CROP SCIENCE SOCIETY OF S.A. INCORPORATED

C/- WAITE CAMPUS
P.M.B No 1, GLEN OSMOND, SOUTH AUSTRALIA 5064
INCORPORATING THE WEED SCIENCE SOCIETY
ABN: 68 746 893 290

NEWSLETTER No. 273 AUGUST, 2011

EDITOR – Tony Rathjen, articles welcome; fax: (08) 8303 6735 Ph: (08) 8303 7216
email: cropsssa@yahoo.com

TREASURER – Subscriptions
Sandy Kimber
PO Box 761
Clare SA 5453
Ph: (08) 8842 1718
sandy@bariniagrove.com.au

SECRETARY – Correspondence
Larn McMurray
PO Box 822
Clare 5453
Ph: (08) 8842 6265

Next Meeting **'Party at Paskeville**

Venue **Paskeville Community Centre**

Date **WEDNESDAY 24th August**

Time **From 5pm**

Speakers

Kym I'Anson – Farmer

Kym will report on his recent trip to the UK and Germany where he looked at spray applications, N management, plant growth regulators and soil compaction, amongst other things. This trip was supported by the Crop Science Society and Kym has also written a very interesting report for this Newsletter.

Webinar – 'What is the future of wheat?' Broadcast from the Wheat Breeder's Assembly in Perth.

See full program of the meeting at the end of this Newsletter

MEMBERSHIP SUBCRIPTIONS NOW DUE!!

Please pay your invoices by 15th September if you wish to continue to receive this great publication

President's Report – July 2011

John Both (President)

As the Crop Science Society of South Australia completes another year of activity it is worth reflecting on what the group has done and where it is heading.

We held eight meetings during the year and covered a range of topics and speakers as well as some lively panel discussions. The committee has discussed the content of meetings and agrees we need to have more emphasis on new and innovative research or overseas trends on the program as general day-to-day agronomy issues are well covered in other forums. Next month we will experiment with a regional meeting at Paskeville.

Meeting attendances have remained steady over the last year which means they still lag behind the averages we achieved 3 to 4 years ago. This is why the programming needs to be continually discussed by the committee.

The membership of the Society remains strong with 434 members on our books however 80 remain non-financial. We can glean from this that – as only 10% of these people attend any meeting at a time – they value our newsletter. Tony, Judy and Alison should be congratulated for their efforts here.

Tony and his crew should also be congratulated for improvements that have been made to the website. The number of articles and speakers' presentations that populate the site has increased and the site could become a frequent reference point for people seeking information about South Australian agriculture. More details of society functions are now on the site. We hope to make further improvements to the site with the help of the Adelaide University IT group.

The Society continued to support the Adelaide University School of Agriculture, Food and Wine post-graduate symposium with a prize for the best presenter. Normally that student would address the Society but this year's winner was a Sri Lankan student (Herath Laknallie) who has returned home.

A Duncan Correll Travel Scholarship was awarded recently to Kym I'anson who will address our group in the coming months. The committee has increased the support of this Scholarship from $1000 to $1500 with funding for up to two per year.

Life membership of the Society was awarded to John Lush and I thank him for his address to the group. I should also thank all the other speakers who gave their time during the last 12 months.

There should also be a mention of the sub-committee (Peter Grocke, Chris Preston and myself) that was formed during the year and was charged with the responsibility of taking a stand on the issue of the proposed spray buffer zones. This was in response to the APVMA flagging buffer zones of a few 100 metres for application of phenoxy herbicides near sensitive crops, native vegetation and waterways. One of our members Peter Cousins was a spokesman for the Independent Consultants on this issue and we thank him for his valuable input as well.

This is not a core activity for the Society. We are not a lobby or pressure group. However in this instance we could see bad science being used to make decisions affecting our members and felt it necessary as a science group to be a voice to encourage the APVMA to use sound data for their decisions.

Finally I would like to recognise the efforts of some other people. Sandy Kimber has done an excellent job as Treasurer. Larn McMurray has been a very professional Secretary. Cindy Martin is working to bring us in to the 21st century with video linking of meetings to the Waite. Of course we thank Chris Butler for filling us with coffee and Tim Tams before our journey home after meetings.

I look forward to the Society further evolving over the next 12 months whether it be with challenging meeting topics, an improved website, improved attendances or other improvements. Also we would like to introduce some new blood to the committee.

Agricultural technology is more than just guidance

Tom Robinson

Smart phones and electronic tablets are now making their agricultural mark. As farmers are taking the leap into this technological era, I.T. companies are seeing potential for growth.

Ezi App, a NSW company, owned by a group of farmers have released two applications for Agronomists and Farmers. Spray App, allows a farmer or contractor to neatly and efficiently store spraying information into an electronic format, that is stored for record keeping or emailing invoices to clients. Spray App records the time, start and finish of application, paddock name, paddock area and the type of crop or fallow. You can log the operator, and also automatically log coordinates of where you are in the paddock. Recording wind speed and direction, temperature, relative humidity, atmospheric pressure and calculates the delta T. Adding products & prices allows you to know how much to put in the tank and also the pricing per paddock. Protective gear, nozzle code, water rate, spray pressure, speed and water source are also recorded for ease of record keeping. Spray App allows you to take a photo of the weather or crop and links the photo to your spraying records. In the next free update for Spray App, a chemical shed inventory will also be added, as you add your chemicals into the reporting function for that paddock, the chemical will be deducted from your chemical shed inventory.

Agro App, allows agronomists to record client's farms and paddocks, and easily send recommendations via email. In the Inspection notes an agronomist adds the crop, size of paddock, and the date of the inspection. The agronomist can choose a level of priority and the growth stage of the crop, then adds both pests and recommendations. The next section to fill out includes water rate, droplet size, type of application, harvest withholding, grazing withholding and human withholding periods. Also any plant back restrictions, rain fast of application, and room for an inspection note for any other information that the grower or contactor needs. The Agronomist can also take a photo of the crop, pest or disease and link that to the recommendation.

Both the two Apps from Ezi App are for the iPhone and the iPad, and there is a "lite" version for you to try for free, and the paid version, both can be downloaded from the iTunes store. An iPad, with Wi-Fi and 3G capabilities can be as little as $700 from an Apple store or a Hi-Fi reseller, remember to shop around as prices can vary.

Another free application for an iPad is the DTN/The Progressive Farmer App. This application is based for American farmers to keep up to date with local news, prices and information. There is twelve blogs to follow, markets, ag policy, weather, production and machinery, to keep you up to date with world news. This app also includes live pricing for corn, soybeans, wheat, cattle, hogs, ethanol, oil, and many more. Also giving you a graph of pricing movements for each product from 1 day, 1 week, 1 month, 6 months, 1 year and 5 years. The app also has lots of videos for you to watch, reporting on the latest issues for croppers and also reviews for agricultural markets.

Even if you do not have a smart phone or a tablet you can still check out realagriculture.com. Real Agriculture is a Canadian based agricultural website that has fantastic information for all farmers. They have created two schools, Wheat School and Canola School, where they interview agronomists, chemical resellers and machinery experts about the latest news and views, including weed and insect pressures, grain test weight, what is the perfect timing to harvest or swath canola, and minimizing harvest losses.

On our own farm, we have two iPhones, and an iPad. On an agricultural trip interstate, the iPad was fantastic to look up information, keep up with emails, and also check the weather. Also the iPad was great to show other farmers we met, photos of our crops and changes to machinery, a picture is worth a thousand words. Instead of calling our agronomist with disease questions, we take a photo of the plant and send the picture to him either via email or MMS, this allows or agronomist to make a full recommendation without travelling to the paddock. During harvest we plan to have the iPad in the harvester so the operator can watch the grain enter the ezi grain system and transfer grain without leaving the cab. Gone now are the days of carrying around a little note pad in the top pocket, by taking my iPad to meetings, field days and when looking at the crops, I have all my notes with me, and I can start exactly where I left off last time.

Although agricultural and farming apps are limited now, this is just the beginning. Just as my Grandfather farmed with horses, we are witnessing the start of I.T. farming.

FARMING IN THE UK and GERMANY

Crop Report from Kym I'Anson

A farmer's perspective on learning from UK and German farmers and researchers, to improve our crop production techniques and land management.

Overview

In the UK rainfall varies from 18 to 24inches in the south and increases as you move further north, and falls over most of the year. They are experiencing drier springs, the last three have recorded 40% less rain than the average. This last spring is the driest in 100 years. The crops are showing our drought stress.

They will still harvest over 6tn/ha down from their 8 to 10tn/ha average. How do they manage this, through a cool grain filling period and high inputs. In the UK a maximum of 220 kg of N applied to their wheat is allowed. It is applied regardless of the season, rain or no rain. Some apply manure to their fields to boost this figure. Too much N causes lodging and yield loss even with PGRs, too little N reduces yield potential and protein. This is where the use of N sensing is playing a role in redistributing the N in the field. Generally the levels of pre-sowing soil nitrogen are quite low, about 30 kg N/ha, due to the high crop nitrogen removal. Fungicides are used on all crops, three applications on wheat. The fungicides have two roles, one is to protect the leaf from disease, the second is to keep the crop green for a longer period at grain fill. Plant growth regulators are also part of this system to enable the plant to cope with the high N application and boost yield through reduced lodging and improved crop structure.

Their aim is to grow grain, and to do this they want to manipulate the canopy. Growers in the UK are using a combination of inputs such as nitrogen, PGR's and fungicides at strategic timings to build on yield potential and achieve some big yield advantages. To potentially increase grain yields we would also need to utilise these products within a crop system.

Spray Application

Air Induction (AI) Nozzles

Silsoe – spray applications unit has worked with the HGCA to produce independent nozzle data and to demonstrate differences in air induction nozzles. These measurements confirmed that different brands of AI nozzles with equivalent specifications in terms of flow rate, spray angle and a given pressure give large differences in the droplet size distribution. A nozzle making droplets 15% bigger in diameter produces 30% fewer droplets in total.

Syngenta UK in their trials have detected yield differences from spraying fungicides with different jets. Syngenta developed with nozzle manufacturer Hypro a jet specifically designed for applying fungicides, the Syngenta Amistar AI nozzle also known as Hypro Guardian Air. This nozzle is a variable pressure (VP) nozzle, angled slightly to the rear and produces small air filled droplets. Variable pressure is for varying speed – maintaining constant spray pattern at different pressures related to speed, so it maintains its 110◦ angle at a range of pressures.

A new jet, Guardian twin AI, allows 2 jets to be formed in a nozzle, while still maintaining the same water rate as a normal nozzle, of the same size ie 02, 03.

In the future Hypro are looking at a nozzle that can better improve spray performance and drift at a varying boom height as 500mm is not always achieved in paddocks.

Regulation

UK - Pesticide Safety Directorate (PSD). (Germany and France have a similar body).

The Department of Soil, Air and Water Quality, monitors the quality of all three.

For example with water they have certain limits of contaminants. They are happy to work with farmers as they can filter out most chemicals to a certain degree but if the levels get

too high the farmers must manage their use or they will eventually be banned. Present high risk in waterways – metaldehyde, propyazamide.

N management

Crop canopy sensors are real time sensors where you can measure multiple wavelengths of light reflectance. This process gives you a real time indication of N uptake in the plant well before it is visually distinguishable by the naked eye. By N sensing, the crop canopy can account for deep N and mineralisation through the season. Good biomass equals better N uptake. Low Biomass equals lower N uptake.

The key question is
"How do we use sensors to determine what is the ADEQUATE amount of N to apply for a given yield?"
The conclusion I have so far is that you cannot. The optimal N decision in Australia is complex as we are yield limited by a number of factors. We need to assess spring rainfall and temperatures, stored soil moisture.
In the UK and Germany they apply the allowable level of N regardless of weather conditions. So by using sensors they set their target rate and then let the sensor redistribute N within a paddock around this rate.

PGR's Plant Growth Regulants

Generally two applications of PGR are made to wheat, barley and canola. Sometimes a third application is made in good springs and crops with high yield potential. The benefits of the PGR's are numerous and some include reduced stem height, increase stem strength which increases stem cell dry matter, enhanced rooting, reduced stem and root lodging, uniform crop height, reduced shading, improved grain size and reduced head loss in barley.

Chlormequat and Moddus (trinexapac-ethyl) or Canopy (prohexadione-calcium in combination with mepiquat chloride), are commonly used in wheat and barley, while tebuconazole at high rates is regularly used in canola. It reduces the height of the canola crop and increases branching and podding. Terpal (mepiquat chloride) is often used as a late spray in barley to strengthen the area of the stem holding the head, reducing head loss.

Soil Compaction

This is a serious issue for UK farmers. All farmers understand that as the soil compacts its ability to store water and air is reduced and the subsequent problems it causes. So a big emphasis is placed on the type of tyre, size, load ratings and pressure at each load.
Compaction is a big issue in the winter period so they have tyres as wide as possible. For late in crop spraying it is getting drier so they go for very narrow tyres to minimise crop damage and increase height on sprayers. Manufacturers realise the importance of minimising compaction and develop new tyre technology to aid in this. Firestone demonstrate to farmers by using contact patches linked to a laptop to visualise the tyres footprint on the ground. This shows them the importance of the correct inflation. At a given load, tyre size and rating when the tyre pressure is reduced from 22psi to 8 psi the contact on the ground measured by the patch is increased by over 40%.

BROADACRE DIURON USES MAY BE WITHDRAWN

John Both

In 2005 the Australian Pesticides and Veterinary Medicines Authority (APVMA) – our national registrations authority – released a review of the herbicide diuron. This review was initiated due to diuron being found in the marine environment as a result of water run-off from sprayed areas, most notably in to the Barrier Reef.

At the time the APVMA concluded that, *"the use of registered diuron products in broadacre crops (wheat, barley, triticale, oats, lucerne, lupins and grass seed crops) would not have an unintended effect that is harmful to animals, plants or things or to the environment. Therefore, it is recommended that these uses be retained"*.

In this same review they recommended removal of registrations for treating irrigation channels and drainage ditches and use in a number of crops including sugar cane, cotton, various tree crops, pineapples and grapevines.

They also advocated aerial application in broadacre areas be subject to buffer zones.

No decision to implement the changes was made at the time due to information presented in response to that review. Since 2005, public comment was sought and two further studies were conducted on the environment and public health. These studies have been completed and the APVMA has made these available on their website.

The 2011 human health assessment report raised no concerns in relation to the continued approval of diuron active constituents and diuron product registrations. However, the situation with the environmental assessment has seen a rethink on which registrations should be removed in the future.

The 2011 environmental review was completed for the APVMA by the Department of Sustainability, Environment, Water, Population and Communities (DSEWPaC). They have concluded that diuron should not be used at a rate exceeding 160 grams of active ingredient per hectare. This is equivalent to 320 mL/ha of flowable diuron (500 g/L) or 177 g/ha of a granular diuron (900 g/kg). Effectively the only agricultural or horticultural use that would remain would be as a 'spike' in a defoliating spray for cotton. Ironically, two uses that would still be allowed are as a component in marine antifouling paint and for algal control in aquariums and ponds.

The reason DSEWPaC gives for the greater restrictions compared to the 2005 review is the availability of data and studies that have come to light since 2005. They conclude:

- Most current use rates present unacceptable risks to aquatic ecosystems
- Diuron remains persistent in soil, sediment and water bodies

- Diuron is highly toxic to algae and aquatic plants
- There is insufficient data to determine whether diuron in sediment poses a risk to seagrasses
- Use as an antifoulant or for algal control does not present risks to aquatic organisms.

In recent years other countries have conducted reviews of diuron. It has been reviewed in the United States (draft 2003), Canada (2007), United Kingdom (UK) (2007) and Europe (2007 & 2008). Restrictions on the use of diuron in these jurisdictions have been implemented (reductions in frequency and rate of application and restrictions on crop uses) with a view to protecting aquatic environments.

Nevertheless, the APVMA acknowledges that restricting diuron use to less than 160 grams active ingredient per hectare is the most extensive restriction proposed worldwide to date.

Diuron manufacturers have been asked to 'show cause' as to why the APVMA should not suspend the registration of diuron products on the basis of environmental concerns. The APVMA proposes to continue to allow the use of diuron as a cotton defoliant subject to new label instructions involving the introduction of buffer zones. The extended deadline for manufacturers to make submissions is **September 30th2011**.

Until the APVMA makes a final decision diuron can be sold to and used by growers under current label uses.

The various 2005 and 2011 reviews on diuron are available on the Crop Science Society website.

Based on the data provided it is recommended that the APVMA be satisfied that the continued use of or any other dealing with the active constituent diuron in accordance with instructions for its use or for such a dealing that the APVMA has approved, would not be likely to have an effect that is harmful to human beings. It is recommended that the active constituent approvals be affirmed.
Based on the data provided, it was found that environmental exposure from uses of diuron at current label rates in irrigation channels and drainage ditches is likely to have an unacceptable environmental impact. Because of unacceptable environmental risk it is proposed that the APVMA cannot be satisfied that use of diuron in irrigation channels and drainage ditches would not have an unintended effect that is harmful to animals, plants or things or to the environment. It is recommended that this use be deleted from labels.

Based on the data provided, it was found that environmental exposure from uses of diuron at current label rates on sugarcane, cotton, citrus, horticultural crops (apples, pears, bananas, pawpaw, coffee, grapes and pineapples) and general purpose non crop uses is likely to have an unacceptable

environmental impact. In order to reduce the environmental risk, risk mitigation strategies need to be found in order to substantially reduce the environmental load. If such strategies cannot be found the uses may have to be deleted from labels. Because of unacceptable environmental risk it is proposed that the APVMA cannot be satisfied these uses of diuron products would not have an unintended effect that is harmful to animals, plants or things or to the environment. It is recommended that product labels be varied.

Based on the data provided, there is an unacceptable environmental risk due to spraydrift (from fine sprays and current label high rates) from diuron use when applied by air and ground spray to winter cereals and cotton. Because of unacceptable environmental risk it is proposed that the APVMA cannot be satisfied that the use of diuron products applied by air to winter cereals and cotton would not have an unintended effect that is harmful to animals, plants or things or to the environment. It is recommended that product labels be varied to include buffer zones.

Based on the data provided, it was found that the use of registered diuron products for algal control in aquariums and ornamental ponds and antifouling paints would not have an unintended effect that is harmful to animals, plants or things or to the environment. However, labels for these products are considered not to contain adequate instructions. Therefore, it is recommended that labels be varied to meet the required standards.

Based on the data provided, it was found that the use of registered diuron products in broadacre crops (wheat, barley, triticale, oats, lucerne, lupins and grass seed crops) would not have an unintended effect that is harmful to animals, plants or things or to the environment. Therefore, it is recommended that these uses be retained.

The APVMA is currently satisfied that the use of registered diuron products in asparagus, summer fallow, peas, vineyards (vines over 3 years), duboisia and ornamentals (daffodils, gladioli and tulips) would not have an unintended effect that is harmful to animals, plants or things or to the environment. Therefore, it is recommended that uses be retained.

Cereal Varietal Herbicide Tolerance 2010

Courtney Ramsey, Research Officer (Herbicide Tolerance), SARDI, Waite Precinct
(08) 8303 9479, courtney.ramsey@sa.gov.au
Rob Wheeler, Principal Scientist, SARDI, Waite Precinct (08) 83039480, rob.wheeler@sa.gov.au

Key Outcomes:

- Herbicide effects on cereal cultivars appeared to be largely recoverable in the 2010 season.
- Hyperno durum suffered 5 and 9% yield losses under Cadence® and Brominil M® treatments respectively.
- Diuron/MCPA mix resulted in a 6% yield penalty in durum wheat cultivar Saintly.
- Cadence® did not induce a yield penalty in any tested barley variety in 2010, although a narrow safety margin warning applies for Baudin, Lockyer and WABAR 2315.
- No herbicides were damaging to oats at the recommended rate of application in 2010, however narrow safety margins were observed in response to Glean® (both varieties) and Tigrex® (Tungoo only), and 2/4-D Amine (Mulgara only).

Trial Objectives: To characterise cultivar sensitivities of various cereal crop species to commonly used herbicides and tank mixes over multiple growing seasons, highlighting potential yield losses resulting from in crop herbicide use.
Trial Duration: 1993-Ongoing.
Location: Kybunga, Mid North.
Soil Type: Clay Loam
Monthly Rainfall:
Long Term Average Monthly Rainfall (2010 GSR from portable weather station at trial location).
Water Use Efficiency: 10.6-15.6 kg/mm
Plot Size: 5m x 1.75m (6 rows @ 22cm spacing) **Reps:** Three

Method

Advanced Screening Trials

- ❑ Plots sown in strip plot design on 24th June 2010 using knife points and press wheels.
- ❑ DAP applied at seeding @80kg/ha.
- ❑ A range of commonly used herbicides and tank mixes applied at label recommended rates and higher.
- ❑ Trials conducted under relatively weed free conditions
- ❑ Plots assessed for visual damage, NDVI [Normalised Difference Vegetative Index] (measuring chlorosis and biomass) and yields analysed using spatial analysis techniques.
- ❑ Yield of treatment plots as % of untreated controls used as indicator of herbicide tolerance.

Trial Results

- ❑ Soil conditions were favourable for crop growth throughout the season, with plenty of moisture available at all herbicide applications, flowering and grain fill.
- ❑ High degree of crop safety across most herbicides observed in 2010. Possibly due to soil moisture availability alleviating compounding stresses, and improving recovery from initial damage. (Some treatments led to 50%-60% biomass/chlorosis reductions (NDVI) yet did not translate to yield losses.)
- ❑ Cultivar and herbicide entries for wheat and barley were established from 2009 Preliminary Screening Trial results. Thus narrow safety margin warnings apply to all herbicide/ cultivar combinations tested including those not displaying significant yield reductions. Please note, not all herbicide treatments were applied to all cultivars, those that were not represented in this trial were found not to elicit a yield penalty in 2009.

Please consult long-term tables (results have been gathered over multiple seasons) when making herbicide/cultivar decisions. Long term summaries for select cultivars can be found at the end of this report

Wheat

- ❑ Durum cultivar Hyperno has shown a narrow safety margin 2/2 years under Affinity®.

- ❑ **Hyperno** suffered 5% yield loss from **Brominil M®** and 9% from **Cadence®**. Visual symptoms under Cadence® were only mild but biomass reduction from Brominil M® was significant and coincided with a 20% NDVI reduction.
- ❑ Durum cultivar **Saintly** displayed a moderate- high level of visual stress, (biomass and minor chlorosis) with 22% reduction in NDVI under **Hussar®,** however, did not translate into yield reduction.
- ❑ **Saintly** also suffered a 6% yield penalty from **Diuron/MCPA**, but no visual stress symptoms were observed.

- **Boxer Gold®** led to 6% yield loss in Kunjin, however only very slight visual symptoms were identified. It is as yet, unclear how much physiological separation accounts for tolerance to Boxer Gold® in bread wheat although the lack of yield effects in the majority of other cultivars implies Kunjin is physiologically more sensitive to this chemistry.

Barley

- **Cadence®** was not damaging on any Baudin or Lockyer at the recommended rate of application in the 2010 season despite very slight visual stress symptoms (Figure 2).
- Both cultivars carry a narrow safety margin warning, Lockyer now 2/2 years (Table 3).

Oat

Cultivars Tungoo and new release Mulgara were assessed for herbicide tolerance. Due to the incidence of rain delays leading up to harvest, moderate to severe lodging occurred in both oat varieties.

- No herbicide treatments were significantly damaging to yield at the recommended rate in 2010.
- Narrow safety margin warnings apply to both **Mulgara** and **Tungoo** under treatment with **Glean®**, not previously recorded. Both varieties recorded 38% reduction in NDVI at the high rate of Glean® but NDVI impacts were also observed in Tungoo at the recommended rate, which did not translate to yield loss.
- Moderate chlorosis and biomass damage was observed when **Broadstrike®** was applied to Tungoo, supported by a 50% reduction in NDVI as compared to control.
- **Brominil M®** led to recoverable biomass and chlorosis effects in Mulgara.
- **Tigrex** has a narrow safety margin warning on Tungoo for the first time in 2010. Chlorotic spots appear on leaves shortly after spraying but are largely recoverable.
- Moderate visual bleaching of leaves (chlorotic spots) and plant prostration observed in both oat varieties in response to **Banvel M®** but did not translate to yield loss in either variety. Narrow Saftey warning applies to Tungoo
- Banvel M® and Tigrex® tend to be some of the most damaging treatments across oat varieties however these new cultivars particularly Tungoo appear to show an improved level of tolerance to these herbicides over other cultivars(Table 1).

Table 1: *Long-term summary of safety rating and potential % yield loss for oat varieties to various herbicides and tank mixes.*

Herbicide	Rates/ ha, x1	Timing	Mulgara	Brusher	Euro	Glider	Kangaroo	Mitika	Possum	Quoll	Tungoo	Winta-roo	Yallara
Years Tested			2008-2010	2003-2004	1996-1998	1998-2003	2004-2006	2003-2006	2001-2004 (P<0.05)	1995-2001	2008-2010	2001,2003,2007	2005-2007
2,4-D Amine 625	800ml	2 node	**N** (1/3)	**7** (1/2)	**7-8** (2/4)	**8** (1/3)	**4-17** (2/3)	**6** (1/4)	**6-8** (2/3)	**7** (1/5)	**N** (1/3)	**N** (1/3)	**6** (1/3)
Ally®	5g	3 leaf	**6**(1/3)	✓(2)	✓(4)	✓(3)	✓(3)	**7** (1/4)	✓(3)	**4-10** (2/5)	**9**(1/2)	**N** (1/3)	**N** (1/3)
Banvel M®	1.4L	3 - 5 leaf	**7**(1/3)	**5** (1/2)	**19-27** (2/4)	**9** (1/3)	**15-35** (2/3)	**8-40** (3/4)	**15-22** (3/3)	**8** (1/5)	**N** (1/3)	**35** (1/3)	**27-54** (3/3)
Broadstrike®	25 g	5- 6 leaf	✓(3)	**8** (1/2)	✓(4)	✓(3)	**10** (1/3)	**7** (1/4)	**N** (1/3)	✓(5)	✓(3)	✓(3)	**4** (1/3)
Bromoxynil MCPA	1.4L	3 leaf	**7**(1/3)	**N** (1/2)	✓(4)	✓(3)	**16** (1/3)	**6** (1/4)	**4-13** (2/3)	**9** (1/5)	**8** (1/3)	✓(3)	**N** (2/3)
Diuron/Dual®	830g + 1 L	PSPE	✓(3)	✓(2)	✓(3)	✓(3)	✓(3)	✓ (4)	✓(3)	✓(4)	-	✓2)	✓(2)
Diuron500SC /MCPA Amine	500ml+ 350mls	3 leaf	✓(3)	**6** (1/2)	✓(4)	✓(3)	**16-20** (2/3)	✓ (4)	**13** (1/3)	✓(5)	✓(3)	✓(3)	**N** (1/3)
Eclipse® + LVE MCPA	7g + 700 ml	3 - 6 leaf	✓(3)	✓(2)	✓(4)	✓(3)	**N** (1/3)	**3** (1/4)	✓(3)	**8-9** (2/5)	**N** (1/3)	**7** (1/3)	**N** (1/3)
Glean®	20g	3 leaf	**12**(1/3)	✓(2)	✓(4)	✓(3)	✓(3)	✓ (4)	✓(3)	✓(5)	**N** (1/3)	✓(3)	**7** (1/3)
Terbutryn	850 ml	3 leaf	**N** (1/3)	**8** (1/2)	**6** (1/4)	✓(3)	**6-19** (2/3)	**7** (1/4)	**12** (1/3)	**10** (1/5)	**N** (1/3)	✓(3)	**7** (1/3)
Tigrex®	1 L	5-6 leaf	**N** (1/3)	**13** (1/3)	**10-11** (2/4)	**N** (1/3)	**5-17** (3/3)	**9-13** (3/4)	**18** (1/3)	**8-14** (2/5)	**N** (1/3)	**10** (1/3)	**8-11** (3/3)

x-y% (w/z) Significant yield reductions at recommended rate in w years out of z years tested.
x% (w/z) Significant yield reduction at recommended rate in 1 trial only in z years of testing
N (w/z) Narrow safety margin – yield loss at higher than recommended herbicide rate only w years of z years tested.
✓(z) no yield loss during z years of testing.

Table 2: *Long-term summary of safety rating and potential % yield loss for wheat varieties to various herbicides and tank mixes.*

Herbicide	Rate/ha	Timing	AGT Katana	Axe	Carinya	Catalina	Correll	Derrimut	EGA Gregory	Frame	Gladius	Guardian	Hyperno	Kalka	Peake	Saintly	Scout	Wyalkat-chem	Yitpi
Years Tested			2009-2010	2008-2009	2006-2007	2007-2009	2006-2009	2006-2007	2009-2010	1993-2009	2006-2009	2008-2009	2009-2010	2001-2004	2008-2009	2009-2010	2009-2010	2003-2005	1998-2001
2,4-D Amine 625	1.4L	2 node	✓ (1)	**6** (1/2)	**10** (1/2)	**N** (1/3)	**14** (1/4)	**N** (1/2)	✓ (1)	**6-18** (3/17)	**6-11** (2/4)	**9** (1/2)	✓ (1)	**6** (1/3)	**11** (1/2)	✓ (1)	✓ (1)	**9** (1/3)	**2-9** (3/4)
Achieve®	380g	3 leaf	✓ (1)	**N** (1/2)	✓ (2)	**N** (1/2)	**10** (1/4)	✓ (2)	✓ (1)	**12** (1/17)	**5** (1/4)	✓ (2)	✓ (1)	**N** (1/4)	✓ (2)	✓ (1)	✓ (1)	**N** (1/3)	✓ (4)
Affinity®	60g	3 leaf	✓ (1)	✓ (2)	✓ (2)	✓ (3)	✓ (4)	✓ (2)	**N** (1/2)	✓ (4)	✓ (4)	✓ (2)	**N** (1/2)	-	✓ (2)	✓ (1)	✓ (1)	-	-
Ally®	7g	3 leaf	✓ (1)	**7** (1/2)	**10** (1/2)	**N** (1/3)	**8-15** (3/4)	**N** (1/2)	**N** (1/2)	**4-21** (4/17)	**9-18** (2/4)	✓ (2)	✓ (1)	✓ (4)	**N** (1/2)	✓ (1)	✓ (1)	**4-8** (2/3)	**2-8** (2/4)
Axial®	250ml	3 leaf	**N** (1/2)	**5** (1/2)	**N** (1/2)	✓ (3)	✓ (4)	✓ (2)	✓ (1)	✓ (4)	✓ (4)	✓ (2)	✓ (1)	-	✓ (2)	✓ (1)	✓ (1)	-	-
Banvel M®	1.4L	5leaf	✓ (1)	**N** (2/2)	**N** (1/2)	**N** (1/3)	**6** (1/4)	**10** (1/2)	✓ (1)	**5-21** (2/17)	**N** (2/4)	✓ (2)	✓ (1)	**N** (2/4)	✓ (2)	✓ (1)	✓ (1)	✓ (3)	✓ (4)
Broadstrike®	25g	5 leaf	-	-	-	-	-	-	-	**7** (1/15)	-	-	-	✓ (4)	-	-	-	**4** (1/3)	**6-10** (2/4)
Bromoxynil MCPA	1.4L	3 leaf	✓ (1)	✓ (2)	✓ (2)	✓ (3)	✓ (4)	**N** (1/2)	✓ (1)	**2-7** (5/16)	✓ (4)	✓ (2)	**5** (1/1)	**N** (1/4)	**5** (1/2)	✓ (1)	✓ (1)	✓ (3)	**N** (3/4)
Cadence®	200g	5 leaf	✓ (1)	**10** (1/2)	**N** (2/2)	**6-10** (2/2)	**N** (1/4)	✓ (2)	**N** (1/2)	**8** (1/4)	**9** (1/4)	**N** (1/2)	**9** (1/1)	-	✓ (2)	✓ (1)	✓ (1)	-	-
Diuron/MCPA (500SC)	500ml/ 350ml	3 leaf	✓ (1)	-	✓ (2)	✓ (2)	✓ (4)	✓ (2)	✓ (1)	**4-6** (3/16)	✓ (3)	**N** (1/1)	✓ (1)	**6** (1/4)	✓ (2)	**6** (1/1)	✓ (1)	**5** (1/3)	✓ (4)
Glean®	20g	PSPE	✓ (1)	-	✓ (2)	-	✓ (2)	✓ (2)	✓ (1)	**6** (1/15)	✓ (2)	-	✓ (1)	**7-14** (2/4)		✓ (1)	**N** (1/2)	**N** (1/3)	**3-8** (2/4)
Hussar®	200g	3 leaf	✓ (1)	**10** (1/2)	✓ (2)	**9** (1/3)	**12** (1/4)	✓ (4)	✓ (1)	**N** (2/5)	**17-19** (2/4)	✓ (2)	✓ (1)	-	✓ (2)	**N** (1/2)	✓ (1)	**4** (1/1)	-
Logran®	35g	PSPE	-	✓ (2)	✓ (2)	✓ (3)	✓ (4)	**N** (1/2)	-	**2** (1/16)	**5** (1/4)	✓ (2)	-	✓ (4)	**6** (1/2)	-	-	**N** (1/3)	**6-8** (2/4)
Lontrel®	150ml	2 leaf	-	-	-	-	-	-	-	✓ (14)	-	-	-	✓ (4)	-	-	-	✓ (3)	✓ (4)
LVE MCPA	1.2L	5 leaf	-	✓ (1)	✓ (2)	✓ (2)	✓ (3)	✓ (2)	-	**4** (1/13)	**N** (1/3)	✓ (1)	-	✓ (5)	✓ (2)	-	-	✓ (3)	**N** (2/4)
Tigrex®	1L	5 leaf	✓ (1)	✓ (2)	✓ (2)	**8** (1/3)	**7** (1/4)	**N** (1/2)	✓ (1)	**N** (4/14)	**7** (1/4)	**N** (1/2)	✓ (1)	**5** (1/4)	✓ (2)	✓ (1)	✓ (1)	**7** (1/3)	**N** (3/4)

x-y% (w/z) Significant yield reductions at recommended rate in w years out of z years tested.
x% (w/z) Significant yield reduction at recommended rate in 1 trial only in z years of testing
N (w/z) Narrow safety margin – yield loss at higher than recommended herbicide rate only w years of z years tested.
✓(z) no yield loss during z years of testing.

Table 3: *Long-term summary of safety rating and potential % yield loss for barley varieties to various herbicides and tank mixes.*

Herbicide	Rate/ha	Timing	Baudin	Barque	Buloke	Capstan	Comma-nder	Flagship	Hind-marsh	Keel	Lockyer	Fleet	Finniss	Yarra
Years Tested			2009-2010	1995-2000	2006-2009	2002-2004	2005-2007	2004-2009	2007-2009	1998-2001	2009-2010	2004-2006	2008-2009	2004-2007
2,4-D Amine 625	1.4L	2 node	✓ (1)	**6** (1/6)	✓ (4)	✓ (3)	✓ (3)	**10** (1/6)	✓ (3)	✓ (4)	✓ (1)	✓ (3)	✓ (2)	**5** (1/3)
Achieve®	380g	4 leaf	✓ (1)	**N** (1/6)	**N** (1/4)	**N** (2/3)	✓ (3)	**5** (1/6)	✓ (3)	✓ (4)	✓ (1)	**N** (1/3)	**9** (1/2)	✓ (3)
Affinity®	60g	4 leaf	✓ (1)	-	**12** (1/4)	-	✓ (2)	**N** (1/4)	**N** (1/3)	-	✓ (1)	✓ (1)	✓ (2)	✓ (2)
Ally®	7g	4 leaf	✓ (1)	✓ (6)	**N** (1/4)	✓ (3)	✓ (3)	✓ (6)	**N** (2/3)	✓ (4)	✓ (1)	✓ (3)	✓ (2)	**N** (1/3)
Axial®	250ml	4 leaf	✓ (1)	-	✓ (4)	-	✓ (2)	**N** (1/4)	**11** (1/3)	-	✓ (1)	✓ (1)	**7** (1/2)	✓ (2)
Banvel M®	1.4L	6 leaf	-	**6-10** (5/6)	**N** (1/4)	**N** (3/3)	**N** (2/3)	**16** (1/6)	**8** (1/3)	**4** (1/4)	-	**5** (1/3)	✓ (2)	**N** (1/3)
Boxer Gold®	2.5L	IBS	✓ (1)	-	✓ (1)	-	-	**6** (1/1)	✓ (1)	-	✓ (1)	-	**N** (1/1)	-
Broadstrike®	25g	6 leaf	-	✓ (6)	✓ (4)	**8** (1/3)	✓ (3)	✓ (6)	**N** (1/3)	✓ (4)	-	✓ (3)	**10** (1/2)	**4** (1/3)
Bromoxynil MCPA	1.4L	4 leaf	✓ (1)	**7-8** (2/6)	**10** (1/4)	✓ (3)	✓ (3)	**12** (1/6)	**6** (1/3)	**3-8** (2/4)	✓ (1)	**N** (1/3)	✓ (2)	**N** (2/3)
Cadence®	200g	6 leaf	**N** (1/1)	-	**9-11** (2/4)	-	**12** (1/2)	**14** (1/4)	✓ (3)	-	**N** (2/2)	**N** (1/1)	**N** (1/2)	**N** (2/2)
Decision®	1.0L	4 leaf	✓ (1)	-	**12** (1/4)	-	✓ (3)	✓ (5)	**7** (1/3)	-	✓ (1)	**N** (1/2)	**N** (1/2)	✓ (3)
Diuron/MCPA Amine	500ml/ 350ml	4 leaf	✓ (1)	✓ (6)	**13** (1/4)	**N** (1/3)	✓ (3)	**N** (1/6)	**10** (1/3)	✓ (4)	✓ (1)	**7** (1/3)	**N** (1/2)	✓ (3)
Glean®	20g	4 leaf	✓ (1)	✓ (3)	✓ (2)	✓ (3)	✓ (3)	✓ (4)	✓ (1)	**N** (1/3)	✓ (1)	✓ (3)	-	✓ (3)
Hoegrass®	1L	4 leaf	-	**4** (1/6)	-	**N** (1/3)	-	**N** (1/1)	-	✓ (4)	-	**N** (1/1)	-	-
Logran®	35g	4 leaf	-	✓ (3)	✓ (2)	✓ (3)	✓ (1)	✓ (4)	✓ (2)	**6** (1/3)	-	✓ (2)	✓ (2)	✓ (1)
Lontrel®	150g	4 leaf	-	**3-11** (2/6)	-	✓ (3)	✓ (1)	**N** (1/2)	-	✓ (4)	-	✓ (2)	-	✓ (1)
LVE MCPA	1.2L	6 leaf	-	**3** (1/5)	✓ (3)	**5** (1/3)	✓ (3)	✓ (5)	✓ (2)	**4** (1/4)	-	✓ (3)	✓ (1)	✓ (3)
Terbutryn	850ml	4 leaf	-	**1-4** (2/6)	-	**11** (1/3)	✓ (1)	**N** (1/2)	-	✓ (4)	-	**N** (1/2)	-	**5** (1/1)
Tigrex®	1L	6 leaf	✓ (1)	**5-8** (3/5)	✓ (4)	**10** (1/3)	✓ (3)	**8** (1/6)	**8** (1/3)	**4-6** (3/4)	✓ (1)	**7-8** (2/3)	✓ (2)	✓ (3)

x-y% (w/z) Significant yield reductions at recommended rate in w years out of z years tested.
x% (w/z) Significant yield reduction at recommended rate in 1 trial only in z years of testing
N (w/z) Narrow safety margin – yield loss at higher than recommended herbicide rate only w years of z years tested.
✓(z) no yield loss during z years of testing

Paskeville Ag Bureau the (PAB) and the Crop Science Society (CSS) of South Australia

Invite you to…

The Paskeville Ag Bureau Crop Walk
&
The Crop Science Society August Meeting

Where: Paskeville Community Centre

When: Wednesday 24th August 2011

2:00PM PAB members and all visitors meet at the Paskeville Community Centre

2:30PM Paddock inspection of PBA Jumbo lentils with Nick Correll

3:30PM Paddock inspection of Scout wheat with Sam Bussenschutt

4:30PM Paddock inspection of three varieties of field peas with Trevor Harris

5:00PM CSS members and visitors meeting the PAB at the Paskeville Community Centre

…….Fellowship and chit chat…

5:30PM Welcome by CSS Vice President Anthony Pfitzner

5:35PM CSS members sign in and we have the introduction of the Guest Presenter

5:45PM Guest Presentation – **Kym I 'Anson – Duncan Correll Travel Scholarship, Recipient "FARMING IN THE UK and GERMANY"A farmers perspective on learning from UK and German farmers and researchers, to improve our crop production techniques and land management.**

6:15pm Dinner : $20/head chicken or beef and vegetables

Followed by 5 minutes of general Q & A from the day

7:00PM **Australian Wheat Breeders Assembly Live presentation from Perth "what is the Future of Wheat?" – Live video broadcast into Paskeville.** This webinar is an initiative and invitation from the GRDC.

8:00PM Close of all meetings and continued Fellowship for those who want to.

All **RSVPs** are **Very important for the correct catering for the dinner tables!**

Please RSVP by Friday the 19th August

To the President of the Paskeville Ag Bureau

Nick Correll – 0407 616 017 or by e-mail: nickandcynth@activ8.net.au

Thank You

For further information contact Sam Davies, CSS SA and secretary PAB 0400080844