

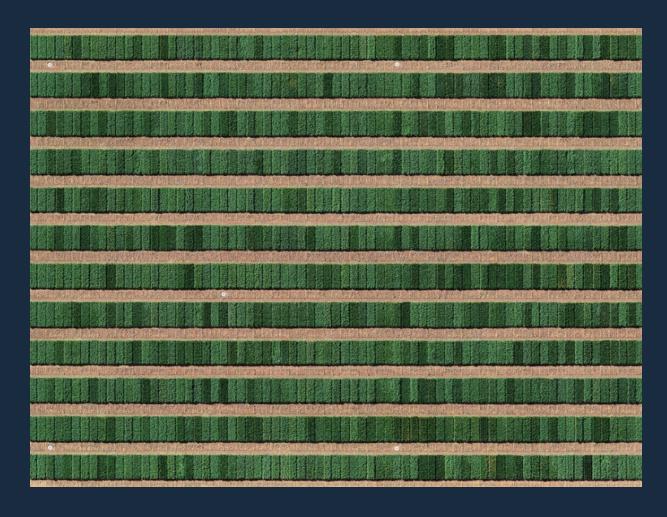
# **LRPB Optimus - Mid Season Lancer type**

- Mid maturity with similar plant type and yield build as its Lancer parent
- Consistent high trial performance across a range of sowing times in NSW and QLD
- Strong grain receivals package similar to Lancer
- Demonstrated high yield in both Acid and Sodic soil screening trials across multiple years
- AH Classification with upgrade submission planned in 2025





# Yield Analysis – NVT Early Season trials

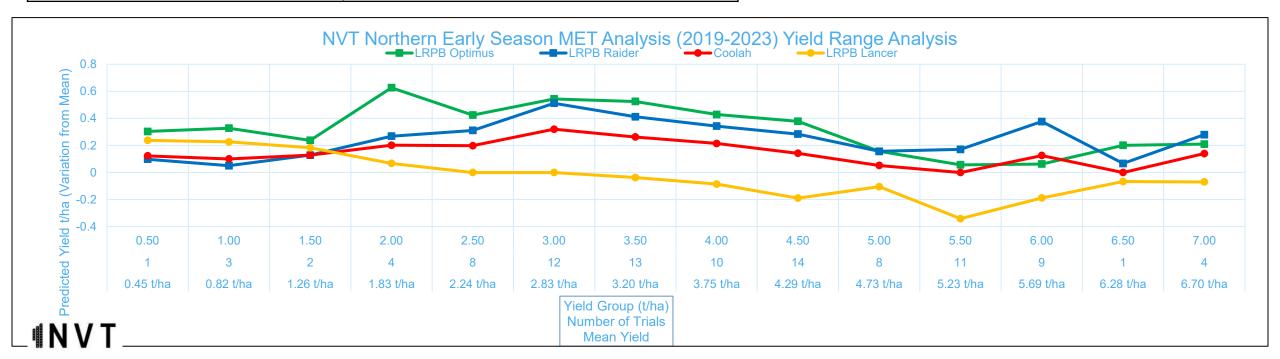




## **NVT Northern Early Season Trials**

	Northern Early Season NVT MET Analysis (2019-2023)									
Variety	Maturity	2019	2020	2021	2022	2023	All Trials			
Coolah	Mid-Slow Spring	110.00%	108.00%	104.00%	100.30%	104.90%	104.30%			
Coota	Mid Spring	111.00%	107.50%	105.80%	100.30%	106.00%	105.00%			
LRPB Optimus	Mid Spring	121.40%	113.70%	107.60%	102.40%	110.30%	108.80%			
LRPB Flanker	Mid-Slow Spring	105.90%	103.60%	97.50%	97.50%	101.30%	100.00%			
LRPB Lancer	Mid-Slow Spring	106.30%	97.80%	98.70%	94.70%	102.50%	98.60%			
LRPB Raider	Mid-Slow Spring	112.50%	113.30%	107.50%	102.90%	106.70%	107.50%			
LRPB Stealth	Mid-Slow Spring	112.10%	106.30%	103.10%	98.30%	105.70%	103.40%			
RockStar	Mid Spring	116.30%	107.50%	108.30%	98.60%	109.20%	106.10%			
Sunflex	Mid-Slow Spring	106.60%	106.20%	105.40%	102.90%	104.00%	104.70%			
Sunmax	Slow Spring	86.50%	94.50%	96.10%	96.90%	93.70%	94.80%			
Site Me	an Yield	2.04	3.64	4.6	5.08	3.29	3.87			
Trials in	Analysis	16	20	23	23	19	101			
Note - LRPB Optimus first entered NVT in 2022										

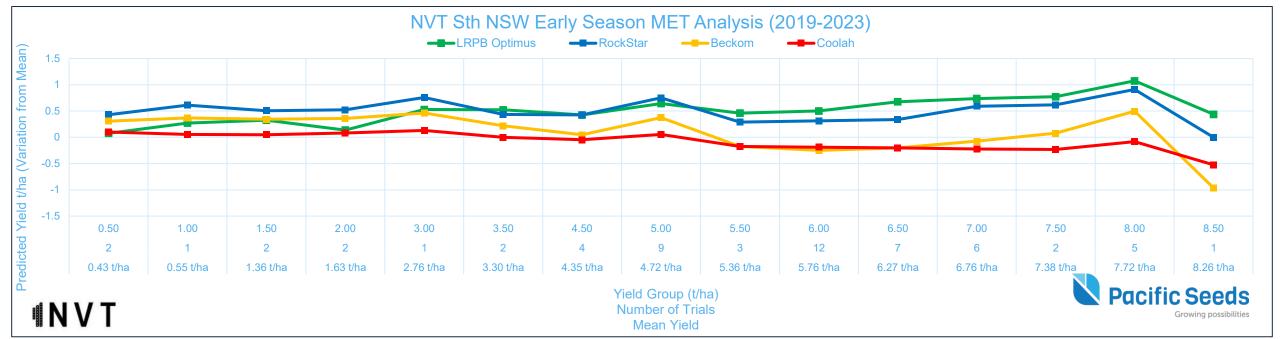
NVT early season MET analysis shows that LRPB Optimus is well suited to Northern production systems and showing high relative performance especially in <5t/ha yield situations



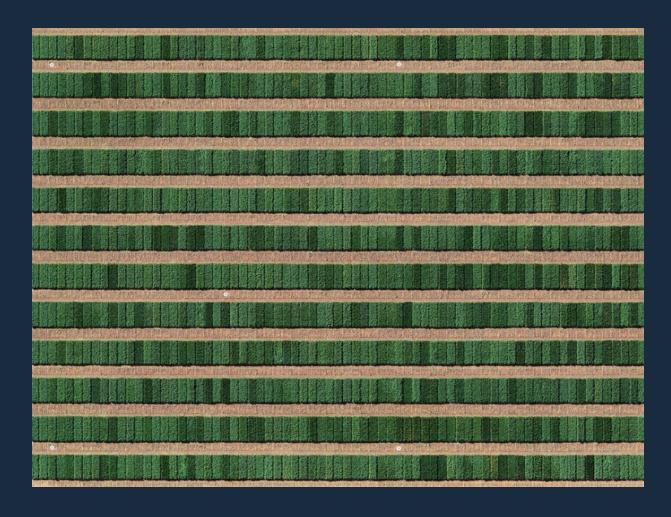
## **NVT Sthn NSW Early Season Trials**

	Southern NSW (S/E, S/W) Early Season NVT MET Analysis (2019-2020)										
Variety	Maturity	2019	2020	2021	2022	2023	All Trials				
Beckom	Mid Spring	111.20%	100.10%	98.50%	91.30%	107.50%	100.10%				
Coolah	Mid-Slow Spring	100.20%	97.60%	97.60%	95.00%	100.90%	97.90%				
Coota	Mid Spring	114.60%	98.10%	96.30%	86.20%	109.00%	98.50%				
Genie	Mid Spring	111.10%	108.30%	107.50%	104.60%	109.40%	107.70%_				
LRPB Optimus	Mid Spring	109.30%	110.40%	109.50%	105.40%	112.70%	109.40%_				
_RPB Lancer	Mid-Slow Spring	106.00%	94.20%	91.30%	90.20%	96.20%	94.00%				
_RPB Major	Mid-Slow Spring	108.40%	107.00%	105.60%	100.40%	111.00%	106.10%				
RockStar	Mid Spring	121.10%	107.80%	107.40%	99.80%	113.80%	108.20%_				
Sunflex	Mid-Slow Spring	103.30%	103.30%	99.50%	98.40%	103.80%	101.30%				
Mean Yield		2.59	5.98	6.42	5.77	5.24	5.28				
Trials in Analysis		11	13	13	12	11	60				

Since entering NVT in 2022 LRPB Optimus has been one of the highest yielding varieties included in trials



# **Yield Analysis - LRPB Early Season Trials**





## LRPB NSW/QLD Early Season Breeding Trials (2020-2023)

Regional Analysis – Top 3 yielding varieties highlighted

	LRPB Early S	Season MET Analysi	s (2020-2023) - %S	MY	
	Maturity	Nth NSW/QLD	Sth NSW	All Trials	
BECKOM	Mid Spring	105.7	106.9	106.3	
COOLAH	Mid Slow Spring	106.6	103.2	104.8	
COOTA	Mid Spring	104.1	95.8	99.7	
ILLABO	Mid Winter	89.9	108.0	99.6	
LRPB OPTIMUS	Mid Spring	110.7	108.1	109.3	
LRPB KITTYHAWK	Mid Winter	90.7	103.3	97.5	
LRPB LANCER	Mid Slow Spring*	101.6	98.9	100.2	
LRPB MAJOR	Mid Slow Spring	104.6	109.1	107.0	
LRPB RAIDER	Slow Spring	99.7	101.6	100.7	
LRPB STEALTH	Mid Slow Spring*	90.8	101.5	96.5	
ROCKSTAR	Mid Spring	105.6	101.8	103.6	
STOCKADE	Slow - Very Slow Spring	102.0	114.4	108.6	
SUNFLEX	Mid Slow Spring	108.2	105.5	106.7	
SUNMAX	Slow Spring	100.3	98.6	99.4	
Mean Pre	dicted Yield	4.63	5.30	4.97	
Trials in	n Analysis	14	14	28	

LRPB Optimus has consistently been one of the higher yielding lines in LRPB breeding trials over a number of years, and regions across NSW and QLD

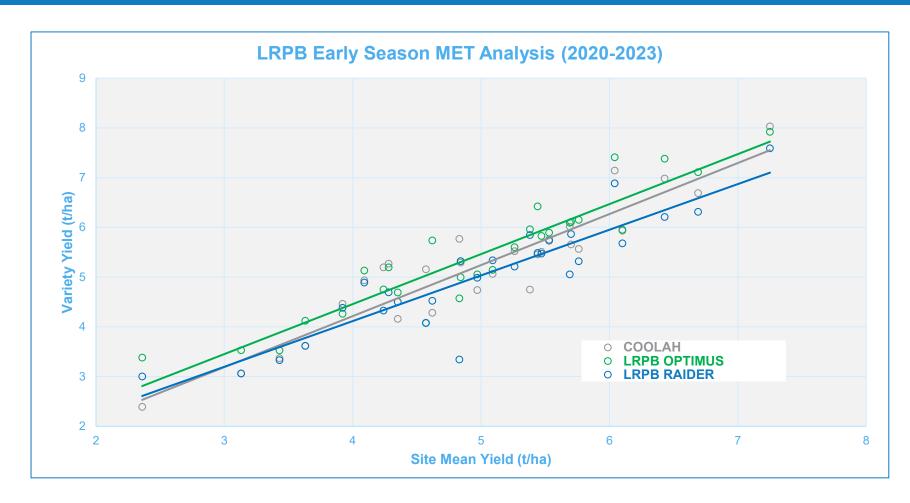
Trials included in this analysis have been sown between the 25<sup>th</sup> April and the 10<sup>th</sup> May each year across NSW and QLD.

\*Lancer and Stealth typically change their relative maturity between Nth NSW/QLD and Sth NSW and should be considered as a Slow Spring Maturity in Sth NSW





# LRPB NSW/QLD Early Season Breeding Trials (2020-2023) Yield Regression



LRPB Optimus has
consistently been one of
the higher yielding lines
across a range of
environments in the LRPB
Early Season Breeding
Trials over the last 4
seasons.





# LRPB NSW/QLD Early Season Breeding Trials (2020-2023) Trial Cluster Analysis

	LRPB Early Season MET Analysis (2020-2023) - %SMY									
	Maturity	C1 - Soft Season	C2 - Late Harvested Nth Trials	C3 - High Yield, Good Fungicide Management	C4 - Sth 2022, Heavy Disease, Wet Harvest	C5 - Soil Yield Constraints (Cr, Na)	All Trials			
BECKOM	Mid Spring	103.2	91.0_	111.0	100.9	110.6	106.3			
COOLAH	Mid Slow Spring	97.6	116.2	110.6	95.5	97.7	104.8			
COOTA	Mid Spring	100.5	110.7	104.2	72.4	102.2	99.7			
ILLABO	Mid Winter	95.8	107.8	97.5	126.8	72.7	99.6			
LRPB OPTIMUS	Mid Spring	107.1	92.0	112.8	104.7	117.9	109.3			
LRPB KITTYHAWK	Mid Winter	104.1	96.8	91.7	114.4	83.4	97.5			
LRPB LANCER	Slow Spring*	95.2	104.7	99.7	106.2	106.6	100.2			
LRPB MAJOR	Mid Slow Spring	100.9	84.5	113.2	107.4	108.4	107.0			
LRPB RAIDER	Slow Spring	98.4	79.0	104.2	100.3	107.4	100.7			
LRPB STEALTH	Slow Spring*	91.4	66.2	98.2	114.5	101.6	96.5			
ROCKSTAR	Mid Spring	105.2	109.5	109.9	73.0	102.2	103.6			
STOCKADE	Slow - Very Slow Spring	95.3	98.2	110.9	140.9	96.3	108.6			
SUNFLEX	Mid Slow Spring	107.3	110.0	109.1	100.0	97.1	106.7			
SUNMAX	Slow Spring	103.7	105.5	98.8	93.7	91.8	99.4			
Mean Pre	edicted Yield	5.18	4.70	5.13	5.65	3.28	4.97			
Trials i	Trials in Analysis		<u>2</u>	<u>13</u>	<u>3</u>	3	28			



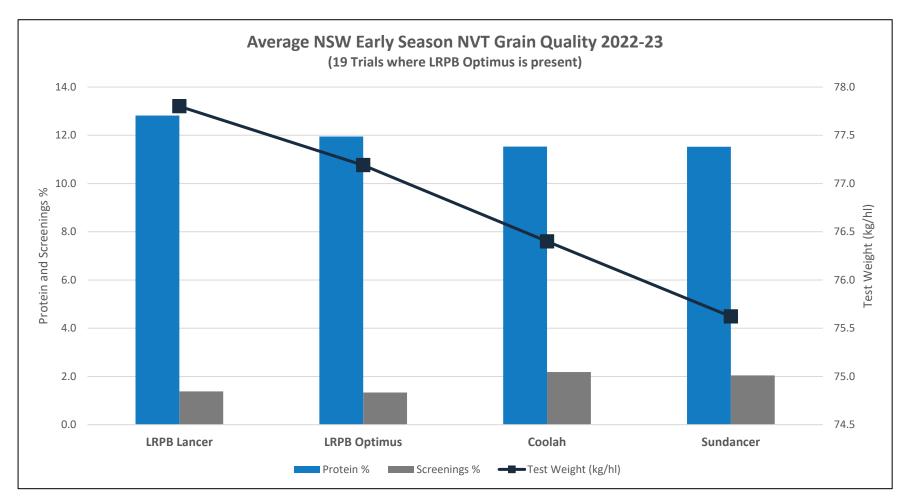


# **Grain Recievals**





# **Grain Quality - NVT**



- LRPB Optimus has shown similar screenings and test weight as Lancer throughout the LRPB breeding program and is showing similar performance in the early season NVT trials.
- Protein accumulation appears to be slightly behind Lancer across the data set, but is still performing better for this trait than similar varieties on the market and may be attributed to yield dilution when compared to Lancer





#### **AMPS Research TOS Trials 2023**

		AMPS Premer 2023 TOS Trial - Yield & Revenue (APH/AH Varieties)										
	5th	Мау	24th	Мау	13th June							
	Yield (t/ha)	\$/ha	Yield (t/ha)	\$/ha	Yield (t/ha)	\$/ha						
LRPB Optimus	7.23	\$2,112.53	6.92	\$1,993.46	6.24	\$1,865.51						
Sunmaster	6.99	\$1,977.81	7.16	\$2,041.52	6.68	\$1,906.76						
Leverage	7.57	\$2,194.53	6.87	\$1,934.75	6.16	\$1,710.05						
LRPB Lancer	6.95	\$2,008.06	6.32	\$1,896.44	5.90	\$1,728.85						
LRPB Raider	7.30	\$2,091.99	6.77	\$1,838.20	6.12	\$1,693.57						
LRPB Tracer	6.27	\$1,875.10	6.18	\$1,718.27	6.49	\$1,962.99						
Sunblade CL	7.14	\$2,036.40	6.68	\$1,863.79	5.45	\$1,444.84						
Coota	6.92	\$1,993.96	6.07	\$1,639.24	6.04	\$1,664.01						
Sundancer	7.24	\$2,070.71	6.25	\$1,652.72	5.55	\$1,479.78						
LRPB Hellfire	6.28	\$1,753.20	6.18	\$1,717.01	5.72	\$1,544.63						
Intrigue	6.43	\$1,809.96	5.99	\$1,608.95	5.82	\$1,583.05						
Jillaroo	6.17	\$1,713.69	5.92	\$1,585.77	6.08	\$1,681.86						
LRPB Mustang	5.85	\$1,594.51	6.45	\$1,781.49	5.69	\$1,535.25						

In 2023 AMPS Research conducted a number of TOS trials across Nth NSW. Yield and quality data from these trials were analysed to determine which varieties were found to have the highest return to the grower in the trials. LRPB Optimus was consistently one of the highest returning varieties in the trials demonstrating grain receivals specs similar to those seen in the Lancer parent across a range of sowing times



		ABA	DS Curloy T	OS Trial 2022 Vi	ald 9	Payanua /Al	DU/AU Variation				
	051		ro Guiley IV		OS Trial 2023 - Yield & Revenue (AF			<u> </u>			
		April			May			May			
	Yield (t/ha)		\$/ha	Yield (t/ha)		\$/ha	Yield (t/ha)		\$/ha		
LRPB Optimus	6.59	\$	2,048.43	5.20	\$	1,491.43	4.43	\$	1,017.11		
Sunmaster	6.03	\$	1,823.97	5.36	\$	1,553.82	4.70	\$	1,113.96		
LRPB Tracer	5.69	\$	1,688.12	5.11	\$	1,454.65	4.53	\$	1,219.62		
LRPB Raider	6.23	\$	1,903.88	4.68	\$	1,280.76	4.01	\$	1,013.24		
Intrigue	6.09	\$	1,847.82	5.34	\$	1,546.78	3.48	\$	799.03		
Sundancer	6.64	\$	2,069.09	4.67	\$	1,279.26	3.84	\$	802.32		
Sunblade CL	5.60	\$	1,652.10	5.11	\$	1,265.65	4.60	\$	1,079.47		
Coota	5.98	\$	1,803.73	4.67	\$	1,277.42	3.63	\$	857.36		
LRPB Mustang	5.30	\$	1,530.66	4.81	\$	1,335.32	4.35	\$	986.27		
Leverage	5.82	\$	1,740.30	4.74	\$	1,128.93	4.09	\$	893.03		
LRPB Lancer	6.22	\$	1,901.98	4.19	\$	1,085.03	3.17	\$	673.64		
LRPB Hellfire	5.00	\$	1,409.65	4.28	\$	1,121.08	3.81	\$	930.35		
Jillaroo	5.49	\$	1,606.05	4.23	\$	1,098.72	3.42	\$	646.55		

	AMPS Armatree TOS Trial 2023 - Yield & Revenue (APH/AH Varieties)									
	26th	April		11th	11th May			31st May		
	Yield (t/ha)		\$/ha	Yield (t/ha)		\$/ha	Yield (t/ha)		\$/ha	
LRPB Lancer	5.29	\$	1,438.44	4.02	\$	916.13	3.36	\$	667.75	
Sundancer	5.37	\$	1,423.08	4.06	\$	927.38	3.10	\$	565.06	
Sunmaster	5.38	\$	1,427.96	4.21	\$	982.26	2.88	\$	409.21	
LRPB Optimus	5.14	\$	1,338.97	4.08	\$	932.33	3.04	\$	546.38	
LRPB Tracer	5.33	\$	1,409.32	4.11	\$	945.87	2.69	\$	412.41	
Jillaroo	5.38	\$	1,427.06	3.72	\$	797.03	2.90	\$	414.58	
Sunblade CL	5.37	\$	1,278.29	4.03	\$	809.55	3.04	\$	463.67	
LRPB Raider	4.95	\$	1,265.42	4.00	\$	903.10	2.77	\$	368.68	
LRPB Mustang	4.79	\$	1,202.66	3.85	\$	846.45	2.98	\$	441.54	
Leverage	5.18	\$	1,351.78	3.88	\$	758.00	2.71	\$	347.79	
LRPB Hellfire	4.70	\$	1,209.27	3.68	\$	782.08	2.69	\$	341.51	
Intrigue	4.48	\$	1,125.75	3.74	\$	807.21	2.56	\$	295.70	
Coota	4.78	\$	1,201.05	3.19	\$	598.44	2.42	\$	309.65	

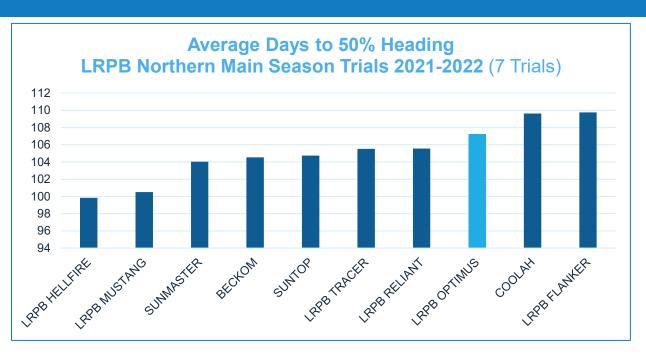


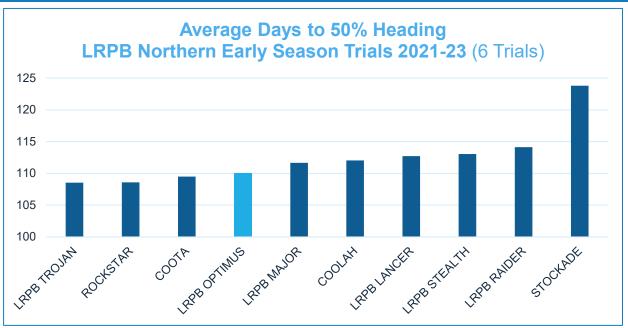
# Agronomy





### Mid Spring Maturity— Nth NSW & QLD

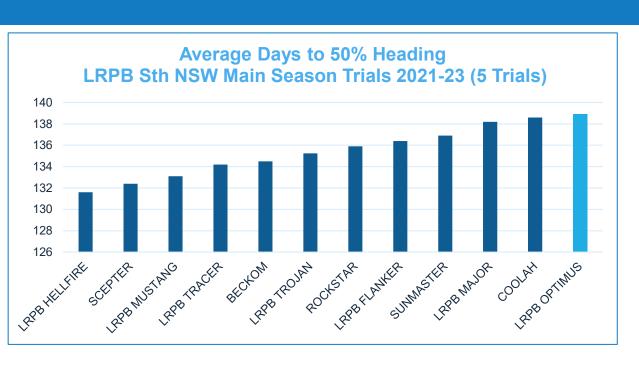


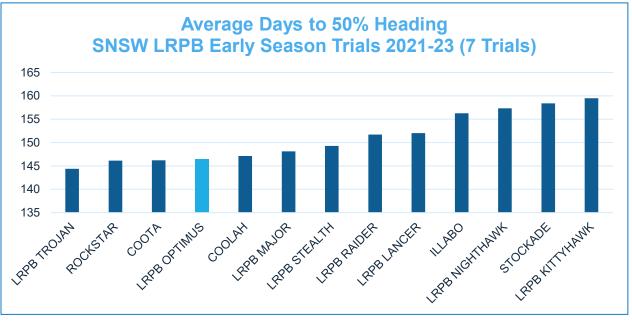


- 2-3 Days quicker maturity than Lancer and Coolah across both early and main season trials.
- Field observations indicate a similar heading and flowering pattern to its Lancer parent (ie tiller dominance and synchronized flowering)
- Stable relative maturity in Nth NSW & QLD, which indicates a preferred sowing window in the first three weeks of May across most area's in the Northern zone



# **Mid Spring Maturity – Sthn NSW**



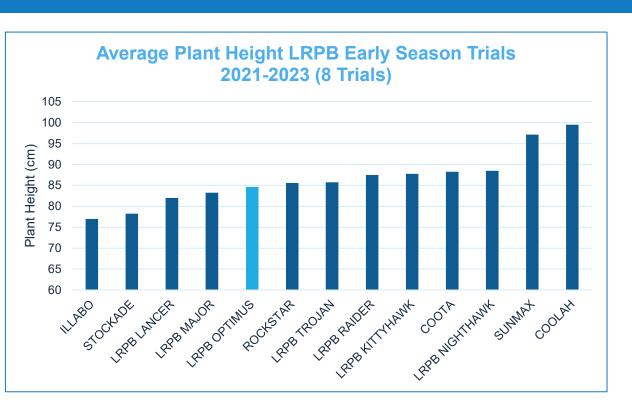


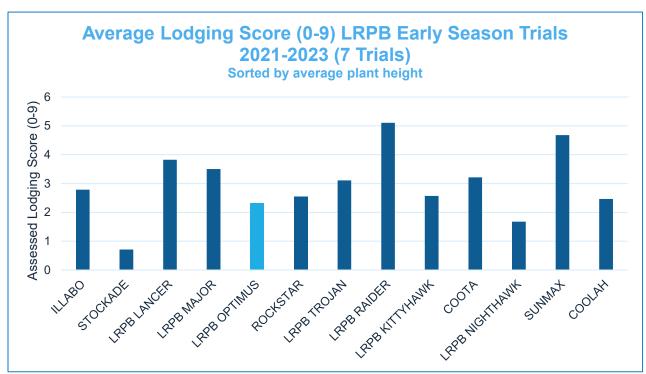
- Slightly longer season than Coolah in main season trials (sown >10<sup>th</sup> May) but relative maturity is slightly quicker in Early Season trials (sown 25<sup>th</sup> April -10<sup>th</sup> May)
- Highly stable relative maturity across the last three season regardless of sowing window,
   which indicating a preferred sowing window of the first three weeks of May in southern
   NSW





## **Plant Height and Lodging**



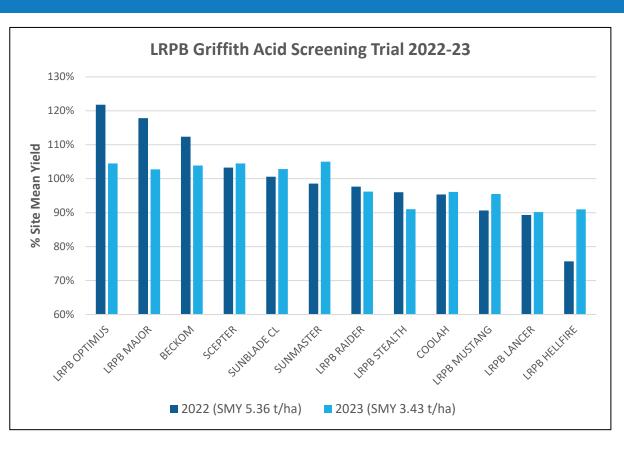


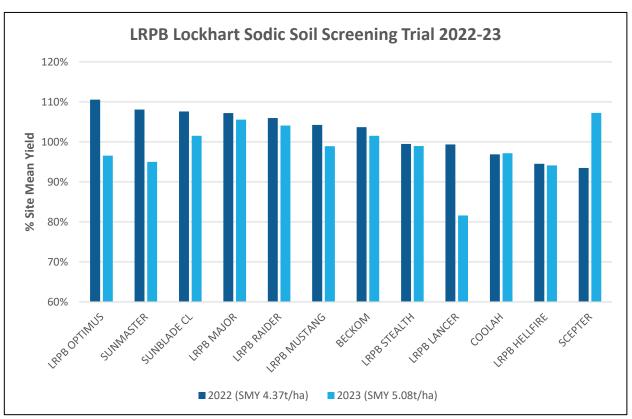
- Slightly taller than Lancer or Major, but shorter than Raider
- Good straw strength with lodging resistance similar to Coolah and better than varieties considered robust for lodging such as Lancer





### **LRPB Abiotic Screening Trials 2022/23**







LRPB Optimus has been a consistent high performer in Abiotic yield trials run as part of the LongReach breeding program even when planted outside its optimal sowing window. These trials are typically planted later in the sowing window and typically favour mid quick spring or faster maturity varieties.



#### Disease

Verietre	Ctore Duet	Leaf Rust	Stripe Rust	Yellow Spot	Septoria	Crown Rot	Prat. thornei		Powdery Mildew	
Variety	Stem Rust		(East)		tritici (East)		Res.	Tol.	WA	SA
Beckom	MRMS	MSS	MRMS	MSS	S	S	MSS	TMT		
Calibre	MR	S	S	MRMS	S	S	MSS	MII	MSS	MSS
Coolah	MR	RMR	MSS	MSS	MSS	MSS	MS	MT		
Coota	RMR	MR	S	MSS	S	MSS	MS	MTMI		
EGA Gregory	MR	MR	MS	S	MSS	S	MSS	MT		
Leverage	MR	RMR#	MRMS	MRMS	S	S	MS	MT	Sp	
Longsword	MR	MS	MRMS/MS	MRMS	MS	MSS	MRMS	MI	MS	
LRPB Optimus	MR	RMR	MRMS	MSS	S	S	MS	МТМІ	MSSp	MS
LRPB Flanker	MR	RMR	MRMS	MSS	MSS	MSS	MSS	MT		
LRPB Hellfire	MR	MSS	MR	MSS	S	MSS	MSS	MI		
LRPB Lancer	R	RMR	RMR	MS	MS	MSS	MS	TMT		
LRPB Mustang	MRMS	MSS	MR	MSS	S	MSS	MSS	MTMI		
LRPB Raider	RMR	RMR	MR	MSS	S	S	MS	TMT		
LRPB Reliant	R	RMR	MR	S	MSS	MS	MSS	TMT		
LRPB Spitfire	MR	S	MRMS	S	S	MS	MS	MTMI		
LRPB Tracer	MSp	MR#p	MRp	Sp	Sp					MSSp
RockStar	MRMS	S	S	MRMS	S	S	MS	MI	MSS	SVS
Scepter	MRMS	MSS	MSS	MRMS	S	MSS	MSS	MT	S	SVS
Sunblade CL Plus	MS	MSS	MRMS	MSS	S	S	MRMS	MT		S
Sundancer	MR	RMR	MR	MS	MSS	MSS	MS	MT	Sp	S
Sunflex	MR	RMR#	MRMS	MS	SVS	MSS	MSS	MI		
Sunmaster	MS	RMR	MRMS	MSS	S	MSS	MS	TMT		MSS
Sunmax	MRMS	MS	RMR	MSS	MSS	MSS	MS	MI		
Tomahawk CL Plus	MR	S	MSS	MRMS	Sp	S	MS	TMT	Sp	SVS
Vixen	MRMS	SVS	SVS	MRMS	S	S	MS		SVS	SVS

LRPB Optimus has a well rounded disease package suitable for all regions of NSW and QLD with highly manageable levels of stripe rust resistance.

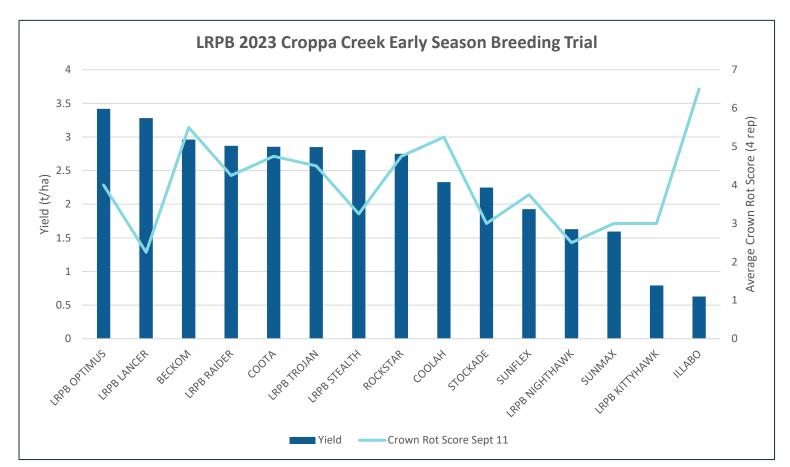
While it has received a S rating for Crown Rot resistance, LRPB internal disease nursery data across multiple years indicates that it behaves more like the Lancer parent at MSS

Data sourced from NVT disease ratings March 2024 (https://nvt.grdc.com.au/nvt-disease-ratings)

p = provisional rating, / = Pathotype differences, # = May be more susceptible to alternate pathotypes



#### **Yield Performance Under Severe Crown Rot Pressure**



- In 2023 LRPB planted trials under heavy natural crown rot pressure at Croppa Creek
- LRPB Optimus was the highest yielding line in the trial demonstrating its ability to maintain yield under severe crown rot pressure similar to the Lancer parent even though it has received an S Resistance rating from NVT.
- Further investigation on LRPB Optimus
   performance under Crown Rot pressure is
   currently underway by LRPB but early
   indications point to Optimus performing
   similarly to the Lancer parent



# LRPB Optimus - Mid Season Lancer



# LRPB Optimus is available for sowing in 2025 through our Seed Associate Network

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