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Wheat variety guide 2008 Western Australia

By Christine Zaicou, Ben Curtis, Harmohinder Dhammu, Sarah Ellis, Dorte Jorgensen, Shahajahan Miyan, Steve Penny, Brenda Shackley and Darshan Sharma, Department of Agriculture and Food, Western Australia

Introduction

This guide summarises performance characteristics of commercially available wheats and some pre-commercial lines. These lines have undergone testing in the National Variety Testing Project (NVT), Department of Agriculture and Food, Western Australia (DAFWA) wide-scale crop variety testing (CVT) and/or variety specific agronomy projects. This information includes variety summaries (Table 1), agronomic, disease and herbicide tolerance characteristics (Tables 2 to 4), medium- to long-term yield performance by wheat grade and Agzone (Tables 5 and 6). A review of regional performance in 2007 is followed by a comprehensive summary of 2007 variety time of sowing experiments (Tables 7 to 14) and flowering dates from observation plots in the northern, central and southern wheatbelt (Table 15).

Research on variety specific agronomy is jointly funded by DAFWA and the Grains Research and Development Corporation (GRDC) and operates throughout the wheat growing areas of Western Australia. By combining agronomy research outcomes with other related wheat research and CVT data, this document provides current information to assist with variety choice and management for 2008. It includes recent varieties from several breeding organisations now under evaluation in Western Australia as well as adopted varieties with established agronomic performance.

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.



Figure 1. Agzones of Western Australia.

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.

There is a new system which nationally standardises variety tolerances. Variety disease ratings presented in this text fall under this new system which means that some varieties disease ratings may have changed slightly from previous years. Please refer to the NVT website

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	6	4	3	9	5	9*	9

ANNUELLO (VDPI 2001)**Class:** APW**Maturity:** Mid to 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	5	6	5	9	6	9*	8

ARRINO (DAFWA 1997)**Class:** ASWN**Maturity:** Short to Mid**Commercialised:** Free to trade**Other:** AWB premium choice variety \$14/ton, Preferred for low rainfall areas.

Disease	SN	ST	YS	SR	YR	LR	PM
Rating	5	5	5	3	3	3	7

AXE (AGT 2007)**Class:** APW**Maturity:** Early**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	-	4 [#]	4 [#]	5 [#]	8p	7 [#]	-

BINNU (DAFWA 2006)**Class:** ASWN**Maturity:** Mid**Commercialised:** Crop Care Seed Technologies**Other:** Semi dwarf with strong straw. Medium coleoptile. More susceptible to Black Point than Arrino.

Disease	SN	ST	YS	SR	YR	LR	PM
Rating	4	4	3	3/9	9*	9	7

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

Disease	SN	ST	YS	SR	YR	LR	PM
Rating	5p	2p	2p	-	-	-	-

BRAEWOOD (AGT 2001)**Class:** AH**Maturity:** Long**Commercialised:** AGT Seeds**Other:** Medium height with a fully bearded head.

Disease	SN	ST	YS	SR	YR	LR	PM
Rating	5p	7p	4p	7p	9p	8p	6p

BULLARING (DAFWA 2005)**Class:** ASFT**Maturity:** Mid**Commercialised:** The Seed Group**Other:** Low screenings, semi dwarf and awned. Susceptible to Black Point and sprouting.

Disease	SN	ST	YS	SR	YR	LR	PM
Rating	5	7	4	9	6	9*	3

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	5	4	5	3	4	7	4

CAMM (DAFWA 1998)**Class:** APW**Maturity:** Long**Commercialised:** Free to trade**Other:** No longer recommended due to its susceptibility to stem and leaf rust.

Disease	SN	ST	YS	SR	YR	LR	PM
Rating	5	3	3	3	9*	3	3

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	5p	5p	6p	-	7p	9p	5p

CARNAMAH (DAFWA 1996)**Class:** AH**Maturity:** Mid**Commercialised:** Free to trade**Other:** Brown bearded heads of medium height. Intermediate to Black Point.

Disease	SN	ST	YS	SR	YR	LR	PM
Rating	6	3	6	7	4	6	3

CATALINA (LongReach 2007)**Class:** APW**Maturity:** Short to 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	5p	3p	6p	6p	5p	9p	3p

CLEARFIELD JANZ (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	5	7	5	9	6	9*	5

CLEARFIELD STILETTO (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	3	3	3	9	4	3	5

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	5p	3p	2p	9p	6p	6p	9p

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	5	4	5	9	4	9*	4

DERRIMUT (AGT 2006)**Class:** APW**Maturity:** Early to 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	2p	3p	3p	9p	5p	7p	9p

EGA 2248 (DAFWA 2004)**Class:** ASFT**Maturity:** Short to 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	5	3	3	7	4	3	3

EGA BONNIE ROCK (DAFWA 2002)**Class:** AH**Maturity:** Mid**Commercialised:** Free to trade**Other:** Susceptible to sprouting but low in screenings. MR to Black Point and tolerant to aluminium toxic soils. A golden reward variety with a premium of \$5/tonne.

Disease	SN	ST	YS	SR	YR	LR	PM
Rating	5	3	6	5	2	9	3

EGA BOUNTY (EGA 2007)**Class:** APW**Maturity:** Mid**Commercialised:** Crop Care Seed Technologies**Other:** Susceptible to Black Point.

Disease	SN	ST	YS	SR	YR	LR	PM
Rating	-	-	4 [#]	7 [#]	7 [#]	8 [#]	-

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

Disease	SN	ST	YS	SR	YR	LR	PM
Rating	5	3	4	9	5	9*	6

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

Disease	SN	ST	YS	SR	YR	LR	PM
Rating	6	6	4	9	8	9	6

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	5	3	4	9	5	9*	5

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	5	5	5	9	7	9*	6

ELLISON ♂ (QDPI 2004)**Class:** APW**Maturity:** Mid to Long**Commercialised:** AGT Seeds**Other:** Large grain with a good test weight. Awned and white chaffed.

Disease	SN	ST	YS	SR	YR	LR	PM
Rating	-	6	6	9	8	9	5

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	5p	5p	6p	9p	7p	6p	5p

GBA SAPPHIRE ♂ (GBA 2003)**Class:** AH**Maturity:** Mid**Commercialised:** COGGO Seeds**Other:** Is susceptible to pre-harvest sprouting.

Disease	SN	ST	YS	SR	YR	LR	PM
Rating	6	5	3	9	6	9*	5

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

Disease	SN	ST	YS	SR	YR	LR	PM
Rating	-	4 [#]	6 [#]	6 [#]	5 [#]	5 [#]	-

JANDAROI ♂ (NSW DPI 2007)**Class:** Feed (Durum potential)**Maturity:** Short**Commercialised:** AWB Seeds**Other:** Good grain size and quality.

Disease	SN	ST	YS	SR	YR	LR	PM
Rating	2p	7p	6p	-	9 ^{*p}	9p	9p

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

Disease	SN	ST	YS	SR	YR	LR	PM
Rating	3p	2p	5p	7 [#]	9p	7 [#]	9p

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

Disease	SN	ST	YS	SR	YR	LR	PM
Rating	7	6	7	9	5	9*	7

MITRE ♂ (VDPI 2000)**Class:** APW**Maturity:** Mid**Commercialised:** Plant Tech**Other:** Prone to Black Point and screenings.

Disease	SN	ST	YS	SR	YR	LR	PM
Rating	4	5	4	9	5	9*	5

SENTINEL ♂ (LongReach 2005)**Class:** ASW**Maturity:** Mid to Long**Commercialised:** AWB Seeds**Other:**

Disease	SN	ST	YS	SR	YR	LR	PM
Rating	5 [#]	5 [#]	5 [#]	7 [#]	6 [#]	7 [#]	-

TAMMARIN ROCK ♂ (DAFWA 2005)**Class:** AH**Maturity:** Short**Commercialised:** The Seed Group**Other:** Short coleoptile. Hectolitre and screenings are good. Very susceptible to sprouting.

Disease	SN	ST	YS	SR	YR	LR	PM
Rating	4	3	3	3	5	6	5

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	5	2	6	1	2	5	3

WYALKATCHEM ♂ (DAFWA 2001)**Class:** APW**Maturity:** Early to Mid**Commercialised:** Free to trade**Other:** Acid tolerant and performs well on boron toxic soils.

Disease	SN	ST	YS	SR	YR	LR	PM
Rating	5	3	7	3/7	5	8	2

YANDANOOKA ♂ (Intergrain 2007)**Class:** ASWN**Maturity:** Mid**Commercialised:** Crop Care Seed Technologies**Other:** An awned wheat with low screenings and Black Point.

Disease	SN	ST	YS	SR	YR	LR	PM
Rating	6	3	5	5	5	9	6

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

Disease	SN	ST	YS	SR	YR	LR	PM
Rating	5	5	3	3	6	4	7

YOUNG ♂ (AGT 2005)**Class:** APW**Maturity:** Short**Commercialised:** Graintrust**Other:** Moderately susceptible to Black Point and is acid soil tolerant.

Disease	SN	ST	YS	SR	YR	LR	PM
Rating	3	3	5	9p	5p	-	9p

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

Grade	Variety	Breeder^	Year of release	Maturity	Comments	Licensee
AH	Braewood (b)	AGT (Sydney Uni)	2001	Long	Strengths: stem rust – 7p and leaf rust – 8p, stripe rust – 9p, sprouting tolerant. Factsheet: www.sunprimeseeds.com	AGT Seeds
	Carnamah (b)	DAFWA	1996	Mid	Strengths: stem rust – 7, low screenings, broad adaptation. Risks: susceptible to sprouting.	free to trade
	Clearfield JNZ (b)	DAFWA (BASF)	2001	Long	Strengths: Imidazolinone tolerant, larger grain size than Janz. Risks: sensitive to aluminium toxicity.	free to trade
	EGA Bonnie Rock (b)	EGA (DAFWA)	2002	Mid	Strengths: \$5/t for AWB Premium Choice Variety (AH-P). Risks: stripe rust – 2, screenings higher than Carnamah. Farmnote: www.agric.wa.gov.au	free to trade
	EGA Eagle Rock (b)	DAFWA	2004	Mid	Strengths: metribuzin tolerant, stem rust – 9, leaf rust – 9*, high protein achiever, good sprouting tolerance. 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 – 9, stripe rust – 8. Risks: screenings higher than Carnamah. Factsheet: www.pacificseeds.com	Pacific Seeds
	GBA Sapphire (b)	GBA	2003	Mid	Strengths: long coleoptile, stem rust – 9, leaf rust – 9*, best available resistance to all three rusts in AH grade. Risks: screenings higher than Carnamah and EGA Bonnie Rock. Info: www.coggo.net.au	COGGO Seeds
	Tammarin Rock (b)	DAFWA	2005	Short	Strengths: higher yields than Carnamah, acid tolerance similar to Wyalkatchem. Risks: stem rust – 3, yellow spot – 3, susceptible to sprouting, screenings higher than Carnamah. Farmnote: www.agric.wa.gov.au	Seed Group
Yitpi (b)	WAITE Adelaide Uni	1999	Mid-Long	Strengths: long coleoptile. Risks: stem rust and yellow spot – 3. Factsheet: www.awb.com.au	AWB Seeds	
APW	Annuello (b)	VDPI (VIDA)	2001	Mid-Long	Strengths: stem and leaf rust – 9, better Black Point and sprouting tolerance than Wyalkatchem. Risks: higher screenings than Wyalkatchem. Factsheet: www.graintrust.com	PlantTech
	Axe (b)	AGT (Adelaide U, Roseworthy)	2007	Short	Strengths: leaf rust 7 [#] and stripe rust – 8p. Factsheet: www.sunprimeseeds.com	AGT Seeds
	Bolac (b)	AGT (VDPI)	2006	Mid-Long	Strengths: stripe rust – 9 [#] . Risks: intolerant of boron. Factsheet: www.graintrust.com	Graintrust
	Camm (b)	DAFWA	1998	Long	Strengths: Black Point – 6. Risks: stem and leaf rust – 3.	free to trade
	Carinya (b)	AGT (Sydney Uni)	2005	Mid	Strengths: leaf rust – 9p, stripe rust – 7p. Risks: yellow spot – 3, intolerant of acid and boron. Factsheet: www.sunprimeseeds.com	AGT Seeds
	Catalina (b)	LongReach (VIDA)	2007	Short - Mid	Strengths: leaf rust – 9p, CCN resistance – 9, medium to long coleoptile. Factsheet: www.awb.com.au	AWB Seeds
	Clearfield STL (b)	DAFWA (BASF)	2001	Long	Strengths: Imidazolinone tolerant, stem rust – 9. Risks: leaf rust – 3.	free to trade
	Correll (b)	AGT	2006	Mid	Strengths: stem rust – 9p, boron tolerant. Risks: yellow spot – 2p Factsheet: www.sunprimeseeds.com	AGT Seeds
	Derrimut (b)	AGT (Nugrain)	2006	Early-Mid	Strengths: stemrust 9p, leaf rust 7p and CCN – 9, boron tolerant. Risks: <i>Septoria nodorum</i> blotch – 2. Factsheet: www.cropcare.com.au	Crop Care Seed Technologies
	EGA Bounty	EGA (QDPI&F)	2007	Mid	Strengths: leaf rust – 8 [#] , stem and stripe rust - 7 [#] . Risks: susceptible to Black Point. Factsheet: www.cropcare.com.au	Crop Care Seed Technologies
	EGA Wentworth (b)	EGA (QDPI&F)	2004	Mid	Strengths: stem rust – 9, leaf rust – 9* and stripe rust 7 Risks: screenings higher than Wyalkatchem and other leading WA varieties. Factsheet: www.pacificseeds.com	Pacific Seeds
	Ellison (b)	AGT (QDPI&F)	2004	Mid-Long	Strengths: stem and leaf rust – 9, stripe rust – 8, moderately tolerant to sprouting, high protein achiever. Factsheet: www.sunprimeseeds.com	AGT Seeds
	Gladius (b)	AGT (Adelaide Uni Roseworthy)	2007	Mid	Strengths: stem rust – 9p, stripe rust – 7p. Factsheet: www.sunprimeseeds.com	AGT Seeds
	Lincoln (b)	LongReach	2007	Short-Mid	Strengths: stem and leaf rust – 7 [#] , stripe rust – 9p. Factsheet: www.longreachplantbreeders.com.au	Pacific Seeds
Magenta (b)	InterGrain	2007	Mid-Long	Strengths: stem rust – 9, leaf rust – 9*, yellow spot – 7, long coleoptile. Risks: susceptible to sprouting. Factsheet: www.cropcare.com.au	Crop Care Seed Technologies	
Mitre (b)	VDPI	2000	Mid	Strengths: stem rust – 9, leaf rust – 9*. Risks: higher screenings than Wyalkatchem, very susceptible to sprouting. Info: www.planttech.com.au	PlantTech	

Table 1. (continued)

Grade	Variety	Breeder [^]	Year of release	Maturity	Comments	Licensee
APW (continued)	Westonia	DAFWA	1997	Short	Strengths: yields comparable to Wyalkatchem, good aluminium tolerance. Risks: stem rust 1 and stripe rust – 2, susceptible to sprouting.	free to trade
	Wyalkatchem (p)	DAFWA	2001	Short-Mid	Strengths: benchmark for yield, leaf rust – 8, low screenings, acid and boron tolerant. Risks: short coleoptile, susceptible to one strain of stem rust that occurs in WA (3), poor early vigour. Farmnote: www.agric.wa.gov.au	free to trade
	Young (p)	AGT (VDPI)	2005	Short	Strengths: stem rust – 9p, acid tolerant, CCN resistant. Risks: intolerant of boron, screenings higher than Wyalkatchem. Factsheet: www.graintrust.com	Graintrust
ASWN	Arrino	DAFWA	1997	Short-Mid	Strength: \$14/t for AWB Premium Choice Variety (APN). Risks: stem, stripe and leaf rust – 3.	free to trade
	Binnu (p)	DAFWA	2006	Short-Mid	Strengths: stripe rust – 9*, leaf rust – 9. Risks: susceptible to sprouting and Black Point, screenings higher than Arrino and Calingiri. Susceptible to Camm stem rust (3).	Crop Care Seed Technologies
	Calingiri	DAFWA	1997	Long	Strengths: benchmark for yield in ASWN grade, Risks: stem rust – 3	free to trade
	Yandanooka (p)	InterGrain	2007	Mid	Strengths: leaf rust – 9, screenings similar to Calingiri and Arrino, good Black Point tolerance. Factsheet: www.cropcare.com.au	Crop Care Seed Technologies
ASFT	Bullaring (p)	DAFWA	2005	Mid	Strengths: stem rust – 9 and leaf rust – 9*.	Seed Group
	Datatine	DAFWA	1994	Mid	Strengths: stem rust – 9 and leaf rust – 9*. Risks: higher screenings than EGA Jitarning.	free to trade
	EGA Jitarning (p)	DAFWA	2003	Long	Strengths: stem rust – 9 and leaf rust – 9*, lower screenings than Datatine. Risks: manage for high protein (higher protein than Datatine).	free to trade
	EGA 2248 (p)	DAFWA	2004	Short-Mid	Strengths: lower screenings than Datatine. Risks: leaf rust – 3, manage for high protein (higher protein than Datatine).	free to trade DAFWA contract required
ASW	AGT Scythe (p)	AGT	2004	Mid	Strengths: stem rust – 9 and leaf rust – 9*, sprouting tolerant. Factsheet: www.sunprimeseeds.com	AGT Seeds
	Sentinel (p)	LongReach	2005	Mid-Long	Strengths: stem and leaf rust – 7#, acid tolerant. Factsheet: www.sfs.org.au	AWB Seeds
FEED	Guardian (p)	LongReach	2006	Mid	Under evaluation for AH/APW classification in WA. Factsheet: www.awb.com.au	AWB Seeds
	Jandaroi (p)	NSWDPI	2007	Short	Under evaluation for durum classification in WA. Strengths: stem rust – 9#, stripe rust – 9*p, leaf rust – 9p, RLN – 9. Risks: crown rot – 1 Factsheet: www.awb.com.au	AWB Seeds

[^] 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. Please refer to Table 1 for individual Factsheets.

p = Provisional assessment.

Refer to page 10 for details on 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	7	4	6	2/3
Axe (b)	-	-	-	-	-	-	-
Binnu (b)	M	M	7	6	4	5	4
Blade (b)	M	S	7	7	6	-	4
Bolac (b)	M	S	-	-	-	-	-
Braewood (b)	M	L	8	6	5	6	4
Bullaring (b)	M/S	L	6	6	5	6	2
Cadoux	M/T	S/M	7	7	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	-	-	-	-	-
Clearfield JNZ (b)	M	-	8	6	5	6	-
Clearfield STL (b)	M	S	8	7	6	8	5
Correll (b)	M	M	-	-	-	-	-
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	6	6	4
EGA Bounty (b)	-	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	5	4	8	5
Eradu	M	M	7	7	2	7	2
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)	-	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	M	S	7	6	6	7	-
Lincoln (b)	M	S	7#	9p	7#	-	-
Machete	M	S	6	7	7	7	4
Magenta (b)	M	VL	7	6	5	7	3
Mitre (b)	S/M	M	7	4	4	4	3
Perenjori	M	S	6	6	6	7	3
Sentinel (b)	M	M	-	-	-	-	-
Spear	M	M	8	6	6	7	4
Stiletto	M	M	8	6	6	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	-	-	-	-	3

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

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

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	<i>Septoria nodorum</i> blotch	<i>Septoria tritici</i> blotch	Yellow spot	Stem rust	Stripe rust	Leaf rust	Powdery mildew	Flag smut
AGT Scythe (b)	6	4	3	9	5	9*	9	-
Annuello (b)	5	6	5	9	6	9*	8	-
Arrino	5	5	5	3	3	3	7	3
Axe (b)	-	4 [#]	4 [#]	5 [#]	8p	7 [#]	-	-
Binnu (b)	4	4	3	3/9	9*	9	7	-
Blade (b)	6	3	5	9	6	6	6	7
Bolac (b)	5p	2p	2p	5 [#]	9 [#]	6 [#]	-	-
Braewood (b)	5p	7p	4p	7p	9p	8p	6p	-
Bullaring (b)	5	7	4	9	6	9*	3	7p
Cadoux	5	3	3	3	3	5	5	3
Calingiri	5	4	5	3	4	7	4	7
Camn (b)	5	3	3	3	9*	3	3	7
Carinya (b)	5p	5p	6p	-	7p	9p	5p	-
Carnamah (b)	6	3	6	7	4	6	3	4
Cascades	5	6	6	6	3	3	3	5
Catalina (b)	5p	3p	6p	6p	5p	9p	3p	-
Clearfield JNZ (b)	5	7	5	9	6	9*	5	-
Clearfield STL (b)	3	3	3	9	4	3	5	-
Correll (b)	5p	3p	2p	9p	6p	6p	9p	-
Datatine	5	4	5	9	4	9*	4	7
Derrimut (b)	2p	3p	3p	9p	5p	7p	9p	-
EGA 2248 (b)	5	3	3	7	4	3	3	4p
EGA Bonnie Rock (b)	5	3	6	5	2	9	3	2p
EGA Bounty (b)	-	-	4 [#]	7 [#]	7 [#]	8 [#]	-	-
EGA Eagle Rock (b)	5	3	4	9	5	9*	6	-
EGA Gregory (b)	6	6	4	9	8	9	6	-
EGA Jitarning (b)	5	3	4	9	5	9*	5	7p
EGA Wentworth (b)	5	5	5	9	7	9*	6	-
Ellison (b)	-	6	6	9	8	9	5	-
Eradu	3	3	3	7	2	3	6	3
Frame	5	3	3	9	6	6	6	7
GBA Sapphire (b)	6	5	3	9	6	9*	5	-
Gladius (b)	5p	5p	6p	9p	7p	6p	5p	-
Guardian (b)	-	4 [#]	6 [#]	6 [#]	5 [#]	5 [#]	-	-
H45 (b)	3	2	6	9/5	2	9	3	-
Halberd	1	3	2	3	6	7	5	6
Jandaroi (b)	2p	7p	6p	9 [#]	9 [#] p	9p	9p	-
Janz	4	7	3	9	6	9*	5	6
Lincoln (b)	3p	2p	5p	7 [#]	9p	7 [#]	9p	-
Machete	5	3	3	9	4	4	5	3
Magenta (b)	7	6	7	9	5	9*	7	-
Mitre (b)	4	5	4	9	5	9*	5	-
Sentinel (b)	5 [#]	5 [#]	5 [#]	7 [#]	6 [#]	7 [#]	-	-
Spear	5	5	3	3	4	3	3	6
Stiletto	5	5	3	7	4	3	5	3
Tammarin Rock (b)	4	3	3	3	5	6	5	7p
Tincurrin	3	3	3	1	2	1	3	4
Westonia	5	2	6	1	2	4	3	4
Wilgoyne	3	3	3	9	8	6	6	8
Wyalkatchem (b)	5	3	7	3/7	5	8	2	3
Yandanooka (b)	6	3	5	5	5	9	6	-
Yitpi (b)	5	5	3	3	6	4	7	-
Young (b)	3	3	5	9p	5p	-	9p	-

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

1 - 9 scale: 1 = Very susceptible, 2 = Susceptible – very susceptible, 3 = Susceptible, 4 = Moderately susceptible – susceptible, 5 = Moderately susceptible, 6 = Moderately resistant – moderately susceptible, 7 = Moderately resistant, 8 = Resistant – moderately resistant, 9 = 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.

- = Scores separated by a '-' indicate the range of rust responses observed under different disease pressures and environments.

Stripe Rust Resistance Note. Protection in resistant varieties (rating 9) is effective from seedling to adult (e.g. Binnu). They develop very little or no stripe rust. The resistance is normally based on a single gene which works equally well in different environments but may become ineffective due to the development of new virulent stripe rust pathotypes. Varieties with a rating of 5 or 6 (e.g. Wyalkatchem, Yitpi) have adult plant resistance (APR). Young plants are susceptible and the resistance gradually develops in strength some time from late stem extension to heading/flowering. This form of resistance is normally based on several genes making it more durable in the long term. High levels of disease are still possible in these varieties with early or high disease pressure. In furrow and foliar fungicides can significantly reduce losses in these situations.

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: Always adhere to label recommendations. The Department of Agriculture and Food does 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.

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

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

Varieties			Arrino	Binnu (b)	Brookton	Calingri	Camm (b)	Carnamah (b)	Cascades	EGA Bonnie Rock (b)	EGA Castle Rock (b)	EGA Eagle Rock (b)	EGA Jitarning (b)	GBA Sapphire (b)	H45	Perenjori	Tammarin Rock (b)	Westonia	Wyalkatchem (b)	Yandanooka (b)	
Year of testing and trial sites			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	
			ADEF	CD	ABDEF	ADEF	BDEF	ABCDEF	B	DE	DE	E	CD	CE	BE	EF	DE	ABCDEF	BCDEF	CDE	
Herbicides (rate/ha)	Timing	Group																			
Diuron 1 L + Glean® 15 g (Diuron + Chlorsulfuron)	IPP	C, B	√ (5)	-	√ (6)	√ (5)	16 (6)	√ (6)	-	-	-	-	-	-	-	√ (2)	-	14	-	-	
Wildcat® 0.5 L (Fenoxaprop-P-ethyl)	Z12-Z13	A	√ (2)	-	27 (2)	√ (2)	√ (2)	√ (2)	-	-	-	-	-	-	-	√ (2)	-	√ (2)	-	-	
Topik® 240 EC 0.210 L (Clodinafop)		A	-	-	-	-	-	-	-	√ (2)	√ (2)	-	-	-	-	-	√ (2)	-	√ (2)	-	-
Hoegrass® 375 1.5 L (Diclofop-methyl)		A	√ (2)	-	√ (2)	√ (2)	√ (2)	√ (2)	√ (2)	-	-	-	-	-	-	√ (2)	-	√ (2)	-	-	-
Hoegrass® 375 2 L (Diclofop-methyl)		A	-	√ (2)	-	-	-	√ (2)	-	√ (4)	√ (2)	√ (2)	√ (2)	√ (2)	√ (2)	-	-	√ (3)	-	20 (7)	√ (3)
Decision® 1 L (Diclofop + Sethoxydim)		A	-	-	-	-	-	√ (3)	-	√ (5)	√ (2)	√ (2)	-	-	-	-	-	8 (3)	√ (2)	√ (6)	-
Cheetah® Gold 1 L + Hasten® 1% (Diclofop + Sethoxydim+Fenoxaprop)		A	-	√ (2)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	√ (2)	√ (3)
Axial® 300 mL (Pinoxadin) + Adigor® 0.5%		A	-	√ (2)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	√ (3)	√ (3)
Achieve® 250 g (Tralkoxydim)		A	√ (6)	-	√ (7)	√ (6)	25 (7)	√ (12)	√ (2)	√ (3)	-	-	-	-	√ (3)	-	-	-	√ (10)	√ (6)	-
Achieve® 380 g (Tralkoxydim)		A	-	√ (2)	-	-	-	-	-	√ (2)	√ (2)	√ (2)	-	√ (2)	-	-	-	√ (3)	-	√ (5)	√ (3)
Hoegrass® 200 mL + Achieve® 200 g (Diclofop-methyl+Tralkoxydim)		A	-	√ (2)	-	-	13 (2)	10 (6)	-	√ (5)	√ (2)	√ (2)	√ (2)	√ (2)	√ (2)	-	√ (3)	√ (4)	19 – 30 (11)	30 (3)	
Eclipse® 10 g (Metosulam)		B	√ (4)	-	√ (5)	12 (4)	14 – 14 (6)	√ (7)	√ (2)	-	-	-	-	-	√ (3)	-	-	√ (6)	√ (3)	√ (3)	-
Jaguar® 1.0 L (Bromoxynil+Diflufenican)		C, F	√ (6)	√ (2)	√ (7)	15 – 19 (6)	11 – 22 (8)	√ (12)	√ (2)	√ (5)	√ (2)	√ (2)	√ (2)	√ (2)	√ (2)	12 (3)	√ (2)	√ (3)	√ (10)	√ (11)	√ (3)
Monza® 25 g (Sulfosulfuron)		B	-	√ (2)	-	-	-	√ (3)	-	√ (5)	√ (2)	√ (2)	√ (2)	√ (2)	√ (2)	-	-	√ (3)	√ (2)	√ (8)	√ (3)

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

Varieties			Arrino	Binnu (b)	Brookton	Calingri	Camm (b)	Carnamah (b)	Cascades	EGA Bonnie Rock (b)	EGA Castle Rock (b)	EGA Eagle Rock (b)	EGA Jitarning (b)	GBA Sapphire (b)	H45	Perenjori	Tammarin Rock (b)	Westonia	Wyalkatchem (b)	Yandanooka (b)	
Year of testing and trial sites			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	
			ADEF	CD	ABDEF	ADEF	BDEF	ABCDEF	B	DE	DE	E	CD	CE	BE	EF	DE	ABCDEF	BCDEF	CDE	
Herbicides (rate/ha)	Timing	Group																			
Ally® 5 g (<i>Metsulfuron</i>)	Z13-Z14	B	√ (5)	18 (2)	√ (6)	11 (5)	16 – 26 (7)	15 (11)	√ (2)	√ (5)	√ (2)	√ (2)	√ (2)	√ (2)	√ (3)	–	√ (3)	14 – 26 (9)	√ (11)	17 (3)	
Ally® 7 g (<i>Metsulfuron</i>)		B	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	
Atlantis® 330 mL (<i>Mesosulfuron-methyl</i>)		B	–	√ (2)	–	–	–	√	–	√ (4)	√ (2)	√ (2)	√ (2)	√ (2)	–	–	√ (3)	–	√ (7)	√ (3)	
Broadside® 1 L (<i>Bromoxynil+MCPA+Dicamba</i>)		C, I	√ (6)	√ (2)	√ (7)	√ (6)	√ (8)	8 – 10 (12)	–	√ (2)	√ (3)	–	–	√ (2)	–	√ (3)	√ (2)	–	√ (10)	√ (9)	√ (3)
Broadside® 1.4 L (<i>Bromoxynil+MCPA+Dicamba</i>)		C, I	–	–	–	–	–	–	–	√ (2)	√ (2)	–	–	–	–	–	–	√ (2)	–	√ (2)	–
Hussar® 200 g (<i>Iodosulfuron-methyl</i>)		B	–	√	–	–	√ (2)	√ (5)	–	√ (5)	√ (2)	34 (2)	√ (2)	√ (2)	√ (2)	√ (2)	–	√ (3)	√ (4)	√ (11)	√ (3)
Metaven® L 3.0 L (<i>Flamprop-M-methyl</i>)		K	–	19 (2)	–	–	√ (2)	√ (6)	–	√ (5)	√ (2)	√ (2)	19 (2)	√ (2)	√ (2)	–	√ (3)	√ (3)	√ (4)	√ (11)	√ (3)
Paragon® 0.375 mL (<i>Picolinafen + MCPA</i>)		F, I	–	–	–	–	–	–	–	√ (5)	√ (2)	√ (2)	–	–	–	–	–	√ (3)	–	√ (3)	–
Tigrex® 1.0 L (<i>Diflufenican + MCPA</i>)		F, I	√ (7)	√ (2)	24 (8)	16 (7)	19 – 19 (8)	30 (13)	–	√ (2)	√ (5)	√ (2)	√ (2)	√	√ (2)	√ (3)	√ (2)	√ (3)	18 – 41 (11)	√ (11)	√ (3)
Buctril®MA 1 L (<i>Bromoxynil + MCPA</i>)		C, I	√ (4)	–	√ (5)	9 (4)	11 – 24 (6)	√ (7)	17 (2)	–	–	–	–	–	√ (3)	–	–	–	12 (6)	√ (3)	–
Buctril®MA 1.4 L (<i>Bromoxynil + MCPA</i>)	Z13-Z15	C, I	–	√ (2)	–	–	–	√ (3)	–	√ (5)	√ (2)	√ (2)	√ (2)	√ (2)	–	–	√ (3)	√ (2)	√ (8)	6 (3)	
Affinity® 50 g + MCPA 0.5 L (<i>Carfentrazone-ethyl+MCPA</i>)	Z13-Z14	G, I	√ (4)	√ (2)	√ (5)	9 – 15 (4)	√ (6)	√ (10)	√ (2)	√ (5)	√ (2)	√ (2)	√ (2)	√ (2)	√ (3)	–	√ (3)	√ (8)	22 (11)	17 (3)	

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

Varieties			Arrino	Binnu (♢)	Brookton	Calingri	Camm (♢)	Carnamah (♢)	Cascades	EGA Bonnie Rock (♢)	EGA Castle Rock (♢)	EGA Eagle Rock (♢)	EGA Jitarning (♢)	GBA Sapphire (♢)	H45	Perenjori	Tammarin Rock (♢)	Westonia	Wyalkatchem (♢)	Yandanooka (♢)
Year of testing and trial sites			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
			ADEF	CD	ABDEF	ADEF	BDEF	ABCDEF	B	DE	DE	E	CD	CE	BE	EF	DE	ABCDEF	BCDEF	CDE
Herbicides (rate/ha)	Timing	Group																		
Eclipse® 5 g+ MCPA LVE 0.5 L (Metosulam+MCPA)	Z13-Z14	B, I	-	√ (2)	-	-	-	-	-	√ (2)	√ (2)	√ (2)	-	√ (2)	-	-	√ (3)	-	√ (5)	√ (3)
Lontrel® 300 0.3 L (Clopyralid)		I	-	-	-	-	-	-	-	√ (2)	√ (2)	-	-	-	-	-	√ (2)	-	√ (2)	-
Diuron 0.375 L + MCPA 0.5 L (Diuron +MCPA)		C, I	√ (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)	Z15+	B, B, I	-	-	-	-	√ (2)	√ (3)	-	-	-	-	-	-	√ (2)	-	-	√ (2)	√ (3)	-
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-D Amine 500 1 L (2,4-D)		I	√ (2)	-	√ (4)	√ (3)	√ (2)	√ (7)	-	√ (3)	-	-	-	-	-	√ (2)	-	11 – 35 (6)	√ (3)	-
2,4-D Amine 625 1.3 L (2,4-D)		I	-	√ (2)	-	-	-	-	-	√ (2)	√ (2)	19 (2)	-	√ (2)	-	-	√ (3)	-	√ (5)	√ (3)
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 (Flemming 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), Camm (b), Brookton, Karlgarin and Cranbrook apply at Z16-Z17 and in Calingiri 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 Variety and agronomy Summary

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. This year there are several new varieties that are available. In general many of the new varieties have a good spectrum of disease resistance and some show excellent yield potential and adaptation.

Some of the new varieties worthy of consideration include **Axe** (b), **Catalina** (b), **Correll** (b), **Magenta** (b) which are all APW varieties, **AGT Scythe** (b) which is an ASW variety and **Yandanooka** (b) which is an udon noodle variety.

Most people opt for varieties from the premium grades. Current pricing however means there is very little difference at similar protein levels between ASW and AH grades. When choosing varieties it is also important to consider if they are well adapted, yield well and have suitable disease resistance. Use this Bulletin to review this information for new varieties and their performance in your area.

Seasonal conditions

Some climate forecasts are saying that we can expect shorter and more erratic seasonal weather in the future. Short season varieties or varieties with plastic maturity may help to cope with these less predictable seasons. Plasticity of flowering time means that a variety may alter the period to flowering depending on seasonal conditions, environment and planting time. Plastic varieties may express short, medium or late flowering. Our phenology data at the back of this publication identifies very large differences between varieties and their reaction to these conditions. It is worthwhile looking at this data to confirm the claimed maturity of new varieties to see if it is relevant in your region. Spear and Yitpi (b) are two varieties which express maturity plasticity.

Axe (b) is a new variety from AGT which has been promoted as a strong yielder in low rainfall environments. Our phenology work demonstrates that it is a very short season line. NVT data has not shown it to have particularly high yields in Western Australia however. **Gladius** (b) is being marketed as a drought tolerant variety as it produces a waxy leaf under dry conditions. Leaf

wax is said to help reduce water loss which allows the plant to minimise stress under dry conditions.

Nitrogen

Much of the State suffered dry conditions last year and growers should be aware that there will be significant soil nitrogen carryover in many soils this season. This will potentially allow more careful use of nitrogen fertiliser. Tactical nitrogen applications will be a sensible option. Recent work has demonstrated that late applications of nitrogen can be very beneficial which allows growers to make an assessment of the season before paying up front for all of their fertiliser.

Sowing rates

Seed supply in 2008 may be limited in some regions. Growers may be considering reducing seed rates in an effort to increase the areas planted in 2008.

In general, a minimum of 40 kg/ha – or 100 plants/m², should be targeted for a 2 t/ha crop. Increase seed rates by 20 kg/ha for each extra tonne of targeted yield and to increase crop competition with weeds. Reducing seed rates below 40 kg/ha will reduce yield potential and increase risk of wind erosion later in the season.

Seed quality

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 5. Yields of ASFT, APW and ASWN varieties in CVT and related trials over a range of years up to and including 2006 expressed as a percentage of Wyalkatchem ^(b)

Soft series	Agzone 2		Agzone 3	
	%	n	%	n
Bullaring ^(b)	105	19	133	10
Datatine	93	34	119	15
Calingiri	92	8	114	5
Corrigin	99	32	118	15
EGA2248 ^(b)	107	28	129	15
EGA Jitarning ^(b)	96	26	124	11
Tincurrin	97	28	121	15
Wyalkatchem ^(b)	100	13	100	10

n = Number of trials.

Time of sowing and phenology data

The results of time of sowing experiments and phenology experiments conducted in 2007 are summarised in Tables 7 to 14. When reviewing this information, growers must consider that a large proportion of the State had low rainfall during the 2007 growing season as well as a dry finish to the season. 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 7-14:

* = Screenings are preliminary as they include whole and cracked grain.

^ = Gross income was calculated on the average yield and quality for each treatment using AWB Golden Rewards – Base rate AH \$427, APW \$423, ASW \$418, ASWN \$428 and ASFT \$435.

ns = Not significant.

Table 6. Yields of varieties in NVT trials (2000-06) over a range of years up to and including 2006 expressed as a percentage of Wyalkatchem ϕ

Wyalkatchem ϕ (t/ha) Variety	Agzone 1 2.79		Agzone 2 2.48		Agzone 3 2.89		Agzone 4 1.67		Agzone 5 2.32		Agzone 6 3.07		Statewide 2.45	
	%	n	%	n	%	n	%	n	%	n	%	n	%	n
AGT Scythe ϕ	96	13	96	32	99	15	94	21	98	16	96	7	96	104
Annuello ϕ	92	9	89	21	93	10	89	13	90	14	91	7	90	74
Arrino	94	23	96	49	98	14	97	29	95	17	98	6	96	138
Axe ϕ	90	6	91	14	94	6	89	9	91	6	92	3	91	44
Binnu ϕ	94	11	96	21	97	7	94	12	96	7	97	4	95	62
Bullaring ϕ			101	49	108	25			104	14	104	2	103	91
Calingiri	100	23	95	53	99	17	96	29	95	18	97	7	97	147
Camm ϕ	93	20	92	31	96	14	91	19	93	26	94	11	93	121
Carinya ϕ	95	10	93	30	98	14	91	19	94	13	98	7	94	93
Carnamah ϕ	98	45	95	78	98	27	92	54	94	56	97	24	96	284
Cascades	88	43	84	70	90	23	86	59	86	46	89	23	86	264
Clearfield JNZ ϕ	89	11	87	16	91	5	84	13	89	13	92	5	88	63
Clearfield STL ϕ	90	15	88	26	92	7	85	17	91	20	92	8	89	93
Correll ϕ	96	10	97	30	99	14	98	19	98	13	96	7	97	93
Datatine	98	13	96	56	101	29	95	20	99	15	97	8	98	141
Derrimut ϕ			88	16	92	3							90	22
EGA Bonnie Rock ϕ	97	31	97	48	100	14	98	42	96	30	98	13	97	178
EGA Eagle Rock ϕ	89	27	90	52	90	18	86	34	87	33	90	17	89	181
EGA Wentworth ϕ	93	14	94	34	99	17	94	23	98	18	97	8	95	114
Ellison ϕ			88	2			86	3	89	4			89	11
GBA Ruby ϕ	98	20	96	39	97	16	95	26	95	21	97	6	96	128
GBA Sapphire ϕ	92	20	90	39	97	16	89	27	93	16	96	12	92	130
Gladius ϕ	95	10	95	28	96	12	95	18	97	12	96	6	96	86
Guardian ϕ	98	4	99	28	102	7	99	9	99	6	100	3	99	57
H46 ϕ			94	2	98	2			92	13	98	7	95	25
Janz	92	9	88	25	93	9	88	20	91	15	91	4	90	82
Magenta ϕ	99	17	98	35	101	13	97	24	99	21	100	10	99	120
Mitre ϕ	89	12	86	13	92	5	88	11	92	21	91	11	89	73
Sentinel ϕ	91	4	89	6	94	3	84	4	89	4			90	22
Spear	94	45	92	86	95	30	91	49	94	57	94	19	93	286
Tammarin Rock ϕ	94	21	94	51	95	13	95	39	93	25	93	13	94	162
Westonia	96	55	98	115	102	40	98	64	95	60	99	17	98	351
Wyalkatchem ϕ	100	48	100	97	100	36	100	54	100	53	100	22	100	310
Yandanooka ϕ	93	11	91	19	94	7	93	12	92	7	92	4	92	60
Yitpi ϕ	95	5	96	22	97	7	95	15	97	12	95	7	96	68
Young ϕ	95	10	97	30	101	14	99	19	100	13	99	7	98	93

n = Number of trials.

2007 Northern Agricultural Region Summary

Key messages

- Wyalkatchem (b) was the highest yielding variety in Agzone 1, 2 and 4. (NVT trials - 2000 to 2006)
- Arrino, Calingiri, Carnamah (b), EGA Bonnie Rock (b), Gladius (b), Westonia, Wyalkatchem (b) and Young (b) were consistent yield performers in NVT 2007.
- Correll (b) and Axe (b) were two recently released varieties in the 2007 NVT data set with a hectolitre weight less than 74 kg/hl. All other varieties were not downgraded based on hectolitre weight.

Variety performance

In the NVT trials (2000 to 2006), Wyalkatchem was the highest yielding variety in Agzones 1, 2 and 4. The performance of recently released varieties Axe (b), Carinya (b), Correll (b), Derrimut (b), Gladius (b), Lincoln (b), Magenta (b) and Yandanooka (b) ranged from 88% to 99% of Wyalkatchem (b) across Agzones 1, 2 and 4 (Table 6). Note: the number of site years for these varieties was limited.

Arrino, Calingiri, Carnamah (b), EGA Bonnie Rock (b), Gladius (b), Westonia, Wyalkatchem (b) and Young (b) were consistent performers in 2007. They yielded better than the site mean in over 80% of the trials (data not supplied but available on NVT website).

Later sown crops (particularly on the sandplain) were able to utilise the late rains during grain fill in some districts. Hence, yields did not decline significantly with delayed sowing from late May to early July on the sandplain at Mingenew in 2007 (Table 7). In contrast at Coorow (a sandy loam site), there was a significant decline in yield with delayed sowing from mid June to early July (Table 8).

Correll (b) and Axe (b) had hectolitre weights less than 74 kg/hl in the 2007 NVT trial. All other varieties were not downgraded based on hectolitre weight.

Proteins were high in the time of sowing trials at Mingenew and Coorow. The late spring rains contributed to good hectolitre weights. Screening of Derrimut (b), Wentworth (b), Lincoln (b) and Young (b) were greater than 10% only at Mingenew when sown in late May.

Mingenew Agzone 1—Time of sowing trial

Paddock history: 2006 Pasture, 2005 Wheat, 2004 Pasture, 2003 Pasture

Soil description: Yellow sandplain – pH (CaCl₂) 0-10 cm = 6.3 and 20-30 cm = 5.4

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

Jan	Feb	Mar	Apr	May	Jun	Annual
6	7	1	11.5	14	26.5	209.9
Jul	Aug	Sep	Oct	Nov	Dec	GSR
70.8	24.3	25.8	12	1	10	184.9

Times of sowing: 28 May, 27 June, 5 July

Comments: There was no subsoil moisture at seeding but the soil was moist for all sowing times. Plant emergence was even at the site and warm wet conditions in July improved crop potential. However, the site experienced moisture stress in August and the late rains in September improved the yield and quality of the crops.

Coorow Agzone 2—Time of sowing trial

Paddock history: 2006 lupin, 2005 barley, 2004 wheat

Soil description: Sandy loam – pH (CaCl₂) 0-10 cm = 5.4 and 20-30 cm = 5.1

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

Jan	Feb	Mar	Apr	May	Jun	Annual
10	0	0	0	14	53	173
Jul	Aug	Sep	Oct	Nov	Dec	GSR
44.5	17.5	20	14	0	0	163

Times of sowing: 11 June, 6 July

Comments: Seeding conditions were moist at sowing with even plant emergence, however there was no subsoil moisture. Birds damaged the late July sowing treatment prior to harvest and data was not included in analysis. Good rains in July and the warm temperatures increased plant development, however the site experienced moisture stress in August. The late rains in September improved the yield and quality of the later maturing crops.

Table 7. Effect of sowing time on yield, quality and economic returns of wheat varieties at Mingenew in 2007

		Grain yield (t/ha)				Protein (%)				Screenings (%) *				Gross Income (\$/ha)		
		28-May	27-Jun	5-Jul	ave	28-May	27-Jun	5-Jul	ave	28-May	27-Jun	5-Jul	ave	28-May	27-Jun	5-Jul
AH	Carnamah (b)	1.32	1.27	1.29	1.30	14.5	14.9	12.9	14.1	6.0	2.6	3.5	4.0	564	554	561
	EGA Bonnie Rock (b)	1.90	1.84	1.52	1.75	13.9	14.3	13.8	14.0	5.7	3.5	3.4	4.0	822	809	666
	GBA Sapphire (b)	1.33	1.38	1.22	1.31	14.7	14.7	13.0	14.1	8.9	3.9	5.0	6.0	558	595	524
	Tammarin Rock (b)	1.39	1.64	1.44	1.49	14.2	13.9	12.3	13.5	10.0	5.5	4.5	6.7	582	703	618
	Yitpi (b)	1.09	1.20	1.27	1.19	15.0	15.4	13.8	14.7	5.5	4.2	5.1	4.9	467	520	547
APW	Axe (b)	1.53	1.43	1.25	1.40	15.1	14.6	13.5	14.4	3.9	3.8	4.3	4.0	661	619	538
	Carinya (b)	1.26	1.20	1.19	1.22	15.4	15.0	13.1	14.5	6.7	3.3	4.6	4.9	538	518	514
	Catalina (b)	1.38	1.45	1.32	1.38	14.9	14.0	12.9	13.9	7.5	7.4	8.0	7.6	581	617	555
	Correll (b)	1.45	1.47	1.33	1.42	16.0	15.1	13.8	14.9	8.0	6.1	6.1	6.7	614	627	567
	Derrimut (b)	1.27	1.40	1.21	1.30	15.7	14.4	13.0	14.4	14.4	6.2	6.6	9.1	507	599	514
	EGA Wentworth (b)	1.32	1.26	1.20	1.26	15.7	14.9	13.3	14.6	14.4	5.7	6.1	8.7	526	539	513
	Gladius (b)	1.47	1.72	1.49	1.56	15.1	13.9	12.7	13.9	3.7	3.4	4.4	3.8	639	745	642
	Lincoln (b)	1.40	1.49	1.36	1.42	15.8	14.5	12.9	14.4	10.9	4.6	4.0	6.5	568	641	589
	Magenta (b)	1.46	1.25	1.32	1.35	15.2	15.7	14.1	15.0	5.5	3.2	3.5	4.1	627	544	573
	Wyalkatchem (b)	1.31	1.71	1.32	1.45	14.5	13.9	13.0	13.8	4.2	2.2	2.0	2.8	567	748	575
Young (b)	1.45	1.71	1.38	1.52	14.9	14.2	13.2	14.1	11.5	3.5	4.7	6.6	587	742	596	
ASW	AGT Scythe (b)	1.35	1.16	1.12	1.21	16.2	15.6	14.2	15.3	7.7	7.3	8.3	7.8	563	487	465
ASWN	Arrino	1.55	1.52	1.42	1.50	15.5	14.8	13.5	14.6	3.6	1.3	1.3	2.0	664	659	611
	Binnu (b)	1.50	1.35	1.35	1.40	13.4	14.1	12.9	13.5	6.4	3.4	4.7	4.8	629	577	575
	Calingiri	1.55	1.27	1.39	1.40	14.9	15.4	13.7	14.7	4.5	4.0	4.2	4.2	658	540	592
	Yandanooka (b)	1.57	1.10	1.20	1.29	14.9	16.1	14.6	15.2	4.5	4.0	5.3	5.6	669	470	506
	Average within each TOS	1.42	1.42	1.31	1.20	15.1	14.8	13.4	14.4	7.2	4.2	4.7	5.6			
	TOS (Isd)	ns				0.57				0.69						
	Var (Isd)	0.14				0.50				0.71						
	Var (Isd) between TOS	0.31				0.95				1.30						
	Var (Isd) within TOS	0.25				0.86				1.23						
	%CV	11.1				3.7				13.7						

Table 8. Effect of sowing time on yield, quality and economic returns of wheat varieties at Coorow in 2007

		Grain yield (t/ha)			Protein (%)			Screenings (%) *			Gross Income (\$/ha)	
		11-Jun	6-Jul	ave	11-Jun	6-Jul	ave	11-Jun	6-Jul	ave	11-Jun	6-Jul
AH	Carnamah (b)	1.63	0.99	1.31	14.1	12.0	13.1	1.5	2.9	2.2	715	428
	EGA Bonnie Rock (b)	1.52	1.01	1.27	14.8	12.3	13.6	3.2	3.6	3.4	669	444
	GBA Sapphire (b)	1.45	0.77	1.11	13.7	12.0	12.9	1.3	3.3	2.3	640	334
	Tammarin Rock (b)	1.68	0.81	1.25	13.6	11.2	12.4	4.0	4.5	4.2	726	346
	Yitpi (b)	1.50	0.54	1.02	14.3	12.6	13.5	3.5	5.2	4.4	652	233
APW	Axe (b)	1.91	1.07	1.49	13.2	11.7	12.5	3.1	3.9	3.5	829	460
	Carinya (b)	1.21	0.88	1.05	14.8	11.8	13.3	1.3	3.1	2.2	533	384
	Catalina (b)	1.68	0.54	1.11	13.4	11.5	12.5	2.7	5.7	4.2	730	232
	Correll (b)	1.70	0.93	1.31	13.8	12.1	13.0	4.8	7.3	6.0	731	392
	Derrimut (b)	1.45	0.88	1.17	13.9	11.2	12.6	2.8	5.1	4.0	631	373
	EGA Wentworth (b)	1.57	0.77	1.17	14.0	11.5	12.8	1.9	3.0	2.5	687	332
	Gladius (b)	1.69	0.99	1.34	13.7	11.9	12.8	2.8	6.6	4.7	736	418
	Lincoln (b)	1.64	0.92	1.28	13.7	11.9	12.8	2.8	4.4	3.6	713	393
	Magenta (b)	1.37	0.97	1.17	14.9	13.8	14.3	1.5	3.6	2.5	599	422
	Wyalkatchem (b)	1.72	0.86	1.29	13.5	11.6	12.6	1.2	2.5	1.8	757	371
	Young (b)	1.76	0.93	1.35	13.5	11.4	12.5	3.1	4.9	4.0	765	399
ASW	AGT Scythe (b)	1.48	0.92	1.20	14.5	12.0	13.2	3.6	5.7	4.6	635	387
ASWN	Arrino	1.67	0.95	1.31	14.4	11.8	13.1	0.7	1.4	1.0	715	410
	Binnu (b)	1.44	0.87	1.15	14.1	11.5	12.8	2.2	3.1	2.6	628	373
	Calingiri	1.38	0.78	1.08	14.6	12.1	13.4	1.8	3.7	2.8	597	332
	Yandanooka (b)	1.65	0.85	1.25	14.0	12.4	13.2	1.5	2.8	2.2	714	365
Average within each TOS		1.58	0.87	1.20	14.0	12.0	13.0	2.4	4.1	3.0		
TOS (Isd)		0.23			0.26			ns				
Var (Isd)		0.16			0.58			0.83				
Var (Isd) between TOS		0.25			0.81			2.47				
Var (Isd) within TOS		0.23			0.82			1.17				
%CV		11.5			3.9			20.60				

2007 Central Agricultural Region Summary

Key messages

- EGA Bonnie Rock (b), Tammarin Rock (b), Yitpi (b), Gladius (b), Young (b) and Magenta (b) were the highest yielding varieties at all times of sowing at Merredin and Wongan Hills. However Arrino, and Yandanooka (b) performed well at Wongan Hills compared to Binnu (b), Calingiri and Carnamah (b)□
- Average grain yield from late June sowing out-yielded 10th July sowing by 27% at Wongan Hills and mid June sowing out-yielded early July by 22% at Merredin
- Screenings and hectolitre were not a factor at any locations in 2007

Variety performance

The grain yield of Wyalkatchem (b) exceeded all of the wheat varieties in the NVT trials from 2000-2006 in Agzones 2 and 4 (Table 5)..

EGA Bonnie Rock (b), Magenta (b), Tammarin Rock (b), Yitpi (b), Gladius (b), Young (b) and Wyalkatchem (b) were the top performers both at Merredin and Wongan Hills in 2007 at all sowing times. The average grain yield of the newly released variety Magenta (b) exceeded all of the wheat varieties at Merredin (Table 10). Magenta (b) has longer coleoptile length than Wyalkatchem (b) and better stem rust resistance.

Grain yield decline with subsequent sowing times was significant at both locations. The yield reduction was greater in GBA Sapphire (b), Carnamah (b), Carinya (b), EGA Wentworth (b) and Arrino at Merredin and Wongan Hills.

Overall proteins were high at the time of the sowing trials at Merredin and Wongan Hills. Grain protein levels for all noodle wheat varieties grown at Wongan Hills were above the delivery standard of 11.5% at all times of sowing (Table 9). Protein levels were also all above delivery standard in Merredin, with the exception of time of sowing 1 (Table 10). Most of the varieties had low screenings and high hectolitre weight exceeding 74 kg/hl minimum standard.

Wongan Hills Agzone 2—Time of sowing trial

Paddock history: 2004-wheat, 2005-Wheat, 2006-Lupins

Soil description: Sandy duplex soil, Soil pH (CaCl₂): 0-10 cm: 5.0 & 20-30 cm: 5.4

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

Jan	Feb	Mar	Apr	May	Jun	Annual
33.6	0	1.6	13.6	23.4	27.2	329.0
Jul	Aug	Sep	Oct	Nov	Dec	GSR
75.8	50.4	33.6	31.0	0	38.8	255.0

Times of sowing: 28 May, 26 June, 10 July

Comments: Rainfall prior to seeding was very minimal so stored moisture was very low. There was not an early break at this trial site. Early opportunity to sow TOS1 was late May.

Trials were monitored for weeds and diseases during the growing season. Even germination and low weed pressure were observed. Disease pressure was also low. September and October rainfall helped to finish the TOS3.

Merredin Agzone 4—Time of sowing trial

Paddock history: 2004-Wheat; 2005-Pasture; 2006-Pasture

Soil description: Clay loam soil, Soil pH (CaCl₂): 0-10 cm: 7.2 & 20-30 cm: 7.9

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

Jan	Feb	Mar	Apr	May	Jun	Annual
18.4	2.0	0	12.6	19.0	20.8	230.4
Jul	Aug	Sep	Oct	Nov	Dec	GSR
55.6	22.4	20.8	24.4	0	34.4	175.6

Times of sowing: 27 April, 14 June, 4 July

Comments: Rainfall prior to seeding was very low. In the months of January to April was only 33.0 mm, so stored moisture was very low. The first time of sowing at this site was sown on 27 April after irrigating the site to generate information on early sowing. Another light irrigation was also given to save the crop due to dry spell in May. Patchy germination and higher weed burden was observed at TOS1 compared to other sowing times. Disease pressure was also low.

Table 9. Effect of sowing time on yield, quality and economic returns of wheat varieties at Wongan Hills in 2007

		Grain yield (t/ha)				Protein (%)				Screenings (%)				Gross income (\$/ha)		
		28 May	26 Jun	10 Jul	ave	28 May	26 Jun	10 Jul	ave	28 May	26 Jun	10 Jul	ave	28 May	26 Jun	10 Jul
AH	Carnamah (b)	2.12	2.09	1.30	1.84	14.3	14.9	15.8	15.0	4.0	3.4	2.0	3.1	917	906	569
	EGA Bonnie Rock (b)	2.39	2.18	1.58	2.05	14.3	15.1	15.4	14.9	3.4	2.6	3.5	3.2	1049	963	693
	GBA Sapphire (b)	2.06	2.01	1.19	1.75	14.4	14.9	15.9	15.1	2.0	2.0	2.6	2.2	901	879	518
	Tammarin Rock (b)	2.26	2.00	1.49	1.92	14.2	15	15.8	15.0	3.5	2.2	2.4	2.7	980	875	650
	Yitpi (b)	2.28	2.12	1.53	1.98	15.0	15.2	16.3	15.5	5.0	3.3	3.7	4.0	980	921	664
APW	Axe (b)	2.01	1.93	1.69	1.88	15.2	15.2	15.3	15.2	3.5	2.8	2.9	3.1	871	841	735
	Carinya (b)	2.18	1.84	1.24	1.75	14.5	15.3	15.3	15.0	1.8	1.4	2.9	2.0	950	801	539
	Catalina (b)	2.06	2.05	1.71	1.94	13.9	14.6	14.2	14.2	2.7	3.3	3.2	3.1	898	890	742
	Correll (b)	2.32	1.98	1.51	1.94	14.3	15.2	16.4	15.3	4.0	4.9	5.0	4.6	1008	850	647
	Derrimut (b)	2.30	2.17	1.73	2.07	13.8	14.2	14.4	14.1	4.6	3.9	3.9	4.1	991	937	747
	EGA Wentworth (b)	2.17	2.06	1.36	1.86	14.4	14.9	16.2	15.2	2.8	2.5	3.6	3.0	944	898	589
	Gladius (b)	2.15	2.15	1.57	1.96	15.1	14.9	16.1	15.4	3.9	3.2	3.4	3.5	929	933	680
	Lincoln (b)	2.18	1.99	1.55	1.91	14.5	15.1	15.5	15.0	3.6	3.4	3.6	3.5	944	862	671
	Magenta (b)	2.35	2.01	1.47	1.94	14.8	15.8	16.3	15.6	3.9	2.6	3.2	3.2	1015	874	638
	EGA Wentworth (b)	2.17	2.06	1.36	1.86	14.4	14.9	16.2	15.2	2.8	2.5	3.6	3.0	944	898	589
	Wyalkatchem (b)	2.34	2.07	1.56	1.99	14.8	15.7	15.7	15.4	1.8	1.4	2.0	1.7	1026	907	682
	Young (b)	2.14	2.15	1.67	1.99	14.0	15.1	15.4	14.8	2.2	2.6	3.0	2.6	933	937	726
ASW	AGT Scythe (b)	2.31	2.11	1.59	2.00	14.4	15.1	15.1	14.9	5.3	3.9	5.1	4.8	978	900	673
ASWN	Arrino	2.33	2.13	1.65	2.04	14.4	15.2	15.4	15.0	1.0	1.2	1.3	1.2	1011	923	714
	Binnu (b)	2.20	2.05	1.51	1.92	13.7	14.8	15.3	14.6	2.0	1.8	2.3	2.0	949	888	650
	Calingiri	2.30	2.03	1.44	1.92	14.4	14.9	15.8	15.0	2.9	2.9	3.9	3.2	987	914	622
	Yandanooka (b)	2.25	2.13	1.46	1.95	14.8	15	15.9	15.2	2.5	3.1	4.4	3.3	968	912	621
	Average within each TOS	2.22	2.06	1.51	1.93	14.4	15.0	15.6	15.0	3.2	2.8	3.2	3.06	963	896	656
	TOS (lsd)	0.52				2.2				0.5						
	Var (lsd)	0.09				0.4				0.6						
	Var TOS (lsd)	0.51				2.1				1.1						
	Var TOS (lsd diff mean)	0.16				0.6				1.1						
	%CV	5.1				2.6				21.4						

Table 10. Effect of sowing time on yield, quality and economic returns of wheat varieties at Merredin in 2007

		Grain yield (t/ha)				Protein (%)				Screenings (%)				Gross income		
		27 Apr	14 Jun	4 Jul	ave	27 Apr	14 Jun	4 Jul	ave	27 Apr	14 Jun	4 Jul	ave	27 Apr	14 Jun	4 Jul
AH	Carnamah (b)	1.54	1.07	0.72	1.11	11.3	14.1	16.4	13.9	4.2	2.6	2.1	3.0	659	467	315
	EGA Bonnie Rock (b)	1.68	0.88	0.99	1.18	12.2	14.6	14.7	13.8	3.7	1.5	2.3	2.5	735	390	436
	GBA Sapphire (b)	1.43	0.93	0.66	1.01	12.1	14.9	15.6	14.2	1.9	1.4	2.3	1.9	625	408	288
	Tammarin Rock (b)	1.69	1.16	0.97	1.27	11.3	13.8	14.1	13.1	3.9	1.8	2.3	2.7	724	510	423
	Yitpi (b)	1.67	1.22	0.94	1.28	12.2	14.5	16.1	14.3	4.3	1.7	3.7	3.2	719	535	407
APW	Carinya (b)	1.59	1.26	0.7	1.18	12.3	13.8	15.4	13.8	1.6	1.0	2.1	1.6	696	554	306
	Catalina (b)	1.56	1.29	0.98	1.28	11.6	13.1	13.9	12.9	3.1	1.6	2.1	2.3	674	562	428
	Correll (b)	1.71	1.10	0.73	1.18	12.1	14.0	15.1	13.7	6.6	3.5	4.5	4.9	726	477	314
	Derrimut (b)	1.8	1.04	0.94	1.26	10.7	14.0	14.5	13.1	4.5	2.8	3.1	3.5	765	453	408
	Gladius (b)		1.19	1.01	1.10		13.8	14.7	14.3		3.1	3.9	3.5		517	436
	EGA Bounty (b)	1.33	0.84	0.56	0.91	11.9	14.5	15.1	13.8	1.1	0.5	0.8	0.8	583	370	246
	EGA Wentworth (b)	1.43	0.92	0.78	1.04	11.8	15.0	15.4	14.1	2.5	1.6	2.2	2.1	620	403	341
	Lincoln (b)	1.64	1.14	0.86	1.21	11.0	14.1	15	13.4	5.3	2.1	2.6	3.3	696	498	375
	Magenta (b)	1.94	1.11	0.98	1.34	12.4	15.1	16.7	14.7	3.0	2.0	2.6	2.5	841	485	427
	Wyalkatchem (b)	1.59	1.07	0.79	1.15	11.5	14.1	14.6	13.4	2.1	1.7	1.3	1.7	690	469	346
	Young (b)	1.50	1.21	1.18	1.30	11.0	13.4	13.8	12.7	3.2	2.6	2.9	2.9	650	527	512
ASW	AGT Scythe (b)	1.83	0.96	0.88	1.22	11.0	14.5	15.2	13.6	5.2	5.0	3.9	4.7	770	407	375
ASWN	Arrino	1.57	0.88	0.74	1.06	11.2	14.7	15.6	13.8	1.5	1.1	1.2	1.3	683	382	321
	Binnu (b)	1.64	1.06	0.83	1.18	11.1	13.4	14.4	13.0	2.8	1.6	1.9	2.1	709	459	358
	Calingiri	1.57	1.14	0.87	1.19	11.2	13.9	15	13.4	3.6	2.5	4.0	3.4	675	490	371
	Average within each TOS	1.60	1.06	0.85	1.16	11.8	14.4	15.2	13.8	3.3	2.0	2.51	2.6			
	TOS (Isd)	0.19				0.5				0.4						
	Var (Isd)	0.17				0.6				0.5						
	Var TOS (Isd)	0.32				1				0.9						
	Var TOS (Isd diff mean)	0.29				0.9				0.8						
	%CV	15.5				4.4				19.4						

2007 Great Southern and Lakes Regional Summary

Key messages

- Soft wheats EGA 2248 (b) and Bullaring (b) dominated the yield results at Katanning but gross margins will be marginally reduced by high protein levels, screenings and low hectolitre weights.
- Young (b) and Magenta (b) are competitive with Wyalkatchem (b). These results are supported by NVT data. There are indications that Magenta performs better when sown in May. Recently released Gladius (b) yielded significantly lower than Wyalkatchem (b) and Young (b).
- Correll (b) (a Yitpi replacement) yielded similar to Yitpi (b) at both sites. Correll (b) has better stem rust resistance but its maturity is shorter than Yitpi (b) (Table 15) and it is currently an APW variety.
- Magenta (b) may have a higher risk of screenings compared to Wyalkatchem (b). EGA Bonnie Rock (b), Lincoln (b) and EGA Wentworth (b) had screenings above 5% when sown mid June at GSARI.
- APW varieties Correll (b) and Lincoln (b) were found to have hectolitre weights below 74 kg/hL when sown mid June at GSARI.
- Results show a number of varieties with high levels of fungal staining when sown early May, reiterating the risk of sowing susceptible varieties too early. The gross margins of Wyalkatchem (b), EGA 2248 (b), Binnu (b) Carinya (b), Carnamah (b), Catalina (b), EGA Wentworth (b), GBA Sapphire (b), Yitpi (b) and Magenta (b) where reduced marginally in 2007 by fungal staining.
- Time of sowing resulted in significant differences at both the GSARI and NRS sites. The average grain yields ranged from 4.2 t/ha sown in early May to 3.1 t/ha sown in mid June at GSARI (Table 11) and 2 t/ha sown in late May to 1.3 t/ha sown in early July at NRS (Table 12).
- Results from the early May sowing at GSARI must be viewed with caution as no frost events were recorded at flowering. The sites were also free of leaf diseases.

Katanning (GSARI) Agzone 2/3

Paddock history: Lupins (06) and wheat (05)

Soil description: Sandy duplex with clay at 25 cm, pH (CaCl₂) = 5

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

Jan	Feb	Mar	Apr	May	Jun	Annual
20.2	1	7.6	50.2	18.2	43.4	431
Jul	Aug	Sep	Oct	Nov	Dec	GSR
87.2	60.4	49.4	52.2	2.2	38.8	355.4

Times of sowing: 4 May, 22 May, 14 June

Comments: Good rains in mid and late April, led to an early seeding opportunity. Establishment was excellent for all planting times (ave 130 plants/m²). Weed control was good, although some ryegrass occurred in patches later in the season. The site was not subjected to any frost or disease stresses. Good rains in October led to excellent grain filling conditions, however this also led to conditions to induce staining on some of the varieties sown early May. Yandanooka (b) was found to lodge badly at this site and yielded poorly with no explanation why.

Newdegate Research Station Agzone 2/5

Paddock history: Lupins (06) and wheat (05)

Soil description: Sandy duplex with clay at 20 cm, pH (CaCl₂) = 5.1.

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

Jan	Feb	Mar	Apr	May	Jun	Annual
29.2	0	0.2	33.8	18.2	43.2	327
Jul	Aug	Sep	Oct	Nov	Dec	GSR
64	32.2	23.6	38.6	0.4	43.6	252.6

Times of sowing: 28 May, 20 June, 6 July

Comments: Moderate rain fell in April leading to marginal moisture at this site in early May. Time of sowing 1 was sown late May, dry, with moisture at depth. Rain immediately followed seeding but plant establishment was patchy and slightly down compared to the later sowings (115 compared to 147 plants/m²). The overall weed control was good. No further stresses were evident for the remainder of the season with the lack of leaf disease and frosts. Rainfall occurred at the beginning and end of October leading to reasonable grain filling conditions.

Table 11. Effect of sowing time on yield, quality and economic returns of wheat varieties at GSARI, Katanning in 2007

		Grain yield (t/ha)				Protein (%)				Screenings (%) *				Gross Income (\$/ha)		
		4-May	22-May	14-Jun	ave	4-May	22-May	14-Jun	ave	4-May	22-May	14-Jun	ave	4-May	22-May	14-Jun
AH	Carnamah (b)	4.2	4.1	3.2	3.8	11.6	11.8	12.3	11.9	0.9	1.1	2.8	1.6	1773	1783	1398
	EGA Bonnie Rock (b)	4.3	4.1	3.5	4.0	12.7	12.1	11.6	12.2	3.8	3.1	8.3	5.1	1896	1784	1488
	GBA Sapphire (b)	4.1	3.7	3.0	3.6	11.2	11.4	11.4	11.3	1.5	4.1	4.9	3.5	1735	1572	1259
	Yitpi (b)	4.1	3.4	2.8	3.4	10.4	11.8	12.0	11.4	1.7	1.5	2.5	1.9	1725	1482	1208
APW	Bolac (b)	3.3	3.4	2.6	3.1	10.4	11.2	12.6	11.4	11.1	12.8	11.0	11.6	1324	1327	1047
	Carinya (b)	4.3	3.7	3.0	3.7	11.1	10.3	11.7	11.0	2.0	1.5	6.2	3.2	1829	1604	1262
	Catalina (b)	3.8	4.0	3.4	3.7	11.9	10.9	11.4	11.4	1.2	0.8	2.1	1.4	1618	1675	1469
	Correll (b)	4.1	3.8	2.8	3.6	11.4	11.6	12.0	11.7	1.2	1.6	3.8	2.2	1804	1641	1186
	EGA Wentworth (b)	4.2	3.7	2.8	3.6	11.1	10.7	11.2	11.0	2.1	3.6	7.3	4.3	1763	1573	1194
	Gladius (b)			3.1	3.2			11.1	11.1			1.9	1.9			1363
	Lincoln (b)	4.0	3.4	2.9	3.4	11.0	11.3	12.3	11.5	1.7	2.1	6.5	3.4	1702	1451	1199
	Magenta (b)	4.5	3.6	2.9	3.7	11.5	12.4	12.2	12.0	1.9	2.9	4.7	3.2	1914	1558	1253
	Wyalkatchem (b)	4.2	3.7	3.4	3.8	12.2	12.3	11.3	12.0	0.2	0.4	0.8	0.5	1792	1641	1477
Young (b)	4.3	3.8	3.5	3.9	10.5	11.1	11.1	10.9	1.5	2.3	2.8	2.2	1862	1643	1521	
ASWN	Binnu (b)	4.6	3.9	3.5	4.0	11.1	11.1	10.3	10.9	2.8	3.3	4.1	3.4	1943	1693	1524
	Calingiri	4.4	3.5	3.0	3.6	11.5	12.2	11.6	11.8	1.2	1.2	2.2	1.5	1912	1517	1278
	Yandanooka (b)	3.7	3.3	3.0	3.3	11.3	13.3	13.1	12.6	1.2	1.0	2.3	1.5	1595	1417	1283
A Soft	Bullaring (b)	4.7	4.3	3.2	4.1	9.3	10.3	10.2	9.9	1.6	3.8	8.5	4.6	2076	1764	1313
	Datatine	4.2	3.7	2.9	3.6	10.1	8.9	10.7	9.9	1.9	3.6	14.0	6.5	1739	1600	1130
	EGA 2248 (b)	4.9	4.1	3.8	4.2	10.8	11.1	11.0	11.0	1.2	1.5	1.8	1.5	2058	1734	1581
	EGA Jitarning (b)	4.3	3.7	2.9	3.6	10.3	10.3	10.8	10.5	1.2	1.3	5.8	2.8	1794	1577	1176
Average within each TOS		4.2	3.7	3.1	3.7	11.1	11.3	11.5	11.3	2.1	2.7	5.0	3.2			
TOS (lsd)		0.5				ns				0.8						
Var (lsd)		0.2				0.7				1.7						
Var (lsd) between TOS		0.5				1.5				2.9						
Var (lsd) within TOS		0.4				1.1				2.9						
%CV		7.1				6				60						

Table 12. Effect of sowing time on yield, quality and economic returns of wheat varieties at Newdegate in 2007

		Grain Yield (t/ha)				Protein (%)				Screenings (%) *				Gross Income (\$/ha)		
		28 May	20 Jun	6 Jul	ave	28 May	20 Jun	6 Jul	ave	28 May	20 Jun	6 Jul	ave	28 May	20 Jun	6 Jul
AH	Carnamah (b)	2.1	1.5	1.3	1.7	11.7	13.4	13.7	12.9	4.9	4.5	4.2	4.5	915	666	561
	EGA Bonnie Rock (b)	1.9	1.5	1.3	1.6	11.7	13.9	13.7	13.1	4.4	6.1	7.0	5.8	821	667	542
	GBA Sapphire (b)	2.0	1.7	1.2	1.6	11.9	12.1	12.7	12.2	5.2	4.0	3.6	4.3	841	743	522
	Tammarin Rock (b)	2.0	1.7	1.6	1.8	11.4	12.2	12.8	12.1	5.8	6.9	7.2	6.6	868	734	665
	Yitpi (b)	1.8	1.6	1.4	1.6	11.7	12.5	12.9	12.4	7.2	7.9	6.7	7.3	770	696	614
APW	Axe (b)		1.4	1.3	1.4		12.6	12.9	12.8		5.5	5.9	5.7		615	571
	Carinya (b)	1.9	1.8	1.3	1.7	11.8	12.5	13.0	12.4	4.8	4.6	3.4	4.3	810	768	557
	Catalina (b)	2.0	1.4	1.3	1.6	11.1	12.1	13.1	12.1	6.1	6.2	5.4	5.9	862	612	547
	Correll (b)	2.0	1.9	1.0	1.6	11.7	12.1	13.2	12.4	7.9	9.1	7.9	8.3	839	785	432
	Derrimut (b)	1.7	1.8	1.3	1.6	11.2	12.2	12.3	11.9	8.0	8.2	7.5	7.9	726	756	544
	EGA Wentworth (b)	1.7	1.7	1.0	1.5	11.7	12.3	13.3	12.5	7.0	6.1	6.4	6.5	717	733	440
	Gladius (b)		1.5	1.3	1.4		13.0	12.9	13.0		5.5	6.4	6.0		644	551
	Lincoln (b)	1.8	1.7	1.3	1.6	11.7	12.6	12.9	12.4	7.8	7.1	6.2	7.1	735	726	555
	Magenta (b)	2.2	1.6	1.3	1.7	12.5	13.8	14.1	13.5	5.9	7.0	3.3	5.4	938	678	546
	Wyalkatchem (b)	2.2	1.7	1.2	1.7	11.4	11.9	12.5	12.0	3.1	3.4	3.7	3.4	943	746	533
	Young (b)	2.3	2.0	1.5	1.9	11.6	12.5	13.0	12.4	5.8	6.5	6.8	6.4	981	845	629
ASWN	Arrino	2.1	1.6	1.3	1.7	11.7	13.5	13.3	12.8	2.2	2.2	2.5	2.3	892	706	556
	Binnu (b)	2.0	1.7	1.1	1.6	10.9	12.2	13.1	12.1	4.8	5.3	6.6	5.6	862	706	462
	Calingiri	2.0	1.8	1.0	1.6	11.2	12.5	13.0	12.2	5.8	6.4	7.8	6.6	832	744	430
	Yandanooka (b)	2.1	1.8	1.3	1.7	11.6	12.4	13.4	12.4	5.2	6.2	5.5	5.6	882	772	549
A Soft	EGA Jitarning (b)	2.2	1.8	1.3	1.7	10.3	11.1	11.7	11.0	5.3	4.7	6.0	5.3	888	747	524
<i>Average within each TOS</i>		2.0	1.7	1.3	1.6	11.5	12.6	13.1	12.4	5.6	5.9	5.8	5.7			
TOS (Isd)		0.4				1				0.5						
Var (Isd)		0.2				0.5				1						
Var (Isd) between TOS		0.3				1				1.6						
Var (Isd) within TOS		0.3				0.8				1.6						
%CV		9.5				4.1				17.3						

2007 South Coastal Agricultural Region Summary

Key messages:

- Despite high yields and \$ returns Wyalkatchem (b) remains a disease and quality risk in the Esperance region. EGA Eagle Rock (b) appears to be a well adapted, good yielding, robust variety with a consistent record in this region. New varieties such as Correll (b), Young (b) and Scythe (b) are also worth consideration.
- Earlier sown crops were highest yielding. GBA Sapphire (b), Wyalkatchem (b) and AGT Scythe (b) were the best performing varieties, in yield and \$. Small differences in price between AH, APW and ASW lowered the \$ penalty of growing ASW in 2007 making AGT Scythe (b) more attractive. GBA Sapphire (b) and Wyalkatchem (b) were consistently the best for screenings, helping avoid price penalties.

Esperance Agzone 6—Time of sowing trial

Paddock history: pasture 06, pasture 05

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
209.0	0.2	16.4	123.6	22	43.2	678.5
Jul	Aug	Sep	Oct	Nov	Dec	GSR
34.4	66.8	29.4	84.9	3.6	45.0	404.3

Times of sowing: 9 May, 25 May, 14 June

Comments: A large rain event in January supplied significant stored soil moisture, followed by good rains in mid April. This led to good, early opportunities for crop establishment. Weed control in-crop was excellent following the pre-sowing germination and control using knockdowns. Fungal disease pressure was very low due to drier than average conditions through winter and spring.

Late rains were timely to ensure grain fill of the TOS3 crop which was late enough to take advantage. However several very hot days (>35°C) during grain fill were likely contributors to poor grain quality for TOS2 crops. Hectolitre weight was below 74 kg/hL at TOS2 for AGT Scythe (b), EGA Gregory (b) and Lincoln (b), and

TOS2 and 3 for Correll (b), resulting in a downgrading of grain quality. Grain quality was highly dependent on variety and less affected by TOS. Earliest TOS was highest yielding and best quality. The very high \$ return reflects both high yields and high grain prices this season.

Mt Madden Agzone 5—Time of sowing trial

Paddock history: lupins 06, wheat 05, barley 04, wheat 03

Soil description: grey, shallow sand duplex over alkaline clay, pH 4.6 at surface

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

Jan	Feb	Mar	Apr	May	Jun	Annual
32.3	0.3	2.0	69.8	11.5	35.4	357.4
Jul	Aug	Sep	Oct	Nov	Dec	GSR
42.2	31.4	25.7	42.0	1.0	63.8	258

Times of sowing: 23 May, 7 June, 19 June

Comments: Low yield potential at this Mallee site created few significant differences in yield. A tough, dry finish created some grain quality problems which were exacerbated by harvesting problems. The very low \$ return for many varieties is largely due to severe penalties from high screenings. However, the screenings level may be reduced after further analysis of the samples, and at penalty rates up to \$20/t farmers should consider the economics of cleaning grain to remove high screenings. Hectolitre weight was well above 74 kg/hl, averaging 83 for the site. Yields responded strongly to TOS with earlier sown crops significantly better than later. Protein was lower at TOS1, most likely reflecting a dilution effect of the higher yielding crops, and peaked at TOS2. Additional N to the TOS1 crop may have been required. Screenings were consistently above acceptable standards with no TOS effects.

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

		Grain yield (t/ha)				Protein (%)				Screenings (%)				Gross income (\$/ha)		
		9 May	25 May	14 Jun	ave	9 May	25 May	14 Jun	ave	9 May	25 May	14 Jun	ave	9 May	25 May	14 Jun
AH	Braewood (b)	5.68	4.69	4.78	5.05	13.0	13.2	12.4	12.9	6.3	9.0	4.6	6.6	2430	1969	2055
	Carnamah (b)	6.65	5.19	5.13	5.66	13.6	13.9	13.4	13.6	1.8	4.9	4.7	3.8	2910	2236	2205
	EGA Eagle Rock (b)	6.83	6.12	4.89	5.95	13.2	13.8	14.0	13.6	1.8	3.2	3.5	2.8	2987	2664	2122
	EGA Gregory (b)	4.60	3.55	3.84	4.00	13.0	13.8	13.2	13.3	4.3	9.4	8.5	7.4	1984	1489	1612
	GBA Sapphire (b)	6.07	4.69	4.37	5.04	12.3	13.3	13.1	12.9	2.7	10.9	10.3	8.0	2632	1906	1775
	Yitpi (b)	5.98	5.25	4.63	5.28	12.5	13.2	12.9	12.9	3.8	4.9	4.7	4.5	2593	2255	1989
APW	Annuello (b)	5.39	4.07	3.87	4.44	13.4	14.5	13.9	13.9	3.5	11.8	9.3	8.2	2336	1639	1613
	Bolac (b)	5.45	4.60	4.51	4.85	12.8	14.0	13.4	13.4	10.0	13.9	11.3	11.7	2213	1829	1823
	Carinya (b)	6.53	4.89	4.84	5.42	12.0	12.8	12.4	12.4	2.2	9.0	5.9	5.7	2849	2050	2062
	Catalina (b)	6.04	5.10	4.95	5.36	12.5	12.4	12.5	12.5	1.2	3.8	5.3	3.4	2651	2200	2118
	Correll (b)	6.53	4.89	4.57	5.33	13.0	13.8	13.3	13.4	3.4	4.4	3.4	3.7	2831	2032	1932
	Derrimut (b)	5.92	4.75	5.04	5.24	11.8	12.8	12.3	12.3	3.2	10.0	8.0	7.1	2557	1977	2122
	EGA Bounty (b)	5.51	4.25	4.45	4.74	12.7	13.5	13.5	13.2	4.0	8.8	9.0	7.3	2377	1782	1857
	EGA Wentworth (b)	5.86	4.63	4.66	5.05	12.4	13.2	12.8	12.8	2.9	12.4	9.5	8.3	2543	1847	1954
	Gladius (b) *			5.19	5.19			13.0	13.0			2.8	2.8			2253
	Lincoln (b)	6.17	3.96	3.99	4.70	13.1	14.8	13.8	13.9	5.4	15.7	10.7	10.6	2650	1553	1614
	Wyalkatchem (b)	7.14	5.98	5.83	6.32	13.0	13.3	12.7	13.0	1.1	1.7	2.1	1.6	3140	2612	2545
	Young (b)	6.30	5.36	4.95	5.54	12.7	13.2	13.2	13.1	2.0	8.2	9.4	6.5	2750	2263	2077
ASW	AGT Scythe (b)	6.62	4.98	4.51	5.37	13.0	14.5	13.5	13.7	4.1	9.6	6.5	6.7	2824	2030	1896
ASWN	Calingiri	6.94	5.48	5.27	5.90	12.9	13.4	12.8	13.0	2.0	3.4	2.8	2.7	2998	2345	2264
	Average within each TOS	6.21	4.92	4.75	5.30	12.8	13.6	13.1	13.2	3.2	7.5	6.3	5.7			
	LSD (ave within each TOS)	1.05				ns				ns						
	LSD (ave of variety)	0.36				0.35				1.9						
	LSD variety (across TOS)	0.85				0.79				4.6						
	LSD within TOS (between vars)	0.62				0.6				3.4						
	CV%	7.3				2.9				36.7						

* Gladius seed was unavailable for the May sowings.

Table 14. Effect of sowing time on yield, quality and economic returns of wheat varieties at Mt Madden

		Grain yield (t/ha)				Protein (%)				Screenings (%)				Gross income (\$/ha)		
		23 May	7 Jun	19 Jun	ave	23 May	7 Jun	19 Jun	ave	23 May	7 Jun	19 Jun	ave	23 May	7 Jun	19 Jun
AH	Braewood (b)	2.06	1.71	1.30	1.69	9.7	11.3	11.6	10.9	7.3	7.2	8.2	7.6	853	719	545
	Carnamah	2.16	1.98	1.71	1.95	10.0	11.4	11.0	10.8	9.3	8.8	9.6	9.2	881	823	707
	EGA Eagle Rock (b)	2.07	1.93	1.56	1.85	11.1	12.6	12.1	11.9	7.9	8.0	9.6	8.5	863	814	649
	EGA Gregory (b)	2.10	1.93	1.52	1.85	9.5	10.6	10.5	10.2	11.8	10.9	10.2	11.0	821	766	607
	GBA Sapphire (b)	2.28	2.17	1.89	2.11	9.6	11.0	10.6	10.4	7.2	7.0	4.9	6.3	1002	911	801
	Yitpi (b)	2.29	2.25	1.82	2.12	11.0	11.3	10.8	11.0	15.3	12.9	13.2	13.8	890	887	715
APW	Annuello (b)	2.23	1.90	1.86	1.99	9.7	11.7	10.9	10.8	8.4	6.4	10.2	8.3	910	802	742
	Bolac (b)	2.16	1.70	1.45	1.77	10.1	11.4	11.0	10.8	7.1	12.7	12.1	10.6	900	670	576
	Carinya (b)	2.29	2.14	1.78	2.07	9.8	11.5	10.8	10.7	7.7	8.0	10.3	8.7	941	899	715
	Catalina (b)	2.06	1.78	1.53	1.79	9.8	11.2	10.5	10.5	7.7	9.4	11.9	9.7	845	737	606
	Correll (b)	2.29	1.91	1.56	1.92	9.1	10.5	10.4	10.0	13.1	12.3	13.9	13.1	884	752	610
	Derrimut (b)	2.29	1.83	1.85	1.99	9.2	11.0	10.3	10.2	11.7	14.2	13.2	13.0	888	718	721
	EGA Bounty (b)	1.59	1.73	1.16	1.49	10.5	12.2	12.0	11.6	6.8	8.1	7.1	7.3	660	728	492
	EGA Wentworth (b)	2.37	2.10	1.78	2.08	9.4	11.0	10.2	10.2	8.0	8.7	10.9	8.3	974	870	704
	Gladius (b)		2.14	1.74	2.08		11.1	10.7	10.5		9.1	12.2	10.3		886	689
	Lincoln (b)	1.86	1.39	1.44	1.56	9.8	11.7	10.7	10.7	11.5	15.4	17.3	14.7	726	542	549
	Wyalkatchem (b)	2.37	2.08	1.70	2.05	10.0	11.1	10.7	10.6	5.9	6.5	8.2	6.9	990	875	707
Young (b)	2.23	2.11	1.85	2.06	9.8	11.0	10.6	10.4	7.9	9.9	13.0	10.3	923	870	725	
ASW	AGT Scythe (b)	2.52	2.17	1.73	2.14	9.7	11.2	11.2	10.7	12.5	11.9	15.0	13.2	979	862	673
ASWN	Calingiri	2.28	1.97	1.64	1.96	9.4	11.1	10.5	10.3	10.9	10.0	11.5	10.8	918	805	653
	Average within each TOS	2.19	1.94	1.62	1.92	9.8	11.3	10.9	10.7	9.4	9.8	11.2	10.1			
	LSD (ave within each TOS)	0.14				0.36				ns						
	LSD (ave of variety)	0.16				0.34				1.69						
	LSD variety (across TOS)	ns				0.61				2.98						
	LSD within TOS (between vars)	Ns				0.59				2.93						
	CV%	9.1				3.5				17.9						

* Gladius seed was unavailable for the May sowings.

Table 15. Anthesis date* for 47 wheat varieties at different sowing dates at three locations in Western Australia in 2007

Variety	Geraldton				Northam				Katanning			
	26 Apr	16 May	1 Jun	21 Jun	26 Apr	16 May	2 Jun	21 Jun	25 Apr	16 May	1 Jun	21 Jun
AH												
Braewood (b)	25 Jul	19 Aug	2 Sep	23 Sep	4 Sep	27 Sep	1 Oct	8 Oct	2 Oct	9 Oct	14 Oct	20 Oct
Carnamah (b)	9 Jul	2 Aug	15 Aug	6 Sep	11 Aug	8 Sep	29 Sep	9 Oct	22 Aug	16 Sep	24 Sep	10 Oct
EGA Bonnie Rock (b)	2 Jul	22 Jul	10 Aug	5 Sep	28 Jul	28 Aug	21 Sep	29 Sep	20 Aug	12 Sep	26 Sep	8 Oct
EGA Eagle Rock (b)	2 Jul	26 Jul	16 Aug	16 Sep	13 Aug	15 Sep	29 Sep	1 Oct	18 Sep	30 Sep	5 Oct	15 Oct
EGA Gregory (b)	16 Jul	3 Aug	22 Aug	21 Sep	20 Aug	18 Sep	29 Sep	6 Oct	10 Sep	30 Sep	4 Oct	15 Oct
GBA Sapphire (b)	6 Jul	29 Jul	19 Aug	6 Sep	6 Aug	6 Sep	27 Sep	3 Oct	2 Sep	24 Sep	30 Sep	14 Oct
Tammarin Rock (b)	5 Jul	23 Jul	10 Aug	6 Sep	25 Jul	29 Aug	16 Sep	27 Sep	17 Aug	6 Sep	16 Sep	4 Oct
Yitpi (b)	30 Jul	19 Aug	2 Sep	18 Sep		20 Sep	29 Sep	7 Oct	20 Sep	3 Oct	13 Oct	17 Oct
APW												
Annuello (b)	10 Jul	1 Aug	19 Aug	13 Sep	10 Aug	13 Sep	25 Sep	8 Oct	9 Sep	24 Sep	10 Oct	15 Oct
Axe (b)			25 Aug	30 Aug			12 Sep	28 Sep			16 Sep	30 Sep
Bolac (b)	8 Jul	31 Jul	20 Aug	15 Sep	15 Aug	22 Sep	29 Sep	8 Oct	15 Sep	29 Sep	5 Oct	17 Oct
Carinya (b)	5 Jul	27 Jul	16 Aug	9 Sep	15 Aug	12 Sep	25 Sep	2 Oct	28 Aug	21 Sep	26 Sep	11 Oct
Catalina (b)	2 Jul	25 Jul	14 Aug	6 Sep	31 Jul	4 Sep	25 Sep	1 Oct	30 Aug	24 Sep	1 Oct	13 Oct
Correll (b)	2 Jul	29 Jul	14 Aug	5 Sep	29 Jul	6 Sep	24 Sep	1 Oct	17 Sep	28 Sep	8 Oct	15 Oct
Derrimut (b)		27 Jul	13 Aug	8 Sep		7 Sep	30 Sep	1 Oct		19 Sep	29 Sep	10 Oct
EGA Bounty		6 Aug	21 Aug	17 Sep	26 Aug	11 Sep	28 Sep	2 Oct		28 Sep	6 Oct	16 Oct
EGA Wedgetail (b)	2 Sep	19 Sep	27 Sep	14 Oct	29 Sep	3 Oct	8 Oct	15 Oct	1 Oct	11 Oct	14 Oct	25 Oct
EGA Wentworth (b)	5 Jul	26 Jul	15 Aug	6 Sep	4 Aug	9 Sep	24 Sep	4 Oct	12 Sep	23 Sep	29 Sep	11 Oct
Ellison (b)	19 Jul	12 Aug	29 Aug	18 Sep		27 Sep	5 Oct	10 Oct	17 Sep	5 Oct	10 Oct	20 Oct
Gladius (b)			29 Aug	5 Sep			25 Sep	29 Sep			30 Sep	12 Oct
Lincoln	6 Jul	28 Jul	15 Aug	6 Sep	28 Jul	5 Sep	19 Sep	30 Sep	6 Sep	24 Sep	1 Oct	13 Oct
Magenta (b)	15 Jul	4 Aug	19 Aug	15 Sep	17 Aug	15 Sep	27 Sep	8 Oct	9 Sep	30 Sep	4 Oct	14 Oct
Spear	27 Jul	26 Aug	3 Sep	19 Sep	20 Aug	20 Sep	28 Sep	2 Oct	15 Sep	30 Sep	13 Oct	15 Oct
Westonia	29 Jun	23 Jul	8 Aug	3 Sep	23 Jul	24 Aug	12 Sep	26 Sep			27 Sep	4 Oct
Wyalkatchem (b)	5 Jul	31 Jul	9 Aug	3 Sep	4 Aug	12 Sep	16 Sep	30 Sep	27 Aug	20 Sep	28 Sep	6 Oct
Young (b)	26 Jun	19 Jul	7 Aug	30 Aug	23 Jul	23 Aug	8 Sep	29 Sep	28 Aug	12 Sep	27 Sep	10 Oct
ASWN												
Arrino	2 Jul	24 Jul	14 Aug	6 Sep	27 Jul	1 Sep	21 Sep	28 Sep	7 Sep	18 Sep	27 Sep	4 Oct
Binnu (b)	6 Jul	23 Jul	8 Aug	2 Sep	2 Aug	6 Sep	21 Sep	3 Oct	6 Sep	26 Sep	1 Oct	7 Oct
Calingiri	17 Jul	1 Aug	22 Aug	13 Sep	17 Aug	17 Sep	28 Sep	4 Oct	4 Sep	21 Sep	30 Sep	11 Oct
Yandanooka (b)	10 Jul	2 Aug	19 Aug	9 Sep	7 Aug	3 Sep	20 Sep	29 Sep	26 Aug	16 Sep	27 Sep	7 Oct
ASFT												
Bullaring (b)	13 Jul	6 Aug	25 Aug	19 Sep	10 Aug	19 Sep	29 Sep	11 Oct	9 Sep	1 Oct	12 Oct	15 Oct
Datatine	10 Jul	6 Aug	25 Aug	23 Sep	14 Aug	17 Sep	29 Sep	7 Oct	17 Sep	7 Oct	13 Oct	17 Oct
EGA 2248 (b)	1 Jul	24 Jul	13 Aug	8 Sep	28 Jul	7 Sep	24 Sep	1 Oct	28 Aug	24 Sep	29 Sep	8 Oct
EGA Jitarning (b)	2 Aug	16 Aug	5 Sep	26 Sep	2 Sep	26 Sep	2 Oct	9 Oct	18 Sep	1 Oct	10 Oct	17 Oct
ASW												
AGT Scythe (b)	14 Jul	4 Aug	23 Aug	15 Sep	11 Aug	4 Sep	25 Sep	30 Sep	8 Sep	23 Sep	29 Sep	13 Oct
Sentinel (b)	24 Jul	21 Aug	30 Aug	15 Sep	16 Aug	19 Sep	27 Sep	6 Oct				
Feed												
Jandaroi (b)	28 Jun	24 Jul	17 Aug	1 Sep	30 Jul	31 Aug	15 Sep	27 Sep	22 Aug	27 Sep	2 Oct	12 Oct

Long duration
 Medium duration
 Short duration

* = Anthesis date is the date when 50% of the heads are showing yellow anthers.

Empty cells = Data was not available or the total numbers of heads reaching apparent anthesis stage were less than 50% of the total heads present in the marked area.

Licensee and seed distributors

AGT Seeds, (02) 6881 6210
www.sunprimeseeds.com

AWB Seeds, 1800 054 433
www.awbseeds.com.au

COGGO Seeds, 1800 666 116 or 9363 3410
www.coggo.net.au

Crop Care Seed Technologies, 1800 993 573

EGA 2248 contract enquiries
 Tress Walmsley, 0404 819 543

Graintrust, (02) 9925 0570
www.graintrust.com

Pacific Seeds, (07) 4690 2701
www.pacificseeds.com.au

PlantTech, 1800 112 400
www.planttech.com.au

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 16. Percentage of area sown to wheat varieties 2004/2005 to 2007/2008 seasons. Data from Co-operative Bulk Handling Ltd.

Varieties with less than 0.03% of total crop area in 2007/2008 season are not included.

Variety	2004/05 (%)	2005/06 (%)	2006/07 (%)	2007/08 (%)
Wyalkatchem (b)	21.48	28.10	29.64	30.86
Calingiri	21.45	17.42	14.73	13.88
Yitpi (b)	3.26	4.98	7.17	8.49
Carnamah (b)	18.85	12.89	7.75	7.92
Arrino	5.13	6.22	6.02	6.42
EGA Bonnie Rock (b)	1.48	4.35	4.78	5.59
Westonia	8.07	4.99	5.45	4.92
GBA Sapphire (b)	0.11	2.18	4.57	4.05
Stiletto	2.75	2.92	3.17	3.01
Annuello (b)	0.27	1.49	2.79	2.79
EGA Eagle Rock (b)	-	0.07	1.28	1.84
Halberd	0.92	1.26	1.29	1.07
Machete	1.42	1.28	1.23	0.87
EGA2248 (b)	0.44	0.76	0.95	0.78
Spear	0.95	0.86	0.72	0.76
Janz	1.29	0.94	0.83	0.58
Camm (b)	1.13	0.79	0.79	0.55
Tammarin Rock (b)	-	0.01	0.30	0.54
Frame	0.44	0.49	0.47	0.51
H45	1.11	0.94	0.63	0.47
Cascades	1.20	0.58	0.70	0.41
Perenjori	0.37	0.25	0.23	0.34
Cadoux	0.53	0.36	0.44	0.31
Eradu	1.13	0.62	0.30	0.26
Brookton	0.58	0.47	0.24	0.22
GBA Ruby (b)	0.07	0.64	0.30	0.19
Braewood (b)	0.19	0.26	0.24	0.18
EGA Jitarning (b)	0.01	0.15	0.16	0.17
Bullaring (b)	-	-	0.01	0.17
Mitre (b)	1.07	0.51	0.28	0.15
Wilgoyne	0.27	0.26	0.12	0.14
Blade	0.38	0.31	0.18	0.13
EGA Castle Rock (b)	-	0.01	0.13	0.12
Clearfield JNZ (b)	-	0.10	0.06	0.11
Clearfield STL (b)	0.07	0.08	0.14	0.11
Wylah	0.36	0.12	0.16	0.11
Datatine	0.48	0.35	0.15	0.09
Cunderdin	0.17	0.10	0.06	0.08
Tincurrin	0.21	0.24	0.11	0.07
Aroona	0.09	0.05	0.05	0.06
Wedgetail (b)	0.02	0.05	0.01	0.05
Binnu (b)	-	-	-	0.05
Harrismith	0.20	0.14	0.07	0.04
Babbler	0.17	0.15	0.08	0.04
H46	-	-	0.12	0.04
Sunelg	0.30	0.31	0.26	0.04
EGA Gregory	-	-	-	0.04