

2008 Updates in review

Articles in this edition of the Adviser Newsletter highlight some of the key information from presentations at the recent GRDC Research Updates in Adelaide, Wagga Wagga and Ballarat.

No need for market fear

Growers have no need to fear the market place, according to Ron Storey, principal of Australian Crop Forecasters.

"I have no doubt many farmers are not comfortable with the loss of the single desk for wheat, but around two-thirds of Australia's grain crops are already sold on the open market, so they already have experience operating in a deregulated market," he said.

"To make a success of grain marketing growers need to choose the right marketing 'tool' based on circumstances including the financial position of the business and how they react to risk."

Mr Storey argues that many of the growers who suffered losses due to market decisions last season made the right pricing decisions but perhaps chose the wrong market 'tools'.

At the time they entered into the contracts that caused them problems the prices on offer were at record levels and their crops – and the seasonal forecasts – were as good as they had ever seen.

What they didn't take into account was that the season might suddenly cut out – as it did – or that prices would continue to escalate.

Despite the subsequent higher prices on offer, the contracts effectively managed the price risk by capturing what at that stage were record prices but exposed the growers to supply risk. And it was the supply risk that hurt them because they didn't have the grain to meet their contract obligations.

A tool like options would have cost money 'up front' but would have left them free to sell the grain they did produce at the much higher prices on offer at harvest time.

There is no doubt the market has changed, with demand for biofuels increasing demand for grain, Mr Storey said.

However, the market is also more volatile than he has ever seen it.

While he expects benchmark prices to settle about \$50 above what they have been in recent years, the supply and demand rules of the global market still apply and growers would be well advised to take good prices when they are on offer, rather than hold out for peak prices that might not become available, he said.

The other option is for growers to use marketing tools that lock in profitable returns without exposing them to unnecessary production risks while leaving them free to accept a higher price if the market rises further.

For more information: Ron Storey, 03 9521 5100, ron@cropforecasters.com.au

Expect market volatility

Grain markets will be far more volatile in the next few years than they have been in the past five years or so, according to Kate Dean, senior market economist with ANZ.

This is due to a variety of global economic factors and the fact that commodities have become a significant international investment sector; with \$160 billion invested in commodity-linked derivatives world-wide in 2007.

Five years ago that figure was \$10 billion.

In the good times this investment helps keep the prices of 'soft' commodities like grain high.

But all derivative markets are speculative, and if prices start to fall and investors start to shift out of commodities, this movement can depress prices and accelerate the rate at which prices decrease.

Ms Dean anticipates that low global stocks, continued strong demand for alternative energy and rising demand for protein and dairy products, especially from the developing world, will keep grains prices near record levels in the short-term.

However, a down-turn in China could see global demand, and thus grains prices, deteriorate quickly, she cautions, and the Australian dollar could move higher in the short-term, so growers entering into sales contracts need to be prepared to manage the currency risk.

For more information: Kate Dean, 03 9273 1381, katie.dean@anz.com

Minor, but still important

Growers ignore minor and trace elements at their peril, according to Sam Stacey.

Many growers are facing cash flow issues this season but cutting back on nutrition could be false economy because, with the current high grain prices, it takes only a small increase in yield to produce a large increase in profit, he said.

Recent work by Dr Stacey, a Senior Research Fellow with the Mosaic Fertilizer Technology Research Centre at the University of Adelaide, highlights the importance – and potential profitability – of balanced crop nutrition.

In trials in 2006 and 2007 in highly calcareous grey sandy loam at Port Kenny, on SA's Eyre Peninsula, supplying magnesium potassium and zinc in addition to adequate phosphorous and nitrogen increased wheat grain yield by 21 pc.

Application of sulphur and zinc to canola increased grain yield by 33 pc; results in line with those from similar trials in WA and NSW.

A gross margin analysis based on inputs and yields from the trials showed that application of secondary and trace elements across the property in 2006 and 2007 would have significantly improved farm profitability despite the dry season and current high fertiliser prices.

The message, Dr Stacey says, is that growers need to think about balanced nutrition in all conditions, particularly when grain prices are high.

Balanced nutrition can be more important in dry seasons than in good years because dry conditions can limit the ability of crops to obtain nutrients such as potassium from the soil.

For more information: Sam Stacey, 08 8303 7284, samuel.stacey@adelaide.edu.au

Take control early

Be confident and aggressive when grazing cereals.

That is the underlying message from Jeff Braun, a member of the Agrilink consultancy team in SA.

Based on results from trials in the Mid North of SA over 2005, 2006 and 2007, the key to gaining maximum benefit from grazing cereals is to get stock in early and keep on top of the fodder being produced.

Many growers are concerned that they will damage crops by putting stock in too early, but the trial results suggest when grazing finishes is the critical issue, not when it begins.

Crop type and variety are also significant factors.

If the aim is to maximise grain yield after the grazing benefit it is important that the stock be removed before the crop reaches GS30, Mr Braun said.

He advocates the stock go in as soon as the plants can't be pulled out of the ground. GS12 (two leaf) is fine as long as the soil is not wet enough to pug.

This will maximise the grazing benefit and, for most growers, is the only way to keep on top of the fodder production because by early to mid tillering a stand of wheat can be producing around 30 kg/ha/day of dry matter; enough to carry 30 DSE/ha, based on the rule of thumb that one DSE consumes 1 kg/ha/day of dry matter per day.

Canola can also be grazed without reducing grain yield.

For more information: Jeff Braun, 08 8522 6699, jeffbraun@bigpond.com

No water, no crop

"You can't grow crops without water," CSIRO scientist Dr John Passioura told advisers at the recent GRDC Research Updates.

Consequently, the prospects of developing 'drought resistant' crops that yield much more with much less water are very remote.

The quest for 'drought resistance' is further complicated by the fact that drought can occur at any stage of a crop's life and different combinations of traits are important at different growth stages.

Focusing on storing more moisture in the soil, using that water to produce adequate biomass and maintaining a high harvest index - the proportion of the above-ground biomass converted into grain - are better options than pursuing generic 'drought resistance', he suggests.

Harvest index and water loss from the soil can both vary by as much as a factor of three from crop to crop.

Yield potential is closely linked to biomass at flowering and crops produce about 55 kg/ha of biomass for every millimetre of moisture used.

Getting more of the water supply used by the crop, not lost to evaporation, will increase biomass and hence potential yield. The question then becomes whether or not it is possible to maintain a high harvest index, Dr Passioura said.

A good harvest index of about 40 pc in a well-managed crop results in a grain yield of about 22 kg/ha/mm, but harvest index is often less than this due to factors such as frost, high temperatures and/or water deficits during flowering and during grain-filling. Late flowering and too little movement of stored carbohydrates from the stems and leaves to the grain can also limit harvest index.

A harvest index of 50 pc – yield of 27 kg/ha/mm - is possible under ideal conditions but is seldom achieved in Australia because grain filling is usually cut short as crops mature into rising temperatures and increasing water deficits.

For more information: John Passioura, 02 6246 5087, john.passioura@csiro.au

Questions raised on breeding objectives

Efforts to identify traits likely to impact on crops' ability to access soil water and handle periods of moisture stress have thrown up some interesting – and challenging – observations.

One of these observations, by Australian Grain Technologies (AGT) wheat breeder Haydn Kuchel and his team, relates to the impact of temperature on wheat yields.

Based on his analysis of results from AGT trials from 2002 to 2005, sites experiencing a greater number of days exceeding 30°C achieved substantially lower grain yields than locations with cooler conditions.

Other work has raised questions about the impact of boron tolerance on wheat performance.

Mr Kuchel and his team rated 200 individual lines from a cross between Trident and Molineux for their tolerance to boron then grew them at 22 trial sites from 2002 to 2006.

The results? Boron tolerance resulted in higher grain yield in just one year - 2006 - at one site - Pinnaroo, in the SA Mallee. The yield advantage was just 3 pc.

If nothing else this result suggests other factors have a greater influence on WUE and therefore drought tolerance than boron, he said.

He has also found that 'not all genes controlling flowering time were created equal'.

His observations suggest it may be possible to gain the advantages of earlier flowering without some of the disadvantages such as increased frost risk and the risk of being unable to take advantage of late spring rains in a 'normal' year.

The key to achieving this appears to lie in the fact that flowering time is determined by several mechanisms.

"In some varieties flowering is triggered by exposure to a certain level of light for a particular period.

"Some varieties have a particular cold requirement, while others have a combination of mechanisms."

Mr Kuchel has recently identified three genes that trigger flowering at about the same time but have very different effects on grain yield.

One of these genes, which operates with a light trigger, had a large and consistent positive effect on grain yield whereas the grain yield effect of the other two genes was marginal, he said.

This suggests that choosing a line with the right genetic mechanism has the potential to directly improve yield potential as well as triggering flowering at the 'right time'.

This insight could open the way for breeders to 'pyramid' multiple genes involved in the control of flowering time to produce a later-maturing variety that can make the most of late spring rains in good seasons but still perform well when subject to terminal drought stress.

For more information: Haydn Kuchel, 08 8303 7708, haydn.kuchel@ausgraintech.com

Alpha line on rust

Australia is to have a standard alpha – as distinct from numeric – labelling system for cereal varieties' resistance or susceptibility to rust.

A decision has been taken by GRDC to dispense with the various numeric labelling systems and standardise on a more descriptive alpha labelling system that will rate varieties as S, MS, MR, R and similar. These ratings are linked to relevant management strategies.

Current NVT ranking

NVT	Rating Abbrev.
Resistant	R
Resistant - Moderately Resistant	R/MR
Moderately Resistant	MR
Moderately Resistant - Moderately Susceptible	MR/MS
Moderately Susceptible	MS
Moderately Susceptible - Susceptible	MS/S
Susceptible	S
Susceptible - Very Susceptible	S/VS
Very Susceptible	VS

Changes to herbicide mode of action groups

Herbicide mode of action groupings and associated herbicide resistance management strategies have been revised to better address the issue of herbicide resistance in Australia.

As a result of the revision, by CropLife Australia and APVMA, there are now six new herbicide groups – H, O, P, Q, R and Z – to allow more accurate grouping of herbicide products.

Only 26 current herbicide products (22 active ingredients) are affected by the changes and the companies involved with these products have three years to update their labels to reflect the new mode of action groupings.

Labelling products with their 'mode of action' – chemicals with the same mode of action carry the same letter code on their labels - allows users to more easily identify herbicides that work by similar means.

Widespread over-reliance on herbicides for weed management in Australia predisposes many weed populations to herbicide resistance. Selection of resistant strains can occur in three to four years if no attention is paid to resistance management.

Visit the APVMA website (www.apvma.gov.au) for a complete list of registered products from the PUBCRIS database and Modes of Action groupings.

Details on Groups and Resistance Management Strategies can be found on the CropLife Australia website (www.croplifeaustralia.org.au)

Early sowing pays off

Early sowing pays off on most occasions for most crops, according to Mick Faulkner, principal of Agrilink Agricultural Consultants.

However, not all early-sown crops yield more, with barley often yielding less.

The exceptions are early-sown lentils and oaten hay, which have yielded more in each of the past three seasons.

In many instances early sowing is synonymous with dry sowing, but that is not always the case. In seasons with a late break even late-sown crops can be sown dry.

In the Mid North of SA, time of sowing has a significant impact on yield potential, with the specifics strongly influenced by temperatures in April, May and June, Mr Faulkner said. The success of early sowing can sometimes be due to avoiding moisture and heat stress in spring. Failures can be due to increased exposure to frost or the crop maturing too early, while there is still plenty of soil moisture available or before late-season rainfall.

Limited data suggests that germination before May 10 (and as early as April 20) can reduce yield potential by up to 20 kg/ha/day for every day earlier than May 10 but gains of 80 kg/ha per day can also be made. He attributes this wide yield variation in crops sown very early to variety selection and the principles of canopy management.

Germination between May 10 and May 20 can increase grain yield by 20 to 80 kg/ha/day for each day earlier than May 20.

Between May 20 and May 31 the potential benefit is 20 to 40 kg/ha/day for every day before May 31. This reduces to 10 to 30 kg/ha/day between June 1 and mid June and 0 to 20 kg/ha/day for germination from mid-June on.

Early sowing provides numerous benefits including ensuring ideal temperature conditions for germination and emergence and maximum growing period. Root systems of early-sown crops grow more quickly and to greater depths, where soil conditions allow; so any subsoil moisture can be tapped later in the season.

It can allow the crop to develop more quickly than weeds that require low temperatures to germinate, spreads seeding time and reduces the risk of seeding being delayed by wet conditions. Early seeding can also open the way for grazing opportunities with no or minimal loss of grain yield.

But there are also down-side issues, many of which relate to weed control and frost risk management.

The lack of weed control options means early sowing should be limited to paddocks with few weeds or weeds that are easily controlled in crop.

Growers who choose to sow high frost-risk paddocks early should use several varieties including longer-season or winter types, or alternatively sow those paddocks a bit later. Mixing up seeding times and cultivars can help reduce the risk of losses from a large single frost event in spring.

Early sowing can lead to excess early growth resulting in large transpiration losses, lodging and use of plant carbohydrates for plant growth rather than grain fill and some diseases can be worse with early sowing.

Many of the benefits of early sowing tend to be in the areas of finance, time and labour, Mr Faulkner said. The negatives tend to be more in the areas of agronomy and risk management.

Growers owe it to themselves to examine the positives and negatives and make an informed decision about whether or not early sowing could benefit their farming business.

For more information: Mick Faulkner, 08 8843 4282, faulkner@sa.chariot.net.au

Coming soon

- March 18** SPAA Conference, Kadina SA
Contact Kirstie Murphy, ph: 08 8536 3958
- April 14-16** Australasian Milling Conference, Sydney NSW
Contact Graeme Lukey, ph: 03 9819 1433
- May 18-22** 16th Australian Weeds Conference, Cairns QLD
Contact Conference Secretariat, ph: 07 3334 4460
- July 28-30** Australian Grain Industry Conference, Melbourne VIC
Contact Rosemary Richards, ph: 02 9427 6999

**VISIT AUSTRALIA'S GRAINS
RESEARCH WEB PAGE
www.grdc.com.au**



Editor: Jon Lamb
81 Fourth Avenue, St Peters 5069
Ph: (08) 8362 5417

Research Writer: Graeme Jennings
Ph: (08) 8278 4225

Design and layout - Lightning Designs

DISCLAIMER

The Grains Research and Development Corporation have prepared this publication, on the basis of information available at the time of publication without any independent verification. Neither the Corporation and its editors nor any contributor to this publication represent that the contents of this publication are accurate or complete; nor do we accept any omissions in the contents, however they may arise. Readers who act on the information in this publication do so at their risk. The Corporation and contributors may identify particular types of products. We do not endorse or recommend the products of any manufacturer referred to. Other products may perform as well or better than those specifically referred to.