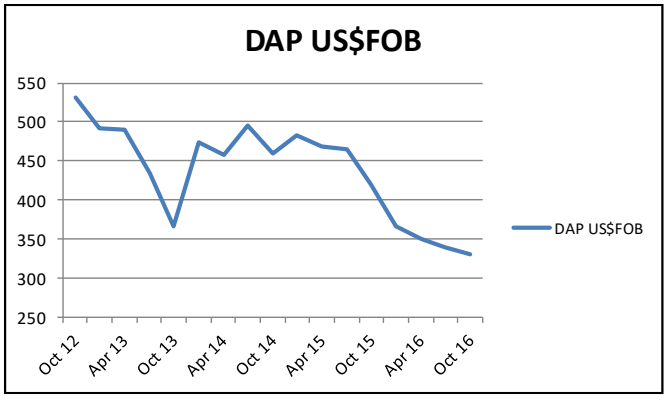
All in all the synergies of Vickery Bros and Southern Soils working closely together should have great benefits for not only each other, but its large clientele to better service the diverse needs that its customers are now requiring.

Southern Soils FERTILISER Biological Specialists

FERTILISER PRICING 2017

Craig Tosetti

We have just come out of an extremely wet winter & spring season that has impacted farming enterprises and Vickery Bros in both positive and negative ways. It has left us about 1 month behind schedule from where we normally are in early December with soil testing, summer crops, hay, lime applications and grain harvest so we have a lot to catch up on. We can't let this delay impact the start of what is shaping up to be a very busy Summer/Autumn fertiliser spreading season. With green grass all around us in December for the first time in 3 years and stock prices still strong, I am hearing a lot of confidence from our agronomists in our weekly meetings that it's going to be a busy season ahead (this is clearly shown in the amount of soil tests being taken over the last month, I have never seen so many soil sample bags being processed).

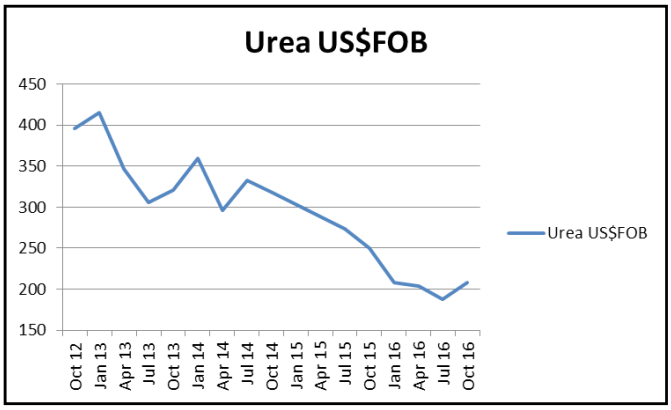


Fertiliser prices have dropped across the board compared to this time last year which is great news for farming enterprises. We are seeing MAP/DAP & MOP prices generally $100/tonne cheaper and Single Super $30/tonne cheaper this year. Referring to the graph to the left, you can see the DAP US$FOB price going through its normal cycles from 2012 to 2015 then begin its steady and consistent fall in 2016 which is now reflected in the current local prices and we will see DAP/MAP prices in the mid $500's for the coming season.

Urea was also declining in price over the last 2 years (see graph below) but has picked up in the last 6-8 weeks off the back of deferred demand from some of the bigger players in the world market. This uptick has already started to

show in the local prices as current Urea stocks in Australia run down and new shipments are being organised. We will see Urea prices back over AUS$400/tonne in the new year.

An early start to the season is key to beat the inevitable rush from March through to May, that is why we are offering great early bird incentives for December/January spreading. Talk to one of our experienced Agronomists to get the right advice to help you take advantage of these offers. We are also running our popular Lime deal again and due to the late season, we have extended it out till the 15th of Feb for the supply, freight, spreading of your lime and you don't have to pay till the end of April 2017.



POTASSIUM & SULPHUR

Roger Gee

POTASSIUM

Given soil potassium levels are not great through a large part of the southwest and into the southeast of SA, the long wet spring has thrown a challenge at us trying to grow silage & hay this season. While the rainfall has been long waited for to re-charge the soil profile and fill dams, it has created other issues for us.

Looking at this seasons soil & tissue test data there have been quite a few instances where potassium is deficient, and not just in very light low buffering soils. From the data we have observed Colwell K levels in that 50 -100 range (not uncommon for broad acre grazing). After the prolonged period of soils being saturated it is not surprising that the levels have returned lower than optimal readings.

Potassium in plants is required in similar amounts as nitrogen. It assists in cell expansion, photosynthesis, respiration, fruit formation and improving cold and disease tolerance.

It is extremely important in water movement and retention within plants. It enables the plant tissues to hold onto water and assists greatly with water uptake through the xylem cells. Active transport of the potassium ions through the guard cells protects plants from moisture loss when under stress therefore giving the plants some tolerance to drought.

Potassium is readily leached beyond the root zone of many of our pasture plants, in high rainfall zones and/or low buffering soils.

When we take all these factors into consideration it gives a clearer understanding of how important potassium is in our pasture and cropping systems. Managing and monitoring soil potassium levels are as important as phosphorus. Once again soil testing is a key component in observing the nutrient levels for better management decisions.

With the price of potassium being at historically low levels, 2017 is the best year to address those deficient soils.

SULPHUR

Sulphur serves many functions in plants. It is used in the formation of amino acids, proteins, and oils. Sulphur is also a component of key enzymes and vitamins in the plant necessary for the formation of chlorophyll. It promotes nodulation in legumes, and is a structural component of methionine, cysteine and cystine, three of the 21 amino acids which are the essential building blocks of proteins.

Most of the sulphur in soils is found in soil organic matter, however, it is not available to plants in this form. In order to become available to plants, the sulphur must be first released from the organic matter and go through mineralization process. In this process, bacteria and microbial activity converts sulphur compounds to a sulphate form, which is readily available to plants.

With similarity of roles in protein synthesis for both nitrogen and sulphur, sulphur deficient plants exhibit almost identical symptoms as plants suffering from less than adequate nitrogen. Thus, plants deficient in sulphur normally exhibit off colour (yellowing) of both older and younger foliage. As with nitrogen deficiency, plants lacking adequate sulphur can be stunted, thin-stemmed and spindly. It is quite easy therefore to visually misdiagnose a sulphur deficiency as one caused by a lack of nitrogen.

There are two forms of fertiliser sulphur, sulphate and elemental sulphur. The sulphate form is water soluble and can be quickly taken up by the pasture plants, but being an anion it is readily leached or lost to runoff on lighter soil. When leached into deeper clay layers of the soil, the result is sulphur

deficiency appearing in pastures during spring, as happened this year. Elemental sulphur is a slower release type as is has to be broken down by bacteria into readily available forms. This form is great for lighter textured soils which have a tendency to leach sulphur throughout the winter.

In response to the soil tests we have received this spring, Vickery Bros have put together a number of blends to accommodate the use of both elemental and sulphate sulphur on pastures.

NODULATION AND N – FIXATION

Franzi Riegger

This spring we have seen many good clover based pastures, but how do we know these pastures are functioning to their full potential?

The reason we aim for a good clover base is to support a portion of the plants requirements for nitrogen by nitrogen fixation. Nitrogen fixation occurs from a symbiotic relationship between bacteria and legume roots. The rhizobium bacteria inoculate legume roots and colonise to produce nodules. Within these nodules they convert atmospheric Nitrogen (N2) to Ammonium (NH4+), which then can be utilised by the plant or released into the soil for use by other plants.

A legume that is functioning well can produce up to 20 – 30kg N/t DM. However we can say that this is not always the case. Even though a clover or lucerne plant might look magnificent above the soil it isn't necessarily successfully producing any nitrogen.

We have to look at what's under the surface. Carefully digging out and washing the roots we might find nodules, but they still might not be producing any nitrogen. By using the nodulation scoring system in figure 1 we can get an idea of whether our nodules are healthy (4 - 8) or unhealthy (0 – 3).

According to Dr Belinda Hackney, Research Agronomist, the average Nodulation Score within Australia is 2. At a Nodulation Score of 4 we can expect 20 – 30kg N per kg/DM to be fixed. So how do we get there?

There are several factors influencing the successful nitrogen fixation process:

Soil Chemistry is crucial to success:

- Soil nitrogen status; High N levels in soil inhibit nodulation and N fixation - the bacteria becomes dormant and host plants take up fertiliser N rather than rely on fixed nitrogen.
- Soil pH; Rhizobia is generally less tolerant to a low soil pH than plants. Hence a seemingly good looking clover plant may not successfully be fixing nitrogen.
- In correlation with a low pH aluminium increases which interferes with root growth, it is harmful to plants and rhizobia.
- Molybdenum (Mo) and Sulphur (S). Both elements are required by rhizobia as they are part of the enzyme nitrogenase. Remember with a low pH the availability of Molybdenum declines. White, ineffective nodules

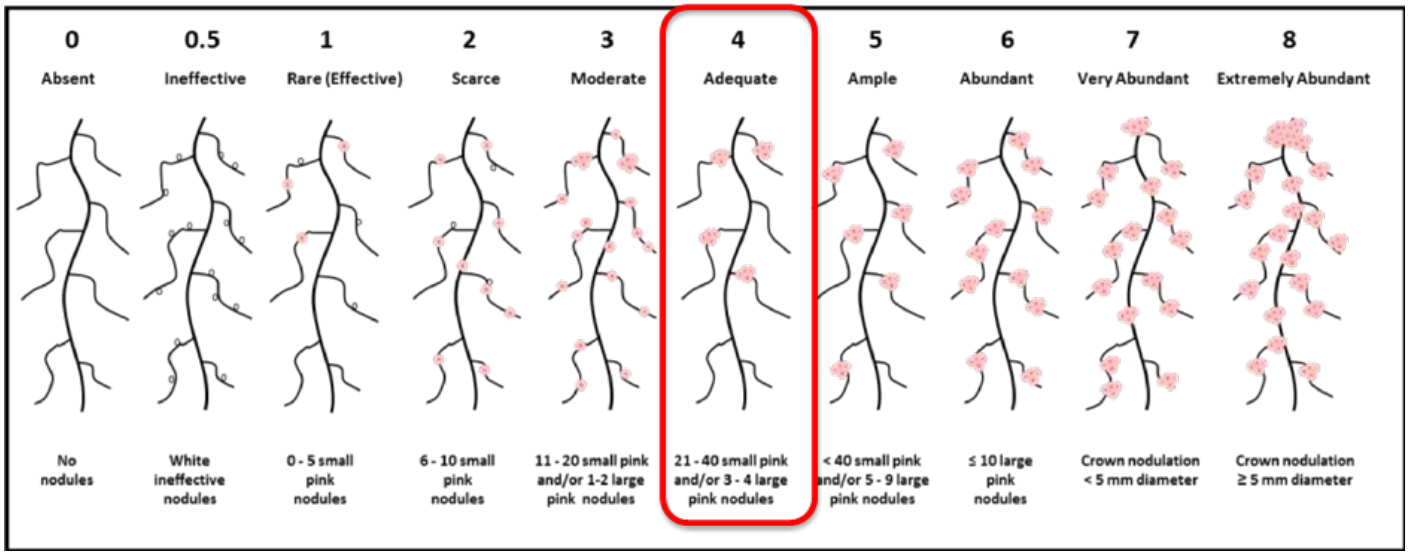


Figure 1: Nodule Scoring System

can therefore be related to a Molybdenum deficiency in the soil. (Figure 2)

- Aeration: The rhizobia bacteria is aerobic (needs oxygen) therefore nodulation is affected by prolonged waterlogging.

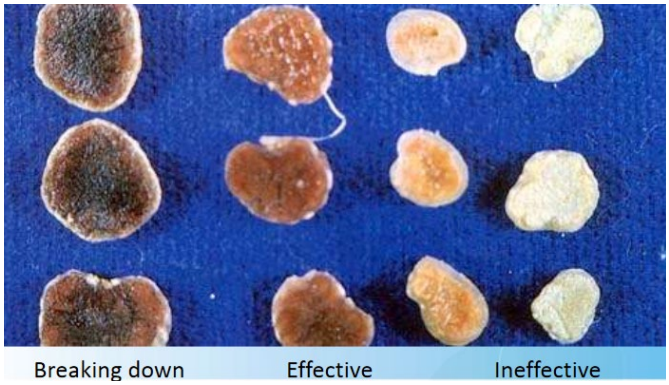


Figure 2: Nodule Colouration

- Keep pHCaCl around or above 5
- Ensure good general fertility with the use of Phosphorus (P) and Potassium (K) fertiliser if levels are dropping below critical
- Check sulphur levels and aim for 8 – 10 mg/kg (KCI – 40)
- Apply Moly fertiliser every 3 – 4 years on the basis of a tissue test

Apart from soil chemistry it is important to have the right rhizobium strain to the specific legume. Nodulation and N fixation will only occur if the compatible rhizobia strain is in the soil. Therefore inoculating legume seed or soil at sowing provides a large number of effective nitrogen-fixing bacteria to optimise the process. Choosing the correct inoculant group for a particular legume host is critical.

References:
Hackney B. Nodulation and N-fixation – getting legumes to work harder,

DUAL PURPOSE CROPS

Rebecca Stewart

By maintaining diversification within farming enterprises, risks are lowered between enterprises especially within both cropping and livestock systems. Within the High Rainfall Zone (HRZ) the amount of land being planted to canola is increasing each year. Trying to juggle livestock and cropping within the farm is sometimes challenging with paddocks being unable to be grazed, placing pressure on other areas to produce enough feed. The introduction of European long season winter varieties of canola has enabled growers to take advantage of both summer grazing and grain yields by simply sowing one pass. If managed correctly, crops can provide substantial forage throughout the summer and go on to produce grain without any yield penalty! The vernalisation requirement of these crops means they will not turn reproductive until a prolonged cold period throughout the winter. Within the HRZ there is a massive problem with slugs, snails and waterlogging when sowing during the autumn. By spring sowing and having an established crop during the high pest period the chances of beating the pests is much greater. The plants will also be more resilient and withstand waterlogging a lot more.

Many experiments and trials have been conducted over the last few years. In November 2011, a replicated field trial was sown in Dunkeld to look at the best management practices for dual purpose canola. In total the canola was grazed for 55 days starting in January 2012 with a dry matter of 3000kg/ha (after some summer rain). Observations of the crop throughout the year found that the grazed plants branched out more and produced a denser canopy and all stems produced pods for grain. At the end of the trial over 4000kg/ha of dry matter was removed while still producing a grain yield of 2.4t/ha. (see table 1 below)

Table 1. Dry matter production and grain yield for spring sown Taurus canola at Dunkeld in 2012

Grazing (no).	Intensity of grazing	Grazing times	Days grazed	Total dry matter consumed (kg/ha)	Grain yield (t/ ha)
1	Light	31 Jan - 22 Feb	22	494	2.8
	Heavy	31 - Jan - 5 Mar	34	2316	2.5
2	Light	31 Jan - 22 Feb 29 Mar - 5 Apr	29	2763	2.9
	Heavy	31 - Jan - 5 Mar 29 Mar - 10 Apr	46	2944	2.5
3	Light	31 Jan - 22 Feb 29 Mar - 5 Apr 26 Apr - 3 May	36	3488	2.7
	Heavy	31 - Jan - 5 Mar 29 Mar - 10 Apr 26 Apr - 7 May	55	4031	2.4
		LSD (p=0.05)			NS
		Sown in Spring, ungrazed			1.9
		Sown in Autumn, ungrazed			2.3

Trials have been done to see if winter wheat varieties behave the same as the canola when sown in spring. A field trial was conducted at Lake Bolac during 2013 using four winter wheat varieties. As you can see from the results in table 3 below, summer feed was between 750-800kg/ha DM with a grain yield of 3t/ha plus.

Table 3. Grain yield, protein and dry matter of spring sown wheat varieties at Lake Bolac, VIC

	Grain yield (t/ha)	Protein (%)	Dry matter (kg/ha)
Revenue, grazed	3.3	11.2	750.0
Manning, ungrazed	3.3	10.5	-
Einstein, grazed	3.3	12.1	793.5
Frelon, ungrazed	3.2	12.3	-
Revenue, ungrazed	3.2	10.8	-
Frelon, grazed	3.1	12.0	810.0
Manning, grazed	3.0	12.4	813.6
Einstein, ungrazed	3.0	11.4	-
LSD (p=0.05)	NS	0.9	-

Obviously each year is different when looking at summer rainfall and the amount of feed available. There can be a trade-off between grazing intensity and grain yields but this will be different for each farmer depending on what is most important (feed or grain) and the attitude to risk.

It has been found that crop stands are thinned by 20-30% throughout the summer but a surviving crop of around 30plants/m2 are sufficient enough to sustain high yields.

If you think that using a dual purpose crop will fit within your enterprise and you would like some more information, speak to your local Vickery Bros agronomist.

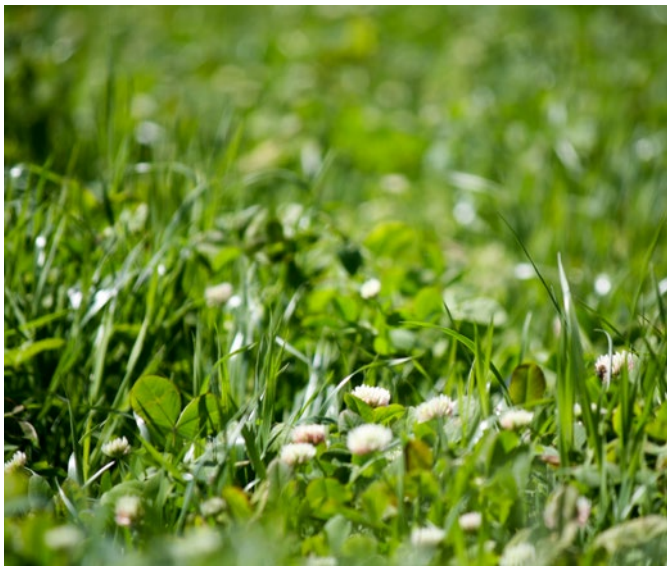
References;
Paridaen, A (2015). Turning sowing times on their head- spring sown winter habit canola and wheat in a mixed farming system. *"Building Productive, Diverse and Sustainable Landscapes"*

Proceedings of the 17th ASA Conference. Web site www.agronomy2015.com.au

MOLYBDENUM

Rebecca Stewart

All of the 16 nutrients are essential for growth but some are obviously required in larger amounts than others. As a trace element, Molybdenum is important within two enzymes Nitrogenase and Nitrate Reductase. The Nitrogenase enzyme is involved in the conversion of atmospheric nitrogen (N2) to Ammonia (NH3) through Rhizobium Bacteria. Nitrate Reductase is the enzyme which is responsible for the reduction of nitrate to ammonium within plants. With Molybdenum being important for the above processes, it is not surprising that legumes are very responsive to applications. The Rhizobia bacteria that break down the N with the presence of nitrogenase require Moly in amounts 10 times that of the plant!



Although it is necessary for the function of Rhizobia, a deficiency will not restrict the development of the nodules. Looking at a healthy clover plant, if you dig it up and cut open the nodules they will be a fleshy pink colour which indicates that the plant is fixing N. Under a Moly deficiency, when you cut open the nodules, they will be white in colour meaning that they are not fixing any N. There will also be smaller and fewer nodules on the legumes.

Moly deficiency in animals is fairly uncommon however, excess application of Moly can induce a copper deficiency within livestock as it reduces the copper availability. To avoid losses in livestock from cooper deficiency, apply both Moly and Copper at the same time.

Rates of 1kg of Copper and 60grams of Molybdenum are generally recommended. Moly on its own should be applied between 50-60grams. These rates will last eight years plus.

Talk to your local Vickery Bros agronomist to discuss moly applications for 2017.

CHICORY

Roger Gee

Chicory is used as a short term forage (2-5years) in systems where finishing lambs and acid soils may be a problem. It can tolerate soils down to a pH of 4.2 (CaCl2) and with summer rain or irrigation, the best results can be achieved. Growth rates of 290g/day in lambs and 900g/day in calves can be achieved due to the high protein (12-14%) and ME levels (9-11MJ).

For persistence, it must be rotationally grazed by stock keeping it between 5-40cm. By applying grazing pressure in the summer months, stem elongation and flowering can be delayed. Chicory needs to replenish root reserves during late autumn and winter so overgrazing during this time will dramatically reduce persistence.

Strengths;

- Palatable and nutritious, high animal growth rates.
- Rapid establishment and high first year productivity with fast regrowth in warmer months.
- Adapted to acid soils (replaces lucerne), extensive root system capable of extracting water and nutrients from depth. Persistent under moderate grazing and regenerates readily if allowed to seed. Retains leaf better than lucerne in dry conditions and more drought tolerant than plantain.
- Excellent feed quality, suitable for finishing stock, not known to cause bloat.

Limitations;

- Susceptible to trampling and overgrazing.
- Requires high levels of nitrogen for maximum production.
- Does not make good hay.
- Poor growth rates at low temperatures.
- Herbicide options are limited.

PLANTAIN

Plantain is a perennial herb which is active all year round. Most commonly used as a mixture in pasture as weeds can cause competition due to shading. It can be adopted to many situations as it is drought and heat tolerant and can handle lower fertility situations. However it is highly responsive to strategic applications of nitrogen. Plantain can tolerate continuous and close grazing but obviously for best results, rotationally graze. Using a 3-4 week rotation (in late spring) will maintain palatability. Digestibility and live weight gain is maximised when plants are grazed at or below stubby height (15-20cm).

Strengths;

- Fast establishing perennial herb which tolerates a broad range of soil types, fertility and pH. Adapted to a wider range of soils than chicory.
- Valuable component of permanent pastures and specialist summer pastures. Excellent feeding value during summer with high mineral concentrations including copper, zinc, selenium and cobalt. This widely used medicinal herb contains various secondary metabolites with recognised tonic and anti-biotic properties; these may benefit stock/rumen flora.

Limitations;

- Not a vigorous plant which means it is faded out quickly with competition and has slow growth in winter.
- It does not handle soil compaction compared to ryegrass and will not compete with it during establishment.
- Weight gain drops dramatically once leaves are removed as stems have very low palatability and nutrient value (59% Digestibility).
- At seedling stage it is very susceptible to red legged earth mites and has herbicide susceptibility to Glyphosate and phenoxy-based chemicals (2,4-D, MCPA).

NITROGEN FOR SUMMER CROPS

Harry Armstrong

Summer crops are now an integral part of many production systems. Often however they are not living up to their full potential. In most seasons we observe 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. 2-3 weeks post sowing is a good rule of thumb. Application rates between 50-100kg/ha of urea depending on the situation would be sufficient. 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 they are sown on areas with poor fertiliser history.

Another problem regularly encountered is new 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 both 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 the paddock needs and perhaps more importantly what it doesn't need.

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, and 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), thereby leaving more N for plant growth. The small increase in cost for the Agrotain coating on urea represents remarkably good value when applying N at this time of year.

ANIMAL HEALTH

Livestock health problems from grazing summer crops are relatively rare and can be largely avoided by good agronomic and grazing management. Nitrate poisoning can occur in livestock grazing summer crops if nitrogen is applied or not. Hungry livestock suddenly introduced to nitrate bearing plants are more at risk so introduce stock to summer crops slowly and never put hungry stock straight onto crops. Most sudden deaths of livestock on summer crops are caused by failing to give a booster vaccination of 5 in1. High weight gains are expected from summer crops so always ensure your stock receive a booster vaccination before being admitted to these areas. Don't hesitate to contact your veterinarian for advice should you suspect any animal health problems.

EARLY SOWING ANNUAL RYE GRASS

Harry Armstrong

Special purpose annual rye grass pastures can produce enormous quantities of high quality feed from autumn to late spring.

They will always outperform cereals when grown in wet situations, particularly if nitrogen is applied in late autumn and early winter.

Livestock performance (weight gain) on annual rye pastures is significantly better than a lot of perennials because of its superior growth rate and zero endophyte status.

Annual rye grasses (especially the large seed tetraploids) have very good seedling vigour and are able to survive long dry spells when sown early in autumn. They can be sown dry if a rain event is expected or if there is some soil moisture present from a summer rainfall event. Direct drilling is preferable to a cultivated seedbed as it allows winter grazing to take place without pugging.

Early sowing is the cornerstone to success with annual rye. Opportunities exist for sowing from Mid-February in some years through to the end of March. April sowings can still be successful in dry autumns but May/June sowing severely reduces winter production. Every week that sowing is delayed will result in a loss of 1000kg/DM/ha in total yield. So sow as early as possible.

High sowing rates are essential if decent yields over winter are expected. Current research done by seed companies and DEDJTR indicate that sowing rates for short term rye grasses should be around 35-40kg/ha in high rainfall zones. Lower rainfall areas may be able to go as low as 20-30kg/ha. Adjustments to sowing rate should be made for the difference in seed size between diploid and tetraploid types. Diploids have smaller seed size compared to tetraploids, so increase sowing rates for the tetraploids by 20% and reduce it for diploids by the same amount. Ask your seed retailer which type you are buying. If they don't know the difference, buy it from someone who does.

Cheaper varieties such as Tetilla are best suited to situations where winter feed is the only requirement and spraying the paddock out and sowing a summer crop is planned. The more expensive and densely tillered types

such as Zoom and Winter Star 2 are more suitable if feed is required later into the spring and when post silage/hay regrowth is a priority.

Ideally seed should be sown down the tube with up to 100kg/ha of DAP or MAP. If the potassium (K) status is suspected to be sub optimal, a blend of SOP/DAP can be used. However it is preferable that soil fertility issues have already been addressed.

Insect pests must be controlled. The usual suspects are Red Legged Earth Mite (RLEM), slugs and crickets. Slugs and crickets are still very active in early autumn and have resulted in complete failures in heavier soil types so controlling them prior to sowing should be factored in as part of the process.

To achieve optimal growth rates urea should be applied at 100kg/ha 3 weeks after germination and then follow up with lower rates every 5-6 weeks thereafter where possible. Use agrotain coated urea if conditions are on the dry side. The usual precautions should be taken in relation to possible nitrate poisoning as annual rye grass can accumulate high levels of nitrates.

REVIEW OF N RESPONSES IN NEW RYEGRASS CULTIVARS

Harry Armstrong

The nitrogen response tables/curves we are all familiar with and rely on to make decisions regarding nitrogen applications, were formulated from trial data based on "Australian" ecotypes of perennial ryegrass. These Australian ecotypes are in fact naturalised Northern European ryegrasses such as Victorian and Kangaroo Valley. At the time these were the only ecotypes available to us.

In the late 1990's, pasture seed companies began offering us ryegrasses with germplasm from North West Spain with greatly improved autumn, winter, late spring and summer growth.

PGG Wrightsons in conjunction with IPL are running a nitrogen response trail at the Leigh Creek research centre near Ballarat comparing the newer more productive perennial ryegrasses as opposed to the older Australian ecotypes. This trial is in its second year.

Each cultivar was tested at 5 N rates; 0, 20, 40, 80 and 160kg N/ha. Please note these rates are expressed as N/ha, so 40kg N/ha is equivalent to 87kg of urea /ha.

Results after 2 seasons indicate a far greater response to applied N from the new North West Spain ecotypes compared to the Vic Rye/Kangaroo Valley types. The Vic Rye/Kangaroo Valley types exhibited a diminishing response curve as they have done previously while the North West Spain types appear to show a linear response. The older ecotypes reached a diminishing rate of response at around 80kg N/ha (174kg urea/ha) while many of the newer types continued to show growth responses up to 160kg N/ha (348kg urea/Ha). Profit maximising application rates will be less than this depending on the value placed on the extra growth.

PGG Wrightson Seeds research agronomist Martin Harmer reported at a recent open day at the Leigh Creek trial site near Ballarat that growers could expect around 6.3 ton of extra DM from 1 ton of urea applied to Vic Ryegrass compared to 19 ton/DM for the same amount applied to the newer elite ryegrasses. That's around 3 times as much feed for the same N input.

Another important trial is also running near Leigh Creek comparing live weight gains of lambs running on modern ryegrass ecotypes compared to the older varieties. From the inception of the trial in autumn 2015 to spring 2016 the modern ryegrasses have produced 179kg more carcass weight/ha than Vic rye. This equates to an extra $895/ha based on a $5/kg carcass price.

Martin Harmer, Research Agronomist at Leigh Creek research centre

GRAIN

Dave Vickery

At the time of writing we currently have trucks carting grain to receivals in the SA Mallee and the Wimmera, albeit a month behind the normal starting date in these regions. Results so far are extremely positive with yields up to 70% above average.

The world is awash with grain, this was reinforced every Wednesday while reading the weekly agricultural papers. Every week there was another report out to highlight yield increases in the US, favourable weather conditions in the EU, increased plantings in Ukraine and a large stockpile carryover. All these factors continued to put downward pressure on prices for all grains. The International Grain Councils latest global estimate, puts production at 2.077 billion tonnes, Australia's 2016 winter crop production is estimated to increase by 16% to 46.1 million tonnes.

This season's barley crop is estimated to be the second highest on record due to favourable winter rainfall and crops being in great condition at the start of spring. F1 Barley will be abundant this harvest which was the exact opposite of last season. Due to the lack of rain to finish crops in 2015, barley test weights were low, screenings where high and protein levels skyrocketed to between 13-16%. The result of all this meant the majority of the feed barley purchased was F3/F4 grade, which provided a cheap source of protein to sheep feeders. Reports so far show minimal F3-F4, and mostly F1 being harvested with high energy levels and with more traditional protein between 8-10%.

Farmers looking to gain weight on their livestock over the summer months in a feedlot situation will have to find a higher source of protein to mix into the feed ration. This will come in the form of beans or lupins which both have protein levels above 20%. Both beans and lupins are easy to store, and have come down $120 per tonne from last year's prices.

World wheat prices have been on a downward trend since 2012. Currently wheat is trading between US380-400c/bushel which equates to AUD $190-200 when basis and currency is taken into account. The futures market is well below the average since the early 2000s, one would be comfortable in saying there is more upside going forward and that we are closer to the bottom of the market. A major driver of price going forward will be the northern hemisphere crop. If issues arise when this crop comes out of dormancy in the first half of 2017 wheat prices could rise. By the same token, if production reports are strong more pressure may come on the wheat price.

Through the Vickery Bros network of diverse farming clients, we have the ability buy/sell and freight all grains including barley, wheat, oats, beans and lupins. The table below illustrates the pullback in prices from 2015/16 to the estimated 2016/17 harvest. Contact Dave Vickery on 0409 552 737 if you are looking to buy or sell.

Delivered Feed Grain Prices

	2016/2017	2015/2016
Wheat (ASW)	$210-$230	$260-$280
Barley (F1)	$165 - $185	$230-$250
Lupins	$300 - $330	$450-$470

Agronomy Team

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SEASONAL REMINDERS

- ☐ Take advantage of the lime deal to assist cash flow
- ☐ Soil test to check nutrient levels, especially sulphur and potash
- ☐ Get your farm nutrient plan organised
- ☐ Make sure your dumpsite has been graded
- ☐ Make the most of the early bird incentives

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

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