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Wheat variety guide 2009 Western Australia

By Ben Curtis, Steve Penny, Christine Zaicou-Kunesch, Harmohinder Dhammu, Sarah Ellis, Dorthe Jorgensen, Shahajahan Miyan, Brenda Shackley and Darshan Sharma
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Introduction

This guide summarises performance characteristics of commercially available wheats which have undergone testing in the National Variety Testing Project (NVT), breeding organisations crop variety testing and Department of Agriculture and Food (DAFWA) variety specific agronomy projects. This information includes variety summaries, agronomic, disease and herbicide tolerance characteristics and medium to long-term yield performance. A review of regional performance in 2008 is followed by a comprehensive summary of 2008 variety time of sowing experiments and observed flowering dates.

By combining agronomy research outcomes with other related wheat research this document provides current information to assist with variety choice and management for 2009.

For more information on wheat varieties please visit <http://www.nvtonline.com.au>

Ratings

There is a new system which nationally standardises variety tolerances to diseases. Variety disease ratings presented in this bulletin fall under this new system rather than the old numeric method. This means that some varieties disease ratings may have changed slightly from previous years. Scales in this document range from Very susceptible (1), Susceptible–very susceptible (2), Susceptible (3), Moderately susceptible–susceptible (4), Moderately susceptible (5), Moderately resistant–moderately susceptible (6), Moderately resistant (7), Resistant–moderately resistant (8) to Resistant (9).

Agzone performance

Agzones have been developed through statistical performance to group together environmental regions that give similar crop performance. Agzones have been labelled 1 to 6 and are outlined in Figure 1.

Variety descriptions

Varieties are listed in alphabetic order using the following abbreviations:

Ⓟ: denotes that the variety is protected by Plant Breeders Rights. Not all varieties protected by PBR have a restriction on grower to grower trade, these are denoted as free to trade and can be traded between farmers.

AH: Australian Hard; APW: Australian Premium White; ASW: Australian Standard White; ASWN: Australian Standard White Noodle; ASFT: Australian Soft.

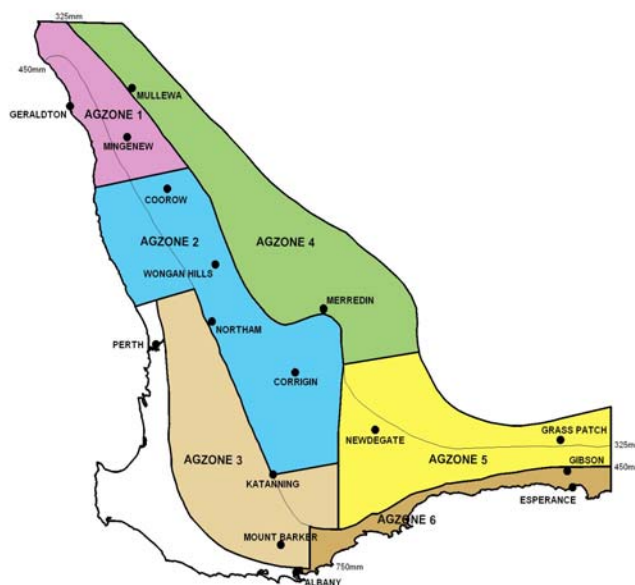


Figure 1 Agzones of Western Australia.

AGT SCYTHER (AGT 2004)**Class:** ASW**Maturity:** Mid**Commercialised:** AGT Seeds**Other:** Tolerant to black point, Fully bearded. Similar screenings to Yitpi

Disease	SN	ST	YS	SR	YR	LR	PM
Rating	MS	S-VS	S	R-MR	MS	MR*	R-MR

ANNUELLO (VDPI 2001)**Class:** APW**Maturity:** Mid-Long**Commercialised:** Plant Tech**Other:** Low screenings and better for black point than Janz. Moderate coleoptile

Disease	SN	ST	YS	SR	YR	LR	PM
Rating	MS	MR-MS	MS	R-MR	MR-MS	R*	R-MR

ARRINO (DAFWA 1997)**Class:** ASWN**Maturity:** Short-Mid**Commercialised:** Free to trade**Other:** Preferred for low rainfall areas. Premium payment for this variety may apply. Contact grain marketer for more details.

Disease	SN	ST	YS	SR	YR	LR	PM
Rating	MS-S	MS	S	MS	S	S-VS	R-MR

AXE (AGT 2007)**Class:** APW**Maturity:** Short**Commercialised:** AGT Seeds**Other:** A very early maturing variety which has performed well in the Eastern States under dry finishes. A moderately short variety with a coleoptile similar to Wyalkatchem

Disease	SN	ST	YS	SR	YR	LR	PM
Rating	Sp	Sp	VSp	MSp	MR	R-MRp	-

Disease ratings

VS = Very susceptible, **S-VS** = Susceptible-very susceptible, **S** = Susceptible, **MS-S** = Moderately susceptible-susceptible, **MS** = Moderately susceptible, **MR-MS** = Moderately resistant-moderately susceptible, **MR** = Moderately resistant, **R-MR** = Resistant-moderately resistant, **R** = Resistant

No score (-) = no rating is currently available.

p = Provisional assessment.

/ = Scores separated by a '/' indicate the response to the 'currently predominant' and 'alternate' strains of stem rust existing in Western Australia.

* = Some races in eastern states can attack these varieties.

= Disease ratings for these varieties have not been assessed by DAFWA. Please refer to Table 1 for individual Factsheets.

BINNU (DAFWA 2006)**Class:** ASWN**Maturity:** Short-Mid**Commercialised:** Crop Care Seed Technologies**Other:** Semi dwarf with strong straw. Medium coleoptile. More susceptible to black point than Arrino. Premium payment for this variety may apply. Contact grain marketer for more details.

Disease	SN	ST	YS	SR	YR	LR	PM
Rating	S	S	S-VS	S/R-MR	R-MR	MR-MS	MR

BOLAC (AGT 2006)**Class:** APW**Maturity:** Mid-Long**Commercialised:** ABB Grain**Other:** As susceptible to sprouting as Janz and said to have good straw strength.

Disease	SN	ST	YS	SR	YR	LR	PM
Rating	MS	S-VS	S-VS	-	R-MR	-	R-MRp

BULLARING (DAFWA 2005)**Class:** ASFT**Maturity:** Mid**Commercialised:** The Seed Group**Other:** Low screenings, semi dwarf and club head. Very poor tolerance to sprouting.

Disease	SN	ST	YS	SR	YR	LR	PM
Rating	MS-S	MR	S-VS	R-MR	MR-MS	R*	S

BUMPER (InterGrain 2008)**Class:** ASW**Maturity:** Mid**Commercialised:** Crop Care Seed Technologies**Other:** Black point moderately good.

Disease	SN	ST	YS	SR	YR	LR	PM
Rating	MS-S	MS	MS	MR-MS	MS	MR	-

CALINGIRI (DAFWA 1997)**Class:** ASWN**Maturity:** Long**Commercialised:** Free to trade**Other:** Intermediate to black point and of medium height.

Disease	SN	ST	YS	SR	YR	LR	PM
Rating	MS-S	S	MS	S	S	MR*	MS-S

CARINYA (AGT 2005)**Class:** APW**Maturity:** Mid**Commercialised:** AGT Seeds**Other:** White chaffed fully bearded heads. Similar maturity to Janz with better grain size.

Disease	SN	ST	YS	SR	YR	LR	PM
Rating	MS-S	MS-S	MS	R-MRp	R	R*	MSp

CARNAMAH (DAFWA 1996)**Class:** AH**Maturity:** Mid**Commercialised:** Free to trade**Other:** Brown bearded heads of medium height. Intermediate to black point. Very poor tolerance to sprouting.

Disease	SN	ST	YS	SR	YR	LR	PM
Rating	MS	S-VS	MR-MS	MR	MS-S	MR-MS	S

CATALINA (LongReach 2007)**Class:** APW**Maturity:** Short-Mid**Commercialised:** AWB Seeds**Other:** Awned semi dwarf variety with medium plant height. Good grain size with low screenings.

Disease	SN	ST	YS	SR	YR	LR	PM
Rating	MS-S	S	MS-S	MR-MSp	MR-MS	R*p	Sp

CLEARFIELD JNZ (DAFWA/BASF 2001)**Class:** AH**Maturity:** Long**Commercialised:** Free to trade**Other:** Imidazoline tolerant but otherwise similar to Janz with slightly larger grain.

Disease	SN	ST	YS	SR	YR	LR	PM
Rating	MS	MR	MS	R-MR	MS	R*	MS-S

CLEARFIELD STL (DAFWA/BASF 2001)**Class:** APW**Maturity:** Long**Commercialised:** Free to trade**Other:** Imidazoline tolerant but otherwise very similar to Stiletto.

Disease	SN	ST	YS	SR	YR	LR	PM
Rating	S	S	S	R-MR	MS-S	S	MS

CORRELL (AGT 2006)**Class:** APW**Maturity:** Mid**Commercialised:** AGT Seeds**Other:** Similar variety to Yitpi (b) but with better rust resistance.

Disease	SN	ST	YS	SR	YR	LR	PM
Rating	MS-S	S	S-VS	R-MR	MR-MS	MS	MRp

DATATINE (DAFWA 1994)**Class:** ASFT**Maturity:** Mid**Commercialised:** Free to trade**Other:** A very light brown club head that may appear white. Intermediate to black point.

Disease	SN	ST	YS	SR	YR	LR	PM
Rating	MS-S	S-VS	S	R-MR	MS-S	R*	MS-S

DERRIMUT ⚡ (AGT 2006)**Class:** APW**Maturity:** Short–Mid**Commercialised:** Crop Care Seed Technologies**Other:** Fully awned with short straw. Good tolerance to boron toxic soils.

Disease	SN	ST	YS	SR	YR	LR	PM
Rating	S-VS	S-VS	S	R-MRp	R-MR	R*p	MRp

EGA 2248 ⚡ (DAFWA 2004)**Class:** ASFT**Maturity:** Short–Mid**Commercialised:** Free to trade**Other:** Low screenings, non club soft wheat. Limited release due to its poor rust resistance. Can only be grown under a contract administered by DAFWA.

Disease	SN	ST	YS	SR	YR	LR	PM
Rating	MS-S	S	S-VS	MR	MS-S	S	S

EGA BONNIE ROCK ⚡ (DAFWA 2002)**Class:** AH**Maturity:** Mid**Commercialised:** Free to trade**Other:** Moderately poor tolerance to sprouting but low in screenings. Good black point tolerance and tolerant to aluminium toxic soils. Premium payment for this variety may apply. Contact grain marketer for more details.

Disease	SN	ST	YS	SR	YR	LR	PM
Rating	MS-S	S-VS	MR-MS	MS	S-VS	R-MR*	S

EGA BOUNTY ⚡ (EGA 2007)**Class:** APW**Maturity:** Mid**Commercialised:** Crop Care Seed Technologies**Other:**

Disease	SN	ST	YS	SR	YR	LR	PM
Rating	-	VSp	MRp	-	-	-	-

EGA EAGLE ROCK ⚡ (DAFWA 2004)**Class:** AH**Maturity:** Mid**Commercialised:** Free to trade**Other:** An awnless wheat with metribuzin tolerance.

Disease	SN	ST	YS	SR	YR	LR	PM
Rating	MR-MS	VS	S	R-MR	MS	R*	MR-MS

EGA GREGORY ⚡ (QDPI 2004)**Class:** AH**Maturity:** Mid–Long**Commercialised:** Pacific Seeds**Other:** Good resistance to grain shattering.

Disease	SN	ST	YS	SR	YR	LR	PM
Rating	MS	MS	S-VS	R-MR	MR	R-MR	MS-MS

EGA JITARNING ⚡ (DAFWA 2003)**Class:** ASFT**Maturity:** Long**Commercialised:** Free to trade**Other:** Non club soft wheat with low screenings and relative high falling number.

Disease	SN	ST	YS	SR	YR	LR	PM
Rating	MR-MS	S	S-VS	R-MR	MS-S	R-MR*	MS

EGA WENTWORTH ⚡ (QDPI 2004)**Class:** APW**Maturity:** Mid**Commercialised:** Pacific Seeds**Other:** Medium height with screenings similar to Janz.

Disease	SN	ST	YS	SR	YR	LR	PM
Rating	MS-S	MR-MS	S	R-MR	MR	R-MR*	MR-MS

ENDURE ⚡ (InterGrain 2008)**Class:** APW**Maturity:** Long**Commercialised:** Crop Care Seed Technologies**Other:** Good for stripe and leaf rust. Short coleoptile.

Disease	SN	ST	YS	SR	YR	LR	PM
Rating	Esc	S	VS	R-MR	R-MR	MR	-

ESPADA ⚔ (AGT 2008)**Class:** APW**Maturity:** Mid**Commercialised:** AGT Seeds**Other:** Yields comparable to Wyalkatchem. Moderately poor tolerance to black point.

Disease	SN	ST	YS	SR	YR	LR	PM
Rating	Sp	MS-Sp	MS-Sp	R-MRp	R	R-MRp	-

FANG ⚔ (AGT 2008)**Class:** APW**Maturity:** Mid–Long**Commercialised:** COGGO Seeds**Other:**

Disease	SN	ST	YS	SR	YR	LR	PM
Rating	MR-MSp	VSp	S-VSp	-	R#	-	-

FORTUNE ⚔ (InterGrain 2008)**Class:** ASWN**Maturity:** Long**Commercialised:** Crop Care Seed Technologies**Other:** Superior noodle quality compared to Calingiri. Premium payment for this variety may apply. Contact grain marketer for more details.

Disease	SN	ST	YS	SR	YR	LR	PM
Rating	MS	MS-S	MS-S	MS	MR-MS	MR	-

GBA SAPPHIRE ⚔ (GBA 2003)**Class:** AH**Maturity:** Mid**Commercialised:** COGGO Seeds**Other:** Moderately poor tolerance to sprouting.

Disease	SN	ST	YS	SR	YR	LR	PM
Rating	MS	MR-MS	S	R-MR	MS	R*	MS

GLADIUS ⚔ (AGT 2007)**Class:** APW**Maturity:** Mid**Commercialised:** AGT Seeds**Other:** Fully awned with moderate straw height. Tolerant to boron toxic soils. Waxy leaves after dry conditions are said to give it better drought tolerance.

Disease	SN	ST	YS	SR	YR	LR	PM
Rating	MS	MS-S	MR-MS	R-MR	R	MR-MS	MS-Sp

GUARDIAN ⚔ (LongReach 2006)**Class:** ASW**Maturity:** Mid**Commercialised:** AWB Seeds**Other:** Awned semi dwarf variety.

Disease	SN	ST	YS	SR	YR	LR	PM
Rating	-	MS-S#	MR-MS#	MR-MS#	MS#	MS#	-

LINCOLN ⚔ (LongReach 2007)**Class:** APW**Maturity:** Short–Mid**Commercialised:** Pacific Seeds**Other:** Fully awned wheat with good straw strength.

Disease	SN	ST	YS	SR	YR	LR	PM
Rating	Sp	VSp	MS-Sp	-	Rp	-	R-MRp

MACE ⚔ (AGT 2008)**Class:** APW**Maturity:** Short–Mid**Commercialised:** COGGO Seeds**Other:** Yields comparable to Wyalkatchem, good rust resistance.

Disease	SN	ST	YS	SR	YR	LR	PM
Rating			MR-MS#				

MAGENTA ⚡ (Intergrain 2007)**Class:** APW**Maturity:** Mid–Long**Commercialised:** Crop Care Seed Technologies**Other:** A fully awned semi dwarf wheat. It has a long coleoptile but has poor tolerance to sprouting.

Disease	SN	ST	YS	SR	YR	LR	PM
Rating	MR-MS	MR-MS	MR	R	MS	R*	MR-MS

MITRE ⚡ (VDPI 2000)**Class:** APW**Maturity:** Mid**Commercialised:** Plant Tech**Other:** Prone to screenings.

Disease	SN	ST	YS	SR	YR	LR	PM
Rating	MS-S	MS-S	S-VS	R-MR	MS	R-MR*	MS-S

SENTINEL ⚡ (LongReach 2005)**Class:** ASW**Maturity:** Mid–Long**Commercialised:** AWB Seeds**Other:** Acid tolerance

Disease	SN	ST	YS	SR	YR	LR	PM
Rating	MS#	MS#	MS#	MR#	MR-MS#	MR#	-

TAMMARIN ROCK ⚡ (DAFWA 2005)**Class:** AH**Maturity:** Short**Commercialised:** The Seed Group**Other:** Short coleoptile. Hectolitre and screenings are good. Poor sprouting tolerance.

Disease	SN	ST	YS	SR	YR	LR	PM
Rating	S	S-VS	S-VS	MR-MS	MS-S	MS	MS

WESTONIA (DAFWA 1997)**Class:** APW**Maturity:** Short**Commercialised:** Free to trade**Other:** No longer recommended due to its susceptibility to rust.

Disease	SN	ST	YS	SR	YR	LR	PM
Rating	S	S-VS	MS-S	S	VS	MS-S	S

WYALKATCHEM ⚡ (DAFWA 2001)**Class:** APW**Maturity:** Short–Mid**Commercialised:** Free to trade**Other:** Acid and boron tolerant.

Disease	SN	ST	YS	SR	YR	LR	PM
Rating	S	S-VS	MR	S/MR	MS	R-MR	VS

YANDANOOKA ⚡ (Intergrain 2007)**Class:** ASWN**Maturity:** Mid**Commercialised:** Crop Care Seed Technologies**Other:** An awned wheat with low screenings and poor tolerance to sprouting. Premium payment for this variety may apply. Contact grain marketer for more details.

Disease	SN	ST	YS	SR	YR	LR	PM
Rating	MS	S-VS	S	MS	MS-S	MR	MR-MS

YITPI ⚡ (Waite Institute 1999)**Class:** AH**Maturity:** Mid–Long**Commercialised:** AWB Seeds**Other:** Good grain size and quality.

Disease	SN	ST	YS	SR	YR	LR	PM
Rating	MR-MS	MR-MS	S	S	MR-MS	MS	MR

YOUNG ⚡ (AGT 2005)**Class:** APW**Maturity:** Short**Commercialised:** AGT Seeds**Other:** Poor sprouting tolerance and is acid soil tolerant.

Disease	SN	ST	YS	SR	YR	LR	PM
Rating	S	S	MS-S	R-MR	MS	-	R

ZIPPY ⚡ (InterGrain 2008)**Class:** APW**Maturity:** Short**Commercialised:** Crop Care Seed Technologies**Other:** Very short season variety.

Disease	SN	ST	YS	SR	YR	LR	PM
Rating	S-VS	S-VS	S-VS	MR	MS-S	MR	-

Table 1 Variety description summary for wheat varieties grown in Western Australia, grouped according to classification

Grade	Variety	Breeder ^a	Year of release	Maturity	Comments	Licensee
AH	Camamah (b)	DAFWA	1996	Mid	Strengths: stem rust – MR, low screenings, broad adaptation. Risks: susceptible to sprouting.	free to trade
	Clearfield JNZ (b)	DAFWA (BASf)	2001	Long	Strengths: Imidazolinone tolerant, stem rust – R-MR and leaf rust – R*, larger grain size than Janz. Risks: sensitive to aluminium toxicity.	free to trade
	EGA Bonnie Rock (b)	EGA (DAFWA)	2002	Mid	Strengths: Risks: stripe rust – S-VS, screenings higher than Carnamah (b). Farmnote: www.agric.wa.gov.au	free to trade
	EGA Eagle Rock (b)	DAFWA	2004	Mid	Strengths: metribuzin tolerant, stem rust – R-MR, leaf rust – R*, high protein achiever. Risks: lower yielding than leading WA varieties. Farmnote: www.agric.wa.gov.au	free to trade
	EGA Gregory (b)	EGA (QDPI&F)	2004	Mid-Long	Strengths: stem and leaf rust – R-MR, stripe rust – MR. Risks: screenings higher than Camamah (b). Factsheet: www.pacificseeds.com	Pacific Seeds
	GBA Sapphire (b)	GBA	2003	Mid	Strengths: long coleoptile, stem rust – R-MR, leaf rust – R*, best available resistance to all three rusts in AH grade. Risks: screenings higher than Camamah (b) and EGA Bonnie Rock (b). Info: www.coggo.net.au	COGGO Seeds
	Tammarin Rock (b)	DAFWA	2005	Short	Strengths: higher yields than Carnamah, acid tolerance similar to Wyalkatchem (b). Risks: stem rust – MR-MS, yellow spot – S-VS, poor tolerance to sprouting, screenings higher than Carnamah (b). Farmnote: www.agric.wa.gov.au	Seed Group
	Yipi (b)	WAITE Adelaide Uni	1999	Mid-Long	Strengths: long coleoptile. Risks: stem rust and yellow spot – S. Factsheet: www.awb.com.au	AWB Seeds
	Annuello (b)	VDPI (VIDA)	2001	Mid-Long	Strengths: stem rust – R-MR and leaf rust – R*. Risks: higher screenings than Wyalkatchem (b). Factsheet: www.awb.com.au	PlantTech
	Axe (b)	AGT (Adelaide Uni Roseworthy)	2007	Short	Strengths: leaf rust - R-MRp and stripe rust – MR. Factsheet www.ausgraintech.com	AGT Seeds
	Bolac (b)	AGT (VDPI)	2006	Mid-Long	Strengths: stripe rust – R-MR. Risks: intolerant of boron. Factsheet: www.abb.com.au	ABB Grain
	Carinya (b)	AGT (Sydney Uni)	2005	Mid	Strengths: leaf rust – R*, stripe rust – R-MRp, yellow spot –MS. Risks: intolerant of acid and boron. Factsheet www.ausgraintech.com	AGT Seeds
	Catalina (b)	LongReach (VIDA)	2007	Short - Mid	Strengths: leaf rust – R*p. Cereal cyst nematode resistance –R, medium to long coleoptile. Factsheet: www.awb.com.au	AWB Seeds
Clearfield STL (b)	DAFWA (BASf)	2001	Long	Strengths: Imidazolinone tolerant, stem rust – R-MR. Risks: leaf rust – S.	free to trade	
Correll (b)	AGT	2006	Mid	Strengths: stem rust – R-MR, boron tolerant. Risks: yellow spot – S-VS Factsheet: www.ausgraintech.com	AGT Seeds	
Derrimut (b)	AGT (Nugrain)	2006	Short - Mid	Strengths: stem rust R-MRp, leaf rust R*p and CCN – R, boron tolerant. Risks: Septoria nodorum – S-VS. Factsheet www.cropcare.com.au	Crop Care Seed Technologies	
EGA Bounty (b)	EGA (QDPI&F)	2007	Mid	Strengths: leaf rust – R-MR [#] , stem and stripe rust - MR [#] . Factsheet www.cropcare.com.au	Crop Care Seed Technologies	
EGA Wentworth (b)	EGA (QDPI&F)	2004	Mid	Strengths: stem rust – R-MR, leaf rust – R-MR* and stripe rust - MR Risks: screenings higher than Wyalkatchem (b) and other leading WA varieties. Factsheet: www.pacificseeds.com	Pacific Seeds	
Endure (b)	InterGrain	2008	Long	Strengths: stem and stripe rust – R-MR, leaf rust – MR. Risks: yellow spot – VS, short coleoptile. Factsheet: www.cropcare.com.au	Crop Care Seed Technologies	
Espada (b)	AGT (Adelaide Uni Roseworthy)	2008	Mid	Strengths: yields comparable to Wyalkatchem (b), stem and leaf rust – R-MRp, yellow spot – MS-Sp. Factsheet: www.ausgraintech.com	AGT Seeds	
Fang (b)	AGT	2008	Mid-Long	Strengths: stripe rust - R [#] Risks: yellow spot – S-VSp. Factsheet: www.ausgraintech.com	COGGO Seeds	
Gladius (b)	AGT (Adelaide Uni Roseworthy)	2007	Mid	Strengths: stem rust – R-MR, stripe rust – R. Factsheet www.ausgraintech.com	AGT Seeds	
Lincoln (b)	LongReach	2007	Short-Mid	Strengths: stem and leaf rust – MR [#] , stripe rust – Rp. Factsheet: www.pacificseeds.com	Pacific Seeds	
Mace (b)	AGT	2008	Short-Mid	Strengths: yields comparable to Wyalkatchem (b), stem rust – MR [#] p, stripe rust – R-MR [#] p, leaf rust – R [#] p, yellow spot – MR [#] p. Factsheet: www.ausgraintech.com	COGGO Seeds	

Table 1 (continued)

Grade	Variety	Breeder ^a	Year of release	Maturity	Comments	Licensee
APW (continued)	Magenta (♢)	InterGrain	2007	Mid-Long	Strengths: yields comparable to Wyalkatchem (♢), stem rust – R, leaf rust – R*, yellow spot – MR, long coleoptile. Risks: poor tolerance to sprouting. Factsheet: www.cropcare.com.au	Crop Care Seed Technologies
	Westonia	DAFWA	1997	Short	Strengths: yields comparable to Wyalkatchem (♢), good aluminium tolerance. Risks: stem rust – S and stripe rust – VS, susceptible to sprouting.	free to trade
	Wyalkatchem (♢)	DAFWA	2001	Short-Mid	Strengths: benchmark for yield, leaf rust – R-MR, low screenings, acid and boron tolerant. Risks: short coleoptile, susceptible to one strain of stem rust that occurs in WA (S), poor early vigour. Farmnote: www.agric.wa.gov.au	free to trade
	Young (♢)	AGT (VDPI)	2005	Short	Strengths: stem rust – R-MR, acid tolerant, CCN - R. Risks: intolerant of boron, screenings higher than Wyalkatchem (♢). Factsheet: www.abb.com.au	ABB Grain
	Zippy (♢)	InterGrain	2008	Short	Strengths: leaf rust – MR. Risks: : Septoria nodorum and yellow spot – S-VS. Factsheet: www.cropcare.com.au	Crop Care Seed Technologies
	Arrino	DAFWA	1997	Short-Mid	Risks: stem rust – MS stripe rust – S and leaf rust – S-VS.	free to trade
ASWN	Binnu (♢)	DAFWA	2006	Short-Mid	Strengths: stripe rust – R-MR, leaf rust – MR-MS. Risks: screenings higher than Arrino and Calingiri. Susceptible to Camm (♢) stem rust (S).	Crop Care Seed Technologies
	Calingiri	DAFWA	1997	Long	Strengths: benchmark for yield in ASWN grade, Risks: stem rust – S	free to trade
	Fortune (♢)	InterGrain	2008	Long	Strengths: Superior ASWN quality compared to Calingiri, yields comparable to Calingiri, leaf rust – MR. Factsheet: www.cropcare.com.au	Crop Care Seed Technologies
	Yandanooka (♢)	InterGrain	2007	Mid	Strengths: leaf rust – MR screenings similar to Calingiri and Arrino, good black point tolerance. Factsheet: www.cropcare.com.au	Crop Care Seed Technologies
	Bullaring (♢)	DAFWA	2005	Mid	Strengths: stem rust – R-MRp and leaf rust – R*.	Seed Group
	Datatine	DAFWA	1994	Mid	Strengths: stem rust – R-MR and leaf rust – R*. Risks: higher screenings than EGA Jitarning (♢).	free to trade
ASFT	EGA Jitarning (♢)	DAFWA	2003	Long	Strengths: stem rust – R-MR and leaf rust – R-MR*, lower screenings than Datatine. Risks: manage for high protein (higher protein than Datatine).	free to trade
	EGA 2248 (♢)	DAFWA	2004	Short-Mid	Strengths: lower screenings than Datatine. Risks: leaf rust – S, manage for high protein (higher protein than Datatine).	free to trade
	AGT Scythe (♢)	AGT	2004	Mid	Strengths: stem rust – R-MR and leaf rust – MR*, good black point tolerance. Factsheet: www.sunprimeseeds.com	AGT Seeds
ASW	Bumper (♢)	InterGrain	2008	Mid	Strengths: leaf rust – MR, moderately good black point tolerance. Factsheet: www.cropcare.com.au	Crop Care Seed Technologies
	Guardian (♢)	LongReach	2006	Mid	Under evaluation for APW classification in WA. Factsheet: www.awb.com.au	AWB Seeds
	Sentinel (♢)	LongReach	2005	Mid-Long	Strengths: stem and leaf rust – MR#, acid tolerant. Factsheet: www.aub.com.au	AWB Seeds

^a Breeding organisation acronyms: **AGT** – Australian Grain Technology (joint venture between GRDC, SARDI, University of Adelaide, University of Sydney and Graincorp); **COGGO** – Council of Grain Grower Organisations Ltd.; **DAFWA** – Department of Agriculture and Food, Western Australia; **EGA** – Enterprise Grains Australia (joint-venture between GRDC, NSW Agriculture and QDPI&F); **GBA** – Grain Biotechnology Australia; **GRDC** – Grains Research & Development Corporation; **Intergrain** – joint venture between GRDC and DAFWA; **LongReach** – Subsidiary of Syngenta Seeds; **NSWDPI** – New South Wales Department of Primary Industry, **SARDI** – South Australian Research and Development Institute; **VDPI** – Victorian Department of Primary Industry; **VIDA** – Victorian Institute for Dryland Agriculture; **QDPI&F** = Queensland Department of Primary Industry and Fisheries.

= Disease ratings for these varieties have not been assessed by DAFWA. p = Provisional assessment. * = Some Eastern states races can attack these varieties. Refer to Table 3 for full disease ratings

Table 2 Agronomic and quality characteristics for wheat varieties grown in Western Australia

Variety	Height	Coleoptile	Hectolitre weight (1-9)	Grain plumpness (1-9)	Black point (1-9)	Seed size (1-9)	Sprouting tolerance (1-9)
AGT Scythe (b)	M	M	5	6	5	5	3
Annuello (b)	M	L	8	4	5	4	4
Arrino	M	S	7	6	4	6	2/3
Axe (b)	S	S/M	8	7	5	-	-
Binnu (b)	M	M	7	6	4	5	4
Blade	M	S	7	7	6	-	4
Bolac (b)	M	S	-	-	-	-	-
Braewood	M	L	8	6	5	6	4
Bullaring (b)	M/S	L	6	6	5	6	2
Bumper (b)	M	S	8	6	6	5	3
Cadoux	M/T	S/M	7	6	5	6	4
Calingiri	M	S	7	7	5	8	4
Camm (b)	M	M	8	6	6	6	4
Carinya (b)	S/M	S	-	-	-	-	3
Carnamah (b)	M	M	7	7	5	6	2
Cascades	M	M	7	7	6	7	4
Catalina (b)	M	M	9	6	5	7	-
Clearfield JNZ (b)	M	-	8	6	5	6	-
Clearfield STL (b)	M	S	8	7	6	8	5
Correll (b)	M	M	6	6	5	7	-
Datatine	M	L	6	5	5**	5	3
Derrimut (b)	S	VS	-	-	-	-	-
EGA 2248 (b)	M	M	7	7	5	8	3
EGA Bonnie Rock (b)	M	M	8	6	5	6	4
EGA Bounty (b)	M	M	-	-	-	-	-
EGA Eagle Rock (b)	M	S/M	7	6	5	5	4
EGA Gregory (b)	M/T	M/L	7	5	5	5	-
EGA Jitarning (b)	M	M	7	6	4**	7	3
EGA Wentworth (b)	S/M	M/L	7	3	5	4	-
Ellison (b)	M	M	8	6	4	8	5
Endure (b)	M	S	9	5	6	3	4
Eradu	M	M	7	7	2	7	2
Espada (b)	S	S	6	7	4	-	-
Fang (b)	S/M	M/L	-	-	-	-	-
Fortune (b)	M	S/M	7	6	5	6	-
Frame	M	VL	-	-	-	-	4
GBA Ruby (b)	M/T	M	8	7	5	6	3
GBA Sapphire (b)	S/M	L	8	4	5	5	4
Gladius (b)	M	-	-	-	-	-	-
Guardian (b)	M	S	-	-	-	-	-
H45 (b)	M	S	8	4	5	4	3
Halberd	T	VL	7	6	6	6	4
Jandaroi (b)	S/M	L	-	-	-	-	-
Janz	S/M	M	8	5	5	5	3
Kalannie (b)	M	S	7	6	6	7	-
Lincoln (b)	M	S	-	-	-	-	-
Mace (b)	S/M	M	-	7	-	8	-
Machete	M	S	6	7	6	7	4
Magenta (b)	M	VL	7	6	5	7	3
Mitre (b)	S/M	M	7	4	5	4	3
Perenjori	M	S	6	6	6	7	3
Sentinel (b)	M	M	8	6	6	7	-
Spear	M	M	8	6	6	7	4
Stiletto	M	M	8	6	5	9	4
Tammarin Rock (b)	S/M	S	6	6	4	8	3
Tincurrin	M	M	6	5	5**	5	2
Westonia	M	M	6	7	4	7	2
Wilgoyne	M	S	7	7	6	9	3
Wyalkatchem (b)	S	S	8	7	5	8	3
Yandanooka (b)	M/T	M	7	7	5	7	3
Yitpi (b)	M	L	7	7	5	6	4
Young (b)	S/M	M	8	5	5	-	3
Zippy (b)	S/M	VS	7	7	5	6	3/4

Height: **S** = short (<70 cm), **M** = medium (70 to 85 cm), **T** = tall (>85 cm).

Coleoptile: **S** = short (<60mm), **M** = medium (60 to 69mm), **L** = long (70 to 79mm), **VL** = very long (>90mm).

1-9 scale: **1** = Extremely poor, **2** = Very poor, **3** = Poor, **4** = Moderately poor, **5** = Fair, **6** = Moderately good, **7** = Good, **8** = Very good, **9** = Excellent.

** = Variety assessed for soft area only.

Table 3 Disease resistance ratings for wheat varieties grown in Western Australia

Variety	Septoria nodorum blotch	Septoria tritici blotch	Yellow spot	Stem rust	Stripe rust	Leaf rust	Powdery mildew	Flag smut	RLN ^a	CCN
AGT Scythe (b)	MS	S-VS	S	R-MR	MS	MR*	R-MR	MS	MS	S
Annuello (b)	MS	MR-MS	MS	R-MR	MR-MS	R*	R-MR	-	MR-MS	R
Arrino	MS-S	MS	S	MS	S	S-VS	R-MR	S	MS	-
Axe (b)	Sp	Sp	VSp	MSp	MR	R-MRp	-	-	S	S
Binnu (b)	S	S	S-VS	S/R-MR	R-MR	MR-MS	MR	-	S	-
Blade	MR-MS	S	MS	R	MR-MS	MR-MS	MR-MS	MR	-	-
Bolac (b)	MS	S-VS	S-VS	-	R-MR	-	R-MRp	-	-	S
Braewood	MS-S	MR	S	MRp	R	R-MRp	MR-MSp	-	-	-
Bullaring (b)	MS-S	MR	S-VS	R-MR	MR-MS	R*	S	MRp	MS-S	-
Bumper (b)	MS-S	MS	MS	MR-MS	MS	MR	-	-	MR	-
Cadoux	MR-MS	S	S	S-VS	S	S	MS	S	MS-S	-
Calingiri	MS-S	S	MS	S	S	MR*	MS-S	R-MR	MS	-
Camm (b)	MS	S	S	S	R*	S	S	MR	MR-MS	S
Carinya (b)	MS-S	MS-S	MS	R-MRp	R	R*	MSp	-	S	S
Carnamah (b)	MS	S-VS	MR-MS	MR	MS-S	MR-MS	S	MS-S	MS-S	S
Cascades	MS-S	MS-S	MR-MS	MS	S	S-VS	S	MR-MS	MR-MS	S
Catalina (b)	MS-S	S	MS-S	MR-MSp	MR-MS	R*p	Sp	-	S	R
Clearfield JNZ (b)	MS	MR	MS	R-MR	MS	R*	MS-S	-	MS-S	S
Clearfield STL (b)	S	S	S	R-MR	MS-S	S	MS	-	MS-S	-
Correll (b)	MS-S	S	S-VS	R-MR	MR-MS	MS	MRp	-	S	MR
Datatine	MS-S	S-VS	S	R-MR	MS-S	R*	MS-S	MR	-	-
Derrimut (b)	S-VS	S-VS	S	R-MRp	R-MR	R*p	MRp	-	S	R
EGA 2248 (b)	MS-S	S	S-VS	MR	MS-S	S	S	MS-Sp	MS-S	-
EGA Bonnie Rock (b)	MS-S	S-VS	MR-MS	MS	S-VS	R-MR*	S	S-VSp	MS-S	S
EGA Bounty (b)	-	VSp	MRp	-	-	-	-	-	S	-
EGA Eagle Rock (b)	MR-MS	VS	S	R-MR	MS	R*	MR-MS	-	MS	-
EGA Gregory (b)	MS	MS	S-VS	R-MR	MR	R-MR	MR-MS	-	MS-S	S
EGA Jitarning (b)	MR-MS Esc	S	S-VS	R-MR	MS-S	R-MR*	MS	MRp	S	-
EGA Wentworth (b)	MS-S	MR-MS	S	R-MR	MR	R-MR*	MR-MS	-	S	-
Ellison (b)	-	MR-MS	MR-MS	R-MR	R-MR	R-MR	MS	-	S	-
Endure (b)	Esc	S	VS	R-MR	R-MR	MR	-	-	-	-
Eradu	S	S	S	MR	S-VS	S	MR-MS	S	MS	-
Espada (b)	Sp	MS-Sp	MS-Sp	R-MRp	R	R-MRp	-	-	MS	MS
Fang (b)	MR-MSp Esc	VSp	S-VSp	-	R#	-	-	-	-	-
Fortune (b)	MS	MS-S	MS-S	MS	MR-MS	MR	-	-	MR	-
Frame	MS	S	S	R	MR-MS	MR-MS	MR-MS	MR	MS-S	MR
GBA Ruby (b)	-	S	MR	MR	R	MR-MS	S	-	MR-MS	S
GBA Sapphire (b)	MS	MR-MS	S	R-MR	MS	R*	MS	-	MR-MS	S
Gadius (b)	MS	MS-S	MR-MS	R-MR	R	MR-MS	MS-Sp	-	MS-S	MS
Guardian (b)	-	MS-S#	MR-MS#	MR-MS#	MS#	MS#	-	-	S	R
H45 (b)	S	VS	MR	R/MS	S-VS	R	S	-	MS	S
H46 (b)	MS	S-VS	MR-MS	R	R*	R	S	-	MS	S
Halberd	S-VS	S	S-VS	S	MR-MS	MR	MS	MR-MS	-	-
Jandaro (b)	S-VS	MR	MR-MS	-	Rp	R-MRp	MRp	-	-	-
Janz	MS	MS	S-VS	R	MR-MS	R*	MS	MR-MS	MS-S	S
Lincoln (b)	Sp	VSp	MS-Sp	-	Rp	-	R-MRp	-	-	S
Mace (b)	-	-	MR-MS#	-	-	-	-	-	-	-
Machete	MS	S	S	R	MS-S	MS-S	MS	S	S	S
Magenta (b)	MR-MS	MR-MS	MR	R	MS	R*	MR-MS	-	MR	MS-S
Mitre (b)	MS-S	MS-S	S-VS	R-MR	MS	R-MR*	MS-S	-	S	R
Sentinel (b)	MS#	MS#	MS#	MR#	MR-MS#	MR#	-	-	S	S
Spear	MS Esc	S	S-VS	MS	MS-S	S-VS	S	MR-MS	S	-
Stiletto	MS	MS	S	MR	MS-S	S	MS	S	MS	-
Tammarin Rock (b)	S	S-VS	S-VS	MR-MS	MS-S	MS	MS	MRp	MS	-
Tincurrin	S	S-VS	S-VS	S	S-VS	VS	S	MS-S	S	-
Westonia	S	S-VS	MS-S	S	VS	MS-S	S	MS-S	MS-S	S
Wilgoyne	S	S	S	R	R-MR	MR-MS	MR-MS	R-MR	-	-
Wyalkatchem (b)	S	S-VS	MR	S/MR	MS	R-MR	VS	S	MR	S
Yandanooka (b)	MS	S-VS	S	MS	MS-S	MR	MR-MS	-	MS	-
Yitpi (b)	MR-MS	MR-MS	S	S	MR-MS	MS	MR	-	MR-MS	MR
Young (b)	S	S	MS-S	R-MR	MS	-	R	-	S	R
Zippy (b)	S-VS	S-VS	S-VS	MR	MS-S	MR	-	-	MS	-

VS = Very susceptible, **S-VS** = Susceptible–very susceptible, **S** = Susceptible, **MS-S** = Moderately susceptible–susceptible, **MS** = Moderately susceptible, **MR-MS** = Moderately resistant–moderately susceptible, **MR** = Moderately resistant, **R-MR** = Resistant–moderately resistant, **R** = Resistant.

No score (-) = no rating is currently available.

p = Provisional assessment.

/ = Scores separated by a '/' indicate the response to the 'currently predominant' and 'alternate' strains of stem rust existing in West. Aust.

***** = Some races in eastern States can attack these varieties.

= Disease ratings for these varieties have not been assessed by DAFWA. Please refer to Table 1 for individual Factsheets.

Esc = Disease escape due to late maturity.

a = *Pratylenchus neglectus*

Herbicide tolerance of current/new wheat varieties

The herbicide tolerance trials conducted over the last 8 years in WA indicate that some wheat varieties are more susceptible to damage from certain herbicides than others (Table 4). The variation in tolerance may be due to differences in morphological or physiological characters and/or internal ear development stages among the varieties. The level of tolerance amongst varieties varies with the rate of herbicide, the environmental conditions when the herbicide is applied to the crop, and the stage of the crop growth. Seasonal variability makes it essential to test herbicide and variety interaction over several seasons and locations. The risk of crop damage from a herbicide should be balanced against the potential yield loss from both the weed competition and the number of weed seeds returning to the soil seed bank. Small yield reductions due to herbicide damage in sensitive varieties may not be easily detected at the paddock level, but which over larger areas can be of great economic importance.

Table 4 summarises research into herbicide tolerance of commonly grown and new wheat varieties in WA from 1999-2006 using the following **symbols**. (Trials sites were Buntine, Esperance, Katanning, Merredin, Mullewa and Newdegate.)

– not tested or insufficient data

√ no significant yield reductions at the label recommended rates in 2+ trials

x% yield reduction (warning), significant yield reduction at the label recommended rate in 1 trial only

x-y% yield reduction (warning), significant yield reduction at the label recommended rate in 2+ trials

The values in the parentheses (x) are the number of trials in which a particular variety was tested against a particular herbicide.

Note: The State of Western Australia, the Minister for Agriculture, the Chief Executive Officer of the Department of Agriculture and Food and their respective officers, employees and agents:

- a) do not endorse or recommend any individual specified product or any manufacturer of a specified product. Brand, trade and proprietary names have been used solely for the purpose of assisting users of this publication to identify products. Alternative manufacturers' products may perform as well or better than those specifically referred to.
- b) do not endorse the use of herbicides above the registered rate, off-label use of herbicides or off-label tank mixes. Crop tolerance and yield responses to herbicides are strongly influenced by seasonal conditions.

Always adhere to label recommendations.

For information on wheat varieties not included in the WA information presented here, please visit <http://www.nvtonline.com.au> for herbicide tolerance research conducted in NSW, Qld, SA and Vic.

A. Important comments regarding safe use of herbicides:

- When using trifluralin, Yield®, Stomp® and Avadex®, ensure sown seed is placed below the herbicide treated soil band; otherwise severe root retardation may result. Surface crusting may exacerbate emergence problems. Old seed with reduced vigour, varieties with short coleoptiles, and seed dressings that reduce coleoptile length should be avoided. If sowing with knife points, and using higher label rates, avoid treated soil being thrown, blown or washed into the furrows.
- Diuron 1.0 L + Dual® (Metolachlor 720 g/L) 0.5 L/ha have been recorded to cause crop damage more often on lighter than on heavier soil types. If using knife point and press wheels, pre plant application is recommended (0-7 days) as knife points leave open furrows/slots which can lead to crop damage if herbicide is washed into the furrows. If using a 'Full Cut' seeding system that leaves a relatively smooth surface, this mixture can be applied post plant pre-emergent within 3-4 days of planting.
- Metribuzin 150 g a.i./ha is registered as a pre-emergent herbicide for the wheat variety EGA Eagle Rock (b). To achieve good control of annual ryegrass and barley grass Treflan®480 at 1.0 L/ha can also be mixed with the recommended rate of metribuzin. Trial work has indicated that a two way mix of metribuzin 150 g a.i./ha (e.g. Lexone® 200 g/ha) with Diuron® 1.0 L or Stomp® 330E 1.8 L, or three way mix with Diuron 1.0 L and Dual Gold 250 ml/ha, is safe on this variety. Any weed escapes after metribuzin use, especially brome grass, could possibly be controlled/suppressed, by application of Monza® @ 25 g/ha at 2-3 leaf or Atlantis® @ 330 mL/ha at 3-4 leaf stage of the crop. Do not use metribuzin (alone or in mixture with other herbicides) on other wheat varieties (e.g. Carnamah (b)), as large yield reductions have been recorded in the trials. Moreover metribuzin is registered for use on EGA Eagle Rock (b and Blade only).
- Where marginal zinc and copper deficiency conditions exist, Glean® and Logran® may exacerbate such deficiencies.

Table 4 Tolerance of wheat varieties to herbicides from 1999 to 2006

Varieties	Year of testing and trial sites																		
	Arrino	Binnu	Brookton	Calingiri	Camm	Carnamah	Cascades	EGA Bonnie Rock	EGA Castle Rock	EGA Eagle Rock	EGA Jitarning	GBA Sapphire	H45	Perenjori	Tammarin Rock	Westonia	Wyalkatchem	Yandanooka	
Herbicides (rate/ha)	ADEF	CD	ABDEF	ADEF	BDEF	ABCDEF	B	DE	DE	E	CD	CE	BE	EF	DE	ABCDEF	BCDEF	CDE	
Group	Timing																		
Avadex® BW 2 L (Tri- <i>late</i>)	√(6)	-	√(7)	√(6)	11 – 12 (8)	√(12)	√(2)	√(5)	√(2)	-	-	-	√(3)	√(2)	√(2)	31 (10)	√(8)	-	
Glean® 12.5 g (Chlorsulfuron)	37 (6)	-	√(7)	12 – 25 (6)	10 – 18 (8)	√(12)	√(2)	√(3)	-	-	-	-	√(3)	√(2)	-	√(10)	√(8)	-	
Glean® 20 g (Chlorsulfuron)	√(6)	√(2)	√(2)	√(2)	√(2)	√(12)	-	√(2)	√(2)	√(2)	-	√(2)	-	√(2)	√(3)	√(2)	√(5)	√(3)	
Logran® 35 g (Triasulfuron)	√(6)	-	20 (8)	√(7)	14 – 15 (8)	√(13)	√(2)	√(3)	-	-	-	-	√(3)	√(2)	-	√(11)	√(6)	-	
Logran® B Power 50 g (Triasulfuron+Butafenacil)	-	√(2)	-	-	-	√(3)	-	√(5)	√(2)	√(2)	√(2)	√(2)	-	-	√(3)	√(2)	√(8)	√(3)	
Stomp® 330 1.8 L (Pendimethalin)	13 (7)	√(2)	√(8)	√(7)	15 (8)	36 (13)	√(2)	√(5)	√(2)	√(2)	√(2)	√(2)	√(3)	√(2)	√(3)	21 –24 (11)	√(11)	√(3)	
Treflan® 400 1 L (Trifluralin)	√(7)	-	√(8)	√(7)	9 – 24 (8)	√(12)	12 (2)	√(2)	-	-	-	-	√(3)	√(2)	-	√(10)	√(5)	-	
Triflur® X 2 L (Trifluralin)	-	√(2)	-	-	-	-	-	√(3)	√(2)	√(2)	-	√(2)	-	-	√(3)	-	√(6)	√(3)	
Yield® 250 EC 2 L (Oryzalin + Trifluralin)	√(7)	-	√(8)	√(7)	12 (8)	12 (10)	√(2)	-	-	-	-	-	√(3)	√(2)	-	√(9)	√(3)	-	
Diuron 1 L+ Dualá 0.5 L (Diuron+Metolachlor)	√(5)	-	√(6)	√(5)	14 (7)	17 (10)	15 – 19 (2)	√(2)	-	-	-	-	23 (3)	√(2)	-	√(8)	18 (5)	-	
Boxer® Gold 2.5 L (s-Metolachlor+Prosulfocarb)	-	√(2)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	√(3)	√(3)	

Table 4 Tolerance of wheat varieties to herbicides from 1999 to 2006 (continued)

Herbicides (rate/ha)	Year of testing and trial sites		Varieties																		
	Timing	Group	ADEF	CD	ABDEF	ADEF	BDEF	ABCDEF	B	DE	DE	DE	E	CD	CE	BE	EF	DE	ABCDEF	BCDEF	CDE
Diuron 1 L + Glean® 15 g (Diuron + Chlorsulfuron)	IP	C, B	√(5)	-	√(6)	√(5)	16 (6)	√(6)	-	-	-	-	-	-	-	-	√(2)	-	14	-	-
Wildcat® 0.5 L (Fenoxaprop-P-ethyl)		A	√(2)	-	27 (2)	√(2)	√(2)	√(2)	-	-	-	-	-	-	-	-	√(2)	-	√(2)	-	-
Topik® 240 EC 0.210 L (Clodinafop)		A	-	-	-	-	-	-	√(2)	√(2)	√(2)	√(2)	√(2)	√(2)	√(2)	√(2)	-	√(2)	-	-	-
Hoegrass® 375 1.5 L (Diclofop-methyl)		A	√(2)	-	√(2)	√(2)	√(2)	√(2)	-	-	-	-	-	-	-	-	√(2)	-	√(2)	-	-
Hoegrass® 375 2 L (Diclofop- methyl)		A	-	√(2)	-	-	-	√(2)	√(4)	√(2)	√(2)	√(2)	√(2)	√(2)	√(2)	-	-	√(3)	-	20 (7)	√(3)
Decision® 1 L (Diclofop + Sethoxydim)		A	-	-	-	-	-	√(3)	√(5)	√(2)	√(2)	√(2)	√(2)	√(2)	√(2)	-	-	8 (3)	√(2)	√(6)	-
Cheetah® Gold 1 L + Hasten® 1%	Z12-Z13	A	-	√(2)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	√(2)	√(3)
Sethoxydim + Fenoxaprop		A	-	√(2)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	√(3)	√(3)
Axial® 300 mL (Pinoxadin) + Adigor® 0.5%		A	√(6)	-	√(7)	√(6)	25 (7)	√(12)	√(3)	√(2)	√(3)	√(2)	√(2)	√(2)	√(3)	√(3)	-	√(10)	√(6)	√(3)	-
Achieve® 250 g (Tralkoxydim)		A	-	√(2)	-	-	-	-	√(2)	√(2)	√(2)	√(2)	√(2)	√(2)	√(2)	-	-	√(3)	√(5)	√(3)	-
Achieve® 380 g (Tralkoxydim)		A	-	√(2)	-	-	13 (2)	10 (6)	√(5)	√(2)	√(2)	√(2)	√(2)	√(2)	√(2)	√(2)	-	√(4)	19-30 (11)	30 (3)	-
Hoegrass® 200 mL + Achieve® 200 g (Diclofop-methyl+Tralkoxydim)		B	√(4)	-	√(5)	12 (4)	14- 14 (6)	√(7)	√(2)	√(2)	√(2)	√(2)	√(2)	√(2)	√(2)	√(3)	-	√(6)	√(3)	√(3)	-
Eclipse® 10 g (Metosulam)		C, F	√(6)	√(2)	√(7)	15- 19 (6)	11- 22 (8)	√(12)	√(5)	√(2)	√(2)	√(2)	√(2)	√(2)	√(2)	√(2)	√(2)	√(10)	√(11)	√(3)	√(3)
Jaguar® 1.0 L (Bromoxynil+Diflufenican)		B	-	√(2)	-	-	-	√(3)	√(5)	√(2)	√(2)	√(2)	√(2)	√(2)	√(2)	√(2)	-	√(3)	√(8)	√(3)	√(3)
Monza® 25 g (Sulfosulfuron)		B	-	√(2)	-	-	-	√(3)	√(5)	√(2)	√(2)	√(2)	√(2)	√(2)	√(2)	√(2)	-	√(3)	√(8)	√(3)	√(3)

Table 4 Tolerance of wheat varieties to herbicides from 1999 to 2006 (continued)

Varieties	Year of testing and trial sites																			
	Arrino	Binnu	Brookton	Calligiri	Camm	Carramah	Cascades	EGA Bonnie Rock	EGA Castle Rock	EGA Eagle Rock	EGA Jitarning	GBA Sapphire	H45	Perejori	Tamarin Rock	Westonia	Wyalkatchem	Yandanooka		
	99-01	06	99-01	99-01	99-01	99-03	00-01	02-04	04	04-05	03, 06	04, 06	00-01	99	04-05	99-03	01-06	05-06		
Herbicides (rate/ha)	Group	Timing	ADEF	CD	ABDEF	ADEF	BDEF	ABCDEF	B	DE	DE	E	CD	CE	BE	EF	DE	ABCDEF	BCDEF	CDE
Ally® 5 g (Metsulfuron)	B	Z13-Z14	√(5)	18 (2)	√(6)	11 (5)	16 – 26 (7)	15 (11)	√(2)	√(2)	√(2)	√(2)	√(2)	√(2)	√(3)	–	√(3)	14 – 26 (9)	√(11)	17 (3)
Ally® 7 g (Metsulfuron)	B		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Atlantis® 330 mL (Mesosulfuron-methyl)	B		–	√(2)	–	–	–	√	√(4)	√(2)	√(2)	√(2)	–	–	–	–	√(3)	–	√(7)	√(3)
Broadside® 1 L (Bromoxynil+MCPA+Dicamba)	C, I		√(6)	√(2)	√(7)	√(6)	√(8)	8 – 10 (12)	√(2)	–	–	–	√(2)	–	√(3)	√(2)	–	√(10)	√(9)	√(3)
Broadside® 1.4 L (Bromoxynil+MCPA+Dicamba)	C, I		–	–	–	–	–	–	√(2)	√(2)	–	–	–	–	–	–	√(2)	–	√(2)	–
Hussar® 200 g (Iodosulfuron-methyl)	B		–	√	–	–	√(2)	√(5)	√(5)	√(2)	√(2)	√(2)	√(2)	√(2)	√(2)	–	√(3)	√(4)	√(11)	√(3)
Mataven® L 3.0 L (Flamprop-M-methyl)	K		–	19 (2)	–	–	√(2)	√(6)	√(5)	√(2)	√(2)	√(2)	√(2)	√(2)	√(2)	–	√(3)	√(4)	√(11)	√(3)
Paragon® 0.375 mL (Picolinafen + MCPA)	F, I		–	–	–	–	–	–	√(5)	√(2)	–	–	–	–	–	–	√(3)	–	√(3)	–
Tigrex® 1.0 L (Diflufenican + MCPA)	F, I		√(7)	√(2)	24 (8)	16 (7)	19 – 19 (8)	30 (13)	√(2)	√(2)	√	√(2)	√(2)	√(2)	√(3)	√(2)	√(11)	18 – 41 (11)	√(11)	√(3)
Buctril®MA 1 L (Bromoxynil + MCPA)	C, I		√(4)	–	√(5)	9 (4)	11 – 24 (6)	√(7)	–	–	–	–	√(3)	–	–	–	√(3)	12 (6)	√(3)	–
Buctril®MA 1.4 L (Bromoxynil + MCPA)	C, I	Z13-Z14	–	√(2)	–	–	–	√(3)	√(5)	√(2)	√(2)	√(2)	√(2)	–	–	–	√(3)	√(2)	√(8)	6 (3)
Affinity® 50 g + MCPA 0.5 L (Carfentrazone-ethyl+MCPA)	G, I	Z13-Z14	√(4)	√(2)	√(5)	9 – 15 (4)	√(6)	√(10)	√(2)	√(2)	√(2)	√(2)	√(2)	√(3)	√(3)	–	√(3)	√(8)	22 (11)	17 (3)

Table 4 Tolerance of wheat varieties to herbicides from 1999 to 2006 (continued)

Varieties	Year of testing and trial sites																			
	Arrino	Binnu	Brookton	Calligiri	Camm	Carnamah	Cascades	EGA Bonnie Rock	EGA Castle Rock	EGA Eagle Rock	EGA Jitarning	GBA Sapphire	H45	Perenjori	Tammarin Rock	Westonia	Wyalkatchem	Yandanooka		
	99-01	06	99-01	99-01	99-01	99-03	00-01	02-04	04	04-05	03, 06	04, 06	00-01	99	04-05	99-03	01-06	05-06		
Herbicides (rate/ha)	ADEF	CD	ABDEF	ADEF	BDEF	ABCDEF	B	DE	DE	E	CD	CE	BE	EF	DE	ABCDEF	BCDEF	CDE		
Timing	Group																			
Eclipse® 5 g+ MCPA LVE 0.5 L (Metosulam+MCPA)	B, I	√ (2)	-	-	-	-	-	√ (2)	√ (2)	√ (2)	-	√ (2)	-	-	√ (3)	-	-	√ (5)	√ (3)	
		Z13-Z14																		
		-	-	-	-	-	-	-	√ (2)	√ (2)	-	-	-	-	-	-	√ (2)	-	-	√ (2)
Lontrel® 300 0.3 L (Clopyralid)	C, I	-	-	-	-	-	-	√ (2)	√ (2)	-	-	-	-	-	√ (2)	-	-	√ (3)	-	
		√ (7)	-	√ (8)	16 (7)	15 - 22 (8)	√ (10)	12 (2)	-	-	-	-	-	√ (3)	√ (2)	-	√ (9)	√ (3)	-	
Glean® 3 g+ Ally® 3 g+ MCPA 0.3 L (Chlorsulfuron + Metsulfuron +MCPA)	B, B, I	-	-	-	-	√ (3)	-	-	-	-	-	-	√ (2)	-	-	√ (2)	-	√ (3)	-	
		Z15+																		
MCPA (amine) 500 1.25 L (MCPA)	I	-	-	√ (2)	-	√ (5)	-	18 (3)	-	-	-	-	-	-	-	√ (4)	√ (3)	-	-	
MCPA (amine) 500 2 L (MCPA)	I	-	√ (2)	-	-	-	-	√ (2)	√ (2)	18 (2)	-	√ (2)	-	-	√ (3)	-	√ (5)	√ (3)	-	
		√ (2)	-	√ (4)	√ (3)	√ (2)	√ (7)	-	√ (3)	-	-	-	-	√ (2)	-	11 - 35 (6)	√ (3)	-	-	
2,4-D Amine 500 1 L (2,4-D)	I	-	√ (2)	-	-	-	-	√ (2)	√ (2)	19 (2)	-	√ (2)	-	-	√ (3)	-	√ (5)	√ (3)	-	
2,4-D Amine 625 1.3 L (2,4-D)	I	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
2,4-D LV Ester 600 0.5 L (2,4-D)	I	-	-	√ (2)	-	39 (2)	-	-	-	-	-	-	-	-	-	41 (2)	-	-	-	
Kamba 500 0.28 L (Dicamba)	I	-	-	-	-	√ (3)	-	√ (3)	-	-	-	-	-	-	-	32 (2)	29 (3)	-	-	

The names in the parentheses are the chemical names. IBS = Incorporated by seeding/applied before seeding. IPP = Immediately post plant.

A = Buntine, B = Esperance (Fleming gravelly sand, pH-4.5 Cacl₂), C = Katanning (Duplex sandy loam, pH-5.2), D = Merredin (Clay loam/loam, pH-5.1-5.3), E = Mullewa (Sandy loam/red loam, pH-4.6-6.4) and F = Newdegate (Duplex sand over clay, pH-4.1).

B. Safe timings for phenoxy herbicides' application:

MCPA, 2,4-D and dicamba are the main phenoxy herbicides used in wheat. Wheat tolerance to these herbicides depends on the stage of ear development. Wheat is most sensitive to these herbicides at the double ridge/floral initiation stage of ear development. Spraying advice is based on leaf and tiller development, but not all varieties have the same correlation between leaf/tiller and ear development. Thus different varieties become safe to spray at slightly different growth stages. Long season varieties take longer to reach the safe stage.

- To use higher rates of MCPA amine (2.0 L/ha) and 2,4-D amine-625 (1.3 L/ha) in Wyalkatchem (b), Westonia, Amery, Tincurrin, Kulin apply these herbicides at Z15-Z16 (5-6 leaves on the main stem). For EGA Eagle Rock (b), Carnamah (b), Bumper (b), Camm (b), Brookton, Karlgarin (b) and Cranbrook apply at Z16-Z17 and in Calingiri, Fortune (b) and Spear apply at Z17-Z18. At these stages floral initiation will be completed in the above varieties.
- In addition, if plants are under severe water stress, the internal development can also be delayed by about one leaf. Again, add one leaf to those leaf numbers mentioned above for the different varieties, to allow for this.
- Do not apply these phenoxy herbicides between flag leaf emergence and the soft dough stage on any variety. Generally MCPA amine is safer than 2,4-D amine, especially on later developing varieties.
- Dicamba (and mixtures with 2,4-D or MCPA) should be applied not later than Zadoks stage 30 (pseudo-stem elongation, but first node not yet above soil surface).

C. Waterlogging and crop safety

- A number of products, including Group A and B herbicides are tolerated by wheat because they are metabolised within the seedling. If a seedling's growth is retarded by waterlogging, cold or any other factor, its metabolism is reduced, and toxic levels of herbicide can accumulate within the plant. There were many cases of such damage in 1999.
- There have also been many examples of trifluralin reducing emergence where the paddocks were waterlogged. It is suspected that this was due to increased uptake by the coleoptile from the wet soil. If there is any

chance of extreme waterlogging just after seeding, crop damage is more likely. In areas where this is likely safer products, or post-emergent spraying, are recommended.

2008 herbicide tolerance trial results

A field trial was conducted in 2008 at Mullewa Research Station to evaluate the herbicide tolerance of recently released wheat varieties to twenty nine herbicide treatments (Table 5). Nine wheat varieties were included (Axe (b), Bumper (b), Espada (b), Fortune (b), Gladius (b), Janz, Magenta (b), Zippy (b) and Wyalkatchem (b)). The trial was sown on 11 June into moist seedbed conditions on a red loamy soil (pH 6.2 measured in CaCl₂). Total rainfall from June to November was 129.6 mm. Rain fell every month (≥5.2 mm) between June and October with the wettest month in July (50% of the total rainfall with 17 rainy days). Refer to Table 5 for yield results.

Key messages

- The new wheat varieties – Axe (b), Bumper (b), Espada (b), Fortune (b), Gladius (b) and Magenta (b) showed good tolerance to a range of commonly used herbicides/mixtures.
- Eighteen of the twenty nine treatments tested caused a significant yield reduction in the new short season variety Zippy (b).
- The herbicides Dual® Gold, Ally®, Hussar® and Kamba® caused a yield reduction in many of the varieties in the trial.
- The data presented here are first results for Axe (b), Bumper (b), Espada (b), Fortune (b), Gladius (b), Magenta (b) and Zippy (b) in WA and further testing is required to confirm the results.

Herbicide injury and yield effects

- Triflur® X reduced the plant establishment of Espada (b) significantly and biomass of all the varieties slightly (5%). This treatment resulted in significant yield loss in Bumper (b) and Zippy (b) only. Stomp® reduced the yield of Axe (b) significantly without any visual effects.
- Dual® Gold 250 mL/ha resulted in significant yield loss in Fortune (b), Gladius (b) and Zippy (b). Addition of Diuron 1 L/ha to Dual® Gold 250 L/ha resulted in a significant improvement in crop safety for Fortune (b) and Gladius (b), but not in Zippy (b).

Table 5 Effect of herbicides on grain yield (% of untreated control) of wheat varieties at Mullewa in 2008

No.	Herbicides (rate/ha)	Axe ϕ	Bumper ϕ	Espada ϕ	Fortune ϕ	Gladius ϕ	Janz	Magenta ϕ	Zippy ϕ	Wyalkatchem ϕ
0	Untreated control	100	100	100	100	100	100	100	100	100
	> > Grain yield - kg/ha	2659	2241	2619	2717	2802	2429	2429	2650	2753
1	Logran B Power® 50 g	100	97	105	99	102	100	101	97	103
2	Stomp® 330 1.8 L	94	98	97	102	103	102	98	96	102
3	Triflur® X 3 L	93	91	95	95	99	98	94	91	101
4	Dual® Gold 0.25 L	99	97	98	89	94	99	101	93	103
5	Diuron 1 L + Dual® Gold 0.25 L	97	93	94	105	101	97	99	93	97
6	Boxer® Gold 2.5 L	102	103	107	97	102	95	95	97	104
7	Glean® 20 g	98	106	97	97	97	104	100	94	94
8	Axial® 0.3 L	97	97	99	99	101	105	98	100	102
9	Jaguar® 1 L	100	94	106	97	99	100	97	98	99
10	Monza® 25 g	98	104	94	100	102	101	102	96	94
11	Hoegrass® 375 2 L	98	95	95	103	99	102	101	98	95
12	Cheetah® Gold 1 L	100	99	98	97	101	100	93	91	98
13	Hoegrass® 200 mL +Achieve® 200g	102	107	106	98	100	99	102	93	102
14	Achieve® WG 380 g	100	106	102	100	102	103	101	95	99
15	Ally® 7 g	98	100	93	102	94	103	97	92	92
16	Atlantis® OD 0.33 L	95	103	106	94	101	101	100	90	103
17	Broadside® 1 L	97	101	104	102	100	106	105	94	98
18	Hussar® 200 g	96	91	95	93	99	93	96	92	102
19	Tigrex® 1 L	99	101	104	94	99	97	95	93	100
20	Buctril® MA 1.4 L	99	103	98	101	105	110	102	98	94
21	Affinity® 50 g + MCPA 0.5 L	103	106	102	98	100	100	107	98	102
22	Precept® 300 1 L	101	103	105	107	102	102	108	99	101
23	Eclipse® 5 g + MCPA LVE 0.5 L	97	100	93	97	100	102	98	95	95
24	Diuron 0.35 L + MCPA (Amine) 0.4 L	96	106	98	97	103	100	98	93	103
25	Paragon® 0.5 L	101	103	100	97	99	100	105	92	101
26	MCPA amine 50% 2 L	101	97	97	95	98	99	99	89	97
27	2, 4-D amine 625 1.3 L	101	100	102	90	99	104	100	92	102
28	2, 4-D LV ester 680 0.8 L	102	95	97	95	105	95	95	100	96
29	Kamba® 500 0.5 L	86	94	95	91	93	94	94	92	101
	Isd (0.05) Herbicides v/s Untreated Control	5	8	7	7	5	7	7	5	6
	Isd (0.05) Herbicides v/s Herbicides	6	10	9	9	7	8	9	7	8
	CV (%)	5	8	6	7	5	6	7	6	6

Treatments 1-6 applied before seeding, 7-13 at Z12-Z13, 14-24 at Z13-Z14 and 25-29 at Z15-Z16.

Treatment 1 was applied with Hasten® 0.5% v/v, 7 + BS® 1000 0.1%, 8 + Adigor® 0.5%, 10 + DC Trate® 2% v/v, 13 & 14 + Supercharge® 0.75%, 12, 16 & 22+ Hasten® 1.0% , 11, 15 & 20 + BS® 1000 0.25%, 23+ Uptake® oil 0.5%.

Figures in bold are significantly lower yielding than the untreated control.

- Jaguar® and Broadside® each at 1 L/ha caused slight spotting (10–15%) of the leaves across all the varieties. Broadside® also caused dropping leaves in all the varieties, but a yield reduction was only recorded for Zippy (b).
- Cheetah® Gold 1 L/ha resulted in slight spotting/yellowing (10–15%) of the leaves and an estimated 10% biomass reduction across all varieties during early crop growth stages. This treatment resulted in a significant yield loss in Magenta (b) and Zippy (b) only.
- Ally® 7 g/ha caused differential yellowing and biomass reduction in the different varieties and Axe (b) appeared to be the most affected during early crop growth stages. Interestingly, a significant yield reduction was recorded only for Espada (b), Gladius (b), Wyalkatchem (b) and Zippy (b).
- Achieve® WG 380 g, Achieve® 200 g + Hoegrass® 200 mL, Tigrex® 1 L, Diuron 0.35 L + MCPA 0.4 L, Paragon® 0.5 L and MCPA (amine) 2 L/ha caused a significant yield reduction in Zippy (b) only, whereas Glean® 20 g/ha caused a significant yield reduction in Zippy (b) and Wyalkatchem (b), Monza® 25 g and Buctril® MA 1.4 L/ha caused a significant yield reduction in Wyalkatchem (b), Atlantis® 0.33 L/ha caused a significant yield reduction in Axe (b) and Zippy (b), Hussar® 200 g/ha caused a significant yield reduction in Bumper (b), Fortune (b), Janz and Zippy (b) and Eclipse® 5 g + MCPA 0.5 L/ha caused a significant yield reduction in Espada (b) and Zippy (b). All of these significant yield reductions were recorded without any noticeable visual negative effects.
- Kamba® caused drooping leaves/flaccidity symptoms across all the varieties and resulted in a significant yield loss in Axe (b), Fortune (b), Gladius (b), and Zipp (b).
- 2,4-D amine 625 1.3 L/ha resulted in more ear head deformities in Bumper (b) (15%) and Fortune (b) (10%) compared to Wyalkatchem (b) (3%). A significant yield loss was recorded in Fortune (b) and Zippy (b) only. Interestingly, 2,4-D LV ester 680 (xtra) 0.8 L/ha was safe on all varieties tested.
- Timing of phenoxy herbicides like MCPA and 2,4-D is critical as they often produce morphological abnormalities in vegetative parts and the ear. Product label recommendations are based on the number of

leaves on the main stem, however wheat is most sensitive to phenoxy herbicides at the double ridge stage of ear development (the point at which the ear first starts to form). Labels do not take into account differences in the timing of ear development between varieties. Previous observations indicate that stress during early crop growth stages (e.g. moisture stress) can also affect internal ear development rates. Product labels state that MCPA LV Ester up to 0.5 L/ha can be used from 3 leaf stage to flag leaf just visible (Z13-Z33) and from 0.5 L to 2.1L/ha between Z15-Z33. 2,4-D Amine 50% up to 1.6L and 2,4-D LV Ester 680 up to 0.8L/ha can be used from Z15-Z33. Previous research in WA indicates that the safer timing of application of higher rates of phenoxy herbicides in Carnamah (b) and Calingiri starts from Z15.8-Z16.5 and Z16.7-Z17.8 respectively. Bumper (b) and Fortune (b) are similar in maturity to Carnamah (b) and Calingiri, respectively. Therefore delaying application of higher rates of phenoxy herbicides on Bumper (b) until 5.8–6.5 leaves and Fortune (b) until 6.7–7.8 leaves is advised to avoid ear deformities and yield loss (despite labels stating 5 leaves on main stem). Most of the varieties including Bumper (b) and Fortune (b) had 5.5 leaves on the main stem when the Z15-Z16 treatments were applied.

- The yield loss in Gladius (b) from the Ally® and Kamba® (dicamba) treatments is consistent with South Australian trial results (<http://www.nvtonline.com.au/herbicide-tolerance>).

Time of sowing and phenology data

The results of time of sowing experiments and phenology experiments conducted in 2008 are summarised in Tables 8 to 18. When making variety and/or agronomic decisions, growers should use this information in conjunction with other information sources on performance over a range of years.

Note for Tables 8-18:

- * = Screenings are preliminary as they include whole and cracked grain.
- ^ = Gross income was calculated on the average yield and quality for each treatment using Cash price basis – Base rate AH \$304.5, APW \$292.5, ASW \$267.5, ASWN \$267.5 and ASFT \$317.50.

N/A = Results not available at time of printing..

Variety and agronomy for 2009

Varieties

There are increasingly more varieties being released each year. This Bulletin aims to help with choosing and growing new varieties. Before adopting a new variety it is important to consider why you want to replace existing varieties as many of the new releases may not offer any benefits over existing ones.

There are several new varieties that were released in 2008. This bulletin is designed to help you consider their advantages and risks. Mace (D) (APW) has great potential as it appears to be yielding very well across the state, provides good disease resistance, grain quality and useful sprouting tolerance. Zippy (D) (APW) is marketed as a short season variety suitable for later sowing. Unfortunately with our soft finish last season it was difficult to see any advantages of Zippy (D) in our time of sowing trials over existing material. Magenta (D) (APW) was released in 2007 and continues to yield exceptionally well. It is susceptible to sprouting and not recommended on the South Coast. Fortune (D) (ASWN) is a new noodle variety that is performing well enough to warrant consideration as a replacement for Calingiri. Other recently released varieties considered in this bulletin include Espada (D) (APW), Fang (D) (APW), Endure (D) (APW) and Bumper (D) (ASW).

Seasonal conditions

Summer rain in many areas will mean that there will be significant stored soil moisture leading into the 2009 cropping season. This will give growers greater certainty going into the cropping year and perhaps lead to earlier sowing opportunities and increased areas of crop being sown. Be prepared for the season ahead and consider weed management options. Crop inputs should still be used tactically where possible to avoid too many up front costs which can increase losses if the season doesn't finish strongly.

Nitrogen

A wet summer can mean that large quantities of nitrogen are mineralised and become plant available. Availability to the following crop is dependent on the magnitude and quantity of summer rain and mineralised nitrogen loss through leaching prior to sowing.

It is difficult prior to sowing the crop to accurately measure available nitrogen so we recommend tactical nitrogen applications. With this approach only approximately 30% of total potential N requirements are committed at seeding. Top up nitrogen is added as dictated by the season. Recent research has demonstrated that late applications of nitrogen can be very beneficial. Splitting N applications allows growers to make an assessment of ensuing growing

conditions with more accurate knowledge of yield potential before committing more fertiliser costs.

Seed quality after a wet harvest

Routine germination testing before seeding is recommended. Grain with lower germination produces seedlings with slower and more variable emergence. Replacing seed with less than 90% germination is recommended. Slight losses in germination can be compensated for by increasing seeding rates.

Although grain size has little or no effect on germination, small seeds result in seedlings that are less vigorous than those from large seeds, therefore grade seed well. Viable frosted grains produce seedlings that take longer to reach the same seedling dry weight than seedlings from sound grain.

If germination levels are within acceptable limits, sprouted seed is a viable seed source as long as it is used in the following season or the falling number is above 150 seconds. However, seed with exposed germs will be more susceptible to chemical and physical damage. As grain may not return to original size after sprouting a seed rate increase may be required to compensate for any drop in grain weight.

Minimise the impact of sub-optimal seed quality by adhering to the following guidelines:

- Ensure seed handling is kept to a minimum (including correct seeder air speed settings).
- Avoid sowing too deep, minimise variation in sowing depth and where practical sow into warm moist conditions.
- Use fungicide seed dressings and pre-emergent herbicides such as trifluralin with care, as they can adversely affect germination and crop establishment.
- Ensure that phosphorus levels available to the seed are adequate to maximise early vigour.

Apply post-emergent herbicides at the correct growth stage.

Table 6 Yields of ASFT, APW and ASWN varieties in CVT and related trials over a range of years up to and including 2007 expressed as a percentage of Datatine (D)

Soft series	Agzone 2		Agzone 3	
	%	n	%	n
Bullaring (D)	109	44	116	14
Calingiri	101	19	95	9
Corrigin	105	27	104	12
Datatine	100	52	100	19
EGA2248 (D)	115	46	112	16
EGA Jitarning (D)	103	46	103	17
Tincurrin	102	46	104	16
Wyalkatchem (D)	105	17	95	9

n = Number of trials.

Table 7 Yields of varieties in NVT trials over a range of years from 2000 up to and including 2008 expressed as a percentage of Wyalkatchem ♂

Wyalkatchem (t/ha)	AGZONE 1		AGZONE 2		AGZONE 3		AGZONE 4		AGZONE 5		AGZONE 6	
	3.03		2.54		3.07		1.71		2.30		2.99	
	%	n	%	n	%	n	%	n	%	n	%	n
AGT Scythe ♂	95	17	96	44	99	21	95	32	96	22	96	10
Annuello ♂	91	8	88	22	93	11	88	13	87	18	86	10
Arrino	95	32	96	73	96	25	97	41	94	26	96	9
Axe ♂	87	16	88	37	90	17	89	21	88	15	88	8
Barham ♂			85	27	89	14			88	19	85	7
Baxter ♂	86	3	88	4			92	5	88	5		
Beaufort ♂					109	4						
Binnu ♂	98	19	98	45	101	18	96	25	97	14	98	6
Braewood									87	9	90	5
Bullet ♂			89	25								
Bumper ♂	101	15	101	40	104	18	100	24	98	18	98	8
Calingiri	100	32	97	77	100	28	99	41	95	27	98	10
Carinya ♂	94	14	94	42	98	20	92	22	92	19	95	10
Carnamah ♂	97	54	97	102	97	38	93	66	93	65	94	29
Cascades	89	53	87	93	91	34	87	71	88	55	89	28
Catalina ♂	93	4	94	22	96	11	95	12	93	8	94	3
Chara ♂	92	6	87	12	91	5	84	10	85	7		
Correll ♂	96	19	98	54	99	25	100	31	97	22	94	12
Crusader ♂	91	4	90	11	92	6	91	4	89	6	90	3
Dakota ♂	92	4	91	11	93	6	90	4	90	6	91	3
Datatine	97	14	96	68	101	40	97	23	97	24	95	8
Derrimut ♂			91	16	94	13			90	4	93	6
Drysdale ♂	92	5	90	8	93	6	92	3	88	6		
EGA Bonnie Rock ♂	96	40	96	72	99	15	98	54	94	36	96	16
EGA Burke ♂	83	3					84	3	80	4		
EGA Eaglehawk ♂			90	11	92	5			87	3		
EGA Gregory ♂	86	17	83	35	88	23	85	18	85	27	81	13
EGA Hume ♂	83	6	81	9	84	6	80	5	81	9	81	5
EGA Stampede ♂	97	4	95	11	98	6	97	4	96	6	93	3
EGA Wedgetail ♂	79	6	80	6	85	3	73	3	77	9	82	3
EGA Wentworth ♂	92	23	94	58	97	28	93	35	95	27	94	13
EGA Wills ♂	86	3	89	13	89	8					84	4
EGA Wylie ♂	83	4	83	6	83	10	84	5	84	12	79	5
Ellison ♂							85	3	86	4		
Endure ♂	91	6	91	17	93	12	89	11	89	15	92	6
Espada ♂	102	9	102	23	103	11	102	22	99	15	100	8
Fang ♂	97	9	96	23	101	11	96	13	97	9	99	5
Fortune ♂	97	12	97	26	100	12	98	14	98	10		
Frame	90	3	90	3					89	3		
Gascoigne ♂			90	11	93	14					90	8
GBA Hunter ♂					97	5						
GBA Ruby ♂	97	20	96	40	97	16	96	25	94	21	95	6
GBA Sapphire ♂	91	29	91	63	95	27	89	39	91	25	93	17
Giles ♂	92	3	89	4			86	7	88	9	90	3
Gladius ♂	97	19	97	52	97	23	98	30	96	21	95	11
Guardian ♂	98	12	101	52	102	18	102	22	98	14	97	6
H46 ♂									90	13	95	7
Hartog	87	3	88	8	90	3	86	9	85	7		
Hornet ♂	92	4	90	11	94	6	89	4	89	6	91	3
Janz	91	8	89	26	92	9	89	20	90	15	90	4
Kennedy ♂	91	9	92	23	93	11	91	13	89	9	90	5
Kukri ♂	87	14	88	19	89	8	89	16	87	14	86	8
Lang ♂	86	11	84	16	89	7	84	14	85	13	87	7
Lincoln ♂	94	4	94	22	96	11	92	4	91	9	92	5
Livingston ♂					91	7					86	7
Mace ♂	104	5	102	12	105	5	102	9	103	3		
Magenta ♂	101	26	102	59	104	24	103	36	99	30	99	15
Merinda ♂					92	6			87	9	89	5
Peake ♂	90	7	91	30	93	19	95	9	93	10	91	9
Pugsley ♂	97	5	97	5			95	5	95	6		
QALBIS ♂			87	6	92	5						
Sentinel ♂	92	5	89	28	95	14	85	16	84	12	90	4
Sunco	83	5	83	15	85	4	82	11	83	12	81	4
Waagan ♂	99	5	100	14	101	8	102	8	100	7	98	4
Westonia	97	64	99	139	102	51	98	76	95	69	98	22
Wyalkatchem ♂	100	57	100	121	100	47	100	66	100	62	100	27
Wylah ♂	88	3	84	3			80	3				
Yandanooka ♂	94	19	95	43	95	18	96	25	93	16	92	4
Yitpi ♂	96	14	97	45	99	18	98	28	97	21	95	12
Young ♂	94	19	97	54	100	25	98	31	97	22	97	12
Zippy ♂	85	15	87	40	87	13	91	24	89	15	84	6

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Australian Hard wheat

In the time of sowing trials in 2008 Carnamah (b) and Yitpi (b) yielded best with the early May sowing. Tammarin Rock (b) and EGA Bonnie Rock (b) yielded best with the later May sowing. However the quality of Tammarin Rock (b) was down graded because of staining when sown in mid May at Mingenew.

Australian Premium White wheat

In the NVT trials (2000 to 2008), the recently released APW wheats Espada (b), Mace (b) and Magenta (b) all yielded between 1 and 4% more than Wyalkatchem in Agzones 1, 2 and 4. (Table 6).

In the time of sowing trials in 2008, Magenta (b), Wyalkatchem (b) and Mace (b) were top yielding varieties with the early May sowing. Magenta (b) was a top yielding variety with the mid/late May seeding.

Early maturing Axe (b) and Zippy (b) did not yield particularly well at any sowing time. Screenings were similar to Wyalkatchem (b) and lower than most other varieties with June sowing.

Significant staining in Carinya (b), Espada (b) and Gladius (b) primarily at earlier sowing at Mingenew.

ASW Noodle wheat

In the NVT trials (2000 to 2008), the ASWN wheats Fortune (b), Yandanooka (b) and Binnu (b) all yielded between 2 and 6% less than Wyalkatchem (b) in Agzones 1, 2 and 4 (Table 6).

Binnu (b), Yandanooka (b) and Fortune (b) all had similar yields which were not significantly different to Calingiri at most sowing times across all sites. However the yields of Calingiri were significantly higher than Binnu (b) with 2 May sowing at Mullewa and Marchagee. Calingiri also out yielded Yandanooka (b). Yandanooka (b) is taller than the other varieties (particularly in higher yielding situations). Binnu (b) had higher screenings primarily at the earlier sowing times however levels did not exceed 5%. Binnu (b), Fortune (b) and Yandanooka (b) all have better noodle quality than Calingiri and provide some improvements in disease resistance (Table 2 and 3).

Mingenew Agzone 1 – Table 8

Paddock history: 2007 barley, 2006 wheat, 2005 lupin

Soil description: yellow sand plain

Rainfall (mm): GSR = growing season rainfall (April–October) 270 mm

Times of sowing: 1 May, 20 May, 18 June

Comments: First sowing was into stored moisture in early May. Second sowing was into marginal moisture however there were follow up rains and the last seeding was into moisture. Moisture stress in August reduced potential however the spring rains increased staining of some varieties but reduced screenings levels. Site was in its third cereal phase and nitrogen management needed to be improved to ensure these varieties meet target yields.

Marchagee Agzone 2 – Table 9

Paddock history: 2007 canola, 2006 wheat, 2005 brown manured pasture

Soil description: Gravelly loam

Rainfall (mm): GSR = (April–October) 324 mm

Times of sowing: 1 May, 16 May, 12 June

Comments: After limited summer rain, crops relied on 50 mm of rain in late April and smaller showers throughout May and June. The wet July was followed by a dry August and the spring rains were important to maintain yield and grain quality.

Mullewa Agzone 4 – Table 10

Paddock history: 2007 fallow, 2006 fallow, 2005 wheat

Soil description: sandy loam

Rainfall (mm): GSR (April–October) = 223.8 mm; Jan–Mar = 95 mm

Times of sowing: 2 May, 10 June, 24 June

Comments: Significant stored moisture at seeding provided an early May sowing opportunity. However follow up seeding opportunities did not occur until June. Good spring rains set up excellent crop production.

Table 8 Effect of sowing time on yield, quality and economic returns of wheat varieties at Mingenev in 2008

	Grain yield (t/ha)			Protein (%)			Staining (#per 500 seeds)			Gross Income (\$/ha)					
	1 May	20 May	18 Jun	ave	1 May	20 May	18 Jun	ave	1 May	20 May	18 Jun	ave			
AH															
Carnamah (b)	4.19	3.42	1.03	2.88	10.7	10.7	12.2	11.2	6	13	2	6	1277	1043	315
EGA Bonnie Rock (b)	3.56	3.76	1.15	2.82	11.3	10.5	12.3	11.4	1	1	3	1	1083	1145	351
Tamarin Rock (b)	3.75	4.27	1.30	3.11	11.1	10.0	11.2	10.8	7	30	4	7	1142	1227	397
Yitpi (b)	4.07	3.19	1.37	2.88	10.0	10.9	12.4	11.1	23	20	25	23	1239	973	417
Axe (b)	2.54	2.48	1.03	2.02	12.8	11.8	12.5	12.4	11	6	14	11	743	726	301
Carinya (b)	3.52	2.28	0.78	2.19	10.8	11.4	12.5	11.6	27	80	16	41	925	228	228
Catalina (b)	2.98	3.41	1.03	2.48	11.2	10.6	11.9	11.2	6	23	19	16	873	997	302
Correll (b)	4.24	3.35	1.24	2.94	10.3	10.5	12.1	11.0	9	8	5	8	1240	980	362
Derrimut Wt (b)	2.48	2.65	0.73	1.95	11.3	10.8	12.3	11.5	8	5	7	7	727	775	213
EGA Wentworth (b)	3.04	2.73	0.74	2.17	11.1	11.6	13.0	11.9	5	21	6	11	889	799	217
Espada (b)	3.87	3.68	1.17	2.91	11.2	10.5	12.4	11.4	55	58	18	43	1017	967	341
Gladius (b)	3.75	3.46	1.36	2.85	11.3	10.4	11.7	11.1	2	26	5	11	1097	907	397
Lincoln (b)	4.60	2.65	1.04	2.76	10.4	10.8	12.2	11.1	10	2	4	5	1345	774	305
Mace (b)	4.12	3.79	1.44	3.12	9.9	9.7	11.1	10.2	3	3	5	3	1206	1109	420
Magenta (b)	4.71	4.17	1.16	3.35	10.4	10.2	12.7	11.1	10	20	17	16	1377	1221	340
Wyalkatchem (b)	4.54	3.85	1.38	3.26	10.5	10.1	11.4	10.7	5	10	5	7	1328	1127	404
Young (b)	3.05	3.46	1.12	2.54	10.8	10.6	12.4	11.3	4	1	3	3	893	1013	327
Zippy (b)	2.62	2.82	1.14	2.19	12.2	11.0	12.6	11.9	4	3	6	4	766	825	333
ASWN															
Arrino	3.74	3.35	1.23	2.77	11.3	10.9	12.3	11.5	3	14	15	10	1000	897	330
Binnu (b)	4.24	3.88	1.00	3.04	9.8	10.0	11.8	10.5	5	7	17	10	1134	1037	268
Calingiri	4.46	3.87	1.22	3.18	10.1	10.4	12.1	10.9	12	20	9	14	1192	1035	326
Fortune (b)	4.12	3.54	0.98	2.88	11.1	11.3	13.1	11.8	10	20	10	13	1102	946	263
Yandanooka (b)	4.20	3.66	1.03	2.96	11.0	10.8	12.4	11.4	3	11	4	6	1123	979	276
Average within each TOS	3.75	3.38	1.12	2.75	10.9	10.7	12.2	11.3	10.0	17.9	9.6	13			
TOS (lsd)	0.32				0.4				5.2						
Var (lsd)	0.25				0.3				11.8						
Var (lsd) between TOS	0.44				0.5				20.5						
Var (lsd) within TOS	0.49				0.6				20.4						
%CV	10				2.6				101						

Table 9 Effect of sowing time on yield, quality and economic returns of wheat varieties at Marchagee in 2008

	Grain yield (t/ha)				Protein (%)				Screenings (%)				Gross Income (\$/ha)			
	1 May	16 May	12 Jun	ave	1 May	16 May	12 Jun	ave	1 May	16 May	12 Jun	ave	1 May	16 May	12 Jun	ave
AH																
Carnamah (b)	4.94	5.15	3.92	4.67	11.3	10.7	11.3	11.1	4.0	3.2	2.8	3.3	1505	1378	1195	
EGA Bonnie Rock (b)	4.36	4.50	3.87	4.24	12.0	10.6	11.4	11.3	3.8	2.5	2.7	3.0	1327	1203	1179	
Tammarin Rock (b)	3.85	4.70	3.65	4.07	11.5	10.5	10.6	10.9	4.4	3.5	2.8	3.6	1174	1258	976	
Yitpi (b)	4.61	4.46	3.78	4.28	11.9	10.8	11.3	11.3	3.7	4.4	4.0	4.0	1404	1192	1152	
APW																
Axe (b)	2.27	3.64	3.35	3.08	13.1	12.0	11.4	12.2	3.3	2.7	3.6	3.2	595	1064	979	
Carinya (b)	4.12	4.34	3.17	3.88	10.9	10.9	10.8	10.9	2.0	2.0	2.2	2.1	1206	1268	928	
Catalina (b)	3.40	4.30	3.91	3.87	11.0	10.3	10.9	10.7	4.1	2.3	3.5	3.3	993	1259	1145	
Correll (b)	4.22	4.86	3.46	4.18	11.8	10.8	11.2	11.3	4.3	2.4	5.0	3.9	1234	1423	1012	
Derrimut Wt (b)	2.93	4.14	3.51	3.53	10.9	10.3	10.5	10.6	7.9	5.0	4.0	5.6	858	1210	1027	
EGA Wentworth (b)	3.99	4.11	3.39	3.83	11.4	10.5	11.2	11.1	3.3	2.9	3.6	3.3	1166	1201	992	
Espada (b)	4.11	4.59	3.64	4.11	13.0	10.6	11.3	11.6	2.6	2.6	3.0	2.8	1202	1344	1063	
Gladius (b)	4.11	4.63	3.71	4.15	11.6	10.5	11.1	11.1	2.5	3.2	3.3	3.0	1201	1354	1084	
Lincoln (b)	4.05	4.62	3.36	4.01	11.1	10.1	10.7	10.6	4.7	4.4	3.8	4.3	1184	1351	984	
Mace (b)	5.08	5.40	3.66	4.71	10.6	10.3	10.9	10.6	2.9	2.2	2.4	2.5	1486	1579	1072	
Magenta (b)	5.72	5.36	3.98	5.02	10.6	10.7	11.4	10.9	4.5	3.5	2.9	3.6	1673	1569	1163	
Wyalkatchem (b)	4.76	5.27	3.65	4.56	11.7	10.1	11.4	11.0	2.0	1.8	1.4	1.7	1391	1541	1068	
Young (b)	3.63	4.68	3.73	4.02	12.4	11.4	11.0	11.6	2.6	2.3	2.0	2.3	1063	1370	1092	
Zippy (b)	2.84	4.40	3.55	3.60	12.5	11.6	10.8	11.6	2.6	2.1	1.8	2.2	831	1287	1038	
ASWN																
Arrino	4.22	4.83	3.61	4.22	12.7	9.9	11.8	11.5	1.6	1.3	0.9	1.3	1129	1292	965	
Binnu (b)	4.70	4.94	3.61	4.42	10.5	9.9	10.9	10.4	3.9	2.5	2.1	2.8	1258	1322	965	
Calingiri	5.41	4.89	3.73	4.68	11.0	10.5	10.9	10.8	1.9	2.1	2.1	2.0	1446	1309	998	
Fortune (b)	5.06	5.13	3.69	4.63	11.8	10.0	11.4	11.1	2.0	2.1	2.2	2.1	1354	1372	987	
Yandanooka (b)	4.99	4.97	4.31	4.76	11.5	10.7	11.5	11.2	2.0	1.9	2.2	2.1	1335	1330	1153	
Average within each TOS	4.24	4.69	3.66	4.20	11.6	10.6	11.1	11.1	3.3	2.7	2.8	2.9				
TOS (lsd)	0.15				0.8				0.7							
Var (lsd)	0.24				0.5				0.4							
Var (lsd) between TOS	0.42				0.9				0.7							
Var (lsd) within TOS	0.42				1.1				0.9							
%CV	6				3.7				13.7							

Table 10 Effect of sowing time on yield, quality and economic returns of wheat varieties at Mullewa in 2008

	Grain yield (t/ha)				Protein (%)				Screenings (%) *				Gross Income (\$/ha)			
	2 May	10 Jun	24 Jun	ave	2 May	10 Jun	24 Jun	ave	2 May	10 Jun	24 Jun	ave	2 May	10 Jun	24 Jun	
AH																
Carnamah (b)	4.81	3.47	2.46	3.58	10.4	9.6	10.6	10.2	2.0	2.5	2.0	2.2	1287	929	657	
EGA Bonnie Rock (b)	3.36	3.09	2.37	2.94	11.7	10.8	10.6	11.0	2.1	1.9	2.5	2.2	1022	827	634	
Tamarin Rock (b)	3.60	3.60	2.61	3.27	10.7	9.4	9.7	9.9	1.8	2.5	3.3	2.5	964	963	698	
Axe (b)	2.98	3.03	2.01	2.67	12.3	10.2	10.7	11.1	1.6	1.8	2.0	1.8	872	885	587	
Carinya (b)	4.00	3.01	1.95	2.99	10.9	9.9	10.5	10.4	1.1	1.0	1.4	1.2	1170	805	569	
Catalina (b)	3.65	3.25	2.15	3.02	11.4	10.0	10.3	10.6	1.3	1.3	2.5	1.7	1067	950	630	
Correll (b)	3.99	3.37	2.29	3.22	10.3	9.2	10.6	10.0	1.2	1.2	4.0	2.1	1167	902	670	
Derrimut Wt (b)	3.59	3.28	2.21	3.03	10.8	9.6	10.3	10.2	2.7	2.5	3.1	2.7	1051	878	645	
EGA Wentworth (b)	3.48	2.89	1.86	2.74	10.6	9.7	11.0	10.4	2.1	1.7	3.0	2.3	1018	773	545	
Espada (b)	3.77	3.23	2.30	3.10	10.9	10.5	11.1	10.8	2.0	1.9	2.6	2.2	1102	945	672	
Gladus (b)	4.22	3.18	2.16	3.19	11.2	10.1	10.7	10.7	1.5	1.6	3.0	2.0	1233	930	633	
Lincoln (b)	3.93	3.37	2.25	3.18	11.3	9.3	9.6	10.1	2.7	3.0	3.4	3.0	1149	901	603	
Mace (b)	3.66	3.55	2.67	3.29	10.1	9.2	9.9	9.8	2.0	1.5	2.6	2.0	1071	949	713	
Magenta (b)	5.07	3.76	2.30	3.71	10.5	10.7	11.7	11.0	2.8	2.1	2.0	2.3	1484	1098	702	
Wyalkatchem (b)	4.45	3.62	2.37	3.48	10.5	9.5	10.6	10.2	1.1	1.2	1.5	1.3	1301	969	693	
Young (b)	3.12	3.34	2.17	2.88	11.3	10.2	10.1	10.5	1.6	1.7	2.9	2.1	912	976	635	
Zippy (b)	2.30	3.17	2.12	2.53	11.9	10.8	10.8	11.2	1.9	1.5	1.5	1.7	674	928	621	
ASWN																
Arrino	4.27	3.57	2.16	3.33	11.0	10.5	10.5	10.6	0.9	0.9	0.9	0.9	1260	940	677	
Binnu (b)	4.46	3.30	2.21	3.32	9.9	9.0	9.7	9.5	2.9	2.6	4.3	3.3	1142	954	577	
Calingiri	5.34	3.58	2.51	3.81	11.0	10.0	10.8	10.6	0.9	1.6	1.4	1.3	1192	884	591	
Fortune (b)	4.88	3.58	2.38	3.61	11.8	10.2	11.2	11.1	0.8	1.6	2.1	1.5	1428	957	672	
Yandanooka (b)	4.31	3.55	2.52	3.46	10.7	10.3	10.5	10.5	1.4	1.9	2.2	1.8	1304	958	636	
Bumper (b)	4.71	3.51	2.31	3.51	10.6	9.8	10.7	10.4	2.2	3.0	3.0	2.8	1260	940	677	
Average within each TOS	3.98	3.36	2.28	1.20	11.0	9.9	10.5	10.5	1.8	1.9	2.5	2.1				
TOS (lsd)	0.73				0.7				0.6							
Var (lsd)	0.247				0.36				1.05							
Var (lsd) between TOS	0.746				0.83				1.8							
Var (lsd) within TOS	0.428				0.63				1.8							
%CV	0.73				3.7				52.7							

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The yields and gross returns of several newer APW varieties, (including Mace (b) and Magenta (b)), were comparable, if not better than Wyalkatchem (b) at some times of sowing at Corrigin, Merredin and Wongan Hills.

High screenings and low hectolitre weight were not an issue at any of three trial locations in 2008.

The grain yield of Mace (b) exceeded all of the wheat varieties in the National Variety Testing (NVT) trial at Wongan Hills (Agzone 2) and was equally as good as Wyalkatchem (b) at Merredin (Agzone 4) in 2008. More information on the NVT trial results are available on: www.nvtonline.com.au and Table 7 of this bulletin.

The performance of the three new noodle wheats, Binnu (b), Fortune (b) and Yandanooka (b) was comparative to that of Calingiri at Wongan Hills (Table 11). Grain protein levels for all noodle varieties grown at Wongan Hills were within the delivery standards at all times of sowings except for Binnu (b) and Fortune (b) in TOS1.

The newly released varieties Mace (b) and Fortune (b) were among the top yielders, including Magenta (b), Yandanooka (b), Binnu, Yitpi (b), Young (b) and Wyalkatchem (b) at Wongan Hills. The gross income of Magenta (b), Yitpi (b) and Mace (b) was higher than for Tammarin Rock (b), Carnamah (b), EGA Bonnie Rock (b) and Wyalkatchem (b).

There was no significant difference between yields of the top yielding varieties Espada (b), Gladius (b), EGA Wentworth (b), Bumper (b) and Derrimut (b) at Merredin which was frost affected (Table 12). Magenta (b), Espada (b), Bumper (b), Guardian (b) and Mace (b) were also the top performers in the NVT trial at Merredin in 2008.

The soft wheat EGA 2248 (b) was the highest yielding variety at Corrigin however it only met protein standards for soft wheat when sown in late May (Table 13).

The newly released variety Mace (b), Fang (b) and Fortune (b) were among the top performers at Corrigin. Mace (b) offers excellent resistance to stem, stripe and leaf rust. Most of the noodle varieties achieved the delivery standard of 9.5–11.5% protein at all time of sowings. The gross returns of Carnamah (b), Magenta (b), Mace (b) Yitpi (b), EGA 2248 (b) were higher than that of Fortune (b), Wyalkatchem (b) and Zippy (b).

Wongan Hills Agzone 2 – Table 11

Paddock history: 2007 pasture, 2006 pasture, 2005 pasture

Soil description: Sandy loam, soil pH (CaCl₂): 0–10 cm: 5.2 and 20–30 cm: 6.1

Rainfall (mm): GSR = growing season rainfall (April–October) 301.2 mm; total = 347.2 mm

Times of sowing: 23 May, 15 June, 3 July

Comments: Minimal summer rain (J–M = 30.8 mm). First sowing opportunity was 23 May. Disease and weed pressure were low. Good rain falls in September and October helped with grain fill.

Merredin Agzone 4 – Table 12

Paddock history: 2007 pasture, 2006 wheat, 2005 field peas

Soil description: Loamy earth, soil pH (CaCl₂): 0–10 cm: 4.6 and 20–30 cm: 5.2

Rainfall (mm): GSR (April–October) = 282.6 mm; total = 318.2 mm

Times of sowing: 29 April, 18 June, 18 July

Comments: Minimal summer rain (J–M = 15.8 mm). The first time of sowing at this site was sown on 29 April with good rain, however a light irrigation was given to save the crop due to dry spell in May. Patchy germination was observed at TOS1 compared to other sowing times. Results must be viewed with caution as frost event was recorded in September.

Corrigin Agzone 2 – Table 13

Paddock history: 2007 canola, 2006 wheat, 2005 field peas

Soil description: Soil pH (CaCl₂): 0–10 cm: 4.6 and 20–30 cm: 4.9

Rainfall (mm): GSR (April–October) = 310.1 mm; total = 330.2 mm

Times of sowing: 12 May, 4 June, 24 June

Comments: Rainfall prior to seeding was very low. In the months of January to April there was only 71.3 mm, so stored moisture was very low. The first time of sowing at this site was sown on 12 May, very close to break. Subsequent sowings were as rainfall permitted.

Table 11 Effect of sowing time on yield, quality and economic returns of wheat varieties at Wongan Hills in 2008

	Grain yield (t/ha)				Protein (%)				Screenings (%)				Gross income (\$/ha)		
	23 May	15 Jun	3 Jul	ave	23 May	15 Jun	3 Jul	ave	23 May	15 Jun	3 Jul	ave	23 May	15 Jun	3 Jul
AH															
Carnamah (b)	3.13	1.86	1.82	2.27	9.4	11.0	10.5	10.3	4.3	3.8	5.5	4.5	953	566	554
EGA Bonnie Rock (b)	3.30	1.79	1.67	2.25	9.9	11.7	11.3	11.0	3.2	2.6	4.1	3.3	1005	545	509
Tammarin Rock (b)	3.29	1.78	1.81	2.29	9.6	10.8	10.6	10.3	3.8	3.4	4.7	4.0	1002	542	551
Yitpi (b)	3.22	1.75	2.18	2.38	10.0	11.1	10.5	10.5	6.7	5.5	6.0	6.1	980	533	664
APW															
Axe (b)	2.81	1.90	2.09	2.27	9.8	10.9	10.8	10.5	3.3	3.9	3.5	3.6	822	556	611
Carinya (b)	3.03	1.97	1.86	2.29	9.7	11.1	10.3	10.4	1.4	2.3	3.5	2.4	886	576	544
Catalina (b)	3.07	1.82	2.10	2.33	9.5	11.0	10.3	10.3	3.1	2.3	4.0	3.1	898	532	614
Correll (b)	2.75	1.80	2.35	2.30	10.2	10.6	10.2	10.3	4.1	7.8	6.5	6.1	804	527	687
Derrimut Wt (b)	3.35	1.62	1.85	2.27	8.6	10.4	10.0	9.7	3.5	5.4	6.4	5.1	963	474	541
EGA Wentworth (b)	3.13	1.89	1.74	2.25	9.5	11.0	10.3	10.3	2.5	3.4	4.6	3.5	916	553	509
Espada (b)	3.07	1.63	1.81	2.17	9.5	10.9	10.7	10.4	3.0	4.0	4.7	3.9	898	477	529
Gladius (b)	3.13	1.70	2.14	2.32	8.9	11.6	10.8	10.4	3.5	3.9	3.2	3.5	900	497	626
Lincoln (b)	3.21	1.66	1.96	2.28	9.5	11.1	10.6	10.4	4.5	4.0	3.4	4.0	939	486	573
Mace (b)	3.35	1.74	2.18	2.42	8.5	11.2	10.1	9.9	2.4	2.8	4.2	3.1	963	509	638
Magenta (b)	3.37	2.07	2.39	2.61	9.3	11.5	10.0	10.3	4.5	6.2	4.8	5.2	969	605	699
Wyalkatchem (b)	3.39	1.74	1.88	2.34	9.1	11.4	10.7	10.4	2.2	1.9	2.2	2.1	975	509	550
Young (b)	3.16	2.06	1.80	2.34	9.1	10.5	10.8	10.1	2.4	2.6	3.9	3.0	909	603	527
Zippy (b)	2.99	1.77	1.55	2.10	9.6	11.0	11.9	10.8	2.7	2.1	1.4	2.1	875	518	453
ASWN															
Arrino	3.00	1.73	1.92	2.22	10.3	11.2	10.2	10.6	1.0	0.9	2.4	1.4	803	463	514
Binnu (b)	3.36	1.68	2.14	2.39	8.9	10.5	9.7	9.7	2.9	2.7	3.9	3.2	865	433	551
Calingiri	3.11	1.69	1.99	2.26	9.8	10.7	10.2	10.2	2.9	3.6	4.3	3.6	832	452	532
Fortune (b)	3.19	1.68	2.15	2.34	9.0	10.9	10.4	10.1	2.9	3.1	3.9	3.3	821	433	554
Yandanooka (b)	3.16	2.15	2.16	2.49	9.8	11.9	10.1	10.6	2.7	2.0	4.4	3.0	845	575	578
Average within each TOS	3.16	1.79	1.99	2.31	9.5	11.1	10.5	10.3	3.2	3.5	4.2	3.6			
TOS (lsd)	0.43				0.9				4						
Var (lsd)	0.22				0.4				0.9						
Var (lsd) between TOS	0.51				1.1				3.9						
Var (lsd) within TOS	0.39				0.7				1.7						
%CV	10.5				4.5				29.3						

Table 12 Effect of sowing time on yield, quality and economic returns of wheat varieties at Merredin 2008

	Grain Yield (t/ha)				Protein (%)				Screenings (%)				Gross income (\$/ha)			
	29 Apr	18 Jun	18 Jul	ave	29Apr	18 Jun	18 Jul	ave	29 Apr	18 Jun	18 Jul	ave	29 Apr	18 Jun	18 Jul	ave
PH																
Carnamah (b)	1.22	1.26	1.45	1.31	13.1	14.6	12.3	13.3	5.1	3.3	5.0	4.5	371	384	442	
EGA Bonnie Rock (b)	1.49	1.16	1.37	1.34	12.8	13.8	13.3	13.3	2.8	3.3	3.9	3.3	454	353	417	
Tamarin Rock (b)	1.53	1.21	1.20	1.21	12.0	13.7	13.2	13.0	4.3	2.6	4.6	3.8	466	368	365	
Yitpi (b)	1.54	1.19	1.22	1.32	11.5	15.3	14.3	13.7	8.3	5.0	4.5	5.9	469	362	371	
Axe (b)	1.51	1.31	1.15	1.32	12.4	12.9	13.7	13.0	4.6	5.0	4.1	4.6	442	383	336	
EGA Bounty (b)	1.20	1.22	1.21	1.21	12.6	13.7	13.5	13.3	2.4	3.9	1.4	2.6	351	357	354	
Catalina (b)	1.32	1.28	1.30	1.30	12.5	13.4	13.1	13.0	2.4	2.5	2.6	2.5	386	374	380	
Correll (b)	1.14	1.23	1.24	1.20	12.9	14.1	13.5	13.5	3.6	5.0	2.9	3.8	333	360	363	
Derrimut Wt (b)	1.68	1.42	1.19	1.43	12.0	13.9	13.3	13.1	3.5	4.5	5.3	4.4	491	415	348	
EGA Wentworth (b)	1.57	1.37	1.52	1.49	11.8	13.2	13.2	12.7	2.5	5.3	2.5	3.4	459	401	445	
Endure (b)	1.15	1.51	1.15	1.27	13.3	13.4	14.6	13.8	1.9	3.3	1.3	2.2	336	442	336	
Espada (b)	1.60	1.52	1.40	1.51	12.4	13.6	13.8	13.3	4.9	4.6	5.1	4.9	468	445	410	
Gladius (b)	1.51	1.53	1.45	1.50	12.8	13.5	14.5	13.6	4.6	3.9	5.3	4.6	442	448	424	
Lincoln (b)	1.45	1.27	1.26	1.33	12.2	13.8	13.5	13.2	5.0	4.2	4.7	4.6	424	371	369	
Mace (b)	1.62	1.29	1.21	1.37	12.5	14.2	13.2	13.3	3.5	3.2	3.5	3.4	474	377	354	
Magenta (b)	1.59	1.24	1.22	1.35	12.5	14.2	14.5	13.7	4.6	5.3	3.3	4.4	465	363	357	
Wyalkatchem (b)	1.39	1.12	1.34	1.28	13.0	14.4	13.5	13.6	1.9	2.4	2.8	2.4	407	328	392	
Young (b)	1.44	1.37	1.30	1.37	12.5	13.5	13.5	13.2	3.4	3.4	6.0	4.3	421	401	380	
Zippy (b)	1.51	1.20	1.05	1.25	12.9	14.5	14.2	13.9	2.7	1.6	2.2	2.2	442	351	307	
ASW																
Binnu (b)	1.48	1.25	1.43	1.39	12.6	13.4	12.3	12.8	2.2	2.5	3.3	2.7	381	322	368	
Calingiri	1.41	1.38	1.24	1.34	12.2	13.1	13.8	13.0	2.3	5.2	4.0	3.8	363	355	319	
Bumper (b)	1.49	1.46	1.36	1.44	12.1	13.5	13.1	12.9	5.7	4.9	5.7	5.4	399	391	364	
Average within each TOS	1.43	1.31	1.28	1.34	12.6	13.9	13.6	13.3	3.7	3.8	3.8	3.8				
TOS (lsd)	0.53				2.1				1.3							
Var (lsd)	0.18				0.9				1.1							
Var (lsd) between TOS	0.54				2.3				2.1							
Var (lsd) within TOS	0.31				1.5				1.8							
%CV	14				7.4				16							

Table 13 Effect of sowing time on yield, quality and economic returns of wheat varieties at Corrigin 2008

	Grain Yield (t/ha)			Protein (%)			Screenings (%)			Gross income (\$/ha)					
	12 May	4 Jun	24 Jun	ave	12 May	4 Jun	24 Jun	ave	12 May	4 Jun	24 Jun	ave			
SE															
Carnamah (b)	2.61	1.40	1.44	1.82	8.9	11.8	11.1	10.6	1.2	1.5	3.2	2.0			
EGA Bonnie Rock (b)	2.39	1.23	1.11	1.58	9.7	13.0	12.7	11.8	1.1	0.7	1.1	1.0			
Yitpi (b)	2.41	1.50	1.34	1.75	9.6	12.8	11.5	11.3	2.3	1.6	2.8	2.2			
Axe (b)	1.55	1.12	1.05	1.24	10.6	12.8	12.8	12.1	0.6	1.0	0.6	0.7			
Carinya (b)	2.04	1.31	1.36	1.57	9.1	12.2	11.0	10.8	0.9	0.5	1.2	0.9			
Catalina (b)	1.44	1.30	1.35	1.36	9.4	11.8	10.8	10.7	1.1	0.5	0.9	0.8			
Correll (b)	2.23	1.36	1.53	1.71	9.4	12.2	11.0	10.9	2.4	0.8	2.1	1.8			
Derrimut Wt (b)	2.22	1.35	1.39	1.65	9.0	11.5	10.1	10.2	1.4	1.2	2.2	1.6			
Espada (b)	2.20	1.37	1.44	1.67	9.9	12.3	11.3	11.2	1.3	0.8	2.1	1.4			
Fang (b)	2.22	1.39	1.48	1.70	9.0	11.7	10.3	10.3	1.0	1.5	2.2	1.6			
Gladus (b)	2.35	1.33	1.37	1.68	9.8	12.3	12.0	11.4	1.4	0.9	1.7	1.3			
Lincoln (b)	1.43	1.20	1.36	1.33	9.7	12.9	11.1	11.2	2.3	0.7	1.9	1.6			
Mace (b)	2.65	1.39	1.43	1.82	8.6	12.1	10.7	10.5	1.7	0.4	2.4	1.5			
Magenta (b)	2.27	1.57	1.70	1.85	9.6	12.2	10.5	10.8	1.6	1.8	1.7	1.7			
Wyalkatchem (b)	2.48	0.95	1.26	1.56	8.9	13.2	11.3	11.1	0.9	0.5	1.4	0.9			
Young (b)	2.29	1.43	0.79	1.50	9.9	12.1	11.7	11.2	1.0	0.5	1.2	0.9			
Zippy (b)	2.13	1.14	0.91	1.39	10.3	12.4	13.1	11.9	1.6	0.5	0.5	0.9			
EGA2248	2.9	1.4	1.35	1.88	9.0	12.3	11.5	10.9	0.3	0.2	0.7	0.4			
ASWN															
Arrino	2.47	1.38	1.30	1.72	9.7	12.1	11.5	11.1	0.5	0.3	0.7	0.5			
Binnu (b)	2.48	1.32	1.30	1.70	9.2	11.4	10.5	10.4	1.0	0.5	3.1	1.5			
Calingiri	2.29	1.52	1.46	1.76	9.6	11.6	10.5	10.6	1.0	0.9	2.6	1.5			
Fortune (b)	2.39	1.54	1.46	1.80	9.1	11.5	11.1	10.6	1.3	0.5	2.8	1.5			
Yandanooka (b)	2.13	1.29	1.36	1.59	9.5	12.5	11.1	11.0	1.5	0.4	2.1	1.3			
Average within each TOS	2.24	1.34	1.32	1.63	9.5	12.2	11.3	11.0	1.3	0.8	1.8	1.3			
TOS (lsd)	0.24				0.2				1.1						
Var (lsd)	0.32				0.3				0.6						
Var(lsd) between TOS	0.54				0.6				1.3						
Var (lsd) within TOS	0.52				0.6				0.9						
%CV	19.9				3.3				38						
ASFT															
12 May	4 Jun	24 Jun	ave	12 May	4 Jun	24 Jun	ave	12 May	4 Jun	24 Jun	ave	12 May	4 Jun	24 Jun	ave
795	426	438		597	383	398		421	380	395		652	398	448	
649	401	421		644	401	421		649	407	433		649	407	433	
687	389	401		687	389	401		687	389	401		687	389	401	
418	351	398		418	351	398		418	351	398		418	351	398	
775	407	418		775	407	418		775	407	418		775	407	418	
664	459	497		664	459	497		664	459	497		664	459	497	
725	278	369		725	278	369		725	278	369		725	278	369	
670	418	231		670	418	231		670	418	231		670	418	231	
623	333	266		623	333	266		623	333	266		623	333	266	
921	361	348		921	361	348		921	361	348		921	361	348	
661	355	335		661	355	335		661	355	335		661	355	335	
639	340	335		639	340	335		639	340	335		639	340	335	
613	391	376		613	391	376		613	391	376		613	391	376	
615	397	376		615	397	376		615	397	376		615	397	376	
570	332	350		570	332	350		570	332	350		570	332	350	

2008 Great Southern and Lakes Regional Summary

In general frost and late rains in 2008 favoured the yields of the longer maturing varieties, particularly at the Katanning site.

Magenta (b) dominated the yield results across the three regions while Wyalkatchem's (b) performance was extremely variable and well below the performance of many other varieties. Magenta (b) is not recommended in Agzone 6 due to low sprouting tolerance, similar to Wyalkatchem (b).

The long season soft wheat EGA Jitarning (b) also performed well in 2008—receiving less frost damage and able to utilise the late rains in 2008. The newly released APW Endure (b) was also able to avoid major frost damage at the Katanning site along with Calingiri (Table 14).

Seven new wheat varieties were released in 2008 targeting Western Australian growers. The early maturing variety Zippy (b) was the lowest yielding at Katanning and Newdegate, even at the later sowing dates. The early maturity of this variety was unlikely to be an advantage with the wet finish experienced in the 2008 season. Time will tell if this variety has an advantage over others with later sowing and a drier finish.

Mace (b) exhibited superior yields compared to Wyalkatchem (b) at the early times of sowing at all sites. Espada (b) and Fang (b) also exhibited impressive yields at various times of sowing across the sites.

Fortune (b) yields were similar to Calingiri and superior to the shorter season noodle varieties Binnu (b) and Yandanooka (b) (and Arrino at Newdegate).

As expected, EGA Eagle Rock (b) was able to sustain relatively high falling numbers at all sowing times at Mt Barker while the less sprouting tolerant Carnamah (b) was downgraded to feed (<200 seconds) in the May sowings. Yitpi (b) performed lower than expected in comparison to EGA Eagle Rock (b) (both were rated the same). The lowest falling numbers were above 200 seconds at Katanning, which received far less rain.

Results show a number of varieties with high levels of fungal staining when sown in early May, reiterating the risk of sowing susceptible varieties too early. The varieties prone to staining varied from the Mt Barker and Katanning sites due to the different conditions experienced during grain fill and harvest.

Katanning Agzone 2/3 – Table 14

Paddock history: 2007 canola and 2006 wheat

Soil description: Sandy duplex with clay at 25 cm

Rainfall: GSR (April–October) = 370.4 mm

Times of sowing: 6 May, 23 May, 16 June

Comments: Good rains fell mid and late-April, Establishment was excellent for all planting times, averaging 130 plants/m². Weed control was good, although some ryegrass occurred in patches later in the season. The site was waterlogged in July and suffered varying degrees of frost damage from the frost on 22 September—variety dependent. Good rains late September and October led to excellent grain filling conditions. But later rains (46 mm) induce staining and low falling numbers on some of the varieties sown in May.

Newdegate Agzone 2/5 – Table 15

Paddock history: 2007 lupins and 2006 wheat

Soil description: Sandy duplex with clay at 20 cm.

Rainfall: GSR (April–October) = 400.4 mm

Times of sowing: 16 May, 4 June, 26 June

Comments: Good rains fell early and mid April. First sowing time was in mid May after 12 mm of rain. Plant establishment was slightly down compared to the later sowings (110 compared to 140 plants/m²). Rainfall in September and October led to good grain filling conditions. Late rains were received (99 mm) but they had little effect on grain quality in the trial.

Mt Barker Agzone 3/6 – Table 16

Paddock history: 2007 canola, 2006 wheat

Soil description: Sandy duplex

Rainfall: GSR (April–October) = 521 mm

Times of sowing: 14 May, 30 May, 13 June

Comments: Excellent seeding conditions were available in April and May. All sowing times averaged 135 plants/m². Site was well drained so did not suffer from waterlogging. Low falling numbers was an issue at the site after the area received more than 160 mm after mid November.

Table 14 Effect of sowing time on yield, quality and economic returns of wheat varieties at GSARI in 2008. (Yields affected by frost, BOLD = Staining)

	Grain yield (t/ha)			Protein (%)			Preliminary falling number (seconds)			Gross Income (\$/ha)		
	6 May	23 May	16 Jun	ave	6 May	23 May	16 Jun	ave	6 May	23 May	16 Jun	ave
AH												
Carnamah (b)	1.3	2.8	2.6	2.2	16.2	13.3	11.6	13.7	230	240	385	285
Yitpi (b)	2.8	3.3	2.9	3.0	12.7	11.8	11.5	12.0	435	400	415	417
APW												
Carinya (b)	2.4	3.2	2.9	2.8	13.7	11.1	10.8	11.9				840
Catalina (b)	1.8	3.0	2.5	2.4	14.2	12.0	10.9	12.4				732
Correll (b)	2.6	3.3	3.0	3.0	13.7	12.1	11.5	12.4				864
Endure (b)	3.2	3.0	2.6	2.9	12.0	11.2	11.6	11.6				762
Espada (b)	2.0	3.0	2.8	2.6	14.6	12.3	11.4	12.8		N/A		823
Fang (b)	3.0	3.2	3.1	3.1	12.5	11.5	10.7	11.5				896
Gladius (b)	1.8	2.8	2.7	2.5	14.8	12.6	11.5	13.0				792
Lincoln (b)	1.7	3.2	3.0	2.6	14.9	12.4	11.1	12.8				882
Mace (b)	1.9	2.9	2.7	2.5	14.5	13.0	11.5	13.0				780
Magenta (b)	2.6	3.1	2.9	2.9	13.9	12.2	11.5	12.5				859
Wyalkatchem (b)	1.2	3.2	2.5	2.3	15.8	12.3	12.1	13.4	250	295	310	285
Young (b)	1.2	2.4	2.6	2.1	15.7	12.3	11.4	13.1				768
Zippy (b)	0.3	1.3	2.0	1.2	15.4	14.2	13.0	14.2				596
ASWN												
Binnu (b)	1.7	2.7	2.3	2.2	14.5	11.9	11.6	12.7				602
Calingiri	3.4	3.0	2.7	3.0	12.9	11.9	12.0	12.3	360	350	365	358
Fortune (b)	3.1	3.0	3.1	3.1	13.9	11.9	11.5	12.5				835
Yandanooka (b)	1.5	2.3	3.0	2.3	15.6	13.3	11.8	13.6				803
ASFT												
Bullaring (b)	3.1	3.5	2.6	3.1	11.8	10.7	10.4	11.0				680
Datatine (b)	2.8	3.0	2.5	2.8	13.1	10.9	10.0	11.3				668
EGA 2248 (b)	2.2	2.6	2.7	2.5	14.2	12.4	11.8	12.8				700
EGA Jitarning (b)	3.5	3.5	2.8	3.2	11.4	11.9	10.4	11.2				727
Average within each TOS	3.1	3.5	2.6	3.1	14.0	12.1	11.4	12.5				
TOS (lsd)	0.8				0.5							
Var (lsd)	0.3				0.7							
Var (lsd) between TOS	0.8				1.3							
Var (lsd) within TOS	0.6				1.3							
%CV	13.6				6.4							

Table 15 Effect of sowing time on yield, quality and economic returns of wheat varieties at Newdegate in 2008

	Grain yield (t/ha)			Protein (%)			Hectolitre weight (kg/hl)			Gross income (\$/ha)		
	16 May	4 Jun	26 Jun	ave	16 May	4 Jun	26 Jun	ave	16 May	4 Jun	26 Jun	ave
AH												
Carnamah (b)	2.0	2.2	2.5	2.2	14.6	15.7	12.7	14.3	81	82	84	82
EGA Bonnie Rock (b)	2.7	2.2	2.4	2.4	14.1	15.5	14.5	14.7	81	81	83	81
Yitpi (b)	2.8	2.5	2.6	2.6	13.7	14.8	13.1	13.8	83	84	85	84
Axe (b)	2.5	2.4	2.2	2.3	14.2	14.6	13.8	14.2	79	80	83	81
Carinya (b)	2.4	2.2	2.6	2.4	14.0	14.9	12.5	13.8	82	82	83	82
Catalina (b)	2.5	2.6	2.6	2.6	13.3	14.0	12.9	13.4	83	84	85	84
Correll (b)		2.7	2.5	2.6	13.3	13.8	12.9	13.4	80	79	83	80
Derrimut Wt (b)	2.5	2.7	2.5	2.6	12.8	13.2	12.3	12.8	81	83	84	83
Espada (b)	2.8	2.6	2.4	2.6	13.6	14.3	13.4	13.8	80	81	82	81
Fang (b)	2.7	2.6	2.5	2.6	13.1	13.7	12.1	13.0	83	84	85	84
Gladius (b)	2.7	2.8	2.6	2.7	13.5	14.3	13.2	13.7	80	80	82	81
Lincoln (b)	2.5	2.5	2.5	2.5	13.6	14.0	13.0	13.5	81	82	84	82
Mace (b)	3.0	2.5	2.4	2.6	13.2	15.0	12.9	13.7	81	82	85	83
Magenta (b)	2.9	3.1	2.7	2.9	12.8	13.2	12.6	12.9	83	84	84	84
Wyalkatchem (b)	2.4	2.4	2.1	2.3	14.9	16.0	13.7	14.9	81	82	85	82
Young (b)	2.7	2.9	2.8	2.8	14.0	13.5	12.7	13.4	82	82	83	82
Zippy (b)	1.8	1.8	2.0	1.9	14.5	17.1	15.6	15.7	79	77	82	79
ASWN												
Arrino	2.0	2.2	2.4	2.2	15.6	16.5	14.5	15.5	79	80	83	81
Binnu (b)	2.3	2.3	2.5	2.4	15.3	15.0	13.2	14.5	80	81	82	81
Calingiri	2.5	2.7	2.5	2.6	13.3	13.8	13.5	13.5	81	82	83	82
Fortune (b)	2.7	2.5	2.7	2.6	13.8	14.9	13.4	14.0	81	81	82	81
Yandanooka (b)	2.3	2.5	2.2	2.3	14.6	15.2	13.4	14.4	81	80	81	81
ASFT												
EGA Jitarning (b)	2.9	2.6	2.6	2.7	12.8	12.5	12.0	12.4	80	80	82	81
Average within each TOS	2.5	2.5	2.5	1.2	13.9	14.6	13.2	13.9	81	81	83	82
TOS (lsd)	0.4				1				1.2			
Var (lsd)	0.2				0.4				0.6			
Var (lsd) between TOS	0.5				1.1				1.4			
Var (lsd) within TOS	0.3				0.8				1			
%CV	7.1				3.4				0.8			

Table 16 Effect of sowing time on yield, quality and economic returns of wheat varieties at Mt Barker in 2008. (BOLD = Staining so downgraded to GP)

	Grain yield (t/ha)			Protein (%)			Preliminary falling numbers (seconds)			Gross Income (\$/ha)				
	14 May	30 May	13 Jun	ave	14 May	30 May	13 Jun	ave	14 May	30 May	13 Jun	ave		
HP	Braewood	4.4	4.5	4.1	4.3	12.0	12.0	12.4	12.1	213	291	1149	1187	1067
	Carnamah (b)	4.4	4.2	4.8	4.4	13.3	12.8	12.0	12.7	62	106	841	807	1248
	EGA Eagle Rock (b)	4.5	3.5	2.9	3.6	14.6	14.5	14.4	14.5	285	390	1170	1074	886
	EGA Gregory (b)	3.7	3.8	3.3	3.6	11.9	11.7	12.1	11.9	232	315	967	1164	1008
	Yitpi (b)	4.1	4.0	3.8	4.0	13.1	12.9	13.0	13.0	188	298	795	1050	1004
APW	Annuello (b)	3.9	4.1	3.6	3.9	13.1	13.0	13.2	13.1	170	373	754	1190	
	Carinya (b)	3.8	4.1	4.0	4.0	12.4	12.4	12.2	12.3	107	289	732	1074	
	Catalina (b)	4.1	3.8	3.6	3.8	12.7	12.8	12.2	12.6	67	162	785	725	939
	Correll (b)			3.9	3.9			13.1	13.1					
	Derrimut Wt (b)	4.1	3.7	3.4	3.7	11.9	12.0	12.0	11.9	194	305	788	1074	
	EGA Bounty (b)	4.3	4.6	4.3	4.4	11.9	12.0	11.6	11.8	107	214	828	1206	
	EGA Wentworth (b)	4.1	3.8	4.2	4.0	12.5	12.5	12.4	12.5	93	208	784	987	
	Endure (b)	4.0	4.1	4.3	4.1	12.7	12.8	12.9	12.8	294	331	1055	1202	
	Espada (b)	3.9	3.8	3.7	3.8	14.2	14.1	14.0	14.1	130	232	759	1007	
	Fang (b)	4.2	4.0	4.0	4.0	13.1	12.9	13.2	13.1	190	317	806	1156	
	Gladius (b)	3.8	3.7	3.9	3.8	14.3	14.1	13.9	14.1	116	195	740	710	1035
	Lincoln (b)	4.3	4.0	3.7	4.0	12.0	12.1	12.1	12.1	62	205	830	1056	
	Mace (b)	4.5	3.7	4.0	4.1	13.4	13.3	12.3	13.0	116	229	875	972	
Magenta (b)	4.8	4.8	4.4	4.6	13.2	13.0	13.3	13.2	87	249	915	1255	1157	
Wyalkatchem (b)	4.2	3.9	4.3	4.2	14.3	13.9	12.8	13.7	62	103	810	754	1140	
Young	3.9	4.0	4.4	4.1	13.5	13.4	12.7	13.2	84	213	754	1042		
ASWN	Calingiri	4.3	4.4	4.3	4.3	13.0	13.2	13.1	13.1	132	259	819	1146	1127
ASFT	EGA Jitaming (b)	4.2	4.3	4.7	4.4	11.5	11.5	11.6	11.5	98	178	801	822	1221
	Average within each TOS	4.2	4.0	4.0	1.2	12.9	12.9	12.7	12.8	140	248	345	244	
	TOS (lsd)	0.7				0.4				134				
	Var (lsd)	0.4				0.2				45				
	Var (lsd) between TOS	0.8				0.5				102				
Var (lsd) within TOS	0.6				0.4				64					
%CV	9.5				1.9				20					

2008 South Coastal Agricultural Region Summary

Earlier sowing lead to higher yields and economic returns.

Late sown, later maturing crops suffered less harvest weather damage. Early maturing varieties were badly affected due to rainfall timing.

There were differing varietal tolerances to sprouting (low falling no.) with Eagle Rock (b) the best performing variety.

Eagle Rock (b), Mace (b) and Fang (b) produced the highest \$ return from good yields and acceptable grain quality.

Earliest sown and maturing crops suffered the most harvest weather damage with substantial sprouting and low hectolitre weights for most varieties from TOS1 and 2. EGA Eagle Rock (b) showed good tolerance and Fang (b) and Mace (b) were promising.

Esperance Agzone 6 – Table 17

Paddock history: Canola 2007

Soil description: Grey, deep sandy duplex with gravel over non-alkaline clay, pH 4.8

Rainfall (mm): GSR = growing season rainfall (April–October)

Jan	Feb	Mar	Apr	May	Jun	Annual
11.2	3.8	5.6	31	48.4	19.8	566
Jul	Aug	Sep	Oct	Nov	Dec	GSR
121.6	43	94	59	92	37	416.8

Times of sowing: 27 May, 19 June, 17 July

Comments: A difficult growing season in the South Coast. Low, intermittent rainfall through autumn and winter created germination and emergence problems for crops, and weed control issues. Windblasting damaged many crops, requiring re-sowing, hence late maturing crops. Late September rains saved crop potential. Frequent, high rainfall events through November, December and January caused substantial harvest weather damage to grains and significantly delayed harvest within the Esperance Port Zone.

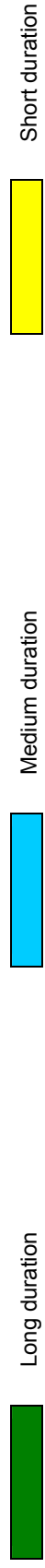
There were significant effects of TOS on both grain yield and quality parameters at EDRS (Table 17). Earlier sowing achieved the highest yields at an average 4.45 t/ha for TOS1. The highest yielding varieties Wyalkatchem (b), Mace (b) and Eagle Rock (b) were also highest yielding from TOS2. TOS3 yields were much lower, averaging 1.93 t/ha.

Table 17 Effect of sowing time on yield, quality and economic returns of wheat varieties at Esperance Downs Research Station (EDRS) 2008

	Yield (t/ha)			Protein (%)			Screenings (%)			Hectolitre (kg/hl)			Gross Income (\$/ha)		
	27 May	19 Jun	17 Jul	27 May	19 Jun	17 Jul	27 May	19 Jun	17 Jul	27 May	19 Jun	17 Jul	27 May	19 Jun	17 Jul
2E	Braewood	4.21	3.45	1.46	14.4	13.2	4.1	10.2	3.0	75	73	81	842	1018	430
	Carnamah (b)	4.66	4.40	2.21	14.2	11.7	1.9	3.0	2.4	71	72	77	933	880	690
	EGA Eagle Rock (b)	5.11	4.62	1.98	15.4	13.8	2.2	3.2	3.9	74	75	76	1611	1454	624
	EGA Gregory (b)	3.09	2.69	1.78	15.4	14.8	12.4	5.3	5.3	69	70	78	835	727	557
	Yitpi (b)	4.07	3.95	2.01	15.1	14.2	12.1	3.0	3.7	71	72	80	814	789	626
APW	Annuello (b)	4.52	3.90	2.53	15.6	14.5	12.2	2.4	3.2	74	74	81	904	1052	790
	Axe (b)	4.26	3.45	2.12	15.3	15.6	13.0	1.0	2.5	71	69	74	851	690	573
	Catalina (b)	4.33	3.85	1.77	14.0	13.7	11.8	2.4	3.0	75	75	81	865	771	477
	Correll (b)	4.49	3.57	1.33	15.2	14.8	13.4	2.5	3.6	69	67	76	898	713	400
	Derrimut (b)	3.45	3.37	1.22	14.4	14.2	11.5	6.9	8.4	71	71	81	690	911	366
	EGA Bounty (b)	4.40	3.71	1.97	14.8	14.2	12.0	3.4	4.8	73	74	81	880	1001	592
	EGA Wentworth (b)	4.09	3.78	1.77	14.7	14.7	11.9	6.4	6.8	72	73	80	1105	1021	530
	Endure (b)	4.59	3.95	1.98	15.2	14.8	12.2	2.5	8.8	74	70	83	918	1066	594
	Espada (b)	4.69	4.28	1.72	15.1	14.8	13.5	1.4	2.7	69	69	75	937	1156	464
	Fang (b)	4.26	3.97	1.50	15.1	14.0	12.0	8.9	9.5	73	73	81	1149	1073	451
	Gladius (b)	4.26	4.09	1.93	15.2	14.6	13.2	1.3	2.1	70	71	76	852	1104	578
	Lincoln (b)	4.14	3.45	2.72	14.8	14.7	12.8	3.4	6.8	72	72	77	827	690	734
	Mace (b)	5.38	4.73	2.01	14.4	13.8	10.9	1.8	2.5	73	75	82	1452	1278	602
Magenta (b)	4.26	3.73	2.58	15.4	15.1	11.8	3.2	5.4	70	71	79	852	746	696	
Wyalkatchem (b)	6.32	5.11	2.61	14.9	14.5	11.2	0.7	0.9	75	76	80	1265	1022	704	
Young (b)	4.76	3.66	1.67	14.7	15.0	11.7	2.9	6.0	73	72	81	952	732	501	
Zippy (b)	4.26	3.57	1.55	15.3	15.8	12.5	1.4	2.3	72	72	75	851	713	311	
AGT Scythe (b)	4.09	3.87	1.58	15.8	15.1	11.9	5.1	5.6	67	67	78	818	775	433	
Bumper (b)	4.78	4.49	2.43	15.1	14.3	12.0	2.0	2.1	73	75	80	956	899	667	
Average within each TOS	4.45	3.91	1.93	15.0	14.6	12.3	3.2	4.7	2.8	72	72	79			
TOS (lsd)	1.58			1.8			1.2			3.4					
Var (lsd)	0.35			0.5			1			1.9					
Var (lsd) between TOS	1.19			1.4			1.9			3.7					
Var (lsd) within TOS	0.6	CV%	10.7	0.8	CV%	3.5	1.8	CV%	32.4	3.3	CV%	2.8			

Table 18 Flowering date* for 29 wheat varieties at different sowing dates at three locations in Western Australia in 2008

Grade	Variety	Geraldton				Northam				Katanning						
		24 Apr	16 May	3 Jun	20 Jun	16 May	2 Jun	20 Jun	24 Apr	16 May	3 Jun	20 Jun				
AH	Camamah (b)															
	Yitpi (b)															
APW	Axe (b)	27-Jul	22-Jul	19-Aug	2-Sep	10-Sep	22-Sep	28-Sep	5-Sep	21-Sep	2-Oct	12-Sep	28-Sep	3-Oct	17-Oct	
	Bolac	12-Jul	15-Aug	4-Sep	17-Sep	26-Sep	4-Oct	13-Oct	24-Sep	8-Oct	17-Oct	23-Oct	30-Sep	11-Oct	20-Oct	
	Carinya (b)	3-Jul	8-Aug	2-Sep	14-Sep	17-Sep	29-Sep	4-Oct	14-Sep	3-Oct	12-Oct	21-Oct	29-Sep	9-Oct	19-Oct	
	Catalina (b)	1-Jul	27-Jul	23-Aug	6-Sep	16-Sep	24-Sep	1-Oct	9-Sep	29-Sep	9-Oct	18-Oct	14-Sep	11-Oct	17-Oct	
	Correll (b)	7-Jul	6-Aug	1-Sep	14-Sep	17-Sep	24-Sep	3-Oct	14-Sep	29-Sep	9-Oct	17-Oct	10-Sep	30-Sep	15-Oct	
	Derrimut (b)	3-Jul	1-Aug	28-Aug	10-Sep	18-Sep	26-Sep	3-Oct	3-Oct	19-Sep	5-Oct	22-Oct	19-Sep	5-Oct	22-Oct	
	EGA Bounty (b)	13-Jul	9-Aug	30-Aug	14-Sep	21-Sep	25-Sep	3-Oct	8-Oct	8-Oct	12-Oct	29-Oct	8-Oct	12-Oct	29-Oct	
	Endure (b)	17-Aug	2-Sep	12-Sep	25-Sep	29-Sep	3-Oct	8-Oct	28-Sep	17-Sep	3-Oct	19-Oct	17-Sep	3-Oct	19-Oct	
	Espada (b)	12-Jul	7-Aug	30-Aug	11-Sep	17-Sep	24-Sep	1-Oct	1-Oct	23-Sep	2-Oct	15-Oct	17-Sep	2-Oct	15-Oct	
	Fang (b)	3-Aug	21-Aug	6-Sep	16-Sep	23-Sep	30-Sep	1-Oct	1-Oct	13-Sep	7-Oct	12-Oct	13-Sep	30-Sep	12-Oct	
	Gladius (b)	13-Jul	6-Aug	29-Aug	11-Sep	13-Sep	24-Sep	30-Sep	30-Sep	6-Sep	6-Oct	20-Oct	6-Sep	27-Sep	6-Oct	
	Lincoln (b)	8-Jul	28-Jul	26-Aug	9-Sep	12-Sep	24-Sep	27-Sep	27-Sep	8-Sep	2-Oct	12-Oct	8-Sep	25-Sep	2-Oct	
	Mace (b)	9-Jul	8-Aug	29-Aug	11-Sep	16-Sep	23-Sep	30-Sep	30-Sep	17-Sep	2-Oct	18-Oct	17-Sep	2-Oct	9-Oct	
	Magenta (b)	15-Jul	11-Aug	4-Sep	18-Sep	23-Sep	30-Sep	6-Oct	6-Oct	24-Sep	1-Oct	23-Oct	24-Sep	1-Oct	10-Oct	
	Spear															
	Westonia (b)	2-Jul	22-Jul	21-Aug	8-Sep	11-Sep	21-Sep	28-Sep	28-Sep	3-Sep	3-Oct	23-Oct	3-Sep	24-Sep	3-Oct	
Wyalkatchem (b)	4-Jul	30-Jul	25-Aug	12-Sep	14-Sep	21-Sep	2-Oct	2-Oct	13-Sep	9-Oct	17-Oct	13-Sep	30-Sep	9-Oct		
Zippy (b)	26-Jun	18-Jul	16-Aug	2-Sep	5-Sep	15-Sep	26-Sep	26-Sep	9-Sep	2-Oct	9-Oct	9-Sep	21-Sep	2-Oct		
ASWN	Arrino	1-Jul	29-Jul	30-Aug	12-Sep	16-Sep	23-Sep	8-Oct	8-Sep	29-Sep	12-Oct	8-Sep	29-Sep	2-Oct	12-Oct	
	Binnu (b)	18-Jul	30-Jul	26-Aug	8-Sep	17-Sep	5-Oct	5-Oct	17-Sep	1-Oct	15-Oct	17-Sep	1-Oct	9-Oct	15-Oct	
	Calingiri	18-Jul	14-Aug	4-Sep	16-Sep	19-Sep	27-Sep	3-Oct	21-Sep	10-Oct	20-Oct	21-Sep	10-Oct	16-Oct	20-Oct	
	Fortune (b)	24-Jul	17-Aug	3-Sep	16-Sep	26-Sep	29-Sep	5-Oct	5-Oct	23-Sep	15-Oct	15-Oct	3-Oct	3-Oct	15-Oct	
	Yandanooka (b)	16-Jul	7-Aug	1-Sep	15-Sep	16-Sep	22-Sep	7-Oct	7-Oct	16-Sep	10-Oct	19-Oct	16-Sep	26-Sep	10-Oct	
ASFT	Bullaring					25-Sep	29-Sep	10-Oct	24-Sep	10-Oct		24-Sep	10-Oct			
	EGA2248					14-Sep	24-Sep	27-Sep	15-Sep	6-Oct	12-Oct	15-Sep	25-Sep	6-Oct	12-Oct	
	EGA Jitaming					24-Sep	28-Sep	9-Oct	26-Sep	5-Oct	19-Oct	26-Sep	5-Oct	12-Oct	19-Oct	
ASW	Bumper (b)	18-Jul	12-Aug	1-Sep	13-Sep	14-Sep	29-Sep	1-Oct	14-Sep	29-Sep	1-Oct	10-Sep	26-Sep	5-Oct	12-Oct	



* Anthesis date is the date when 50 per cent of the heads are showing yellow anthers.
Empty cells = Data was not available this year.

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Crop Care Seed Technologies, 1800 993 573
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www.abb.com.au

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The Seed Group,

- Australian Seed and Grain, Moora, 9651 1069
- Eastern Districts Seed Cleaners, Kellerberrin, 9045 4036
- MultiSEED Production, Esperance, 9071 1053

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Table 19 Percentage of area sown to wheat varieties 2005/2006 to 2008/2009 seasons
 Data from Co-operative Bulk Handling Ltd

Varieties with less than 0.06% of total crop area in 2008/2009 season are not included.

Variety	2005/06 (%)	2006/07 (%)	2007/08 (%)	2008/09 (%)
Wyalkatchem (b)	28.10	29.64	30.86	29.51
Calingiri	17.42	14.73	13.88	16.32
Yitpi (b)	4.98	7.17	8.49	8.54
Carnamah (b)	12.89	7.75	7.92	8.09
EGA Bonnie Rock (b)	4.35	4.78	5.59	7.33
Arrino	6.22	6.02	6.42	5.39
Stiletto	2.92	3.17	3.01	3.92
Westonia	4.99	5.45	4.92	3.72
GBA Sapphire (b)	2.18	4.57	4.05	2.45
Annuello (b)	1.49	2.79	2.79	1.80
EGA Eagle Rock (b)	0.07	1.28	1.84	1.40
Spear	0.86	0.72	0.76	1.36
Halberd	1.26	1.29	1.07	0.91
Machete	1.28	1.23	0.87	0.80
EGA2248 (b)	0.76	0.95	0.78	0.69
Tammarin Rock (b)	0.01	0.30	0.54	0.61
Binnu (b)	-	-	0.05	0.48
Clearfield STL (b)	0.08	0.14	0.11	0.44
Frame	0.49	0.47	0.51	0.41
Baxter (b)				0.38
Brookton	0.47	0.24	0.22	0.31
Cadoux	0.36	0.44	0.31	0.31
Cascades	0.58	0.70	0.41	0.30
Perenjori	0.25	0.23	0.34	0.30
H45 (b)	0.94	0.63	0.47	0.30
Janz	0.94	0.83	0.58	0.30
Camm (b)	0.79	0.79	0.55	0.25
Wylah (b)	0.12	0.16	0.11	0.25
Wilgoyne	0.26	0.12	0.14	0.23
Blade	0.31	0.18	0.13	0.22
Correll (b)				0.22
Eradu	0.62	0.30	0.26	0.21
Cunderdin	0.10	0.06	0.08	0.18
EGA Jitarning (b)	0.15	0.16	0.17	0.18
Bullaring (b)	-	0.01	0.17	0.17
GBA Ruby (b)	0.64	0.30	0.19	0.16
Clearfield JNZ (b)	0.10	0.06	0.11	0.16
Datatine	0.35	0.15	0.09	0.09
EGA Wedgetail (b)	0.05	0.01	0.05	0.09
Young (b)				0.09
EGA Wentworth (b)				0.08
Derrimut (b)				0.08
EGA Castle Rock (b)	0.01	0.13	0.12	0.07
Tincurrin	0.24	0.11	0.07	0.07
Mitre (b)	0.51	0.28	0.15	0.07
Dagger				0.06
Drysdale (b)				0.06
Kalannie (b)				0.06
Stretton				0.06
Waagin (b)				0.06
Braewood	0.26	0.24	0.18	0.06