PULSE

UPDATE ANNUAL 2011

incorporating **PULSE TECH-NOTES** AUTUMN 2011

PLAN, PREPARE, ENACT

MANAGING DISEASE

GET READY FOR 2011

IN THIS ISSUE...

- Strategic disease control
- Pulse management in 2011
- Bee pollination
- Understanding pod set
- Pulse genetics

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These are listed on our website under the index heading "Members".

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PULSE AUSTRALIA

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CONTACTING PULSE AUSTRALIA

SYDNEY OFFICE
Lot 8, Sugar Creek Road, Bungwahl NSW 2423
Phone/Fax: 02 4997 6468
Email: ggibson@pulseaus.com.au
Website: www.pulseaus.com.au

Chief Executive Officer - Gavin Gibson
Special Projects Officer - Gerard McMullen

CROP SUPPORT TEAM

South/Central
Wayne Hawthorne - Ph: 0429 647 455
Email: pulse.wayne@bigpond.com

South/East
Trevor Bray - Ph: 0428 606 886
Email: pulse.trevor@bigpond.com

Queensland/Northern NSW
Gordon Cumming - Ph: 0408 923 474
Email: pulse.gordon@bigpond.com

Western Australia
Alan Meldrum - Ph: 0427 384 760
Email: pulse.alan@bigpond.com

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FROM THE CEO

By Gavin Gibson
Chief Executive Officer,
Pulse Australia

As I write this, the enormous toll of damage from floods that have devastated most of Eastern States during the last few days is yet to be determined. It is very difficult to find words to express the anguish that all of us at Pulse Australia feel at the terrible loss of life, property and livelihood that so many are now experiencing. Sadly the catastrophe that has hit so much of the East contrasts starkly with the situation in Western Australia where severe drought has been the order of the day.

There are of course some pockets of the country where harvest has been kind. However for pulse growers, processors and marketers in most of the eastern growing areas alike, the irony of a soul destroying series of extreme climate borne setbacks after such a magic start to this last season - with its promise at last of a record harvest and good returns - hardly bears mention. This loss is magnified in the East for many by paddocks too wet to sow summer crops.

Are there any positives to come from this? Well there will certainly be good soil moisture going into winter in the East. Let us hope that tentative bureau forecasts for good opening rain in the West eventuate and that the outcome for all will be a really good start to the coming winter season. In this issue we recap on the lessons learned from last season's disasters and provide advice to assist in planning for this year.

Continued next page

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PARTNERSHIP WITH AOF

As flagged in my column last year, Pulse Australia has now partnered with Australian Oil Seeds Federation (AOF) to apply to GRDC for joint broad leaf break crop development project funding.

To simplify matters for the 2010/2011 year, GRDC requested individual project proposals from PA and AOF which were developed cooperatively by a small management steering group from both organisations, on the understanding that this would form the basis of an ongoing relationship. GRDC funding approval for this initial one year joint project has been confirmed for both organisations until June 30th 2011.

In the meantime, the PA and AOF joint project steering committee is working together with the GRDC program team to develop a longer term (three year) proposal. This will be submitted for final assessment in February/March, shortly after which time we expect to have a clear decision on the level of future funding for both organisations.

INTERNATIONAL PULSE INDUSTRY CONVENTION

In early May 2010, and on behalf of the Australian industry, Pulse Australia hosted a very successful international pulse industry convention in Brisbane for members of the International Pulse Trades and Industries Confederation (CICILS IPTIC). The conference brought together over 700 representatives of the world's key marketers, exporters, importers and processors of pulse grains for four days of networking and presentations from keynote speakers from around the world.

This also provided a convenient opportunity for Pulse Australia to call an urgent meeting of our voluntary financial supporters and others from the Australian industry who were attending the convention to draw their attention to the temporary and unsecured nature of our current funding model, and the imminent expiry (in June 2010) of the existing three year funding agreements with industry. 46 key companies involved in Australia's pulse industry attended.

At the meeting, a proposal for the introduction of a new Pulse Australia funding model with different categories of membership - directly related to the activity levels of members within the Australian pulse industry - was put forward for discussion. The presentation outlined why an immediate change in our funding model was imperative for the future stability of Pulse Australia, and detailed the benefits that would be lost to industry should the company cease to exist. The meeting voted unanimously to adopt the new funding arrangement.

All but one or two of those in attendance, including some key industry participants who had not previously done so, committed on the spot to an agreed level of membership payment under one or other of the new categories.

Pulse Australia is most grateful to these industry contributors, who have generously agreed to continue this very necessary support for the organisation. Of the 50+ new members who made commitments during the meeting, or immediately subsequently to it, 47 paid their 2010/2011 membership in advance, putting the organisation in a much more secure position. The new membership categories, and a contact list of current members, are available on the Pulse Australia website at www.pulseaus.com.au.

All at Pulse Australia wish you a healthy, happy, safe and successful 2011.

PULSE AUSTRALIA BOARD MEMBERS

Pulse Australia Chairman
Gerald Feeny
(Farmer VIC)

PULSE AUSTRALIA

STATE PULSE ORGANISATIONS

State Pulse organisations have been established, and meet regularly, to provide a valuable two-way link with Pulse Australia on issues relevant to each particular region. Contact details are available on the Pulse Australia Website www.pulseaus.com.au or by calling 02 4997 6468

David Matthews	Deputy Chairman - (processor and grower, nominee of the combined state pulse groups, VIC)
Geoff Budd	(corporate lawyer, Grains Research and Development Corporation, National)
Ron Storey	(specialist industry consultant with extensive international grains marketing and risk management experience, National)
Francois Darcas	(accumulation and marketing, AWB Limited, Vic)
Denis Logan	(processor and marketer, QLD)
Peter Elliott	(accumulation and marketing, CBH Grain, WA)
Brett Dodson	(accumulation and marketing, Viterra, SA)

RECOVERING FROM THE DROUGHT IN WA WITH PULSES

Alan Meldrum, Pulse Australia WA and David Cameron, Farmanco Management Consultants

Western Australia, in total contrast to the rest of Australia, suffered drought in 2010. The rainfall totals for extensive areas of the wheatbelt recorded their lowest ever annual totals. Drought recovery often means a choice between extending the cereal rotation for cashflow or maintaining a pulse rotation for long term benefit.

PULSES IN ROTATION

Droughts harm farm profits and erode confidence in rotational diversity. A droughted pulse crop, designed to provide for improved cereal returns, is not likely to be very profitable. A healthy pulse crop which is followed by a drought will not realize the expected cash returns. When the reward is not received for including pulse crops in the rotation, farmers and advisers get despondent waiting for 'normal' seasonal conditions to return which allow for successful pulse (and cereal) production.

When sowing a third or fourth cereal, the production costs and risks associated with this 'rotation' can be high. This rotation drains the soil of organic matter, notably organic nitrogen, it increases grass weed burdens, increases root and foliar disease inoculum, leading to lower yields and higher costs.

THE ROLE OF PULSES

Removing pulses from the rotation affects the ability of the farm to capitalize on the benefits they provide:

- Residual N for the following crop of at least 25kg/Ha
- Reduction in the root diseases, Rhizoctonia, Take-all and Crown rot
- Significantly reduced foliar disease levels.
- An opportunity to rotate herbicides to help combat resistance.
- Utilise weed management strategies to combat herbicide resistance, eg crop-topping or intense windrow burning.

THE STATE OF WA ROTATIONS

2011 presents a rotational challenge for WA growers. Persevering with declining wheat yields means missing the chance to improve future wheat returns by improving the fertility and health of the paddock. After the dry years of 2006 and 2007, farmers grew large areas of wheat in 2008 which created high levels of disease inoculum, especially yellow leaf spot, which broke out early in continuous wheat paddocks in 2009.

After being backed into a corner, 2010 was the year where many were trying to restore the break in the rotation. At least these paddocks are better set up for 2011, than the many others which remain in continuous wheat for over six years.

FACTORS TO CONSIDER FOR 2011

High prices at the beginning of the 2011 season, combined with understandable caution because of production risk, makes for a difficult wheat marketing year. Diversifying the farm business by growing a range of crops, including pulses, is a recommended strategy.

There can be good financial benefits from pulse production, especially in relation to reducing input costs, which can immediately flow on to improved profitability.

Growers recognize the value of residual N from pulses. Wheat grown after lupins, chickpea or field pea performs better than continuous wheat, even in a drought.

Savings can be made in Phosphorus inputs. There is potentially more than 30% of the 2010 application available this season. This is especially significant for chickpea which will not respond to applied phosphorus where the soil test indicates at least 20 ppm is available. Other pulses respond to phosphorus, but where the soil level is high, >30ppm, P savings can be considered.

Alan Meldrum, Pulse Australia

Herbicide residues from 2010 applications need to be considered. All labels of soil residual herbicides, such as sulfuronyl ureas and imidazolinones, provide plantback advice for sensitive crops like chickpea, field pea, lupin and canola. The lack of rain last year may not have degraded these herbicides to a safe level. Summer rain will accelerate the herbicide breakdown but growers need to be careful in their paddock planning.

When spraying summer weeds consider the spikes you are adding, and how they will limit your crop choices.

Pulse crops provide an opportunity to rotate herbicides, and in particular they enable the registered use of paraquat for crop-topping.

Balance the seasonal outlook with available soil moisture at the time of seeding, to provide a guide to your pulse production risk.

Choosing the most suitable pulse for your district, paddock and soil conditions is the critical choice. Robust agronomy packages and advice is available from Pulse Australia.

NORTHERN REGION REPORT

Gordon Cumming, Pulse Australia - Northern Region

Clearly 2010 is a year that many would rather forget. What started as an extremely promising season with early rainfall and good crop establishment, ended on a very sour note with a wet harvest leading to grain downgrades and, for many, crop losses due to continual rain and floods.

As with any season there are some positives, even if we have to look hard to find them and lessons to be learnt, as well as decisions to be made concerning the upcoming season.

On the positive side for 2010, Faba beans and, to a lesser extent, Lupins performed well.

Faba bean; early rains meant that the crop was able to be sown during the optimum planting window, although some crops in the north western regions of NSW were unable to be planted due to paddocks being too wet after rain in early April. Whilst chocolate spot and to a lesser extent rust was present in all crops, this did not appear to limit yields (averaging between 2.5 and 3 t/ha) or grain quality. It is thought that this is due to the late development of these diseases.

Lupin; continue to grow in popularity in the central NSW region especially on the more acid soils where both chickpea and faba bean are poorly suited. Crop development was good early in the season, and disease issues were few and inputs costs low. Ultimately many crops grew overly tall, resulting in some lodging and harvest difficulties. The wet harvest caused downgraded crop yields to an average of 1.2 t/ha.

Chickpea; were clearly the big disappointment for 2010. Low predicted wheat prices, solid prices for chickpea, high nitrogen fertiliser costs and crown rot levels all contributed to a large planting. Many crops were planted 2 to 3 weeks earlier than optimum which resulted in some early rank crops. But with the wet season, nearly all crops ended up being very bulky and lodging was a very common occurrence.

Then in late August the rains began with the end result being;

- poor pod set due to low temperatures
- additional vegetative growth associated with excess moisture and low light intensities
- development of ascochyta blight
- development of botrytis grey mould, which also reduced the level of pod set.
- an estimated 80,000 ha (20%) of the crop was abandoned prior to harvest.
- and an additional 30,000 ha was lost to flooding.
- poor quality for much of the grain that was delivered.

While the returns from the 2010 pulse crop harvest have been very disappointing for many growers these paddocks hold promise for the 2011 cereal crop with;

- full moisture profiles,
- high levels of nitrogen fixation resulting from large biomass and limited grain removal,
- effective grass weed control and, in most cases, broadleaf weed control helped by the increased crop competition and
- reduced levels of crown rot

Dedicated pulse growers who have come to value the longer term benefits of pulses in their farming systems will no doubt continue to grow them in the 2011 season. Although it will be a season to focus on getting the basics right and to minimise exposure and risks.

GETTING IT RIGHT IN 2011:

There will be much written about disease management strategies for the various pulse crops in both this publication and others in the coming

Gordon Cumming - Pulse Australia

weeks and months. I am currently working closely with both I&I NSW and Qld DEEDI to review and compile a series of Bulletins dealing with effective management strategies for both chickpea and faba bean production. The first of these will be available at the upcoming GRDC advisor updates at Dubbo and Goondiwindi as well as the associated GRDC grower updates and they will also be distributed electronically.

Thus, I wish to just touch on a couple of the key points below.

Planting seed; the wet harvest has placed considerable pressure on the availability of high quality planting seed, especially for grower retained seed.

The following points need to be considered when considering the use of grower retained seed.

- Conduct a visual inspection of the harvested sample as well as get a germination and vigour test. This may be done soon after harvest as an indication of which seed lines to keep, but should also be done just prior to planting, as the germination may decline with time over the summer.
- A professional seed test conducted by one of the seed laboratories would be money well spent this year, especially for weathered grain, as this will also provide an indication of the seedling vigour and the number of abnormal seeds present in addition to the germination %.
- Have the grain professionally graded (preferably using a gravity grader) to

provide a uniform seed lot and remove all small seeds, trash and weed seeds.

- A gravity grader is more efficient at removing lighter seeds which often are disease infected. A high proportion of small, shrivelled and lighter grain can be expected given the extent of botrytis infection in many chickpea fields this last winter.
- All planting seed needs to be treated with a registered fungicide seed dressing. For chickpea, the fungicide must contain the active ingredient thiram (e.g. Thiraflo® or P Pickle T®).

Seeding depth; growers should be very careful if considering deep planting during 2011. Deep planting has been widely adopted over the last three to five years with both chickpea and faba bean. It is a very effective technique in planting crops into soil moisture during dry starts as well as enabling better management of the work load during seeding.

One of the keys to deep planting is the use of high quality seed that has good vigour so as to be able to emerge from depth. If you are using weathered planting seed that has poor seedling vigour, then seeding depth should be kept to a minimum of 5-7cm.

Variety Selection; Choose the best disease resistance available. Pay particular attention to the disease management strategies associated with each variety you are planting in 2011. If you decide or need to grow any of the older varieties (due to a lack of planting seed) then be sure to plan your disease management strategy carefully.

PLANT BREEDERS RIGHTS PBR.

Most of our current varieties, including PBA HatTrick(ф), Yorker(ф) & Flipper(ф) chickpea and Doza(ф) faba bean, are registered under PBR legislation and cannot be sold, traded or bartered between growers and to do so is an offence against the plant breeders rights legislation. Seed of these varieties can be retained on farm for the growers own use in subsequent years.

'CERTIFIED CHICKPEA AGRONOMY COURSE'

This highly successful "Certified Agronomy Course" is being conducted this year. The course is targeted at agronomists, advisors and farmers alike.

The course is conducted by Pulse Australia in association with Qld DEEDI and I&I NSW.

The course is designed to provide agronomists, advisors and growers with the technical knowledge and practical skills required to assist growers achieve more reliable and profitable chickpea production.

Participants will be provided with the science and reasoning behind current Best Management Practice and an update on the latest research and advancements in the chickpea industry.

This course is offered bi-annually. After this year, your next opportunity to attend will be in early 2013.

The network of accredited agronomists is also kept informed of any new and emerging issues within the industry e.g. new pesticide registrations or permits.

The next round of courses is planned for;

Queensland:
Emerald March 15th & 16th

Southern Qld:
Goondiwindi March 23rd & 24th

NSW:
Narrabri March 29th & 30th

For further information and expressions of interest contact;
Gordon Cumming, 0408 923 474
pulse.gordon@bigpond.com

NEW EXECUTIVE TEAM APPOINTED TO GIWA

The Chairman of the Grains Industry Association of WA (GIWA), Mr Jon Slee, has announced the appointment of Ms Johanna Gastevich as the new Executive Officer for GIWA. Ms Gastevich takes over from Mr John Duff who, as the inaugural Executive Officer, played a pivotal role in the establishment of GIWA.

Since forming in 2008, GIWA has become a recognised and important body in the development of policy for the benefit of the entire WA grain supply chain.

Ms Gastevich, who originally hails from WA, has been working in Canberra with Engineers Australia. Johanna has over 15 years' experience in leading and managing industry associations. Ms Gastevich is excited to be returning home to Perth and welcomes the opportunity to work with the grain industry.

GIWA has also appointed Mr Ian Longson as Business and Policy Development Manager. Ian is the former Director General of the Department of Agriculture and Food (DAFWA). Ian brings a wealth of industry knowledge and networks to GIWA.

PULSE MANAGEMENT FOR 2011 IN SOUTHERN REGIONS

Wayne Hawthorne, Pulse Australia, South-Central and Trevor Bray, Pulse Australia, South-East.

The crucial importance of timely disease control and its impact on yield and quality were key issues emerging from the unprecedented, prolonged wet conditions during last season followed by a protracted, wet harvest which predominated in much of SA, Victoria and southern NSW.

Crop management and disease control experience from 2010 has provided better understanding of wet season management and, in particular, the importance of fungicide timing for the coming year. For foliar disease control, the clear lesson is that starting early, and having foliage well protected before canopy closure, proves far better than trying to cure any incidence after the event.

While sowing early has been successful in recent dry years, the key message that came out of 2010 is that sowing too early in a wet season will also have a huge impact on the efficacy of disease control. Trafficability and continued wet weather caused delays in chemical application in some cases. Product availability due to unprecedented demand also impacted on fungicide choice, with less preferred options sometimes having to be used. Disease presence in the lower canopy created immense pressure on the subsequent growth, even when it was protected with later fungicide applications. The impact of botrytis at flowering (that ultimately affects pod set) was underestimated and needs to be reassessed.

In this coming year most growers will start with a full profile of soil moisture before autumn. Early sowing may be a tempting opportunity however it should be remembered that there are likely to be higher levels of foliar disease present on stubbles from last year's crop. Seed quality may also be suspect due to the wet harvest.

Paddock planning and selection will be crucial. Avoid planting near last year's pulse paddock, otherwise the new planting will have to be managed for high disease risk. Seed quality will need quantifying for germination, vigour and disease levels. Cereal stubbles will be big, and in many instances flattened or twisted, and if not broken down this may impact on accurate sowing. Summer weeds will need controlling to retain moisture, while the stubble presence can help prevent moisture loss and aid summer weed control by shading seedlings.

KEY POINTS FOR 2011 INCLUDE

Seed quality:
Ensure retained seed is of sufficient quality to provide good establishment and early vigour. Germination test retained seed and adjust seeding rates accordingly to achieve optimal plant numbers. Handle the seed as little as possible. Seed retained from last season is likely to be more brittle than usual and may be subject to damage during storage, handling and sowing.

Test retained seed for fungal diseases like ascochyta and botrytis, and viruses such as Cucumber Mosaic Virus (CMV) in lentil, chickpea and narrow leafed lupin. Field pea and faba bean seed in some areas needs to be tested for Pea Seed-borne Mosaic Virus (PSbMV). Do not sow heavily infected seed as this increases the risk of spread by aphids and could pose a threat to new crops.

Moisture conservation:
In drier areas, use moisture conserving practices for pulses to avoid soil moisture loss from bare ground or weeds. Control summer weeds early and retain cereal stubbles before and after seeding through to canopy closure. Wetter areas may benefit from a forage crop, sown early to dry the surface soil and assist in weed control.

Viruses and Aphids:
Wet conditions in 2010 might have meant fewer aphids, but the incidence of virus infection was not eliminated. Don't be complacent as summer weeds (Green Bridge) and perennial pastures will assist in aphid build up to prior to seeding this coming season.

Wayne Hawthorne, Pulse Australia

Trevor Bray, Pulse Australia

Virus management requires an integrated approach involving summer weed control (green bridge) and aphid control, along with minimising aphid virus sources (seed testing, weeds, neighbouring pastures). Proximity to other 'host' crops needs to be considered and aphid monitoring and control in these crops may need to commence earlier than the targeted pulse crop.

In-crop canopy management and ground cover will also minimise landing sites. Chickpeas are a classic example where crop canopy management is an important component of minimising aphid presence, hence virus management. See the separate article in this issue, and also several 'Virus management' bulletins at www.pulseaus.com.au.

Crop Support Report - Southern Region

Varieties:
New pulse varieties are now available with improved attributes such as differences in maturity, disease resistance, growth habit and market type. Their use can greatly improve areas of adaptation, reliability, and flexibility of sowing date or offer an alternative market choice.

PBA Gunyah(ℓ) and PBA Twilight(ℓ) are new field peas that will extend the sowing window and improve adaptation to low rainfall regions and dry finishes. PBA Jumbo(ℓ) and PBA Blitz(ℓ) are new lentils that also give greater flexibility and adaptation. Genesis™ 114 and Genesis™ 079 are new small kabuli chickpea that, with good subsoil moisture, will drive a movement to this crop in 2011.

Choose new varieties wisely to suit your system and conditions. Don't assume that management of new varieties will be the same as for older ones. To maximise best management practice read the Variety Management Package (VMP) and variety brochures. (at www.pulseaus.com.au)

Markets:
Poor grain quality from 2010 has obviously impacted returns. However, grain market signals for 2011/12 are indicative of continuing global demand at or above present levels, and experience has shown that in most cases a market can be found for pulse grain that does not meet receival specifications. Be prepared, though, to take time and patience and be aware that storage is often required until marketers can place the grain.

In some instances, pulse forage may be a worth-while alternative to consider for control of resistant weeds and flexibility in dry springs or after frost events.

Pulse choice:
Changing from one pulse to another based solely on last year's price or performance (good or bad) is often unwise. All pulse species did well in 2010 when grown and managed in the right situation. Every season is different, favouring or disadvantaging one pulse over others and we cannot predict what 2011 will bring. Matching pulse species and variety to the soil type and conditions is always more important than trying to match recent market events.

Remember, when budgeting, to make sure you also factor in the financial and agronomic benefits to following crops over and above the simple value of the pulse grain.

Sowing date:
Following the recent string of dry years, early sowing has become more common. Some would argue many sowed too early in 2010, given the wet season, but on the other hand this has taught us how to better handle the disease issues associated with early planting, should they arise in future years.

Sowing date must match the 'sowing window' of the region, crop and variety. Some pulses can be sown too early, affecting chickpea (pod set), field pea (blackspot) and faba bean (pod set, chocolate spot) for example. Flowering under cold conditions, shading under dense canopies, or botrytis present on flowers can lead to poor pod set in some pulses (chickpea, lentil, beans, even lupin). Dense canopies with poorer pod set suffered heavily with a quick seasonal finish like in 2009. Lodging from early sowing was also quite evident in albus lupins, Mandelup lupins and faba beans, particularly on wide rows. While sowing too late will reduce yield potential, this is becoming less of a risk with new quicker maturing varieties.

Fungal disease:
Complacency regarding early fungal disease management had repercussions last year. Reacting after the disease is firmly entrenched rarely succeeds, although it may arrest an otherwise worsening situation. Disease control should start early with the right variety, paddock selection and time of sowing. Last year proved that forward planning, organising fungicide supply and early response to disease on-set is essential.

Herbicides:
Trials and field experiences have shown

Botrytis Grey Mould (BGM) in Chickpea. Once established, BGM is very difficult to control after canopy closure

that soil incorporated pulse herbicides applied prior to or at sowing (PS) tend to be safer than applied post sowing, pre-emergence (PSPE) which can lead to more leaching into the root zone.

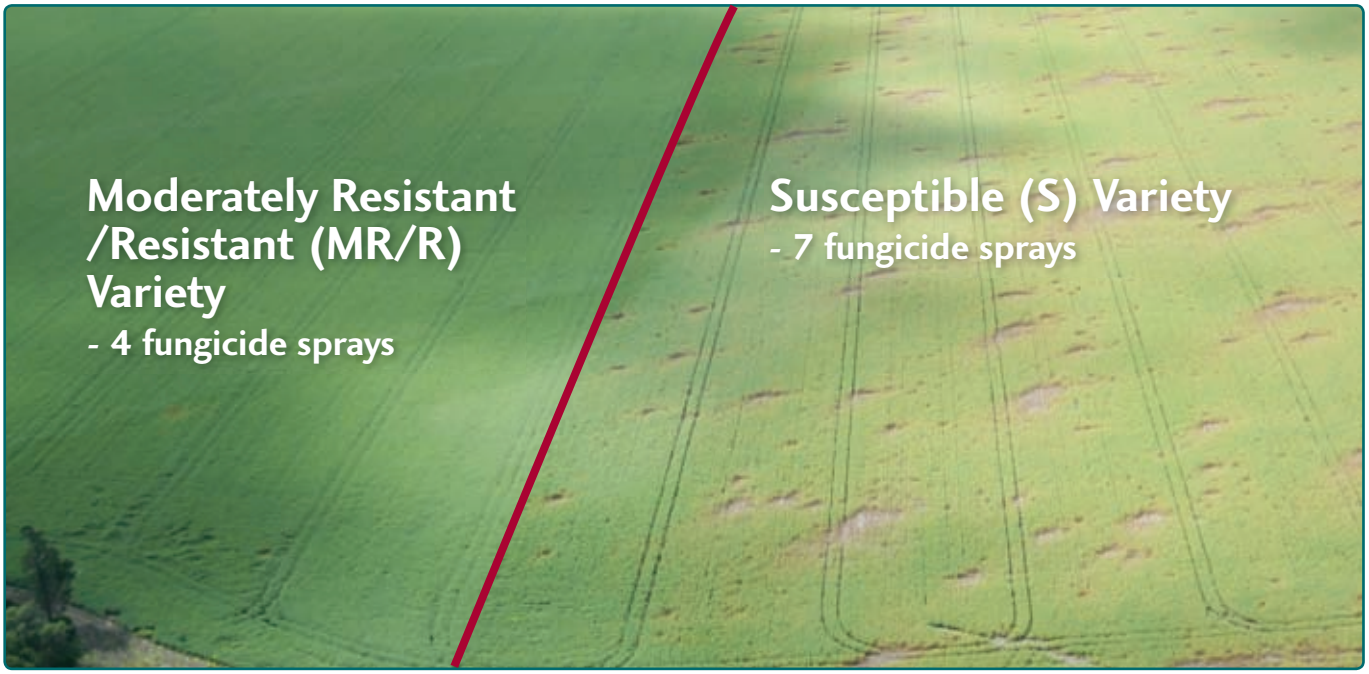
The prolonged rains in 2010 delivered weedy crops and other harvest issues that created the need for desiccation. Unfortunately, registered herbicide choices for crop topping and desiccation are limited. 'Spikes' to add to these desiccants are not registered and in many cases pose a risk of unacceptable residues in grain samples. Registration in one crop does not necessarily mean that it is safe in another.

Locusts:
For some areas locusts were an issue at sowing and crop emergence, and then again during late spring, threatening crops that remained green. Given the locust flights occurring in December, it is probable that we will have to face this issue again in 2011. Seed treatment with Gaucho350 SD did help with some early seedling protection, but has its limits dependent on locust population pressure. Sowing time might need to be delayed again as many did in 2010.

PULSE GENETICS ESSENTIAL TO COMBAT DISEASE

Alan Meldrum, Pulse Australia WA

ASCOCHYTA BLIGHT RESISTANCE IN CHICKPEA



Source: Jack Williamson, Nth NSW, October 2010.

Planning for the next cropping season requires a lot of reading and research to ensure the best technology is employed to achieve success. One of the primary options for growers to consider is upgrading varieties to make use of the best genetic material to reduce the risk of crop failure.

While we will always give yield improvements high priority, we should also consider other traits. Disease resistance is a critical issue for pulses, highlighted strongly last year in northern NSW and Queensland where the very wet spring enabled ascochyta blight to devastate chickpea varieties that had little or no resistance to the disease.

Improved disease resistance is not always associated strongly with yield improvement. Increased disease resistance is employed to reduce the risk of crop loss and/or reduced grain quality, and to lower the cost of production by reducing the need for in-crop fungicide use.

Remember, resistance doesn't mean immunity. Even varieties classified as Resistant (R) will require some level of fungicide application in heavy disease pressure situations. However, any level of resistance is better than none. The photograph above shows the value of genetic resistance to ascochyta blight in chickpea. The variety on the left is PBA Hattrick$^{\phi}$ which is rated Moderately Resistant/Resistant (MR/R), while on the right is Jimbour, a Susceptible (S) variety. Even under the extreme disease pressure of 2010, a variety with a MR/R rating has shown to be effective in preventing total loss to disease.

Jimbour has been the standard for the northern chickpea industry for many years, combining high yield and high quality seed. In normal seasons, it has shown to be a profitable variety. But when disease becomes a significant factor it quickly succumbs despite constant fungicide applications.

So how do you assess the risk of disease for your region and then choose a suitable variety based on that assessment? Combine research data with your own disease risk assessment based on local knowledge, an assessment of the climate outlook, the likelihood of disease having an impact and the prospects for yield.

Generally speaking, low rainfall environments pose a lesser risk than high rainfall environments. Growers in high rainfall environments will mostly employ genetics to lower their risk, because they face an annual threat from disease. In low rainfall environments, and in the northern region where crops are grown mostly on soil moisture, the threat is irregular and can usually be controlled with a combination of low level genetics and fungicides when it arises.

But when the threat is extreme, no amount of fungicides will control a rampant disease like ascochyta blight in a susceptible variety. Incorporating resistant varieties into the farm program is good insurance against crop loss. Risk management is used to justify all manner of crop and marketing inputs. It's time to assess the level of genetic resistance in pulse varieties currently on the farm to lower the risk of production losses.

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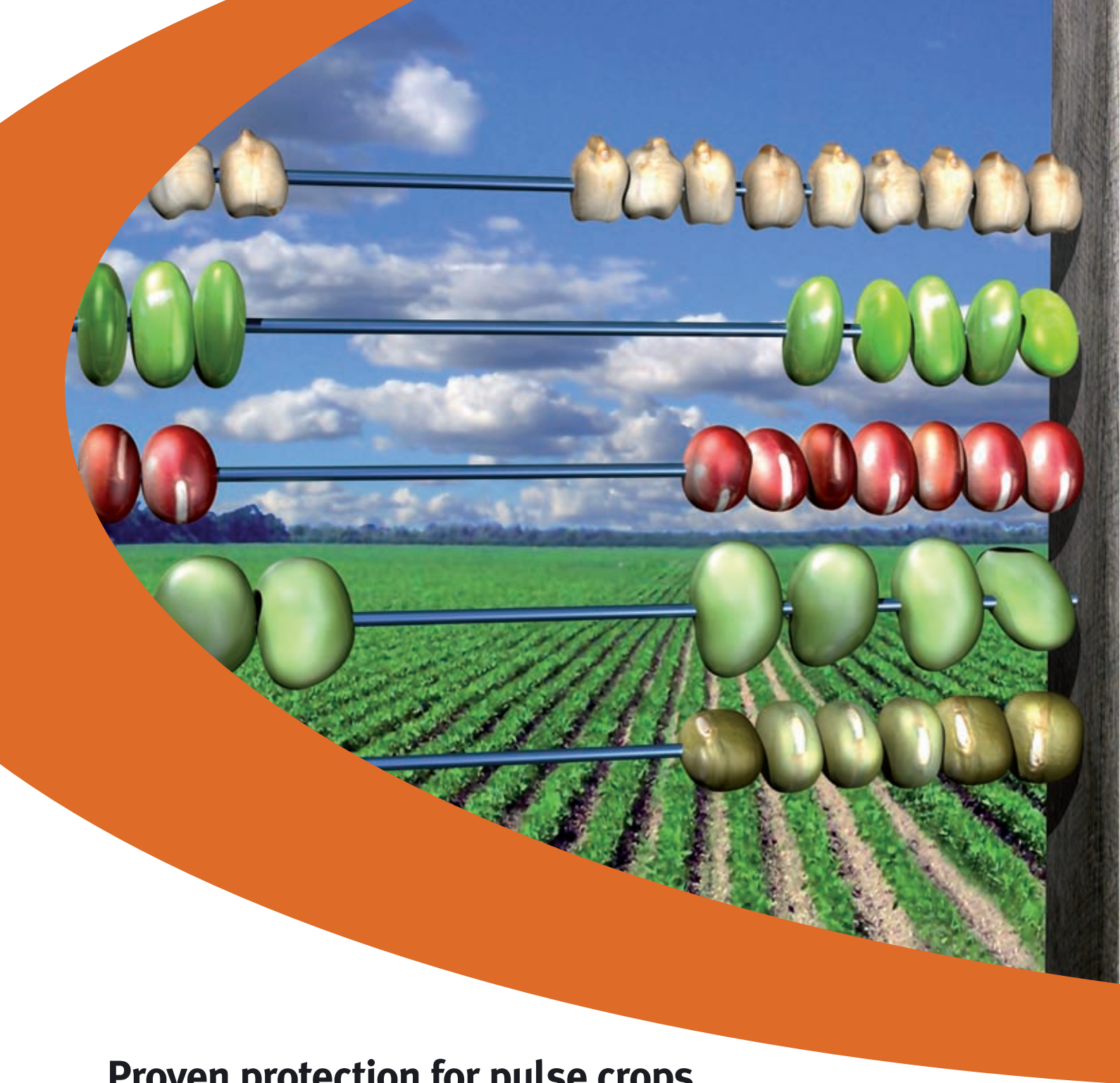

Proven protection for pulse crops. You can count on it.

DuPont™ Steward® EC insecticide offers you proven protection against Heliothis in chickpea and faba bean crops, as well as soybean looper and mirid complexes in azuki beans, mungbeans and soybeans. With good residual activity, 2 hour rainfastness, a favourable benefical profile and UV stability, Steward® EC is an ideal choice. So if you're banking on an excellent pulse crop yield this season, count on the proven performance of Steward® EC.

For further information, contact your DuPont™ representative or freecall the DuPont™ Agricultural hotline on 1800 257 169.

DuPont™ Steward® EC
insecticide

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