

LongReach

Guardian[®]

Wheat

VARIETY SUMMARY

- Reliable main season APW variety with high and stable yield potential
- Broad adaptation with Krichauff in its pedigree but has superior flour quality
- Good resistance to stem rust with an excellent gene combination for durable resistance
- Suited to planting in wheat on wheat rotations, with good resistance to CCN and useful levels of field resistance to Yellow Leaf Spot

BREEDING

Guardian (LPB0617) is a Krichauff cross, with excellent field performance typical of that variety but having superior flour milling quality and bright white flour. Dr Lindsay O'Brien selected Guardian in 2001, from early generation germplasm bred by the Victorian Department of Primary Industries (Horsham) wheat-breeding program in association with the GRDC. Since 2002 it has been further selected and evaluated in national trials by the LongReach Plant Breeders technical team, led by Dr Bertus Jacobs.

YIELD

Guardian has demonstrated a high and stable yield potential in both LongReach trials and the NVT in many SE Australian zones, especially on alkaline soils of South Australia and North West Victoria, where yields have generally been superior to local benchmarks.

Table 1: Guardian multi-site, multi-season yield comparisons.

Variety	Yield (t/ha)						Normalised Yield (% of Yitpi)						
	NVT 06	NVT 05	LPB 06	LPB 05	LPB 04	LPB 03	NVT 06	NVT 05	LPB 06	LPB 05	LPB 04	LPB 03	
Annuello	1.76	4.02	1.59	2.37	2.27	3.16	97	95	90	95	86	88	
Correll	1.83	-	1.67	-	-	-	101	-	95	-	-	-	
Frame	1.65	4.00	1.63	2.65	2.50	3.27	91	94	92	106	95	91	
Guardian	1.88	4.26	1.86	2.86	2.87	3.55	104	101	105	115	108	99	
Janz	1.68	3.94	1.65	2.60	2.49	-	93	93	93	104	94	-	
Krichauff	1.50	3.34	1.79	-	-	-	83	79	101	-	-	-	
Kukri	1.72	3.89	1.49	-	-	-	95	92	84	-	-	-	
Pugsley	1.73	4.77	1.66	3.18	2.51	-	96	112	94	128	95	-	
Scythe	1.91	4.13	1.88	-	-	-	106	97	106	-	-	-	
Silverstar	-	-	-	2.28	2.57	-	-	-	-	-	91	97	-
Wyalkatchem	1.92	3.90	1.94	2.62	2.82	3.62	106	92	110	105	106	101	
Yitpi	1.81	4.24	1.77	2.49	2.65	3.59	100	100	100	100	100	100	
Trial Mean Yield (t/ha)	1.75	4.12	1.64	2.42	2.35	3.24	1.75	4.12	1.64	2.42	2.35	3.24	
No. of Trials	11**	4	5	7	4	2	11**	4	5	7	4	2	

Note: LPB trials were not sprayed with fungicide.

**11 NVT 06 trials includes dryland trials with Trial Mean Yields >1t/ha and <10% CV.

AREA OF ADAPTATION

Guardian has consistently performed well in trials across the southern Australian wheat belt. It is particularly suited to production in medium and high rainfall regions of South Australia and Victoria. It has also performed well in Southern NSW and Western Australia.

MATURITY

Guardian is a Mid - Late maturing season variety and performs best when planted during the optimum planting window in main season environments and is similar in grain maturity to Janz and Krichauff.

PLANT CHARACTERISTICS

Guardian is an awned semi-dwarf variety with medium plant height at maturity, similar to Yitpi. It exhibits good seedling vigour, has a fine leaf structure in the vegetative phase, with a dark green appearance, tillers well and provides a dense canopy.

It has strong straw strength and has excellent lodging and shattering resistance.

Guardian is moderately resistant to Yellow Leaf Spot and is resistant to CCN, making it a suitable choice for wheat-on-wheat rotations. Research shows Yellow Leaf Spot can cause yield losses of up to 5 - 10% and is a management issue in stubble retained, continuous wheat rotations.



DISEASE RESISTANCE

Guardian has excellent Stem Rust resistance. It does not rely on the “VPM” set of single gene resistances for Stem, Leaf and Stripe Rust. Growers should note that the Stem rust race prevalent in WA and SA in autumn of 2006 was the VPM attacking strain.

Guardian is MS for Stripe Rust. This is an improvement on Wyalkatchem.

Table 2: Disease and Pest Resistance of Guardian

Variety	Rust			CCN		S. tritici	Yellow Spot	RLN (P. neglectus)		RLN (P. thornei)		Soil Boron	Crown Rot	Common Root Rot
	Stripe	Leaf	Stem	Res	Tol			Res	Tol	Res	Tol			
Guardian	MS	MS	R-MR	R	-	MS*	MS-S	MS-S*	-	S*	MT-MI	MT	MS*	MS*
Correll	MR-MS	MS	MR	MR	-	MR-MS	S-VS	MS-S	-	-	-	MT	MS	-
Frame	MR-MS	MS	MR-MS	MR	MT	MS	S-VS	MS-S	MT-T	S	MI	MT	S	S
Krichauff	S	S	MR	S	MT	MS	MS	MR	MT	MS	MI	MT	MS	MR
Mitre	MS-S	MR-MS	R-MR	R	MI	-	MS	MS-S	-	MS-S	-	I	MS-S	-
Pugsley	MR/S#	MR	MR#	MS	MI	MS	S	S	MT	MS	-	MT	MS	MR
Scythe	MS-S	MS-S	MR	S	-	MS-S	S	MS	-	MS-S	-	I	MS	MR
Westonia	VS	S	S	S	-	S	MS	MS-S	MT	MS	-	MT	-	MS
Wyalkatchem	MS-S	MR	MS	S	MI	MR-MS	MR	MR	MT-T	MR-MS	-	I	S	MR-MS
Yitpi	MR-MS	MS	S	MR	MT	MS	S-VS	MR-MS	MT-T	MS	-	MT	MS	MS

Notes: # = may be susceptible if VPM strain is present, *Preliminary summary for 2005 (NVT 2005)

R = resistant, MR = moderately resistant, MS = moderately susceptible, S = susceptible, VS = very susceptible, T = tolerant, MT = moderately tolerant, MI = moderately intolerant, I = intolerant, VI = very intolerant.



GRAIN QUALITY

Guardian has a classification of Australian Premium White (APW) for South Australia. It has excellent milling performance and bright white flour with colour grades equivalent of Yitpi.

Guardian has equivalent pre-harvest sprouting resistance to Janz and it is moderately resistant to Black Point. In South Australian trials from 2002 to 2005 test weights have been equivalent to Pugsley and Frame and screenings have been slightly higher than Yitpi. Tests at Adelaide University have shown Guardian to be free of Late Maturing Alpha - Amylase (LMA).



PLANT BREEDER RIGHTS AND ROYALTIES

Guardian is protected by Plant Breeder Rights, any unauthorised commercial propagation or any sale, conditioning, export, import or stocking of propagating material of this variety is an infringement under the Plant Breeder's Rights Act, 1994.

Growers are allowed to retain seed from production of this variety for their own use as seed only.

An End Point Royalty of \$2.75 per tonne (GST inclusive), which includes breeder royalties, applies to this variety. The EPR revenue will be invested directly back into the LongReach Plant Breeders program.

ACKNOWLEDGEMENTS

Guardian was developed with the assistance of numerous independent professional contract service providers and public agency researchers. The support of farmer co-operators in all parts of the Australian wheat belt who have provided trial sites since 2001 is also acknowledged.



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