

## New low-risk farm guide

Key elements needed for low risk dryland cropping have been summarised in a new publication to be launched at this year's GRDC (southern) Adviser Updates.

The 'GRDC 2008 Planning Guide For Low-Risk Farming' is designed to help advisers assist their clients through a decision-making process that will lead to best possible outcomes for the 2008 cropping season.

The guide, developed following a November 2007 workshop convened by the GRDC-funded, 'Low Rainfall Collaboration Project', brings together key agronomic, risk management and marketing information presented at that workshop.

The guide presents valuable management information based on science and field experience in a form that allows the user to identify and work through relevant issues that begin well before and extend far beyond what happens in the paddock.

It also contains a simple decision-making framework designed to help farmers identify and address the essential decisions needed to prepare their farm business for the 2008 season.

Content includes viability and related social issues, how to gain maximum benefit from limited resources, storing summer moisture, pre-sowing and post-sowing agronomy and management and marketing.

Copies of the guide will be distributed to those attending the 2008 series of GRDC Adviser Updates. It will also be available on GRDC's website [www.grdc.com.au/lowriskfarming](http://www.grdc.com.au/lowriskfarming)

## GM canola – warning

A decade of intensive glyphosate use trials in the United States has highlighted the need for Australian grain growers to implement sound herbicide resistance management strategies when glyphosate resistance crops are released.

Dr Phil Stahlman, visiting weed scientist from Kansas State University, will tell advisers attending the GRDC Grains Research Updates at Adelaide, Wagga and Ballarat in February, the impacts of glyphosate resistant crops in the United States over the past decade have been very positive, resulting in a significant improvement in farm profits and efficiency.

In addition there has been no risk found with food or feed safety, or crop nutritional value.

However, agronomically Dr Stahlman points out that at five long-term trial sites in the central Great Plains of the United States, the rate of glyphosate use has had greater effect on weed populations than either crop or chemical rotation.

Weed populations exposed to repeated glyphosate applications became less diverse, shifting to one or two predominate species. Also, there was a shift to species having extended periods of germination, allowing them to escape glyphosate application.

Dr Stahlman will join a panel of industry representatives and researchers at the Adviser Updates to review current moves to release glyphosate resistant crops and Roundup Ready, including initial product release, crop segregation and impact on marketing.

The panel will also workshop the agronomy needed to ensure the newly released technology achieves its potential without running into herbicide resistance problems.

## Risk management challenge

Framing the 'right' advice for grower clients in 2008 is likely to be as challenging for advisers as managing input costs will be for many growers.

The response and performance of crops in 2007 varied remarkably depending on farming systems management, soil type as well as when and how much rain was received.

When these variables are overlaid with volatile prices and a variety of market-place experiences, advisers are likely to find themselves working this season with clients in both marginal or 'knife edge' financial situations as well as those under little financial pressure.

In response those involved in planning the 2008 Adviser Update program have set as their theme "Risk Management and Technology – Meeting the Challenge".

Update dates and venues:

- Feb 6 & 7 Adelaide Convention Centre, SA
- Feb 12 & 13 Charles Sturt Uni, Wagga Wagga, NSW
- Feb 19 & 20 Ballarat Lodge, Ballarat, Vic.

Program details including two-day agendas and registration forms are available on GRDC's website [www.grdc.com.au/researchupdates](http://www.grdc.com.au/researchupdates)

# 2008 – Manag

**The following items highlight topical issues from the**

## Variation in nutrient carry-over

Variability in crop performance in 2007 means the 'carry over' of nutrients from last season to this year needs to be critically examined.

According to the GRDC 2008 Planning Guide For Low-Risk Farming, the cost of P fertiliser means it is vital to know the amount of soil P available for each paddock.

Where finances are an issue, P fertiliser rates should be calculated to manage P supply for the 2008 crop only. Do not fertilise for the following pasture or for build-up of soil reserves.

Soil tests or good paddock records of previous P use will provide the necessary information about P status.

Nutrient audits using previous fertiliser rates and crop yields will also assist in making phosphorus fertiliser decisions.

There is likely to be some carry-over of fertiliser P from 2007 crops into the 2008 growing season in paddocks where the 2007 crops grew poorly all year.

P application rates can be reduced when there is an early break because there will be increased mineralisation of P during the early part of the growing season.

General rules of thumb provided in the guide suggest growers under financial pressure should apply half the normal rate of P in paddocks where 2007 crops produced little growth and yielded less than 0.5 t/ha.

Use two thirds the normal rate on non-calcareous soils following drought crops yielding more than 0.5 t/ha or which had healthy growth up until late tillering.

Rates should be near normal on calcareous soils and normal on chemically or mechanically fallowed paddocks.

If the fertiliser budget will not cover the whole cropping program, use the calculated rates on the best paddocks first, even if it means seeding the last paddocks without P fertiliser.

According to the Guide, leaving off P will have little impact on production loss unless soil P reserves are very low.

## What about N?

The amount of Nitrogen available to crops is commonly under-estimated following a drought, say the authors of the GRDC Planning Guide.

Mineral N levels can be higher than normal after a drought because of the extended period of mineralisation (the drought acts like a fallow) and some carry-over of fertiliser N.

This year there is likely to be some carry-over of fertiliser N from failed crops in 2007 and increased mineralisation if there is good early rain. There will be less carry-over from crops that grew well early but failed to finish.

How much mineralised N becomes available to the crop will depend on when the break occurs, soil type and paddock history but soil testing can eliminate much of the guess work.

N decisions for the 2008 crop should be based on deep soil N tests, particularly if aiming for malting barley.

Do an N budget as normal, taking into account soil N level, target yield and protein.

Reduce up-front cost and risk by minimising N input at seeding and plan to top-dress N in response to how the 2008 growing season develops.

Starter nitrogen (N) is important in low-N situations but adequate rates (5-10 kg N/ha applied with or near the seed) are often achieved with typical rates of DAP (or even MAP) applied to provide the P requirements of the crop.

You will not fall off a production cliff if you back right off N fertiliser at seeding because you can top up during the year if required.

For trace elements, consider using a foliar spray or seed dressing to correct any trace element deficiencies.

Foliar or seed dressing treatments are the cheapest option to meet the needs of the 2008 crop but will not provide any residual benefits for subsequent crops or pastures.

If you opt for a seed dressing you should also budget for a foliar spray because the seed dressing may not be sufficient to meet the needs of the crop if the deficiency is severe.

Using seed from a soil with good levels of trace elements will produce similar benefits to a commercial seed dressing. If this seed comes from another property, be aware of the potential cost of importing weed seed compared to the cost of a commercial TE seed dressing.

# giving the risks

## the GRDC 2008 Planning Guide For Low-Risk Farming

### Make or break options

For growers in marginal or 'make or break' situations, NSW Department of Primary Industries scientist, Mark Conyers, suggests there are options for cost saving in the area of fertiliser inputs.

He suggests growers 'on the knife edge' use only about 10 kg/ha of phosphorus; the amount contained in 50 kg/ha of MAP, which will also supply the 5 kg/ha of starter N he suggests should be the limit of N fertiliser for growers in this financial situation. This is because there should be adequate quantities of spared N from the previous season.

For 'marginal' growers with slightly more available cash his 'recipe' includes 10 to 15 kg/ha of phosphorus, depending on soil test results (15kg\_P/ha if soil test P is low) and starter N with the option to top-dress with more N in late August depending on the amount of soil moisture available.

He considers it advisable for growers in this category to apply zinc and sulphur only if they did not apply those elements last year, to spread gypsum only where they are sowing small-seeded crops into clay soils with more than 15% sodium and to lime paddocks only where they are planning to sow canola, albus lupins, barley or lucerne in soils where the pH is less than 4.3 in the top 20 centimetres of the profile.

### Summer moisture critical

With climate change predicted to increase the proportion of annual rainfall received during summer in southern regions, storing moisture during summer and autumn can make the difference between cropping success and failure.

This was demonstrated in 2007, when many crops performed better than expected in areas that received good summer rains.

The following information is drawn from the GRDC's new Planning Guide For Low-Risk Farming that will be launched at this year's Adviser Updates.

The pattern and timing of rainfall has a strong influence on the net benefit of summer rainfall. While in general, heavy soils can store more water than light soils, moisture is often nearer the surface in heavy soils than in sands, which increase the likelihood of losses through evaporation.

Stored water in sands is usually deeper and less subject to evaporation.

Rainfall events later in the summer/autumn period are more likely to benefit the following season's crops than rain received in early summer because much of early rain is likely to be lost before the crop is sown.

Growers should not expect to store more than 50% of the summer rain that enters the soil profile, even under the best of conditions.

Nor should they assume how much moisture is stored in a soil or where it might be. The only way to know for sure is to dig a hole and check.

Effective summer weed control is vital to storing 'out of season' moisture and also clears the way for easy, timely seeding.

Summer weed control needs to be early and thorough. Timeliness is critical. The key to successful summer weed control is to spray when weeds are small and actively growing.

The window for summer spraying is often much narrower than many farmers realise. Good conditions (high delta T, vigorously growing small weeds, low wind speeds) can allow efficient control with lower rates.

While there is little point in spraying in totally unsuitable conditions, hot, dry conditions mean opportunities to spray summer weeds can be limited. As such it may be inadvisable to stop spraying because conditions are not ideal. In many instances it will be better to be aware of changing delta T values and adjust chemical rates, water rates, pressures and nozzles to ensure continuing efficacy and safety in the changed conditions.

Night spraying can substantially improve the timeliness and efficacy of summer weed control.

Growers should also use the lowest-cost effective rate or tank mix. Current glyphosate costs are small in terms of \$/ha and the benefits of effective weed control.

According to the Guide, it is important not to rely on sheep for weed control because they do not totally control all weeds.

If sheep are to be part of the control program they are best used to clean up misses and take out later germinations after a paddock has been sprayed. When used in this way they can reduce herbicide costs by up to 30% over summer.

# Cost cutting considerations

Cost cutting can have a counter-intuitive effect if the wrong costs are cut. Small reductions in costs that have a negative impact on production will lead to large reductions in profit.

Modifying management to improve farming efficiency is the way to reduce costs. Eliminating unnecessary operations and improving efficiency of operations leads to greater labour efficiency and fuel savings. Block farming, reduced tillage or the use of genetically superior varieties are examples of efficiency improvements that can lead to reduced costs.

Higher prices for glyphosate, phosphorus, nitrogen and fuel are likely to increase total enterprise expenses by around 25%. This leads to a profit reduction of 30% assuming 10 year average prices (\$180/t) and production.

If export parity prices of wheat achieve \$250/t (\$220/t upcountry) then profits will increase by 20%.

Strive to optimise water use efficiency. A reduction in water use efficiency of 25% results in a reduction in profit of 70%. Timely operational crop management goes a long way to optimising water use efficiency.

The probability of breaking even falls 25%, from 70% to 45%, where WUE is reduced from 16 to 12 kg/ha/mm in a low-rainfall environment. In a high-rainfall environment the probability of breaking even falls just 15%, from 85% to 70%, with the same decrease in WUE.

Low rainfall farming environments need different risk management strategies to higher rainfall farming environments because returns are more variable in low-rainfall districts.

Fifty percent of the profits come in 20% of years. 2.5 years' worth of profit over a 10-year period are foregone if the profits are halved in the good years. You must put yourself in a position to capture the benefits in the good years.

The trick to maximising profit in the good years and minimising losses in the poor years is to act tactically. For example, input costs such as nitrogen and fungicide costs can be reduced when crop moisture is limiting, or increased when moisture is non-limiting.

Most farm businesses are still asset rich, due to the rate of capital growth of their greatest asset – agricultural land - but many have not generated an operating profit for several years. Equity levels have not changed significantly over a 10-year period except where farm expansion or severe losses have occurred. However, the debt in absolute dollar terms has increased significantly for most farms.

Agricultural advisers provide on-farm investment advice as well as technical input because an adviser's

recommendations can impact on the long-term viability of the business, particularly if the business is carrying a high debt level. The technical advice given on a crop will have a range of flow-on implications at the whole farm level.

During the coming years, due to the increased debt loads incurred over the past two droughts, cash will be more limited so weighing the risk and return of on-farm investment decisions will become all the more critical.

The adviser's role is to evaluate the risk and to maximise the returns from each investment decision, be it new seed, fertiliser or additional livestock.

## Predicta B 'back home'

After several years with Bayer, the PreDicta B tests that predict root disease levels based on the level of DNA from the pathogen present in the soil, have returned home to the SA Research and Development Institute (SARDI), where they were developed.

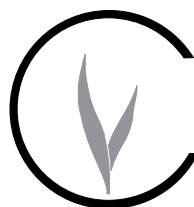
SARDI scientist Dr Alan McKay, who led the team that developed the innovative tests, said PreDicta B test kits are now available from SARDI, which is improving the tracking and support systems that are an integral part of the test service.

His team also plans to upgrade the resource manual and training course that are integral to the PreDicta B service and is working on incentives designed to improve the timeliness of the testing regime.

Agronomists are seen as a vital link in the service chain and one of the team's immediate challenges is to develop a list of current contact points for advisers who want to use or learn more about the service and what it can offer their clients.

Advisers interested in attending a training course to use the system should contact Alan McKay, 08 8303 9375, mckay.alan@saugov.sa.gov.au

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