

AgroPack
2023

LRPB ANVIL CL PLUS

Quick Clearfield® Tolerant AH Wheat for SA & VIC

WHEAT



LRPB ANVIL CL PLUS

GIA & LongReach “Innovative Wheat Program”

- GIA have combined forces with LongReach to produce LRPB Anvil CL Plus
- The aim is to continue to develop improved high yield wheats with robust features in NEW IMI backgrounds and lift the bar for growers
- LRPB Anvil CL Plus is bred by GIA in a unique breeding background and derived from Mace with 2 IMI genes selected without crossing to existing varieties
- LRPB Anvil CL Plus is the first of our releases from this collaboration



GIA breeder, Dr Michael Materne



LRPB ANVIL CL PLUS

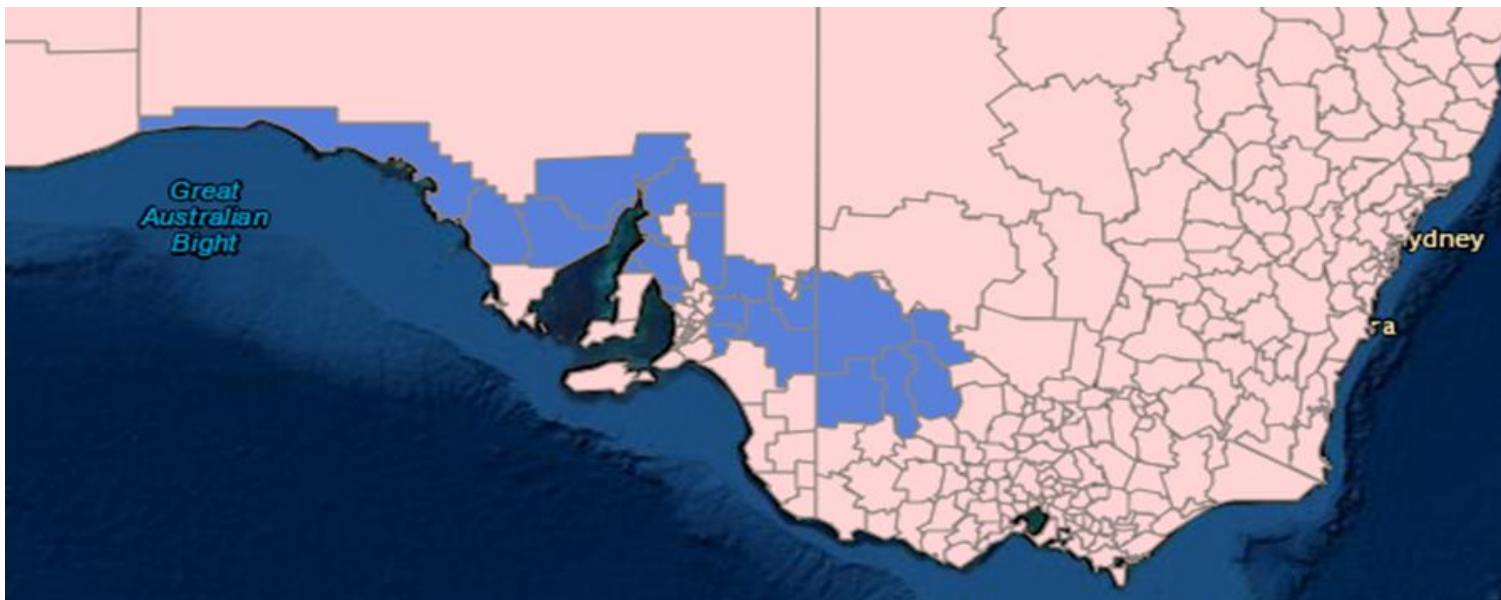
- AH Final Classification (WA/SA/Vic) with a quick maturity and large grain to suits tough environments
- LRPB Anvil is a Clearfield® Plus wheat with two-gene tolerance to label rates of Intervix® herbicide



LRPB Trojan susceptible (Left) vs tolerant LRPB Anvil CL Plus (Right) with 2X recommended IMI rate applied

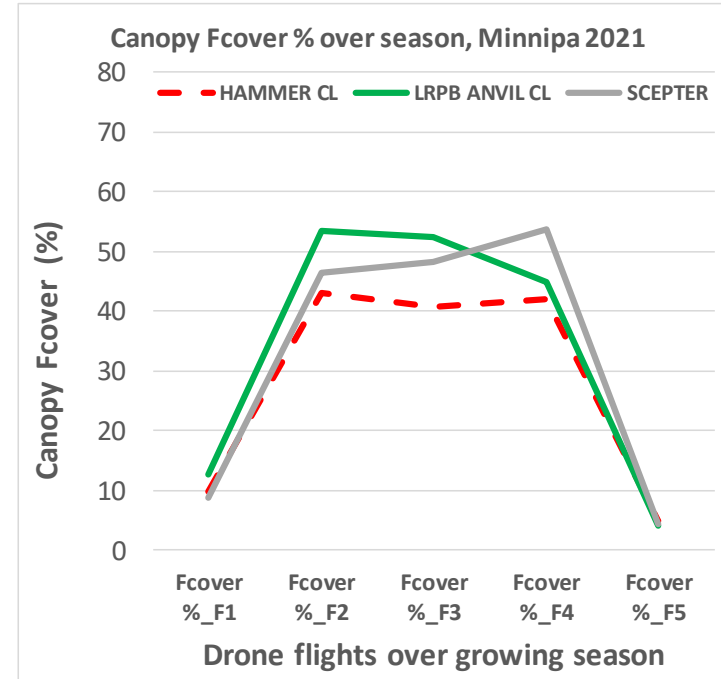
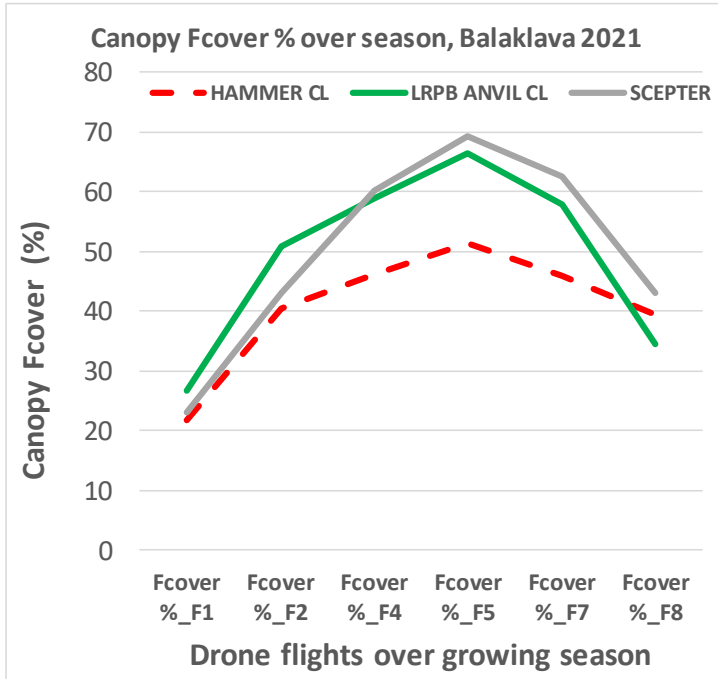
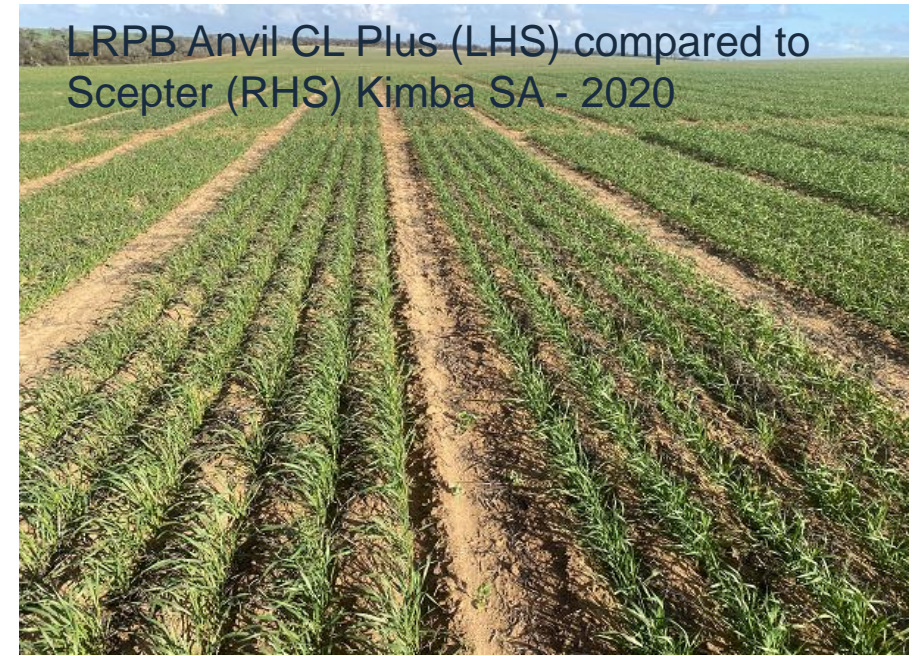
LRPB ANVIL CL PLUS – Regions of fit SA/VIC

- Fast through grain-fill to suit low to medium rainfall areas demanding more AH Clearfield® Plus options to manage IMI plant back residues and Barley/Brome Grass control
- Regions of fit includes Upper EP, Upper North, Northern YP, Mallee in SA and Mallee, northern Wimmera in Vic
- Quality Classification – AH (Final)
- Alternative to Chief CL Plus, Razor CL Plus and Hammer CL Plus in these regions
- Highest yielding AH IMI tolerant wheat in LRF to MRF areas across range of seasons
- Comparative Disease package to established Clearfield® Plus wheat varieties



LRPB ANVIL CL PLUS - AGRONOMY

- Long first leaf with good establishment vigour that stands out at 4 leaf stage is a trait selected for the Anvil population
- Bold early growth leads to good ground cover to compete well in the paddock early in the season
- Coleoptile length is similar to Mace parent
- Medium-tall height slightly taller than Scepter with semi-erect canopy that has an open habit and medium-large heads

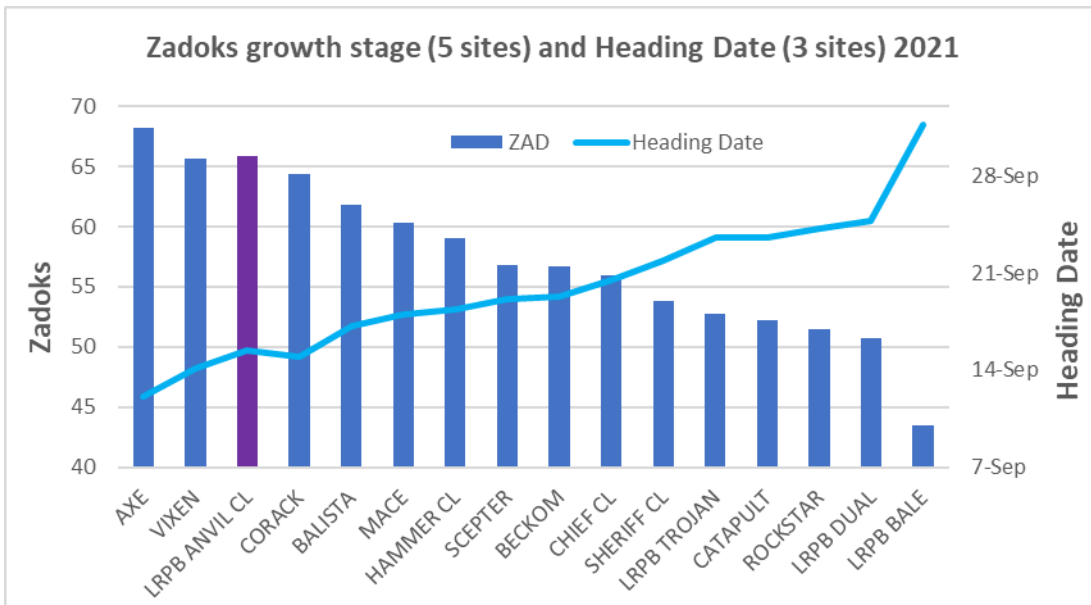


Quick Maturity AH IMI Tolerant Wheat



LRPB Anvil CL Plus

- Quick Maturity Wheat
- Differentiates from recent Clearfield® Plus wheat releases by being much quicker maturity
- Fast through grain-fill to suit low to medium rainfall areas



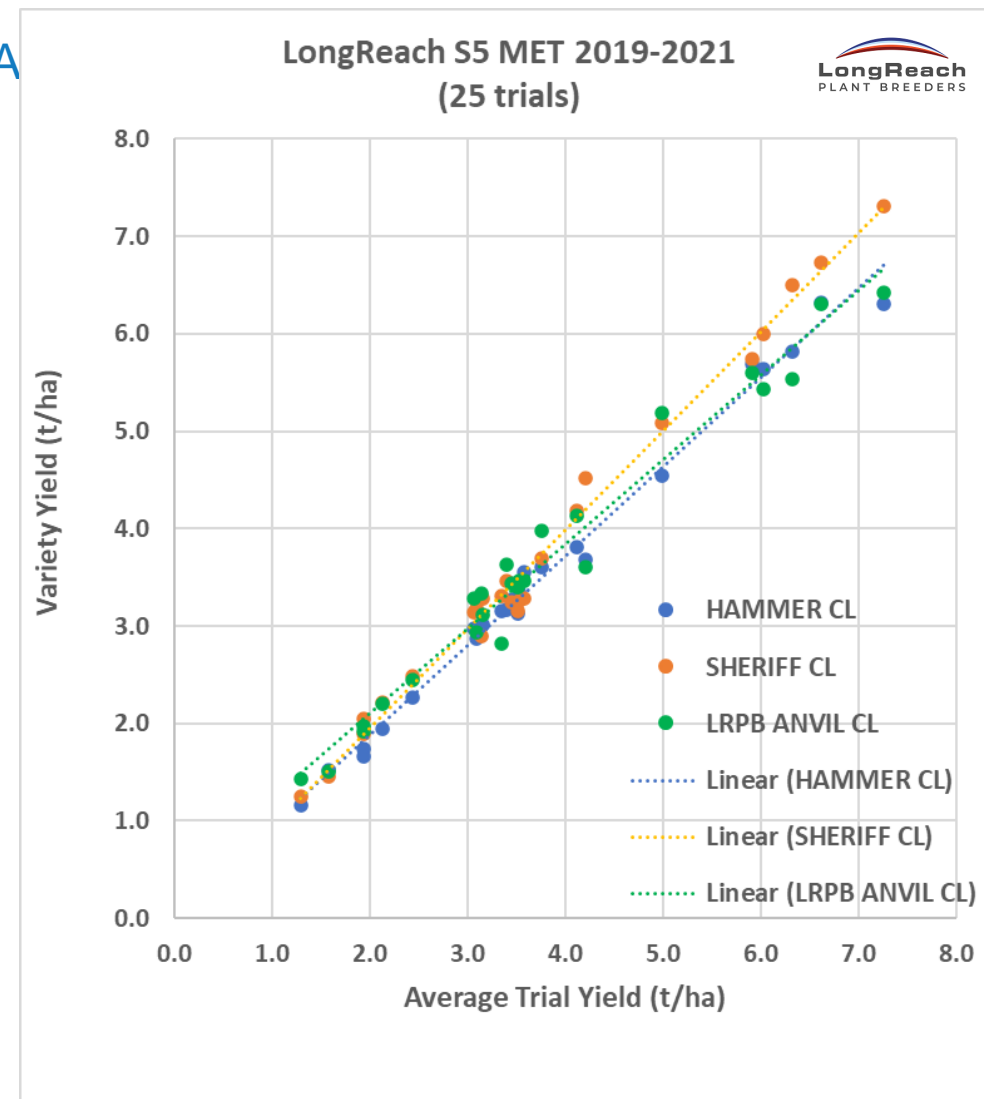
LRPB ANVIL CL PLUS – Long Term Yield

- Best AH Clearfield® Plus wheat suited to LRF/MRF areas of the SA and Vic in market
- Out yields Hammer CL Plus which is the main AH currently grown
- In the tougher season 2021 Anvil out performed the best APW options like Sheriff CL Plus showing good adaption to lower rainfall
- In the excellent 2022 season quicker varieties like Anvil CL Plus and Razor CL Plus set yield potential too early with Slow varieties like Valiant CL Plus performing best

NVT Predicted Yield Main Season MET (2018-2022)

		Yearly analysis						
Variety		ALL	2018	2019	2020	2021	2022	
AH	Scepter	106	108	109	107	109	102	Mid
AH	LRPB Anvil CL Plus	98			99	104	91	Quick
AH	Grenade CL Plus	95	94	94	94	95	96	Mid
AH	Hammer CL Plus	96	99	98	96	100	92	Mid
AH	Valiant CL Plus	101			101	98	105	Slow
APW	Chief CL Plus	95	100	96	97	98	89	Mid-slow
APW	Sheriff CL Plus	101	103	102	102	102	97	Mid-slow
ASW	Razor CL Plus	101	103	105	102	106	96	Quick-mid
Estimated Mean Yield		3.28	2.37	2.82	3.31	2.82	4.90	
Trials in analysis		158	29	33	34	29	33	

Anvil CL Plus and Valiant CL Plus first included in 2020 NVT trials



Yield –NVT MET Yield Performance Low Rainfall SA/VIC

NVT Predicted yield Main Season MET (2018-2022) Yield Groupings (UpperEP, Murray Mallee and Mallee LRF regions NVT Online 18/2/23)

		Group	0.5	1	1.5	2	2.5	3	3.5	4	4.5	5	5.5	6		
		Mean Yield	0.36 t/ha	0.77 t/ha	1.23 t/ha	1.80 t/ha	2.29 t/ha	2.74 t/ha	3.25 t/ha	3.77 t/ha	4.23 t/ha	4.63 t/ha	5.32 t/ha	5.81 t/ha		
Variety		Trials	6	11	11	7	18	8	8	5	6	5	3	3		
AH	Scepter	91	110	112	110	107	107	109	107	104	103	108	102	103	Mid	
AH	LRPB Anvil CL Plus	52	116	111	109	100	102	103	95	94	94	99	95	91	Quick	
AH	Hammer CL Plus	76	104	102	102	98	98	100	96	94	93	95	92	91	Mid	
AH	Grenade CL Plus	91	103	97	97	95	96	95	93	96	96	94	97	94	Mid	
AH	Valiant CL Plus	38	92	95	97	99	100	97	103	100	103	102	103	104	Slow	
APW	Sheriff CL Plus	91	93	101	101	100	99	103	102	99	97	101	97	99	Mid-slow	
APW	Chief CL Plus	91	77	95	97	93	92	96	97	87	88	94	88	91	Mid-slow	
ASW	Razor CL Plus	91	114	110	107	104	103	107	99	103	99	101	98	98	Quick-mid	

Anvil CL Plus and Valiant CL Plus first included in 2020 NVT trials

- LRPB Anvil CL Plus suits tougher regions and seasons
- When trials in the lower rainfall NVT regions of SA and Vic are compared, Anvil has a “Sweet-Spot” of < 3 t/ha which fits the tougher regions needing an AH quality IMI wheat in the rotation

DISEASE RATINGS

NVT disease resistances and tolerances (Anvil Blackpoint from LongReach data) - NVT Online 18/2/23

	Leaf Rust Res.	Stem Rust Res.	Stripe Rust Res. (East)	Black Point Res.	CCN Res.	Crown Rot Res.	Eyespot Res.	Powdery Mildew Res.	Prat. Neglectus Res.	Prat. Neglectus Tol.	Prat. Thornei Res.	Prat. Thornei Tol.	Septoria Tritici Res.	Yellow Leaf Spot Res.		
AH	Scepter	MSS	MRMS	MSS	MS	MRMS	MSS	-	SVS	S	MTMI	MSS	MT	S	MRMS	Mid
AH	LRPB Anvil CL Plus	SVS	MR	S	MS	MRMS	MSS	S	VS	MSS	MII	S	VI	VS	MSS	Quick
AH	Grenade CL Plus	SVS	MR	MRMS	MSS	R	S	-	MSS	MSS	-	S	IVI	S	S	Mid
AH	Hammer CL Plus	S	MR	MS	MRMS (P)	MRMS	MSS	S	MSS	MSS	MTMI	S	I	MSS	MRMS	Mid
AH	Valiant CL Plus	S	MR	MSS	-	MSS (P)	S	-	VS	S	MII	S (P)	IVI	MSS	MRMS	Slow
APW	Chief CL Plus	MR	MR	SVS	MS	MS	MSS	-	SVS	MRMS	MT	MSS	IVI	S	MRMS	Mid-slow
APW	Sheriff CL Plus	SVS	MS	S	MS	MS	S	S	SVS	MRMS	MTMI	MRMS	I	S	MRMS	Mid-slow
ASW	Razor CL Plus	S	MRMS	MS	MS	MR	S	-	MSS	S	MT	MS	MI	SVS	MSS	Quick-mid

LRPB Anvil CL Plus Blackpoint rating has been provided from LongReach data as no NVT rating was available

Comments

Disease ratings are similar to exiting Clearfield® Plus wheat varieties being grown in SA and Vic

Strong stem rust resistance

Adequate Yellow Leaf Spot resistance and good CCN resistance to suit Mallee environments (MRMS)

Weak Leaf Rust and Stripe rust resistance which is similar to most varieties in the market to the newer pathotypes

Weak for Septoria and Powdery Mildew as most widely grown varieties are currently

LRPB ANVIL CL PLUS HARVEST

LRPB Anvil CL Plus
harvests well and is
paddock ready



GRAIN QUALITY AH FOR SA & VIC

Comments

- Large grain size with low screenings and good test weight has been measured throughout Anvil's development
- Excellent quality AH wheat which will have good domestic end use interest
- While the AH classification is set for 2022 we will reassess for Prime Hard (now a grade in the southern zone) as this looks a possibility
- LongReach will re-submit for a potential Prime Hard quality upgrade in Autumn 2023 for SA/Vic as preliminary data shows Anvil is clearly better quality than the AH standards tested

Grain quality summary for 8 SA/Vic LPB Main Season EM trials (2019)

Variety	Test Weight (kg/hl)			Protein (%)			Screenings %			Grain Size (g/1000)		
	Ave	Max	Min	Ave	Max	Min	Ave	Max	Min	Ave	Max	Min
BECKOM	84.9	87.1	81.4	11.8	13.9	8.7	3.4	14.1	0.0	31.8	38.2	23.2
CHIEF CL	84.5	86.3	82.4	11.7	13.8	9.9	1.6	5.6	0.2	40.6	46.8	26.9
LRPB ANVIL CL	85.8	87.3	84.3	11.9	14.2	10.2	2.1	5.5	0.1	39.9	47.7	28.5
LRPB TROJAN	85.3	88.1	81.2	12.4	14.7	9.5	2.0	8.0	0.2	37.9	44.4	25.8
MACE	85.2	87.2	83.9	11.9	14.5	10.5	1.5	4.8	0.2	37.3	41.1	27.7
SCEPTER	85.4	87.4	82.6	11.2	13.5	8.7	2.5	6.7	0.2	39.8	47.7	26.6
SHERIFF CL	84.8	85.7	83.3	11.9	13.9	9.1	1.2	3.3	0.1	36.9	43.4	28.0
VIXEN	84.0	85.9	80.7	11.7	14.7	9.4	2.8	10.4	0.2	38.4	46.5	23.6

Grain quality summary for 3 SA/Vic LPB Main Season EM trials (2020)

Variety	Test Weight (kg/hl)			Protein (%)			Screenings %			Grain Size (g/1000)		
	Ave	Max	Min	Ave	Max	Min	Ave	Max	Min	Ave	Max	Min
BECKOM	85.4	86.7	82.9	11.9	13.2	10.9	0.7	1.3	0.4	37.1	38.4	34.5
CHIEF CL	85.0	85.1	84.7	11.7	12.4	10.8	0.4	0.6	0.2	45.3	50.5	39.3
GRENADE CL	85.1	86.7	83.4	12.4	13.2	11.5	0.4	0.4	0.3	43.7	46.9	40.0
LRPB ANVIL CL	86.7	87.5	85.5	12.8	13.2	12.3	0.4	0.4	0.3	46.0	50.2	42.6
LRPB TROJAN	86.8	87.7	85.1	12.3	13.3	11.4	0.4	0.5	0.2	42.9	48.1	39.2
MACE	86.0	87.5	83.8	12.0	12.6	11.3	0.3	0.4	0.3	42.6	44.4	41.5
SCEPTER	87.0	88.1	85.2	11.5	12.1	10.9	0.7	1.1	0.4	46.0	47.1	44.0
SHERIFF CL	85.8	87.0	84.3	11.7	12.6	10.7	0.3	0.4	0.2	41.6	43.8	37.9
VIXEN	84.5	85.6	83.0	12.0	12.2	11.8	0.5	0.6	0.3	43.8	48.2	40.0

Grain quality summary for 4 SA/Vic LPB Main Season EM trials (2021)

Variety	Test Weight (kg/hl)			Protein (%)			Screenings %			Grain Size (g/1000)		
	Ave	Max	Min	Ave	Max	Min	Ave	Max	Min	Ave	Max	Min
BECKOM	84.9	88.5	80.1	11.9	12.4	11.0	1.1	2.0	0.3	36.4	37.4	35.7
CHIEF CL	84.7	87.3	78.4	11.6	12.7	10.7	0.6	0.8	0.4	47.3	50.9	41.7
HAMMER CL	85.8	88.4	81.7	11.2	11.6	10.4	0.8	1.4	0.3	41.2	43.4	38.5
LRPB ANVIL CL	86.9	89.0	83.0	11.7	12.7	10.7	0.6	0.9	0.0	46.8	47.9	45.4
LRPB TROJAN	85.8	89.1	80.7	12.0	13.5	10.7	0.8	1.2	0.4	43.2	46.3	40.9
MACE	85.8	87.4	81.5	11.6	12.3	10.8	0.6	0.9	0.3	43.2	46.8	40.6
SCEPTER	86.1	89.3	79.4	10.8	11.3	10.2	0.9	1.4	0.5	45.6	49.2	40.8
SHERIFF CL	85.0	87.8	79.4	11.5	12.5	11.0	0.5	0.7	0.2	41.8	47.3	38.2
VIXEN	84.4	88.9	78.3	11.3	12.2	10.4	0.9	1.9	0.1	44.2	49.5	40.3

LRPB ANVIL CL PLUS

LRPB Anvil CL Plus is available through our Associate Network, for contact information please go to www.pacificseeds.com.au

As with other IMI Tolerant Wheat No Grower to Grower trading of LRPB Anvil CL Plus seed is allowed



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