NITROGEN RATES AND TESTING

James Stewart

When I sat down to write my newsletter article this winter, I wondered what hurdles were confronting our 2014 cropping program. The season has started exceptionally well with good rains in most regions not long after ANZAC day. To follow this up we have had warm soil temperatures and minimal frosts. This has provided ideal growing conditions for our entire winter cropping program. But to put a dampener on this the Australian Bureau of Meteorology is forecasting the probability of a drier than average spring later this year, the latest modelling (July 2014) is showing variable trends towards an El Nino.

So how do we approach our Nitrogen program for 2014? Let's look at the facts that can improve our decision making.

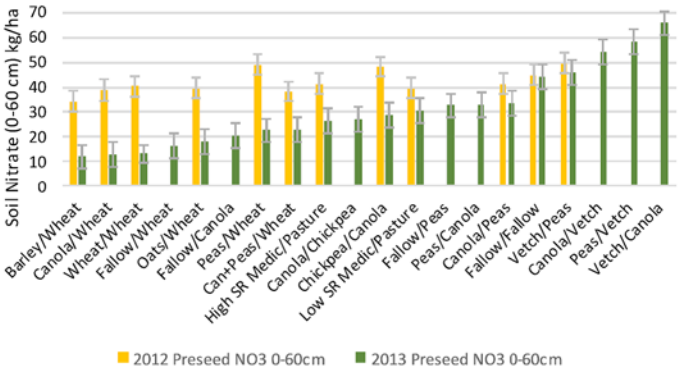
- The summer we just experienced was very dry so potential for losses of soil nitrogen were significantly reduced. Losses during the summer and autumn occur normally through denitrification, volatilisation or leaching.
- As previously mentioned a good early break has made a big difference to soil nitrogen levels this year. Soil temperatures have been great through autumn and early winter.
- From this we have seen excellent soil mineralisation occurring of organic nitrogen, with warm moist soils for extended periods of time in many regions.
- Early sowing compared to the previous two years has seen accelerated crop maturity in most areas.

How do I know that these statements are correct and soil nitrogen levels are as good as they have been for several years? Based on the results we have been receiving from our deep soil nitrogen profile testing. Nearly all results are coming back with higher than expected nitrogen levels available, and we have seen this with increased early crop vigour in most areas.

SHOULD I BE DEEP NITROGEN TESTING?

Deep nitrogen testing this year highlighted higher nitrogen levels in the soil. Without using this tool we would be guessing as to the soil nitrogen levels and hence crop requirements. The graph below shows soil nitrogen levels measured on a cropping rotation trial.

Graph 1 Soil nitrate levels under different cropping rotations



Graph 1 shows the soil nitrogen levels in a rotation trial in the years 2012 and 2013. You will notice on the left end of the graph there is a large difference between the years in soil nitrate levels with similar rotation. Conditions in early 2013 were favourable to mineralisation of nitrogen. Deep soil nitrate testing determines the nitrogen levels you have in the soil to grow the crop.

CALCULATING YOUR CROP REQUIREMENTS

Table 2 below can be used to calculate your crop's nitrogen requirements when your soil nitrogen levels are known. However in the high rainfall cropping zone spring growing rainfall rather than growing season rainfall is used to calculate mineralisation which allows for the wet winters in this region.

Contents:

Table 2 Nitrogen Budgeting

Paddock Name		Example	Write your calculation here
Calculating N requirement	**Target Yield**	**3 t/ha**	
Multiplied by	Target protein (for canola use 18%)	X 12%	
Multiplied by	Converting protein to nitrogen (for canola and barley use 1.6)	X 1.754	
Multiplied by	Nitrogen use efficiency (50%) NUE for DR1 and APW 2.5, AH 2.2, ASW 2.0, <10% protein 1.8, canola 2.8	X 2	
Equals	Nitrogen required for expected yield and protein	126 kg/ha N	
Soil test nitrogen	**Soil nitrate (NO_3)**	**6 mg/kg**	
Multiplied by	Sample depth (0-60cm)	X 6	
Multiplied by	Soil bulk density	X 1.4	
Equals	Deep soil nitrogen	50 kg/ha N	
Mineralisation	**Growing season rainfall**	**250mm**	
Multiplied by	0-10 cm organic carbon %	X 1.1	
Multiplied by	Conversion factor	X .15	
Equals	Potential mineralised N	41 kg/ha N	
N Budget	**N required**	**126**	
Minus	Deep soil N + mineralised N	91	
Equals	Additional nitrogen required	35 kg/ha N	
Note: A negative value indicates no additional nitrogen is required			

Given the possibility of a drier spring, it's worth being realistic with the target yields this year.

So in conclusion, if you had a tool which gave you exact nitrogen levels under your crop at the time of sampling, which in turn you could determine nitrogen rates for realistic budgeted yields, would you use it?

BEET WESTERN YELLOW VIRUS AND THE GREEN PEACH APHID IN CANOLA

Rebecca Stewart

A high incidence on Beet Western Yellow Virus (BWYV) is causing grief with many farmers this year creating severe crop damage and losses of whole crops in some areas. This disease is caused by widespread infestations of the green peach aphid *(Myzus persicae)* which is the principal vector of BWYV in canola crops during autumn and early winter.

Rainfall in cropping districts during February and March is likely to have created a green bridge for the aphids to live on. Warmer temperatures continuing through autumn and early winter were optimal for the aphid reproduction which has led to such high numbers.

Scientists say an outbreak of the virus is one of the worst cases they have ever seen in Australia. Early estimations have suggested that up to 10,000 hectares of canola has been affected in South Australia's lower north, mid north and lower mallee regions.

The virus infects the phloem of plants and can result in significant losses of yield and oil content of the infected canola crops. The symptoms have initially resembled nutrient deficiencies, herbicide damage, physiological stress or other disorders. It starts from the older leaves which turn yellow and purple. Other symptoms include premature bolting, thickened leaves, inward cupping and mottling of leaves. Canola is most susceptible to the virus at the rosette stage, this is when infection can lead to high yield losses. Generally speaking, the yield consequences of BWYV decreases when infection occurs at the later stages of the crop development.

Canola still remains susceptible to BWYV until mid-podding stage and after this point, minimal yield losses occur. Oil quality can still be affected at this stage.

Up to this point in time, the overall result for BWYV testing has shown that 75% of the plants tested are positive for having the virus. In South Australia, there is 85% infection, Victoria, 59% infection and 48% infection in New South Wales.

With the onset of cold winter temperatures, the aphid populations have declined but are set to rise when temperatures begin to warm up.

It is necessary to keep an eye out for the symptoms of the disease so contact your Agronomist if your canola is showing any irregular growth or aphids are present.

COMMON QUESTIONS ABOUT FERTILISER AND SOIL FERTILITY

REPRODUCED FROM THE MLA FRIDAY FEEDBACK

DO CONVENTIONAL FERTILISERS DAMAGE THE SOIL?

- No. Where fertilisers increase pasture growth this is often found to increase root growth and soil biology.
- Conventional fertilisers do not harm soil biology and few directly cause acidification (i.e. a souring of the soil).

CAN SOIL BIOLOGY PROVIDE ALL THE NUTRIENTS REQUIRED FOR GOOD PASTURE GROWTH?

- Soil microbes are critical for nutrient cycling but there are very few examples of where added microbes increase pasture growth. One notable exception is Rhizobium bacteria which are commonly coated on the surface of legume seeds prior to sowing and form symbiotic relationships with the roots of legumes. These bacteria can fix large amounts of nitrogen from the atmosphere making it available for plants in the soil.
- Most soils already contain a significant number of microbes. Most microbial products available for sale supply a mass of microbes (eg bacteria and fungi) which amounts to only a tiny fraction (ie much less than one in a million) of that contained in soil. Of the microbes that are applied, it is has been suggested that they disappear at a very fast rate and that few added microbes would remain after 3-4 days.

WHY DON'T FERTILISERS SEEM TO WORK ANYMORE?

- This might be a sign that the nutrients in the fertiliser are already at high levels in your soil and putting more on won't give you further responses in pasture growth. Conduct a soil chemical test.
- Other nutrients (not included in the fertiliser you have been using) or toxicities such as potassium, sulphur or soil acidity may be limiting pasture growth. Conduct a soil chemical test and/or do a test strip to compare alternatives.
- Pasture composition may be limiting the response. For example, large pasture growth responses to phosphorus rely on the presence of legumes (germinating from seed or as existing plants).

DON'T MOST OF THE NUTRIENTS IN CONVENTIONAL FERTILISERS LOCKUP IN THE SOIL?

- Lock-up of nutrients is a natural process and is most obvious for phosphorus which can become bound to clays and other chemicals such as iron and aluminium.
- The binding of phosphorus to clays is an important part of long-term soil fertility.
- Lock-up of phosphorus applies to all phosphorus products (conventional and alternatives) but can be reduced with products which release plant-available phosphorus at a slower rate.
- Microbes added to the soil have not been reliably used in the field to increase phosphorus availability to plants. Naturally-occurring soil fungi (Mycorrhiza) form symbiotic associations with plant roots allowing access to a greater volume of soil and increased root absorption of phosphorus, particularly when it is in low supply.

DOES THE CONTENT AND AVAILABILITY OF NUTRIENTS IN SOIL TREATMENTS CHANGE?

- Yes, the nutrient content of products such as composts and animal wastes (eg poultry litter, pig manure, feedlot manure) can be highly variable and a nutrient analysis is required to evaluate their cost-effectiveness.
- Water content in composts and animal wastes can also be highly variable and a nutrient analysis provides this information. For this reason, these products should be purchased and spread on a volumetric (eg cubic metre) rate.
- Not all nutrients in composts and animal wastes will be available for plants. Nitrogen in animal wastes can be lost to the atmosphere with higher losses (up to 35%) occurring where they are not incorporated into the soil and the gap between application and rain increases. The availability of most nutrients is in the range 25-50% in the first year with continuing mineralisation occurring over time.
- Composts and animal wastes generally have a lower nutrient content than synthetic fertilisers. When comparing nutrient costs make sure to include the cost of spreading. For example, 1t of superphosphate contains 88kg of phosphorus but 1t of poultry litter or feedlot manure contains in the order of 10-15kg. With this example, you will need to spread the litter/manure at seven times the rate of superphosphate to provide the same amount of phosphorus. Remember that the different products have different rates of plant availability and seek advice in this area.

SHOULD I USE A PRODUCT WHERE RELIABLE FIELD PERFORMANCE HAS NOT BEEN DEMONSTRATED?

- It is advisable to be cautious about using products that do not have reliable information about their effect on pasture growth.
- Verify the claims by seeking evidence of nutrient availability and product performance.
- If the evidence is unavailable then test the product/s on your farm using test strips (seek advice on how to establish test strips).

CAN FOLIAR SPRAYS PROVIDE NUTRIENTS AND INCREASE PASTURE GROWTH?

- Foliar sprays are more commonly used in crops (not pastures) for the application of micronutrients.

- Generally, leaves act as a barrier to keep things out rather than to take them in.
- Seek evidence of nutrient content and product performance and advice about the role of grazing after foliar sprays in removing (eating) the sprayed vegetation.

ARE THERE ANY RISKS WITH USING COMPOSTS AND ANIMAL WASTES?

- Possible risks include the presence of antibiotics, heavy metals, salt, microbial pathogens and weed seeds. Seek this information from the supplier.
- Considering if nutrients which are not required are being added as this has the potential to cause nutrient leaching.

WILL COMPOSTS AND ANIMAL WASTES INCREASE SOIL CARBON?

- Increasing pasture growth will have a gradual benefit for increasing soil carbon. Therefore, anything that helps to increase pasture growth is likely to increase soil carbon.
- The level of soil carbon is difficult to change and requires many tonnes of carbon to increase. For example, a soil with 2% carbon may contain 24 tonnes of carbon in the top 10cm. Addition of products with, for example, 20% carbon content at the rate of 5t/ha would add 1t carbon (increasing soil carbon to 2.08%) but much of this carbon may be lost to the atmosphere through microbial degradation.
- The upper level of soil carbon is limited by soil type and rainfall with higher soil carbon possible with greater clay content.
- Soil carbon is an indicator of organic matter in the soil. Organic matter also contains other plant nutrients and plays an important role in the physical structure and water holding capacity of the soil.
- Most productive and stable pasture systems are those with the highest soil carbon.

IS THE BALANCE OF NUTRIENTS MORE IMPORTANT THAN THE ACTUAL LEVEL?

- The balance of nutrients in the soil is important but it should be remembered that roots are not straws, they selectively uptake nutrients.
- The ratio of calcium to magnesium is frequently discussed due to concern that high levels of magnesium reduce calcium availability and may also lead to dispersion in the soil (ie unstable soil structure). There is little experimental data to support the importance of this ratio.
- Calcium deficiencies are not common in Australian soils used for pastures.
- Addition of calcium may have an indirect benefit for pastures in acidic (low pH) soils as it can assist in decreasing acidity and aluminium and manganese toxicities.

FARWELL HARRY

After 9 ½ years at Vickery Bros, Harry Armstrong has hung up the boots and moved onto greener turf. Harry provided agronomy services for a large cross section of Vickery Bros clients and we would like to thank Harry for his input and wish him well for the future.

HAY OR SILAGE? THE PROS AND CONS

Rebecca Stewart

The big question this year; to make hay or silage? I bet you all know in the back of your mind what you are going to do but it's worth looking at the benefits of each.

One of the differences is that due to the lower wilting time required with silage, the paddock can be cut earlier resulting in high quality fodder. If you are going to use the fodder for finishing stock, higher quality silage will have an advantage over hay. For maintenance feeding of livestock the difference in quality is not so critical.

Now if I was to offer you 500T of typical hay or 300T of typical silage, what would you choose?

Looking at table 1.1 you can see the differences between hay and silage when feeding a 30kg lamb.

Feed...	Silage	Hay
NDF%	50	60
ME Mj/kg	9.5	8.5
Protein	16	12
Cents (kg/DM)	20	14
Intake (kj/day)	0.72	0.6
ME daily	6.84	5.1
Maintenance	4.5	4.5
Growth (g/day)	60	10
Days to gain 1kg	16.7	100
Feed to Gain 1kg	12	60
Cost to Gain 1kg	240c	840c

Feed...	Silage	Hay
Kg gained from each stack	300T/12	500T/60
Bwt Gain	25T Meat	8.3T Meat
Value	$50,000	$16,600
Input Costs	$60,000	$70,000
Net	-$10,000	-$54,000

When looking to finish young stock with fodder, ME and protein are critical. In the above example, grain would be used to improve the weight gain to meet requirements.

As you can see, the ME and protein content of the silage is higher than the hay, therefore it takes you less time to gain 1kg of weight on your stock when feeding silage. They can also eat more silage because it has a lower fibre content (NDF), which will increase rumen throughput and result in higher daily intake.

To have a quick turnaround when fattening lambs, in this situation you would most definitely want to feed them high quality silage which will take 16.7 days to gain one kilogram of meat rather than feeding them the lower quality hay which will take 100 days to gain 1kg of meat.

In terms of costings, both hay and silage have similar substantial input costs but the value of feed at the other end is vastly different. In this example, you are losing money with both options but with the silage, you are still in front by only losing $10,000 rather than $54,000 with the hay. Cutting silage will also result in higher quality regrowth as most likely moisture will still be available; this will also enhance weight gain of grazing stock thus increasing financial returns.

SOIL AND PLANT TISSUE TESTING - USE THE TOOLS TO CHECK YOUR PASTURE THIS SPRING

Bruce Lewis

High quality pastures need good nutrition. Pastures with high clover content produce higher weight gain in livestock which converts into large financial gains when prime stock are sold at the end of the season. Maintaining breeding stock in good condition will also result in better reproductive performance.

August and September is a good time to walk over and check the performance of your pastures. Pastures with lower clover content, higher weed content or live stock that are not performing to expectation should be the stimulus to investigate further.

Macro nutrients like phosphorus, potassium, sulphur and well as soil pH is best checked by conducting a soil test. A soil test gives a good overview of the soil which will enable most of the nutrient issues to be sorted out.

Trace elements like molybdenum, copper and zinc are best check by sampling and testing the plant tissue. Molybdenum in particular can reduce clover and pasture growth considerably in acidic soils which have high iron levels. These pastures can often have good fertiliser nutrition with adequate levels of phosphorus and potassium. Copper can effect animal health and is best checked in August.

So call your Agronomist and check out those paddocks that are not performing to your expectations this Spring.

DISEASE WATCH 2014

Rebecca Stewart

This year, having an early break has been great for cropping, but warm/moist conditions have also favoured a number of diseases. The PreDicta B soil tests that have been taken so far in 2014 indicate that rhizoctonia, crown rot and take-all are the soil borne diseases to watch this year. It has also shown that root lesion nematode numbers are on the rise.

This year many cropping sowing fertilisers were supplied with the fungicide flutriafol coated to the fertiliser granule to give crop protection. The product Intake Hiload – Gold (500g/litre flutriafol) provides protection in wheat against stripe rust, septoria tritici blotch and take-all for 80 to 120 days depending on the rates applied and the disease. In barley powdery mildew and scald can be controlled for 80 to 120 days depending on application rate. Suppression of net form net blotch is achieved for up to 110 days with higher application rates in barley.

SARDI soil biologist and diagnostics research leader Dr Alan McKay found that the inoculum levels are the highest in more than a decade. From this high level of inoculum, soil borne diseases are favoured. Dr McKay believes that while most farmers will be planning for rhizoctonia and crown rot management, take-all could catch a lot of people out.

RHIZOCTONIA


Rhizoctonia Bare Patch

The rhizoctonia levels are higher in 2014 than they were last year and the symptoms of rhizoctonia are expected to be seen earlier in the season for growers.

Rhizoctonia is a fungus that lives in the soil and survives on organic matter in the top 0-10cm. It grows a 'web' of fungi filaments through the soil and the levels of the inoculum increase on the roots of host plants. In crop you will see patches of stunted plants with yellow-red erect leaves. When you look at some of these infected plants below the soil surface, their roots are brown and spear tipped. Rhizoctonia is associated with reduced tillage and poor weed control in the autumn and is often more severe following dry summers.

Because rhizoctonia is sensitive to soil disturbance, it is recommended that you cultivate the soil below 10cm to manage the fungus. Other management options include early weed control and chemical fallow. You can assist the crops' roots avoiding the inoculum by encouraging early growth by using high nitrogen, phosphorous and zinc fertilisers. This will ensure strong vigorous growth of the young plants. It is also recommended that the crop is early sown in warm soils and that the soil below the seed is disturbed.

CROWN ROT


Crown Rot

Looking at soil tests, crown rot has been detected within the soils across all southern states so keep a watch out for it later in the season.

Crown Rot is a fungus which survives in the soil, on grass and cereal residues. It causes pinched grain and white heads. The symptoms are usually not seen until after heading when the white heads begin to appear. These white heads develop after the onset of water stress and in a tough dry finish, the symptoms will be clear. It some cases, a pink fungus can be seen on the nodes of crops and this will be apparent during the wet conditions especially on poorly drained and heavy soils.

Reducing the crown rot inoculum is key to managing the disease and this is achieved most effectively by crop rotation. These rotations with non-susceptible crops will reduce the severity of crown rot and a two year break with a pulse, oilseed or fallow will ensure the inoculum is reduced. Grass free Lucerne and Medics will also reduce this inoculum but stubble management is the key to reduce the survival of the fungus. Farmers are also encouraged to have a high nutrition underneath the crop especially with the use of Zinc fertilisers to assist the root development of crops.

TAKE-ALL

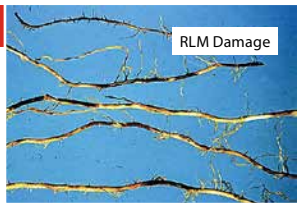

Take-all in Wheat

Take-all inoculum levels have been on the rise with the run of good seasons across Southern Australia, so we need to keep a close eye on it during 2014.

Take-all is a soil borne fungus that survives on grass hosts and cereal residues. It restricts water and nutrient flow up the root system and affected crops may show patches of poor growth. It progressively destroys the root system and in exceptional cases can kill the whole crop; hence the name take-all. It can occur from emergence onwards but the symptoms are most obvious after flowering. The most characteristic symptom of take-all is a blackening of the sub-crown internode and roots. The fungus gets into the centre of the root and when they are snapped and observed at the end, the root is black to the core.

The take-all fungus is controlled by a one year break crop from cereals and host grasses. In the High Rainfall Zone (HRZ), grasses must be controlled by the end of July during the previous year. The fungus grows out of the residue material after autumn rains and attacks the new susceptible plants. If there is no host for the fungus, it is unlikely to survive more than one year. Therefore, you need to plan ahead and have a grass free break the year before putting in a cereal. Crops such as pulse and oilseeds will reduce the inoculum levels and oat crops may also assist unless it is a different oat attacking strain of fungus.

ROOT LESION NEMATODE



With root lesion nematode numbers on the rise, growers are urged to watch out for them this season with soil test results showing their numbers increasing.

Root lesion nematodes are worm like organisms which are less than one millimetre in length. They feed on root tissues and survive over summer in a dehydrated state, becoming active once again once moisture is available. Looking in the field, symptoms include stunted growth, uneven patches and waviness across a paddock. Look for a lack of branching along the main roots and lesions and/or discoloration.

Once again crop rotation is an important factor in the control of the root lesion nematodes. Resistant crops such as Field Peas, Narrow Leafed Lupin, Faba Bean, Lentil, Triticale, Rye, Safflower, Clover and Legume Pastures should be incorporated into the rotation. Growing these resistant crops can reduce nematode populations by up to 50% per year and if nematode numbers were high to start with, a two year break crop may be needed to minimise yield losses. It is also recommended that you choose a variety which has a high resistance rating and ensure the crop has adequate nutrition with phosphorous, nitrogen and zinc.

SEPTORIA TRITICI BLOTCH

In the higher rainfall regions of the Wimmera and Western District, septoria tritici blotch of wheat is the disease to watch and some strains of the fungus have been shown to be resistant to some triazole fungicides so keep an eye on it this year in your crops.

Septoria tritici blotch is a fungus that causes grey to dark brown blotches on the leaves of wheat plants. The feature of septoria tritici blotch which we can diagnose it by is the black fruiting bodies which are within the blotches on the leaves. The fungus survives on the soil from one season to the next on stubble and following rains or heavy dew in the late autumn/early winter the spores spread. The spores are spread by wind and a combination of wind and rain provide the most favourable conditions.

To manage this fungus, resistant varieties should be grown to reduce inoculum levels within the soil. You can use foliar and some seed applied fungicides to supress the septoria tritici blotch but it must be correctly identified before it is sprayed and only used in known areas. Once again rotations are a key in reducing the spores, do not sow wheat into infected stubble and reduce the number of spores in the stubble by destroying it through cultivation.

If you are unsure about the levels of disease within your soils and have noticed that your yields are declining or you keep seeing disease problems, you may like to conduct a PreDicta B Soil Test.

A PreDicta B (B = Broadacre) is a DNA based soil test which identifies certain soil borne pathogens so that you can make an informed decision about the crop/pasture you are going to sow that year.

The PreDicta B tests' for:

- Cereal cyst nematode
- Take-all
- Rhizoctonia barepatch
- Crown rot
- Root lesion nematode
- Stem nematode
- Blackspot of peas

By conducting a PreDicta B test during February to mid May, producers can assess the results through an accredited agronomist who can provide advice on management options to reduce the risk of yield losses for the season.

If you have any questions about in crop diseases or would like to conduct a PreDicta B test, contact your local agronomist for more information.

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INTRODUCING PHIL WHITE

Vickery Bros would like to introduce Phil White to their Sales Agronomy team. Phil will be taking on the role of dairy specialist servicing dairy farmers throughout the Vickery Bros dairy farm catchment from Warrnambool through to South East South Australia. Phil has a B. Ag Sc(hons) in plant science and experience managing dairy farms in Australia and New Zealand, he is passionate about profitable grass based dairying and is looking forward to the challenge of helping dairy farmers make informed decisions about their fertiliser use. In addition to this Phil completed his honours dissertation on forestry conversion to pasture specifically looking at ameliorating the low pH and poor fertility associated with former forestry sites. Phil was involved in one of the few large scale experimental sites specifically addressing the question of how to successfully establish a productive pasture on a low fertility, very low pH degraded forestry site. He is more than happy to go over some of the agronomic practices that will ensure success for those endeavouring to take on a forestry conversion block.

HAY AND SILAGE PLANNING

Bruce Lewis

With an excellent start to the season and plenty of winter soil moisture, this season is shaping up to be a good one. It's also a good opportunity to build fodder reserves during the spring surplus. Given there is a chance of an El Nino season and an early finish it also makes good planning sense to maximise late winter/early spring growth to ensure adequate quantities of hay and silage are grown. To have the best chance of producing good quality hay or silage it's time to select and prepare these paddocks now.

PESTS & WEEDS

Watch for prevalence of insects such as red-legged earth mite, lucerne flea, aphids and blue oat mite and spray with an appropriate pesticide before serious damage is done. Red-legged earth mite numbers can build rapidly in the weeks prior to cutting which reduces yield and quality. Legume based pastures, locked up for fodder production are at the highest risk of pest infestations.

If capeweed, erodium or other weeds have infiltrated large areas of the paddock, spray with an appropriate herbicide as soon as you can get out there with the tractor, weeds reduce the quality of crops and are competition for valuable nutrients and moisture.

NUTRIENTS

High quality hay and silage production requires good soil fertility. Paddocks that have been earmarked for fodder conservation should be soil tested to check that there are adequate levels of phosphorus and potassium and that the soil pH is within the desirable range.

Applying nitrogen will increase pasture and crop growth given adequate populations of desirable plant species as long as there are no other limiting essential macro and micro nutrients.

Using a complete NPKS mix to correct other identified nutrient deficiencies is an essential step to ensuring yield is maximised. Specialist short term ryegrass pastures are very responsive to nitrogen in the spring months and responses of 20kg plus of dry matter per kg of N applied are achievable. Given the present lower cost of nitrogen this equates to inexpensive fodder. Nitrogen costing around $1.30 per kg applied will generate extra dry matter costing $65/tonne at a response rate of 20:1.

NUTRIENT REMOVAL

The other factor to consider is the mining of nutrients from the paddock when the crop is cut and removed. It is important that these nutrients are returned or soil nutrient status will be depleted and subsequent crop and pasture yields will be reduced.

Table 1. Nutrient removal in hay and silage

Total nutrients removed by 1 ton of hay or silage

Fodder Type:	N	P	K	S
Pasture Hay	25	2.5	17	2.5
Pasture Silage	30	3	15	3
Cereal Hay	20	2	12	1.5
Cereal Silage	14	2	25	2
Lucerne Hay	34.5	2.7	19.6	3.2
Legume Hay	30	3	22	2

From the table above we can calculate that the removal of a 4 ton/ha hay crop will remove 10kg/ha of P, 68kg/ha of K and 10kg/ha of S. To replace these nutrients will require an application of 272kg/ha of super potash 1:1 or an equivalent.

This calculation assumes that the entire crop is taken from the paddock and none is returned.

Removing nutrients from a hay or silage paddock can also reduce the pH of the soil. So in general, areas that are harvested for hay or silage regularly will acidify quicker than a normal pasture and these levels need to be monitored with soil tests and a lime program. A regular soil testing program will keep track of nutrients transferred both around and off the farm.

NITROGEN

For increasing fodder production nitrogen can lift yields considerably particularly if applied to short term ryegrasses or cereals. Nitrogen applications should be timed to give the crop or pasture sufficient time to express the full response (4 weeks). Nitrate levels in plants will peak about 1-2 weeks after nitrogen application so stock should be kept off paddocks from 1-3 weeks after high nitrogen applications on short term ryegrasses or cereals (to avoid nitrate poisoning). Optimal rates of nitrogen are generally 30-50kg/N/ha however in peak spring growth conditions excellent responses can be achieved with rates up to 80kg/N/ha with short term ryegrass with adequate moisture.

BALANCED NUTRITION

Nutrients should be matched to the soil and species growing. A clover dominant pasture with marginal phosphorus and

potassium levels would respond best to a blend with high levels of phosphorus and potassium and a light rate of nitrogen. A short term ryegrass dominant pasture will respond to high levels of nitrogen in September providing moisture and other nutrients are adequate.

POTASSIUM

Potassium is another critical nutrient for successful hay and silage production as it is removed in mass amounts when cutting hay/silage. Potassium is important for clover growth as it is not as able as grass pastures to source the nutrient. For a beef/sheep enterprise, clover is the driver of productivity to get high animal performance due to the digestibility and protein. Potassium is important in plants for cell division, water uptake, guard cells, cold tolerance, moisture stress and many other functions. Split applications of potassium may be needed to ensure a sustained supply of nutrient to the plant if a potassium deficiency is known. If a mass amount of potassium is applied, luxury uptake may occur which will increase the fodder potassium levels. This is not desirable for Grass Tetany. Potassium should be applied to give sufficient time for the pasture to respond.

LOCKING UP THE PADDOCK

To maintain quality and ensure sufficient bulk of fodder, the paddock needs to be locked up early before the reproductive stage. However if the paddock is locked up too early and cut early, there may be some difficulties in the wilting process. You can aid the wilting process however, by using a mower conditioner which will crimp and crush the plant material so that it has more surface area to dry quicker. Silage paddocks should be locked up for around 40 days where as hay paddocks can be locked up for 50-60days.

CUTTING

The final fodder product that you produce will be influenced greatly by the stage of maturity and when it is mowed. There is always a compromise between yield and quality when creating fodder. The pasture/forage crop needs to have a high feed value with sufficient bulk, plenty of leaf area and not too much stalk. No seed heads should be present unless it is a grain crop. For cereals cutting between boot stage and ear emergence will produce a high feed quality crop with lower yield. Cereals cut in the soft dough stage which will produce a low feed quality and higher yields. When cutting Lucerne crops you should aim for pre flowering to around 10% flowering. In a pasture, you should cut when the seed stems are first emerging. The highest quality fodder will be produced at this point. From any time after that, the quality will rapidly decline. Generally, silage should be harvested 2-4 weeks before the haymaking. By cutting earlier silage will be much higher quality than hay.

WILTING

During spring, pasture and crop can wilt sufficiently for silage within two to three days, whereas hay will take up to ten to twenty days. For pit silage, you need to achieve at least 30% DM and for baled silage, 50-60% DM. Hay production needs to be wilted to 85-90% DM.

Whatever the conservation system, a rapid wilt of fodder is essential. A fast wilt means there is less bacterial spoilage in silage and higher lactic acid concentration during fermentation. For hay, fast wilting means there is less energy losses due to respiration, less fungi/bacterial spoilage and a decreased chance of rain damage.

INOCULANT USE

The use of inoculants in silage ensures the correct bacteria are present at the beginning of the ensiling process which ensures adequate lactic acid production and rapid pH drop thus reducing the losses of energy and reduces mould growth associated with slow fermentation. The use of agricultural salt at 2 kg/m2 has also been shown to reduce surface spoilage directly under the cover of pit silage. This has the added benefit of providing a source of salt for stock when low Na plants are ensiled such as Lucerne and Maize.

IN SUMMARY

The quality of the conserved fodder is determined by three factors:

- **Quality of fodder.** Is determined by supplying the paddock with sufficient nutrient, effective weed and pest control and when it is cut.
- **How quickly it is made.** By baling or ensiling at the right moisture content as quickly as possible and avoiding weather extremes.
- **How well it is stored.** By ensuring protection from weather for hay and a well sealed pit, stack, bale or mound for silage.

ANOTHER NEW FACE AT VICKERY BROS

Vickery Bros have appointed Roger Gee as sales agronomist working out of the Heywood depot to support Vickery Bros on-farm services. Roger will be servicing Mt Richmond, Dartmoor, Branxholme, Wallacedale, Bessiebell, Portland and Heywood areas.

Roger comes to Vickery Bros with over fifteen years of experience in the fertiliser industry, starting in operations with HiFert before moving into a territory managers role, at first working on farm, then as a business manager servicing the dealer network, and finally as the company's customer service manager. After a short break working overseas, Roger joined Impact Fertilisers as operations manager at Portland.

As Sales Agronomist, Roger will be responsible for working with Vickery Bros customers throughout the district, again working on-farm and assisting farmers in the same district as where he started.

"I love working in this industry, it provides the opportunity to assist farmers to increase their returns with our on-farm services and agronomics". "Australia's farming community is a lot more concerned on how they impact on their land, and if we can assist them to be sustainable in their enterprise, then the benefits flow through to all of us," Roger said.

It's a very exciting time at Vickery Bros, with farmers becoming much more involved and sophisticated in their approach to fertiliser, more focus with nutrient use, nutrient monitoring, and Roger's emphasis on regular soil testing, using best practice, through reputable soil test companies, providing results calibrated to your district and soil, is utmost.

Roger can be contacted via email: roger@vickerybros.com and mobile: 0417 677 342

FERTILISER USE AND PASTURE PRODUCTION ON DAIRY FARMS

Phil White

Fertiliser is one of the larger expenditure items for dairy farmers and it is important that through soil testing and careful examination of the farm system the appropriate fertiliser blend is applied on farm at the correct time. Coming into winter emphasis should be placed on the importance of setting up a grazing rotation to maximise both cow intake in the short term and overall farm pasture production. This will be a balancing act between supplementary feeding, nitrogen use to boost pasture growth and grazing planning to maximise autumn/early winter pasture production to ensure adequate pasture cover going into winter. Given adequate plant nutrition pasture growth is largely dependent on the harvesting of incident solar radiation. As can be seen in figure 1 there is a distinct linear phase in ryegrass production from approximately 1200 kg DM/ha to 3500 kg DM/ha. Below the lower level there is not enough leaf area to harvest sunlight and growth is dependant of mobilisation of plant carbohydrate reserves. At the ceiling level there is no increase in dry matter accumulation as the older leaves die off which reduces both pasture quality, animal grazing preference and results in shading which suppresses clover growth and creates etiolated (longer pale) ryegrass stems which will eventually result in poorer pasture persistence.

It is therefore critical that pastures are kept within the linear growth phase to not only maximise pasture production but to minimise bare ground which encourages weed growth and increases pugging damage. Nitrogen is an effective winter tool to increase plant cell size which creates a larger leaf area hence accelerates DM accumulation.

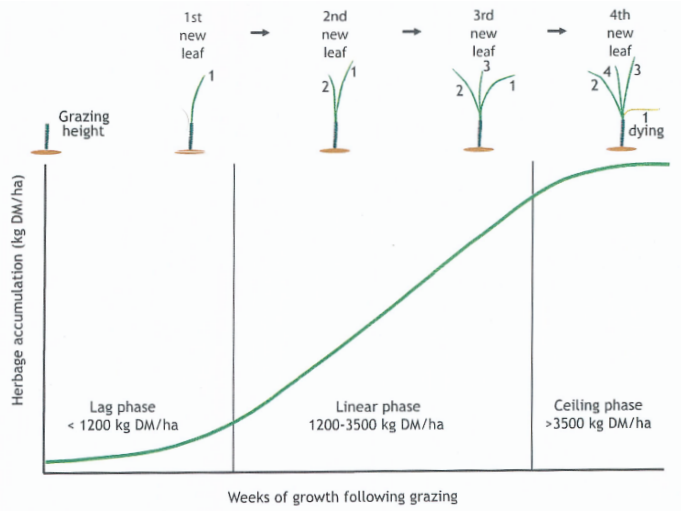

Figure 1. Ryegrass herbage accumulation in relation to leaf stage and time after grazing. Note linear phase between 1200-3500 kgDM/ha. Figure courtesy of agriseeds NZ.

When soil temperatures are above 7°C nitrogen responses can be expected up to and above 10 kgDM\KgN and with the urea price moving in a direction that is favourable to farmers, nitrogen use will be a key tool in promoting winter pasture growth. Phil is happy to discuss your grazing strategies and offer suggestions for winter pasture management to both maximise production and minimise pugging over the wetter winter months. Phil can be contacted on 0417 752 776 or phil@vickerybros.com

SPRAY TOPPING & WINTER CLEANING FOR MORE PRODUCTIVE PASTURES

Leighton Rees

For many of us annual grasses such as silver grass, soft brome and barley grass make up a fair percentage of our average pasture composition. These particular grasses respond quickly to autumn rains and create a high amount of competition for a place against more desirable plant species. Many of these annuals don't require bare ground for germination and will therefore germinate anywhere. These species do however provide early feed but can cause animal health issues later on when quality decreases and seed heads emerge.

The benefits of removing these grasses, especially silvergrass which offers very little food value, far outweighs that extra early feed by creating an area where more desirable and higher quality plant species such as clovers can grow and provide improved feed quality and higher weight gains in stock. Reduced annual weeds will also lower the risk of seed heads which can contaminate skins and carcasses as well as cause other animal health issues.

Typically soft brome and barley grass are found on high fertility areas such as stock camps and around trees. Silver grass on the other hand doesn't seem to be affected so much by soil fertility and can be found in most levels of fertility.

Annual grasses such as Silver grass, soft brome and barley grass can be quite easy to control due to the fact that they need to seed every year to carry over.

Provided that timing and application rates are correct you can expect to eradicate up to 90% of unwanted grasses in a single year with certain chemical applications.

Winter cleaning is one option which can lead to a big reduction in unwanted grasses but it can however slow down desirable pasture species growth rates over the winter period also. For this reason you would need to look at stocking rates and areas to be controlled to ensure you will have adequate feed over the winter period to sustain your current stock numbers.

Winter cleaning involves spraying a selective herbicide such as simazine at around 6-10 weeks after seedling germination but not before the 3rd trifoliate leaf of clover plants have appeared. Young well grazed and actively growing plants respond particularly well to this method. In particular silvergrass is very sensitive to simazine applications. Brome grass and Barley grass are less sensitive to simazine. Paraquat is often used with simazine to provide better control against Brome grass.

Rates of chemical applied will vary as to the growth stage and composition of the existing pastures and also the variety of weeds which you are targeting. A suitable wetting agent should also be used to enhance results. Rates will also vary according to soil type and conditions. Lower chemical rates should be used on lighter textured soils. Better weed control is achieved under moist soil conditions. Rain following simazine applications also increases the effects of the chemical as it works by means of soil/root uptake. Applications of broadleaf sprays should not be applied for up to 3 weeks after winter cleaning to enable clover plants to fully recover.

Another option which is sometimes preferred is spray topping. This method involves spraying low rates of chemicals such as glyphosate at head emergence to prevent the formation of viable seeds. This in turn helps to reduce the number of seeds in the soil for the following year.

To achieve good results by using this method you need to make sure that pastures have been well grazed through the winter period and kept well grazed until September/October. Stock can then be taken off the paddock and the annual grass species will quickly run to seed. As the seed heads start to appear, (approximately 50%) apply glyphosate and a wetter at rates advised by your chemical agronomist. Spraying with Glyphosate will preserve the feed quality for a lot longer and therefore grazing can take place as long as 2-3 weeks after spraying.

Removal of certain annual weeds and increasing the amount of clover in the sward can increase stock performance and weight gain. It can also increase the amount of nitrogen in the soil due to higher legume content and less weed species removing it for their own use.

WELCOME TO MILLA MCCLURE

Vickery Bros would like to congratulate Sophie (nee Leonard) and David McClure on the safe arrival of Milla Anne McClure.

VICKERY BROS UR-AMMO: A WEAPON OF MASS GRASS PRODUCTION

Phil White

Vickery Bros Ur-ammo (37:0:0:8.4) is mixture of urea and sulphate of ammonia which when applied at 80kg/ha provides 30 kg of N and 7 kg of sulphate sulphur. This blend is specifically designed for late winter applications to provide an economically optimum nitrogen rate and a readily plant available form of sulphur (SO_4^{2-}).

Why Ur-ammo in late winter??

Plants are only able to take up sulphur in the form SO_4^{2-} and, given that the soil is largely a negatively charged surface (OH^- groups on organic matter and –ve charged clay particles) it tends to be readily leached over the winter months. Anions or negatively charged ions are not attached to negatively charged exchange sites the same way the negative ends on a magnet repel one another. This situation is further confounded by the fact that the majority of the sulphur in soil is in organic or elemental forms which are not plant available. To become plant available elemental sulphur must be broken down by a bacteria called *Thiobacillus* and like most biological processes this does not occur readily in the wet cold conditions of late winter. The oxidation of Elemental sulphur to SO_4^{2-} is shown in the stylised equation below.

(Thiobacillus, O_2 and H_2O) (Dissociates to)

$$\text{Sulphur Elemental } (S^o) \rightarrow \text{Sulphuric Acid } (H_2SO_4^{2-}) \rightarrow 2H^+ + SO_4^{2-}$$

So we have a scenario in late winter when there is little microbial activity to produce SO_4^{2-}, most of the available SO_4^{2-} has been leached and under severely waterlogged anaerobic conditions SO_4^{2-} is actually transformed back to Sulphur Elemental (S^o) !

This is why soils that usually have good soil test sulphur results often respond well to a late winter application of sulphate sulphur. How much sulphate and why I hear you ask? Well a healthy ryegrass plant contains around 0.2% sulphur and if we want to grow around 2000 kgDM between grazings (ie residual of 1200 kgDM growing to 3200 kgDM/ha = 2000 kgDM accumulated) we will need around 4 – 5 kg of plant available sulphur. Applying 80 kg/ha of Vickery's Ur-ammo (37:0:0:8.4) provides 30 kg of N and 7 kg of sulphate sulphur therefore just enough sulphur (allowing for the fact that no biological uptake will be perfect) to maximise grow rates without the risk of increasing sulphate leaching. If you would like to try Ur-ammo instead of straight Urea for a late winter production boost contact one of our agronomists and see the benefits for yourself !

SOIL TESTING AND SOIL ANALYSIS REPORTS

Roger Gee

WHY TEST SOILS ?

Soil testing provides valuable information on important soil characteristics and can greatly assist in cost effective decisions about fertilisers, and other soil amendments on your farm.

Soil testing is carried out for various purposes:

- Assessment of land capability for various forms of agriculture.
- Identifying and quantifying soil constraints.
- Monitor paddocks for potential soil and water management problems, acidity & salinity, as well as soil fertility.
- Providing guidelines as to the type and amount of fertiliser to be applied for optimum plant growth on the particular site.
- As a diagnostic tool to help identify reasons for poor plant performance, or
- Animal health issue

Soil tests provide basic information on the nutrient supplying capacity of the soil in a given district & soil type. The ultimate aim is to reduce the guesswork involved in managing a specific paddock, pasture, and field or fodder crop. However, the results and recommendations may be worthless, or even misleading, if sampling and/or analysis of submitted samples are not carried out properly, (calibrated to your district & enterprise) or if subsequent interpretation of the data is flawed.

WHERE TO START

There are three basic steps that must be followed if meaningful results are to be obtained from soil testing. These are:

1. Take a representative sample of the soil for analysis,
2. To analyze the soil using the accepted procedures that have been calibrated against fertiliser experiments in that/your district, soil type and enterprise and
3. To interpret the results using criteria derived from those calibration experiments

Samples may be taken by the farmer or by an agronomist, it should then be sent to an accredited analytical laboratory for testing, with the test results coming back to an agronomist to interpret and develop recommendations for the farmer.

TAKING A REPRESENTATIVE SAMPLE

Sampling is possibly the most neglected step in the soil testing, and the greatest source of error in the whole process. To appreciate just how crucial it is to ensure that a representative sample is submitted for analysis, consider the fact that a hectare of soil to a depth of 10 cm weighs approximately 1,500 tonne, and a typical sample amount is 0.5 kg; this calculates out to about 0.00003% of the surface soil just 1 part in 3 million… So with only a tiny sample being analysed, then your sampling needs to be spot on.

Soil samples are usually drawn from the surface 0 – 10 cm for pastures, while a deeper sample is regularly taken for field crops, or where further information is required on salinity levels, pH, or deep N level.

ANALYTICAL METHODS

The analytical methods used by the soil test laboratory must be applicable to your region for soil testing to meet your specific needs. To determine available (and total) levels of specific nutrients present, a prescribed amount of extractant is added to a fixed amount of soil and shaken for the prescribed time, before filtering to recover the extractant (now with dissolved nutrients) for testing. Different extractants, times and analytical procedures are used for different nutrients or groups of nutrients.

For availability purposes, the prescribed extractants are designed to remove (extract) a portion of a soil nutrient that has been correlated with a measure of plant growth (e.g. dry matter production) in regional field trials. Because of their importance, much of this work has focused on determining available P and K levels. In the past, calibration of any new or alternative analytical procedures against actual fertiliser trial data was carried out by government researchers and laboratories, mainly on pastures and major cultivated crops.

Differences in soil type and climatic conditions will influence the availability of different nutrients and also the suitability of different extractants. Depending on the area where the soil was sampled and the correlations carried out in previous field trials, different laboratories will use different extractants to recover nutrients in solution for subsequent analysis. Even in large countries like the Australia or USA, the extractants prescribed as the basis for testing soils from different geographical areas will vary. Analytical services are being increasingly commercialised and globalised, even to the extent that soil samples may be tested by laboratories in another country. With this trend there is an accompanying and increasing risk that the extractants used may not be the ones previously calibrated through field trials in the region where the samples were drawn. As a result, the data obtained (no matter how glossy or slick their presentation) may simply prove unreliable and the recommendations worthless.

Whilst it is important to ensure that the chosen laboratory uses accredited prescribed methodology, it is also important to know that soil testing is carried out accurately and that the data generated are reliable. To this end, the Australian Soil and Plant Analysis Council (ASPAC) conducts proficiency testing programs among its member laboratories to ensure that ASPAC accredited laboratories meet measurable quality standards.

SOIL TEST REPORTS & OPTIMUM LEVELS OF NUTRIENTS

On completion of their analysis of your soil sample, the laboratory will issue a Soil Analysis Report, showing the results of each test and the units of measurement in each case. The presentation and format will vary, but if the methods differ from those routinely used in the region, and have not been calibrated against fertiliser response trials in that region, independent interpretation is **probably impossible.**

When seeking to compare different sites or establish trends in soil fertility over time, it is important to compare like with like; and here the methods of analysis are all important. For example, pH determined by adding only water to soil will typically be higher than if pH of the same soil were determined by adding a solution of calcium chloride.

In addition to carbon, hydrogen and oxygen which form the basis of all organic compounds, healthy pastures field & fodder crops require sufficient amounts of 14 essential nutrient elements. These essential elements are divided into ***macronutrients*** (required in larger quantities because of their structural roles in the plant) and ***micronutrients*** (required in smaller quantities because they tend to be involved in regulatory roles in the plant). Nitrogen (N), phosphorus (P), potassium (K), and sulphur (S) are the primary macronutrients, and calcium (Ca), magnesium (Mg) secondary macronutrients. The micronutrients are iron (Fe), manganese (Mn), zinc (Zn), copper (Cu), molybdenum (Mo), boron (B), chlorine (Cl) and nickel (Ni).

Other elements such as cobalt (Co) and selenium (Se) while applied to pastures and fodder crop, are for animal health rather plant nutrition.

Soil test results for extractable (plant-available) nutrients should be assessed against pre-determined sufficiency/optimal levels for each nutrient. The results are ranked into categories of very low, marginal, optimum, high and excess — indicative of the soil's ability to supply nutrients to plants. Another way of looking at these categories is that they are indicative of the amount of fertiliser required in each category to meet plant needs, and to raise soil nutrient status to the desired level of sufficiency, hence the use of sufficiency level ratings to develop fertiliser recommendations.

While the figures on a soil analysis report may appear to be very precise, these relate to the sample of soil as submitted. Interpretation, on the other hand, is aimed at understanding trends in, and developing recommendations for, the area from which the sample was taken. This is where an experienced agronomist and local knowledge can help by ensuring that the data are interpreted realistically.

Vickery Bros use Nutrient Advantage® for analytical testing & reporting of all soil & tissue samples.

References:
Dr Donald S. Loch - *Formerly Department of Primary Industries and Fisheries, Redlands Research Station, Cleveland Qld.*

WATERLOGGING

Rebecca Stewart

"Waterlogging is a soil condition whereby excess water in the root zone inhibits gas exchange with the atmosphere." (McFarlane, *et al 1989*)

As you all would know, cropping in the high rainfall zone of south west Victoria has its constraints and one of the biggest I would have to say would be waterlogging considering it occurs in 50% of the years.

A plant's root system needs oxygen to grow and function and under a normal situation, oxygen moves freely from the atmosphere to the roots where it is absorbed. However, under the conditions of waterlogging, this gaseous exchange can't work at a fast enough rate to maintain the plants' growth and function. Waterlogging affects a number of biological and chemical processes within plants that can affect them in the long and also the short term.

As a consequence of this, nutrient uptake is reduced to low levels, water uptake is impaired and substantial root death may occur. The levels of hormones within the plants may also be altered during the waterlogging phase which can affect growth. Throughout winter when the waterlogging is going to take most effect, the plants' growth rates, metabolism and demand for nutrients are low, therefore causing few visible symptoms. In spring however when the crop is actively growing and nutrient demand has increased, the damage becomes more apparent. You may see in the field that the crop may wilt or the lower leaves may look light yellow in colour. The yellowing is due to the plant transporting Nitrogen from the lower older leaves to the younger actively growing leaves which will be hungry for Nitrogen at this time of the year. The crop can also become nitrogen deficient quite easily if there was little nitrogen to start with and it gets leached through the soil profile. The oxygen levels within a saturated soil become harmful to plant growth between 48-96hours of waterlogging so there is a lot of damage happening within the plant the producer cannot see when the crop is under water. As a consequence of this, the plant uses alternate ways to gain oxygen for the tissues and the by-products of this action can be toxic at elevated levels.

Waterlogged Canola Crop

Crops can tolerate waterlogging better with a high level of nutrition and good nitrogen status, before the waterlogging occurs. If the waterlogging is moderate (7-30 days waterlogged), then nitrogen applications after waterlogging, when the crop is actively growing are recommended to assist the crop in recovering from being waterlogged. If waterlogging is severe (more than 30 days), then the benefits of applying nitrogen to assist the crop in recovery are questionable. (Bakker, D 2013)

Grain yield has been found to be associated with the severity of waterlogging during the 30 days before anthesis. For each 1% decline in air space within the soil surface, during the 30 days prior to anthesis, yield is decreased by 0.29t/ha. (McDonald, G *et al 1987*)

After the waterlogging of a crop has occurred and the soil is starting to dry out, the crops root system is still confined to the surface soil from the damage earlier in the season. This shallow root system cannot take up essential nutrients from the drying soil near the surface or reach the nutrients and water deeper within the soil profile therefore reducing yields.

One possible strategy for farmers to assist in improving waterlogging tolerance is to apply nitrogen at seeding to get the crops started and ensure there are enough tiller numbers. Some research trials have shown that grain yield (t/ha) was increased by 60% when Nitrogen was split applied at seeding (33%) and after the first waterlogging event (66%). This was compared to when all the Nitrogen was applied at seeding. (Hill, N ***et al*** 2004). In the high rainfall zones of southern Australia, drainage with raised beds and underground drainage is the best way to tackle the waterlogging occurrences and these drains may pay for themselves within a few years due to the yield increases.

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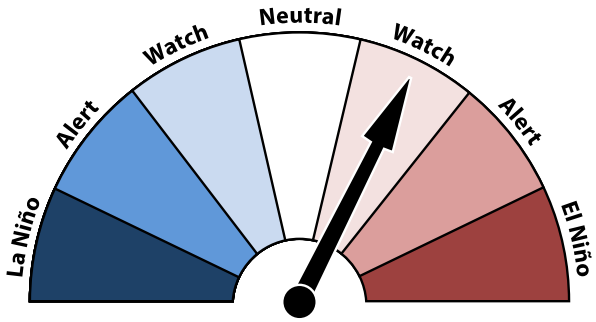
PLANNING FOR A DRY SPRING

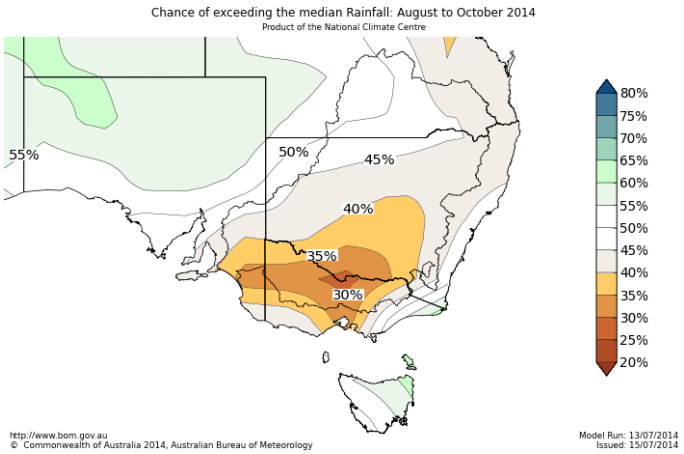
Bruce Lewis

The Bureau of Meteorology has indicated that an El Niño is still possible for the spring and has a watch status in place. This is lower in probability than earlier in the year but still double the normal chance of such an event. Given current observations if an El Niño does occur it is unlikely to be a strong event.



In recent weeks the Pacific Ocean has shown some renewed signs of El Niño development. Some warming has occurred in the central and eastern equatorial Pacific Ocean in the recent fortnight, due to a weakening of the trade winds. If the trade winds remain weak, more warming towards El Niño thresholds is possible.

In Australia El Nino is usually associated with below average rainfall over the southern and eastern inland regions, with about two thirds of El Niño since 1900 causing major drought over large parts of the continent. To balance this, the bureau seasonal outlook for August to October for SW Victoria and SESA is now showing a probability of a drier than average spring.



Given the possible outlook for a dry spring measures can be taken now to lessen the impact if it does occur. Unproductive or dry livestock should be identified and sold while prices remain positive. Paddocks for fodder conservation should be identified early and boosted with nitrogen based fertiliser while there is sufficient soil moisture. This may require earlier than normal cutting time and perhaps silage instead of hay. Crops to be harvested for grain should have target yields set to match the season as it develops. Nitrogen should be used to boost dry matter yields on cereals if the crops are to be cut for hay. Gross margins on boosted hay crops can be quite high in years of hay shortage.

Contact the professional team at Vickery Bros.

Where everything's covered.

Agronomy Team

James Stewart	0427 752 773	Bruce Lewis	0422 632 730
Leighton Rees	0437 752 707	Phil White	0417 752 776
Rebecca Stewart	0427 337 253	Roger Gee	0417 677 342

Depots

Coleraine 03 5575 2777 Heywood 03 5527 1777 Edenhope 03 5585 1975

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

SEASONAL REMINDERS

- ☐ Soil test problem paddocks and prioritise paddocks for lime
- ☐ Arrange tissue testing this spring to check trace element status
- ☐ Establish farm nutrient plan ready for autumn
- ☐ Soil test summer crop paddocks prior to working and spreading of fert and seed
- ☐ Apply fertiliser to hay/silage paddocks

If undeliverable return to:
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105 Whyte Street
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