

Figure 1. Yield response of wheat to seeding rates and row spacing (error bars represent the LSD)

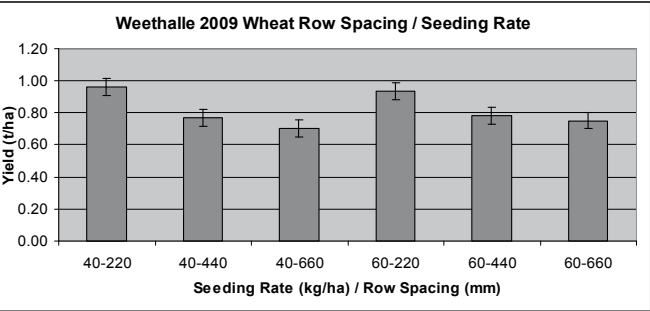


Table 2. Plant population of wheat on different row spacings and seeding rates

Seeding Rate (kg/ha) & Row Space (mm)	Plants/ m row	Plants/m2
40-220	21	94
40-440	37	81
40-660	41	68
60-220	27	118
60-440	44	97
60-660	51	85

**What does this mean?**  
Focusing on the yield results in Figure 1, on a bare fallow at Weethalle last year and under extremely dry conditions, the narrower row spacing of 220 mm yielded better than the wider spacings of 440 mm and 660 mm.

Row spacings of 440 mm and 660 mm produced similar yields. Keep in mind, the yields were less than 0.8t/ha for these row spaces and they suffered considerably from moisture stress.

The protein and screening percentage both increase on wider rows. This is maybe correlated to the decrease in yield on wider row spacing.

Yields were the same at sowing rates of 40 kg/ha or 60 kg/ha across all three row space widths.

Plant numbers, per square metre, decreased with wider row spacing, as well as decreased with seeding rate as displayed in Table 2.

These results are consistent with previous trials conducted in the region.

**Acknowledgements**  
Thanks to all the co-operators, hosts, district agronomists, seed and product suppliers and CWFS staff for assistance with our trials throughout the year.

# CWFS 2009 EARLY & MAIN WHEAT VARIETY TRIALS

**Brad Davis**  
Central West Farming Systems

- Key Messages**
- A good farming system will utilise two to three with varying maturities, to spread risk.
  - Sowing varieties inside their recommended window is essential and will maximise yield and reduce screenings.
  - Storing summer fallow moisture is the key to producing good yields in these short finishing seasons.
  - In the 2009 season, quick maturing varieties and earlier sowing dates produced the best yields across the region.

**Why was it done?**  
To determine the performance of various wheat varieties across the low rainfall regions of Central West NSW.

New varieties are constantly being released, promoting a variety of benefits. Some National Variety Trials (NVT's) are conducted in the Central West region but there was a call for more sites from local growers. This trial was conducted so local farmers could compare their current varieties to newly released lines and determine which of these may suit their farming system. The trial also allowed a number of unreleased varieties to be examined in these low rainfall environments.

**How was it done?**  
Seven replicated and randomised small plot trials were sown at five sites Euabalong, Rankins Springs, Tottenham, Weethalle and Wirrinya. At two of these sites, Rankins Springs and Tottenham, the trial was sown twice, once at an early sowing time, the other during the main season.  
Each trials contained between 18 and 20 lines of newly released, unreleased and current varieties, most with a grain quality equal to or better than AH. The varieties differed in maturity from mid season to very quick.  
Due to the lack of late season rain across the Central West, the trials at Wirrinya failed and were not harvested. Yields at the other four sites also suffered considerably.

Table 1. Agronomics of wheat varieties used in the trials.

Variety	Recommended Sowing Period	Grain Quality (Central NSW)
Axe	late	APW
Carinya	main	AH
Crusader	main-late	APH
EGA Bounty	main	AH
EGA Gregory	early-main	AH
Ellison	main	APH
Espada	main	APW*
Gladius	main	APW*
Hornet	main	APW*
Janz	main	APH
Lincoln	main	AH
Livingston	main	AH
LPB 0291		
LPB 0965	early-main	APW
LPB 2148	main-late	AH
LPB 2271	main-late	AH
LPB 2461	main	AH
Merinda	main	AH
Strzelecki	early-main	AH
Sunvale	main	APH
Sunvex	main	AH
Sunzell	main-late	AH
Sun521C		
Ventura	main-late	AH

\* Indicates a default quality classification and is under review.



Above and below: CWFS Rankins Springs spring field day at Michael Pfitzner's "Hill End"



# Hyola 502RR

ROUNDUP READY HYBRIDS

## Hybrid yields at an open pollinated RR price

Tony McCumstie  
GUNNDAH  
M 0428 717 738

Chris Fletcher  
DUBBO  
M 0447 148 617



# Euabalong Site

## Background

Hosts	Ian & John Kemp
Location	"Derrida"
Paddock history	Barley Stubble
Soil Type	Red Clay Loam
Soil fertility	Adequate P & N, Low in S and some trace elements
Sowing Date	11 <sup>th</sup> June 2009
Harvest Date	13 <sup>th</sup> November 2009
Plot Size	13m x 1.8m
Seeding rate	40 kg/ha
Fertiliser rate	MAP @ 66kg/ha
Herbicide	Site treated with 2L/ha Roundup 450 2 weeks prior to sowing, 1.5L/ha Roundup 450 and 1.5L/ha Triflur Xcel at sowing.
Design	Block design with 3 replications and fully randomised
Measurements	Establishment, vigour, yield, protein, screenings, test weight and moisture

## What Happened?

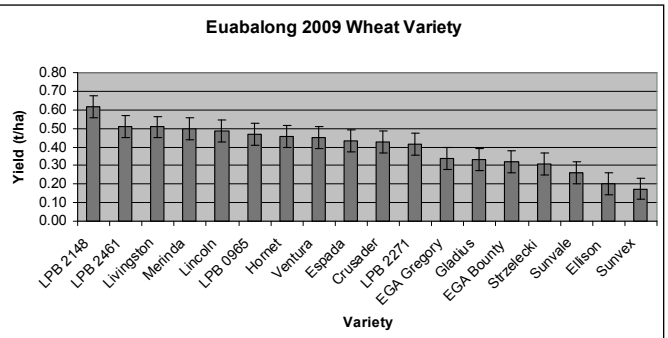
Trials were sown on the late break; establishment was good for all varieties with even plant counts. The vigour was greatest in early maturing varieties. During the season the trial was given a single spray with MCPA LVE and Axial to control weeds. At the Spring Field Day held on 18<sup>th</sup> September 2009 the Euabalong site trials were showing great health and vigour, however a lack of finishing rain severely penalised yield.

## Results

**Table 2. Yield and grain quality of wheat varieties at Euabalong**

Variety	Rank	Yield (t/ha)	Protein %	Screening %
LPB 2148	1	0.61	14.6	7.3
LPB 2461	2	0.51	14.7	12.4
Livingston	3	0.51	13.7	15.4
Merinda	4	0.50	13.8	16.7
Lincoln	5	0.49	14.6	7.2
LPB 0965	6	0.47	14.2	16.2
Hornet	7	0.46	14.8	20.2
Ventura	8	0.45	14.1	11.3
Espada	9	0.43	14.4	8.7
Crusader	10	0.43	14.1	8.2
LPB 2271	11	0.42	14.6	15.4
EGA Gregory	12	0.34	14.0	8.6
Gladius	13	0.33	14.1	9.3
EGA Bounty	14	0.32	14.1	5.5
Strzelecki	15	0.31	14.4	9.2
Sunvale	16	0.26	14.9	8.1
Ellison	17	0.20	15.9	9.0
Sunvex	18	0.17	14.8	5.4
<b>Total Average</b>		<b>0.39</b>		

**Figure 1. Euabalong 2009 wheat yields**



## What does this mean?

The trial used 18 wheat varieties, varying in maturities from mid to very quick. Due to the late break many varieties were sown outside of their optimum sowing window, and as a result suffered yield penalties.

The trial does display significant difference between some of the varieties. There was no significant difference in yield between the varieties ranging from LR 2461 – LR 2271. However the top 7 varieties yielded significantly higher than the bottom 7 varieties. This can be seen in Figure 1.

The varieties that produced the highest yield were the quick maturing varieties.

There were some significant differences between varieties for protein percentage. These percentages were quite high across the board due to the low yields and the short finish to the season.

Screenings were also high for most varieties, and very high for some. This is most likely due again to the short season and lack of finishing rain. Some varieties do have a tendency to screen higher than others, and these were consistent across trials, Hornet and Merinda being an example of this.



**Above: CWFS Euabalong spring field day at Ian & John Kemps "Derrida"**

# Weethalle Site

## Background

Hosts	Paul & Brenda McKinnon
Location	"Labertouche"
Paddock history	Long Fallow
Soil Type	Red Clay Loam
Soil fertility	Low in P, N, S and some trace elements
Sowing Date	12 <sup>th</sup> June 2009
Harvest Date	16 <sup>th</sup> November 2009
Plot Size	13m x 1.8m
Seeding rate	40 kg/ha
Fertiliser rate	MAP @ 66kg/ha
Herbicide	Site treated 2L/ha Roundup 450 and 1.5L/ha Triflur Xcel at sowing.
Design	Block design with 3 replications and fully randomised
Measurements	Establishment, vigour, yield, protein, screenings, test weight and moisture

## What Happened?

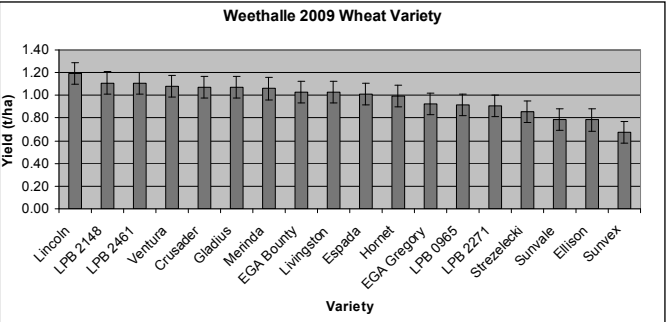
Trials were again sown on the late break, one day later than Euabalong. There was a similar response at this trial with good establishment for all varieties and even plant counts. Again the vigour was strongest in early maturing varieties. During the season the trial was given a single spray with MCPA LVE and Axial to control weeds. The Spring Field Day at Weethalle was held in the first week of November. The trials at this stage were showing signs of moisture stress. Despite the hard finish, the trial did provide data on these varieties, sown on a late break.

## Results

**Table 3. Yield and grain quality of wheat varieties at Weethalle**

Variety	Rank	Yield (t/ha)	Protein %	Screening %
Lincoln	1	1.19	12.28	3.82
LPB 2148	2	1.11	13.5	2.57
LPB 2461	3	1.11	13.48	4.68
Ventura	4	1.08	12.43	4.29
Crusader	5	1.07	12.64	5.51
Gladius	6	1.07	12.12	4.22
Merinda	7	1.06	12.03	6.01
EGA Bounty	8	1.03	12.61	2.56
Livingston	9	1.03	12.6	4.58
Espada	10	1.01	12.81	3.58
Hornet	11	1.00	12.97	11.09
EGA Gregory	12	0.93	12.2	5.35
LPB 0965	13	0.92	13.3	6.02
LPB 2271	14	0.91	12.94	5.53
Strzelecki	15	0.86	12.82	5.89
Sunvale	16	0.79	13.87	3.76
Ellison	17	0.78	13.99	4.25
Sunvex	18	0.67	13.52	3.21
<b>Total Average</b>		<b>0.98</b>		

**Figure 2. Weethalle 2009 wheat yields**



## What does this mean?

The late break again meant that the varieties recommended for the early and mid sowing periods, were sown outside of their optimal window. And as a result some of these varieties such as Ellison, Sunvale and Sunvex, suffered in this trial.

Figure 2 shows a falling trend between the varieties, however there is no statistical difference in yields between the top 11 varieties. Lincoln yielded significantly higher than the all varieties ranked below EGA Gregory.

The varieties that produced the highest yield were the quicker maturing varieties such as Lincoln, Ventura and Crusader.

Protein percentages did display significant differences between the varieties ranging from 13.9-14 for Ellison and Sunvale, down to 12-12.1 for Merinda and Gladius.

Screenings were standard for most varieties although Hornet presented significantly higher screenings than all other varieties.



**Above: CWFS Weethalle trial site Paul & Brenda McKinnon "Labertouche"**



Rankins Springs Site

Background

Host	Michael Pfitzner
Location	"Hill End"
Paddock history	Barley Stubble
Soil Type	Red Sandy Loam
Soil fertility	High in P & N, Low in S & some trace elements, Low pH
Sowing Dates	Early – 27th April 2009 Main – 27th May 2009
Harvest Date	17th November 2009
Plot Size	8m x 1.75m
Seeding rate	40 kg/ha
Fertiliser rate	MAP @ 40kg/ha
Design	Block design with 3 replications and fully randomised
Measurements	Establishment, vigour, yield, protein, screenings, test weight and moisture

What Happened?

This trial was established with the two sowing times along side one other. The same varieties were used in both sowing times and sown one month apart. They were sown after the two main breaks in the season, an early and a main, both on a good moisture profile. Establishment and plant numbers were satisfactory for all plots for both the early and main sown. In the early sown plots, Livingston, Lincoln, Merinda, Ventura and Axe all showed good early vigour. While a month later in the main season plots, Lincoln, Livingston, Ventura, Gladius and Hornet displayed the strongest early vigour. The Spring Field Day at Rankins Springs was held in the first week of October. At this stage the trials were moisture stressed, but still showed better health than CWFS trials on other sites. The Earlier sown trials displayed further development as expected. There was little evidence of frost damage in either the early or main sown plots.



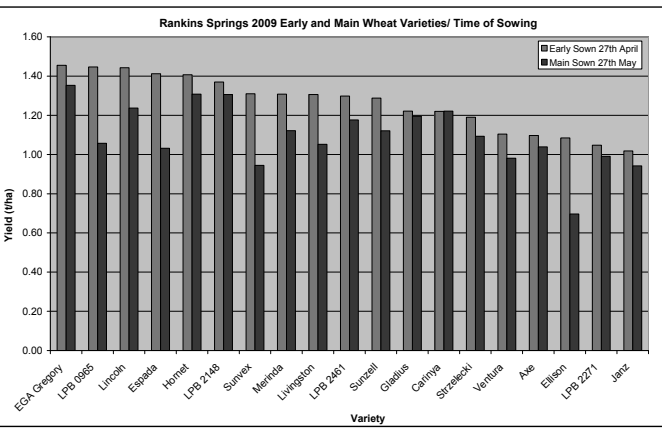
Sowing at Rankins Springs trial site

Results

Table 4. Yield and grain quality of wheat varieties at Rankins Springs for early and main sowing times

Variety	Yield (t/ha)				(t/ha)		Protein %		Screening %	
	Early	Rank	Main	Rank	Yield Loss	Rank	Early	Main	Early	Main
EGA Gregory	1.46	1	1.35	1	0.10	8.9	9.8	8.7	8.1	
LPB 0965	1.45	2	1.06	11	0.39	8.8	10.1	8.2	9.0	
Lincoln	1.44	3	1.24	4	0.21	9.1	9.8	12.6	10.0	
Espada	1.41	4	1.03	14	0.38	10.1	11.4	9.1	10.1	
Hornet	1.41	5	1.31	2	0.10	9.7	10.2	9.4	9.6	
LPB 2148	1.37	6	1.31	3	0.06	10.2	11.2	9.8	6.1	
Sunvex	1.31	7	0.95	17	0.37	10.1	11.9	7.0	6.8	
Merinda	1.31	8	1.12	8	0.19	9.4	10.6	11.1	8.5	
Livingston	1.31	9	1.05	12	0.25	10.4	11.1	11.9	9.4	
LPB 2461	1.30	10	1.18	7	0.12	9.6	10.8	9.9	8.5	
Sunzell	1.29	11	1.12	9	0.17	9.8	11.0	8.3	6.7	
Gladius	1.22	12	1.20	6	0.03	9.5	10.6	14.2	10.5	
Carinya	1.22	13	1.22	5	0.00	10.3	10.5	6.0	5.5	
Strzelecki	1.19	14	1.09	10	0.10	9.4	10.8	12.0	9.0	
Ventura	1.10	15	0.98	16	0.12	10.1	11.0	8.1	7.2	
Axe	1.10	16	1.04	13	0.06	9.6	10.5	11.3	10.0	
Ellison	1.09	17	0.70	19	0.39	10.1	11.9	13.6	13.4	
LPB 2271	1.05	18	0.99	15	0.06	10.3	11.4	13.7	8.6	
Janz	1.02	19	0.94	18	0.08	9.2	10.6	8.4	6.3	
Average	1.22		1.11		0.11	9.7	10.8	10.2	8.6	
LSD (p<0.05)	0.24		0.19			0.92	0.75	2.52	2.18	

Figure 3. Rankins Springs 2009 early & main wheat yields



What does this mean?

By having the two sowing periods, all varieties were sown within their optimal window in at least one of the trials. The effects of this can be seen in the main season varieties in Figure 3 where yield was reduced when sown late. These varieties included Ellison, Espada, Sunvex, Livingston and Lincoln.

The quicker maturing varieties such as Axe and Ventura suffered little yield loss when sown in the later period. Despite some of these quicker maturing varieties performing better when sown earlier, it is not recommended to sow them this early. The time of flowering for these varieties means that they are at a higher risk of frost damage when sown earlier.

Gregory performed well across both sowing periods in this environment and suffered little yield loss. The reason for this is that compared to many other varieties; Gregory has a more flexible sowing

window. Other varieties that also had a small yield loss included Carinya, Gladius and Hornet.

In the early sown period there was no significant difference in yields between the top 13 varieties, these rankings can be seen in Table 4. While in the main sowing period, there was no significant difference in yields between the top 7 varieties.

Protein percentages were low in this trial, and as expected increased in protein percentage as yield decreased between the two sowing periods.

Screenings were high for most varieties in this trial. The earlier sown trial produced higher screening percentages than the majority of the main sown varieties.



Above: Michael Pfitzner, Below: Joanne Holloway presenting at the CWFS Rankins spring field day



Tottenham Site

Background

Host	David Fishpool
Location	"Curran Park"
Paddock history	Fallow
Soil Type	Red Clay Loam
Soil fertility	High in P & N, Adequate in S & trace elements
Sowing Dates	Early – 7th May 2009 Main – 29th June 2009
Harvest Date	4th November 2009
Plot Size	13m x 1.8m
Seeding rate	40 kg/ha
Fertiliser rate	MAP @ 66kg/ha
Herbicide	Site treated 2L/ha Roundup 450 at sowing, Axial and MCPA Lve in crop
Design	Block design with 3 replications and fully randomised
Measurements	Establishment, vigour, yield, protein, screenings, test weight and moisture

What Happened?

This same trial design as Rankins Springs was used with a few variations to variety selection. The trial again comprised of two sowing dates, occurring three weeks apart to demonstrate an early and a main season. The trials were set up along side one another using the same varieties in each. Both sowing times were after rainfall events and on a moderate soil moisture profile.

Establishment and plant numbers were satisfactory for all plots, in both the early and main sown. Plant numbers were marginally lower in the earlier sown plots.

In the early sown plots, Carinya, Gladius and Lincoln all showed good early vigour. In the main season plots Axe, Lincoln and Livingston displayed the strongest early vigour.

At Tottenham the crops ran out of moisture early, and by the spring field day in the last week of September, both the early and main sown plots were severely moisture stressed.

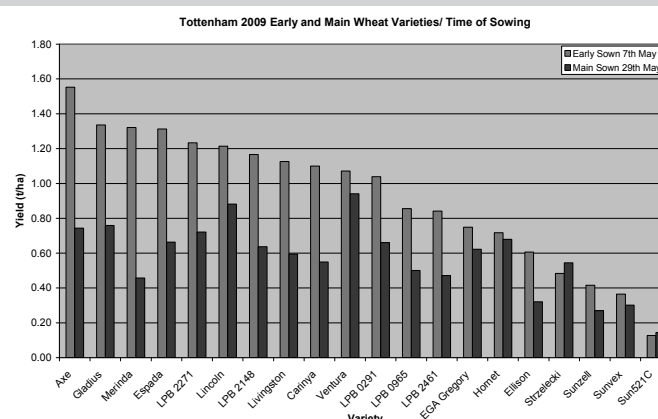


## Results

**Table 5. Yield and grain quality of wheat varieties at Tottenham for early and main sowing times**

Variety	Yield (t/ha)				(t/ha)		Protein %		Screening %	
	Early	Rank	Main	Rank	Yield Loss	Early	Main	Early	Main	
Axe	1.55	1	0.74	4	0.81	14.4	14.6	5.4	5.2	
Gladius	1.34	2	0.76	3	0.58	13.3	14.6	8.6	5.9	
Merinda	1.32	3	0.46	16	0.86	16.0	16.2	5.7	9.0	
Espada	1.31	4	0.66	7	0.65	15.1	15.6	5.4	5.1	
LPB 2271	1.23	5	0.72	5	0.51	14.6	14.4	6.5	8.2	
Lincoln	1.21	6	0.88	2	0.33	13.8	14.7	5.4	5.9	
LPB 2148	1.17	7	0.64	9	0.53	13.9	14.6	3.5	5.5	
Livingston	1.13	8	0.59	11	0.53	15.0	14.8	6.3	5.0	
Carinya	1.10	9	0.55	12	0.55	14.2	14.4	6.7	6.7	
Ventura	1.07	10	0.94	1	0.13	13.9	13.4	6.4	6.9	
LPB 0291	1.04	11	0.66	8	0.38	14.4	14.6	6.1	7.0	
LPB 0965	0.85	12	0.50	14	0.35	14.2	13.3	7.4	9.9	
LPB 2461	0.84	13	0.47	15	0.37	15.1	13.5	11.4	7.0	
EGA Gregory	0.75	14	0.62	10	0.13	14.0	13.5	5.6	5.7	
Hornet	0.72	15	0.68	6	0.04	14.4	14.7	5.6	6.5	
Ellison	0.61	16	0.32	17	0.29	15.1	13.7	10.0	9.9	
Strzelecki	0.48	17	0.54	13	-0.06	15.4	14.3	4.3	5.6	
Sunzell	0.42	18	0.27	19	0.15	15.7	15.0	6.3	7.9	
Sunvex	0.37	19	0.30	18	0.06	14.8	14.6	5.1	7.6	
Sun521C	0.13	20	0.14	20	-0.02	16.3	14.4	7.1	8.0	
Average	0.93		0.57		0.36	14.7	14.4	6.4	6.9	
LSD (p<0.05)	0.31		0.30			1.09	0.84	2.25	2.93	

**Figure 4. Tottenham 2009 early & main wheat yields by time of sowing**



### What does this mean?

Due to the lack of finishing rain, almost all the varieties yielded better when sown earlier. It is still not recommended practice to sow quick maturing varieties early, as it increases frost risk during flowering. The 2009 season had very few frost days at this site and so the quick varieties like Axe were not affected when it was sown early.

Some varieties suffered little yield loss when sown three weeks later. These include Ventura, Hornet, Gregory and Strzelecki.

The varieties suffering the biggest yield penalties across both sowing periods were the slower maturing varieties such as Strzelecki, Sunzell and Sunvex.

Although the trend in Figure 4 shows a distinct difference between yields in the early sown plots, statistically the top 5 varieties had no difference

in yield. However these top 5 varieties did yield significantly higher than the bottom nine varieties.

The yield figures of the main sown varieties displayed little variation with the top ten varieties producing no significant difference. Ventura and Lincoln did yield significantly higher than the bottom nine varieties.

The protein percentages were high due to low yields caused by the short finish to the season. This percentage increased from early to main sown for most varieties, again because of the drop in yield

Screenings were standard for most varieties. There was no dominant season to provide the best screenings. Some varieties increased in percentage when sown earlier while others increased when sown later.



**Above: CWFS Tottenham spring field day lunch break  
Below: Don McCaffery presenting at the field day**

### Acknowledgements

Thanks to all the co-operators, hosts, district agronomists, seed and product suppliers and CWFS staff for assistance with our trials throughout the year.



# The only imidacloprid registered in both cereals AND legumes.\*

Gaucha® 350 Flowable Seed Treatment Insecticide for controlling aphids in cereals and field legumes.

Unlike other imidacloprids including Gaucha 600, Gaucha 350 Flowable is designed specifically for on-farm and seed grader use.

### Gaucha 350 Flowable:

- Contains 60% more polymers and surfactant than Gaucha 600.
- Maximises the spread of the product to each and every seed.
- Easier for farmers and mobile graders to accurately apply it to seed.
- More active stays on seed with far less dust to deal with.



**Gaucha® 350**



**Now registered in cereals!**



[www.bayercropscience.com.au](http://www.bayercropscience.com.au)

Bayer CropScience Pty Ltd ABN 87 000 226 022. 391-393 Tooronga Road, Hawthorn East, Vic 3123.  
Technical enquiries 1800 804 479 Ph 03 9248 6888 Fax 03 9248 6800  
Gaucha®, Stress Shield Inside® and logo are registered trademark of Bayer. \*Other than lupins.

**Bayer CropScience**

RRA/BAY9838