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AG NOTE

Issue 03/12
Aug 2012



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Introduction

Hello everyone and we hope you enjoy this year's spring edition of our newsletter. Drought in the US and Eastern Europe has resulted in large price increases in wheat in particular and there is a lot of discussion around whether these prices will hold for our harvest. Over the coming weeks, the true extent of the impact of the drought on overseas production levels will emerge and hopefully we see further price lifts.

These price increases have led to more growers forward selling and/or putting in place hedging strategies for this year's crops. The typical maximum levels of hedging for this time of the year are around 30% of anticipated production. Previous experience has shown that the level of hedging must be closely monitored and adjusted in line with any changes in production.

In the past, some growers have been negatively affected by hedging and forward selling grain and it is important that professional marketing advice is sought and the advisor used has knowledge of the production risks associated with your environment. With good prices being forecasted it is important that crops are managed well to maximise yield, quality and ultimately income. It is hoped that this year will be a catch up year after a number of seasons of poor grain prices.

In this edition, we will be focusing on critical areas of crop management such as nutrition, weed and disease control. Other articles include fodder crop quality and management as well as livestock nutrition. We hope you find the information useful and, as always, please contact one of our staff for further details.

Agronomy Service Developments

In recent years, we have been moving more to providing paddock inspection notes and recommendations in an electronic format. The Paddock Adviser and Soil Mate programs that we use allow information to be efficiently collated and presented in pdf format. Clients using smart phones and/or iPads are able to receive and use this information in the field.

The spray recommendation module we use in Adviser provides additional information such as rainfast and withholding periods for the mix being recommended and product totals are automatically calculated.

All our agronomists are able to provide your paddock inspection notes / recommendations in an electronic form and our communication

capability has been increased by the group now using Apple I4S Smart Phones. Also, we are currently trialling "slate" computers that enable crop recommendations to be made in the field more easily whilst inspecting paddocks.

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Maximising Crop Yields in High Rainfall Zones

Hopefully, as we head into late winter and early spring, we will get some fine weather to dry out some of the very wet paddocks around Ballarat, Inverleigh and Hamilton and allow crops to advance. By contrast, soil moisture levels and crop condition in other areas of the Western District can be described as ideal.

The timing of management has a large bearing on crop performance. Crops need to be monitored very closely and the management strategies planned well in advance. Then, when conditions allow, processes such as crop spraying or urea spreading can occur without delay.

The critical areas of crop management include;

Weed Control

The dry start to the season in many areas has reduced the performance of the pre-emergent herbicides, such as Sakura, on ryegrass in cereal crops. This has required some paddocks to be treated with post-emergent cereal grass sprays. Interestingly, the slightly later crops sown into good moisture levels or where double knock strategies have been used are noticeably cleaner, even in situations where high ryegrass pressure is present.

As well as broadleaf weeds, it is very important to be on the lookout for late germinating grass weeds. Keep in mind that losses can result from not only moisture and nutrient competition due to weeds, but also from grain contamination at harvest.

Disease Control

Yellow leaf spot in wheat has been present in higher than average levels this year and can be easily found in crops sown into last year's wheat stubbles. Low level infections of *Septoria tritici* can also be found in crops. Stripe and leaf rust levels in crops in Northern areas have been low compared to last year, however, these diseases are still expected to be significant.

In the case of barley, the early signs of spot form of net blotch and scald can be found in the more sensitive varieties such as Gairdner.

Foliar disease has the potential to have a very large effect on grain yield in our environment and fungicide treatments continue to come down in price. It is important to be aware of the disease reaction of the crops you are growing and plan strategies in advance. Foliar disease is covered in detail in a separate article.

Nutrition Management

Nitrogen management in cereals is being covered in detail later on, however, it is important to not overlook other nutrients including trace elements.

Plant testing is an effective way of determining what nutrients the crop is able to access from the soil and is quite accurate in determining the trace element status. Testing this year has identified critically low levels of nutrients, such as Copper (Cu), Zinc (Zn), Molybdenum (Mo), Boron (B) and/or Magnesium (Mg), on soil types where deficiencies were not expected. If crops are known to be low in trace elements, this can be

quickly and cost effectively rectified with a foliar application of a single or combination of nutrients.



Copper Deficiency in Wheat

It is suspected that trace elements are limiting the yield of our crops and Western AG will be conducting two replicated small plot trials in the high rainfall zone this year to investigate this further.

Late sown and spring sown crops

The main spring sown crops grown in the past have been Gairdner barley or Linseed. However, last year August sown wheat produced comparable yields to spring barley and this may be a better option under the current price outlook. Typical yields for spring sown wheat and barley are 2.5t/ha and Linseed 1t/ha.

The earlier wheat, barley and linseed crops are sown, the higher the potential yield. It is also important that the Trifluralin is used at effective rates, because ryegrass is still germinating in paddocks this late in the season. If sowing wheat, use the shortest season variety available and keep seeding rates at up over 80 plus kg/ha.

Assessing Yield Potential in the Wimmera / Mallee

There has been very welcome rainfall received across most of the Wimmera and Mallee over the past 2 months. This 'season saving rain' has been just in time to get crops away and hopefully the high grain prices will compensate for any lost yield.

Now is a good time of the year to look at what our potential yields may be, and a good way to assess this is to look at

where our rainfall is at the moment compared to the average (Decile 5).

With much of the post emergent spraying now completed this exercise will assist with nitrogen, trace elements & fungicide treatment decision making over the coming months. The overall analysis is based on rainfall up until the end of July and, it should be noted, that very little rain has fallen so far in August.

Horsham

Horsham is currently tracking at 89% of Decile 5 Annual Rainfall (AR) and 92% of Decile 5 Growing Season Rainfall (GSR). For yield potential we use GSR, plus stored moisture, less evaporation (110mm for Wheat) then multiplied by a constant for grain grown per mm of moisture (18kg/mm). It has been assumed that 1/3 of summer rainfall (Jan-Mar) is available to crops.

Assessing Yield Potential in the Wimmera / Mallee continued.....

Horsham continued...

Horsham's Decile 5 GSR = 285mm x 92% = 262mm.

Wheat yield potential is;
262mm + 13mm (est. available moisture)
– 110mm x 18kg/mm = 2970kg/ha

Warracknabeal

Warracknabeal is currently tracking at 71.5% of Decile 5 GSR.
Warracknabeal's Decile 5 GSR = 238mm x 71% = 169mm

Wheat yield potential is;
169mm + 28mm (est. available moisture)
– 110mm x 18kg/mm = 1570kg/ha

Hopetoun

Hopetoun is tracking at 86% of Decile 5 GSR. Hopetoun's average GSR is 217mm and we are currently tracking at a yield potential of 1810kg/ha.

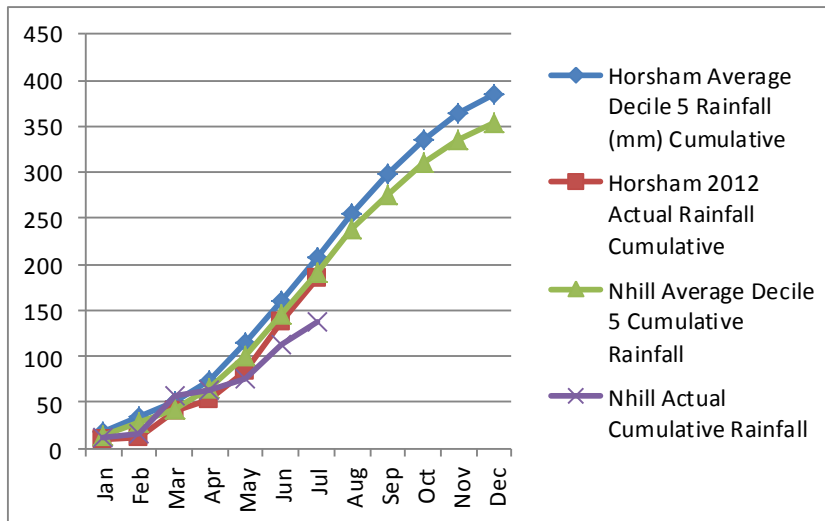
Nhill

Nhill is currently 54% of Decile 5 GSR. Wheat yield potential based on this GSR is approximately 970kg/ha! Rainfall in this area has been quite variable with some properties receiving significantly extra rain during storms in May.

Edenhope

Edenhope is currently 72% of average GSR and wheat yield potential is 3810kg/ha.

Please note these calculations need to be treated as a guide only and can be adjusted as the season progresses. It is important that this information is used in conjunction with deep N and plant tissue test results to determine what inputs are likely to be most limiting.



Nitrogen Management in Cereals

Nitrogen (N) is the nutrient required in the largest amount for crop growth and is the nutrient most often limiting cereal yields. A wheat crop requires between 40kg (low protein soft wheat) and 60kg (high protein wheat, durum and prime hard) N per tonne of grain, with 15-22kg N removed per tonne of grain.

Understanding how the plant uses and stores nitrogen, and how nitrogen becomes available to the plant allows us to then determine nitrogen strategies, or the rate and timing of N fertiliser applications. The rate should be altered in line with yield expectations based on the available soil moisture, seasonal forecasts of rainfall and time of planting.

Estimating yield – Target yield

With your agronomist, a target grain yield and required protein can be estimated. Once a target yield is decided, then we can calculate the total N required. The source of nitrogen will come from a combination of soil N, in-crop mineralisation and also any applied fertiliser.

'Best-bet' fertiliser rates can be set for an expected yield and expected protein. Your agronomist will know the available nitrogen needed by the crop to achieve the expected yield and grain protein. These can be calculated or found in 'ready-reckoners'. These tables assume nitrogen use efficiency which, for our environment, is around 45-50% (i.e. 45% of the N ends up in the grain).

For example, a wheat yield of 4.0t/ha with grain protein of 12% requires 170kg/ha available N. A barley yield of 4.0t/ha at a grain protein of 11% requires 140kg/ha available N. Rates of fertiliser will depend on the costs of the nitrogen fertiliser, price of grain and a grower's attitude to risk.

Nitrogen available in the soil

Available soil nitrogen can be estimated by past cropping rotations and paddock histories or by soil test to determine available nitrogen as kg N/ha. A soil test measures how much mineral nitrogen is available for the crop. Total available N

is calculated from the bulk density of the soil and the overall nitrogen concentration in the soil.

Nitrogen Mineralisation

Soil nitrate is a product of the biological breakdown of organic N tied up in the soil organic matter. Available N is released when the soil microbes are active, in moist and warm conditions (later in the growing season). However, the rate of the nitrogen released also depends on the levels of organic N.

Although we can never forecast the coming season with total accuracy, we need to estimate what extra release (mineralisation) of nitrogen we can expect between applying fertiliser and crop maturity. There are data tables and calculations available for estimating mineralisation.

Nitrogen Management in Cereals continued.....

Additional N requirements

Extra N may be needed to achieve the expected yield. This extra nitrogen is the difference between what is required by the crop to fulfil crop yield potential and protein and what is available to the plant from the soil. The extra N will be provided through nitrogenous fertiliser.

Plant N demand and timing

A concern with supplying any nitrogen fertiliser to a crop is the timing of post sowing applications in relation to the plant availability of the plant to 'take-up' the applied N. Fertilisers applied to the soil surface need to be dissolved by rain and carried into the crop root zone before uptake can occur. On heavier soils in lower rainfall environments, the chance of effective post sowing fertiliser application is lower than high rainfall areas.

High levels of nitrogen during tiller and head formation will set up a high yield potential through head & grain numbers. By flowering, generally, cereals have already taken up most of their nitrogen requirement. Nitrogen redistribution occurs within the plant after flowering for deposition of protein in grain.

Canopy management and timing of nitrogen application

The aim of canopy management is to delay N application until there is plant demand for nitrogen. Early N stimulates high tiller numbers, many of which die off during stem elongation. Early N also stimulates a larger leaf area which uses more water than a thinner canopy and can lead to early "droughting" of the crop and higher screenings if water supply to the

crop is insufficient. Leafy crops are also more prone to leaf diseases like rust and Septoria. The delayed application of nitrogen fertiliser reduces these problems whilst giving the same, or better yield, and higher protein levels than sowing and tillering application at similar rates of N.



Granulated Urea

Research has shown that early crop nitrogen deficiency is not detrimental to grain yield as long as there is adequate nutrition to provide a good foundation for yield. Delayed application also reduces the risk of leaching and denitrification losses in high rainfall areas. Split nitrogen application allows sufficient nitrogen to be applied at sowing to set up yield potential and monitoring seasonal conditions to match additional nitrogen to expected yield and target protein. The overall strategy is to apply nitrogen as the crop develops according to crop demand in accordance with seasonal outlook and estimated yield expectations.

Timing for additional nitrogen applications

Crops can be sown with sufficient nitrogen for a low yield expectation (i.e. 100kg/ha DAP + mineralisation

would provide for a 2.5t/ha wheat yield). If a poor season develops then there is sufficient nitrogen for the crop. During late tillering/start stem elongation (Wheat - GS31-GS32 and Barley GS30-GS31), if an average or better season is developing, more N can be added to supply an average/good crop. During stem elongation to ear emergence, a further assessment of the season is made.

A continuing average season is already supplied with enough nitrogen fertiliser. A very good season will require more nitrogen - good soil moisture and a reasonable prospect of follow-up rain is needed. Unfortunately, if the season dries up there will be too much nitrogen.

In dry areas with less certain Spring conditions, a modification to this approach would be to sow crops with enough nitrogen for an average crop. This would reduce the problem of missing a rain event to wash topdressed nitrogen into the crop root zone. In high rainfall areas, applications can be delayed to later in the application windows with less nitrogen applied at tillering and more deferred to stem elongation to avoid losses in leaching and waterlogging situations.

The general principle is to track seasonal conditions and adjust nitrogen inputs accordingly using nitrogen decision tools to select appropriate rates for the updated yield targets. There are still limitations with this approach as a result of a tight finish following the last applications in early September or in above average seasons or periods of persistent rainfall delaying nitrogen application.

Foliar Disease Control in Cereals

The main foliar diseases are rusts in Wheat, spot net blotch, scald and powdery mildew in Barley and red leather leaf and Septoria in Oats.

Varieties grown vary greatly in their susceptibility and disease can have a large impact on final yield if left untreated or treated too late. Any highly susceptible varieties, such as Gairdner barley and Derrimut wheat, will more than likely require a two spray strategy.

It is important to remember that the timing of application of fungicide is based on crop growth stage and treatments are ideally applied before diseases starts, therefore monitoring and anticipating crop development is critically important.

Foliar Disease Control in Cereals continued.....

Wheat

Most wheat varieties that we grow are susceptible to yellow leaf spot and also Septoria tritici. Yellow leaf spot has been detected in higher than average levels in a range of rainfall zones, particularly in wheat sown into last year's wheat stubbles, and where Flutriafol fertiliser treatment has not been used. The effect of early infections of this disease on cereals is not well understood, but given Triazole fungicides are effective, early treatment of this disease is likely to be a good idea.



Yellow Leaf Spot in Wheat

Significant Septoria infections have been detected in crops particularly in the high rain fall zone in previous years and low levels of infection can be found in crops now. Varieties affected by this disease in the past have been white wheats; Bolac, Derrimut and Kellalac as well as red wheats; Beaufort and Revenue.



Septoria tritici

So far this year, stripe rust levels have been low, however rust is very effectively spread by wind and build-up of this disease is still expected when temps start to increase. Leaf rust is active most years while stem rust is more variable in its level of significance.

The first critical fungicide application timing in wheat is GS31/32 (1st to 2nd node detectable). This is a good time to apply fungicide for the protection of crops from yellow leaf spot, stripe rust and Septoria. The second critical time is GS37 (flag emergence); this is a critical time for first or second sprays for stripe rust and leaf rust. The third critical timing is head emergence when there is a stem rust risk.

Fungicides have come back in cost dramatically in recent years and offer excellent value for money. Our preferred products for wheat diseases include triazoles such as Opus or Soprano (epoxiconazole) and Tilt Extra (cyproconazole and propiconazole mix) which offer superior curative and protective activity over older straight tebuconazole & propiconazole products.

Barley

Barley varieties grown, such as Hindmarsh, Gairdner, Commander, Westminster and Oxford, are all susceptible to scald and net blotch. Gairdner is rated as susceptible to very susceptible to both diseases and was also infected by powdery mildew for the first time last year in the high rainfall zone.

The critical timings of fungicide applications in barley are earlier than they are in wheat and are GS30 (end of tillering) and GS33 (3rd node detectable and just before flag leaf emergence). Net form of net blotch has already been detected in Gairdner and Oxford crops in the high rainfall zone and as in previous years it is expected these varieties will need to be sprayed twice.

Last year, a single application of a fungicide at GS33 was adequate for most Westminster crops, however this may not be the case this year and a two spray strategy may be required also.

Prosaro has been successfully used for foliar disease control in barley and is our product of choice this year again. It is important that use rates are adjusted based on the level of disease at application (because there is usually always some present) and the length of control required.

Oats

The effectiveness of fungicides for control in of foliar diseases such as Septoria and red leather leaf in oats is not well understood. Past experience has been that Tilt (propiconazole) at higher rates has been effective in reducing the disease levels. Similar to barley, any treatments are best applied early from GS30 stage onwards.

Strobilurin fungicides

This group of fungicides offer increased length of protection from new infections of foliar diseases over a straight triazole plus have the effect of keeping the plant greener for longer, which under favourable conditions can often lead to increased crop yield. The optimal timing of application is the later timing, GS37 in wheat and GS33 in barley.

The two main products that are available are actually a mix of strobilurin and triazole and they are Amistar Extra (azoxystrobin plus cyproconazole) and Opera (epoxiconazole & pyraclostrobin). The treatment cost for these products is higher than a triazole at approximately \$20/ha for the lower recommended rate.

 **Amistar Xtra**[®]
Fungicide

 **OPERA**[®]

Disclaimer

The information contained in this AG Note is to be used as a guide only and specific information needs to be sought from the authors regarding individual situations. Western AG Supplies takes all care in compiling this information. However Western AG Supplies accepts no liability for any loss or damage suffered by any person who relies on this information.

Wimmera / Mallee Canola & Legume Disease update

With good rain events over the past two months canola and pulse crops are looking exceptional and are now set up for reasonable yields.

This year, we have seen higher than average levels of black leg and downy mildew across a range of canola varieties. Care needs to be taken when identifying disease with downy mildew looking quite similar to black leg. It has been noticed that disease levels appear to be higher in certain varieties which highlights the importance of critical management practices such as rotating varieties.

We have seen medium levels of chocolate spot this season in Faba beans with some crops being sprayed already. The normal practice is to apply a preventative fungicide with a grass

spray to give protection against this disease. The amount of rain we receive in Spring will determine the level of disease pressure and it is important to check crops more regularly as the temps increase. Last season we saw high levels of rust in our beans and will have to keep an eye out for this disease when checking crops.

Due to the growth stage of chickpeas and lentils at the moment, there is no real disease pressure in these crops. Once the crops start to canopy over, a fungicide is generally needed to be applied to prevent disease from occurring.

In chick peas, the optimal timing for applying fungicide is just prior to flower formation. Again, the amount of spring rain will determine how many fungicides will need to be applied.



Lentils

Diseases from now on should be monitored weekly with the temperatures and humidity levels rising which will increase the disease pressure in all legume crops. Last season, there was pressure fungicide supply and this will be the same again this year. We urge clients to advise us of their potential requirements in advance.

Forage Brassica Plant Quality

There are considerable variations between rape cultivars in the relative proportion of leaf and stem, and the various qualities of these plant components. Realistically, all forage brassicas are not the same.

In terms of nutritional value, the leaves of rape plants are of high quality regardless of type. However, the overall nutritional value of the stem decreases from the top of the plant to the bottom.

Shorter rape varieties generally have a higher quality in the bottom two thirds of the stem than their taller counterparts.



Winfred Rape

When compared with taller types, such as Greenland, the shorter varieties such as Winfred have a greater Dry Matter (DM) percentage present in the leaf and

top of stem overall. This is what makes this variety so productive and the most commonly planted variety for arguably the last two decades.

As with all crops, the important considerations to be made when planting a forage crop include;

1. Variety Selection
2. Paddock Selection
3. Paddock (seedbed) Preparation
4. Sowing Rate (3 to 4kg/ha depending on the variety sown)
5. Sowing Timing
6. Grazing Timing

Animal Health Update

Many farmers around the Bannockburn and surrounding areas have experienced mixed lambing percentages, particularly in merinos. The dryer start with no real pasture growth has led to increased grain and supplementary feeding into the Winter months. In some areas, the dryer start has now turned to being incredibly wet and cold which has also impacted on the survival rate of lambs being unable to mother properly.

With lambing ewes, Calcium levels are extremely important and need to be built up over the pre-lambing period well before lambing starts, particularly when feeding large quantities of grain.

Ewes need to be set up very early from weaning to give them the best possible chance and to minimize the impact on lamb survival the following year.

More locally, farmers are now looking for a dryer August so existing and new pastures can experience real growth due to increased soil moisture levels and also help finish Spring cropping programs.

There are additional reports that worm counts are on the rise, so using the correct drench group is critical to maintain healthy stock. The Spring animal health promotions are now in full swing with great deals on a wide range of drenches.



For more information on any animal health issue or for current pricing on drenches, vaccines and feed blocks, please call either Troy Kollegger at Bannockburn (03 52812840) or Mark Hoffman at Horsham (03 53822488).