

# 2021 AIR EP Lower EP Ag Expo

## GM Canola & EP Trial Results



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- GM Canola – what did we learn from 2021
- Improving canola profitability
- Pulses on sandy soils
- Frost



# GM CANOLA - ADVISER FEEDBACK

- GM canola was targeted at paddocks with either high ryegrass populations and/or where populations ryegrass populations were resistant to clethodim herbicide.
- Weed control generally exceeded expectations, and increased confidence in growing canola as a ryegrass reducing tool.
- Most growers applied two applications of glyphosate. Planned third applications to Truflex varieties proved difficult to fit into the 2021 growing season.



## Combination of clethodim and glyphosate in RR canola



Trial undertaken by Plant Science Consulting, August 2020. Photos taken by Dr Sam Kleemann, Plant Science Consulting.

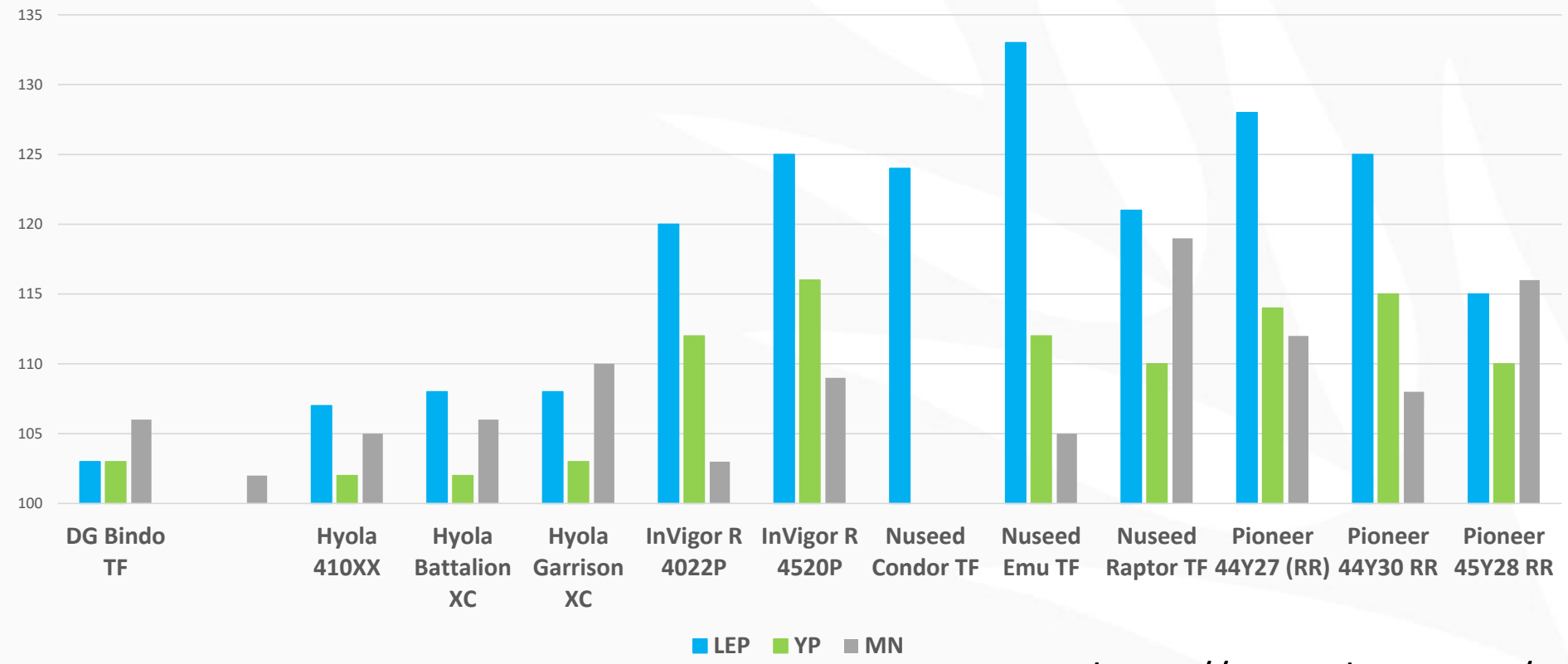
\*includes 1% Hasten.

# GM CANOLA ADVISER FEEDBACK

- Ancillary benefits of having access to different blackleg major genes in high yielding varieties and traits such as PodGuard® to reduce potential pre-harvest losses were highly valued by many advisors.
- Many advisors are planning to increase the area planted to GM varieties in 2022 and would like to increase use of varieties with stacked herbicide resistance to both glyphosate and imidazoline chemistry.
- Price differences to non-GM canola and receival points did not appear to be issues that impeded adoption.

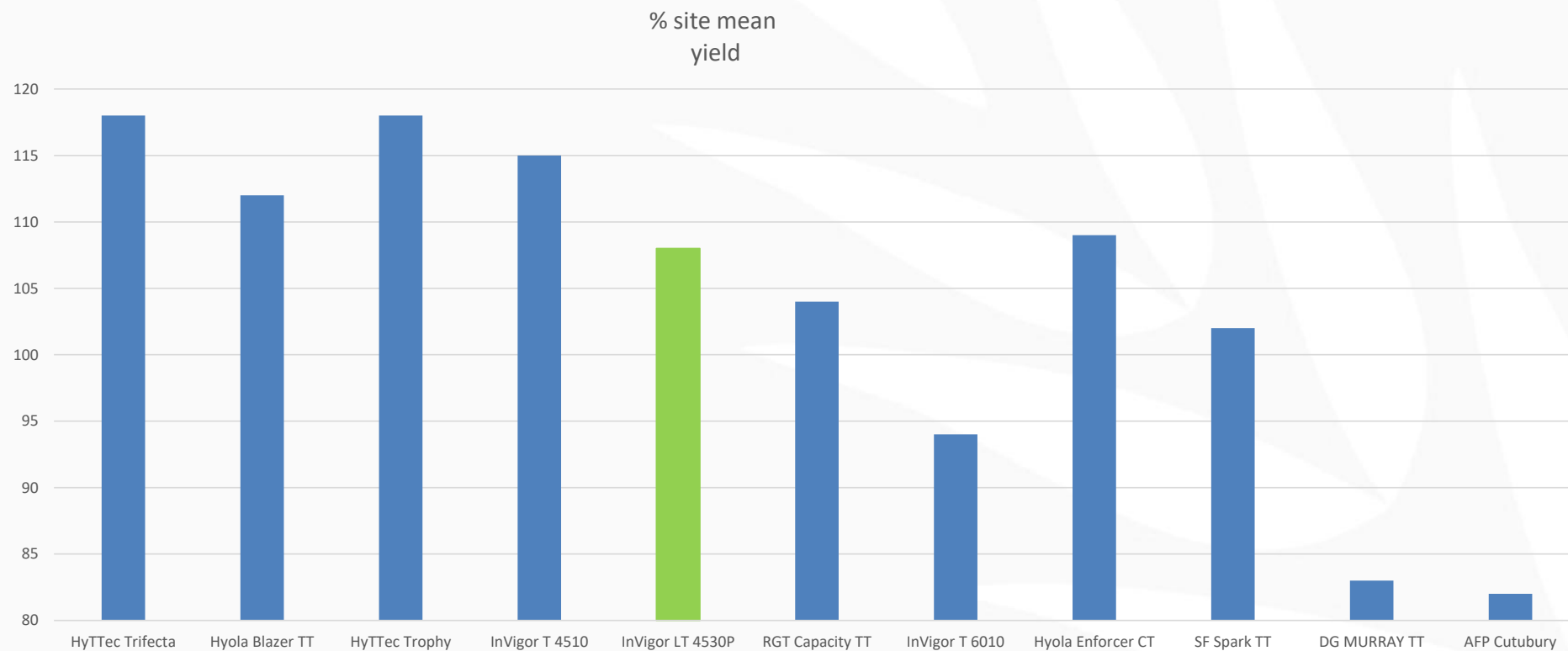
# 2021 NVT GLYPHOSATE TOLERANT RESULTS – LEP, YP AND MID NORTH

% site mean



<https://nvt.grdc.com.au/>

# 2021 NVT RESULTS YEELANNA TT



<https://nvt.grdc.com.au/>



# COMPARISON OF TECHNOLOGIES

## 2021 Hyola Innov General

5m	PLOTS	XCT	TruFlex or Roundup		
			XX and RR		
REP 3	12	XCT			
	11	XCT			
	10	XCT			
REP 2	9	XCT			
	8	XCT			
	7	XCT			
	6	XCT			
REP 1	5	XCT			
	4	XCT			
	3	XCT			
	2	XCT			
	1	XCT			
	RANGE	XCT	XX and RR (RR Rates app		
	ROWS	1	2	3	

Each Herbicide block has  
In 2022, TruFlex and RR  
new herbicide technology

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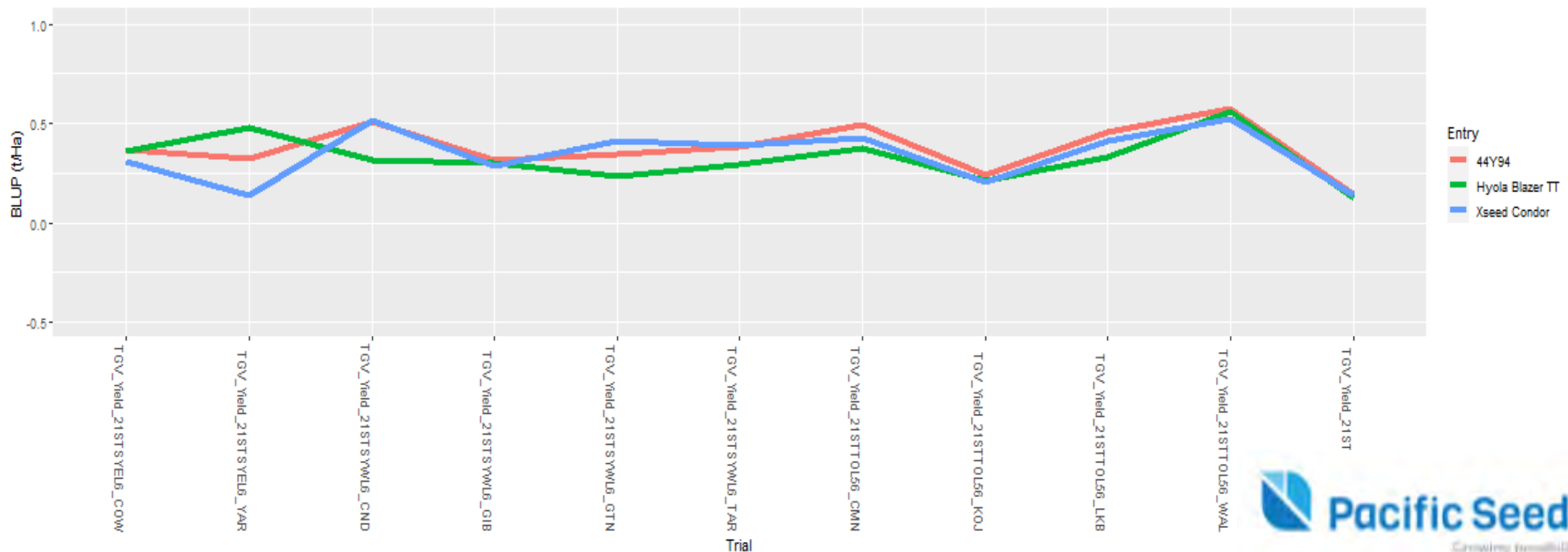


2021 Hyola Systems Innovation  
Technology Trial Sites across  
Australia – 6 of 11 locations shown



# COMPARISON OF TECHNOLOGIES

Imi Tolerant vs Triazine Tolerant vs Glyphosate Tolerant at eleven sites across Australia in 2021.



# Canola – taking profitability to the next level

## Key messages

- High canola yields (3.5 t/ha+) were achieved at two sites on Lower EP in 2021.
- Canola yields were not improved by applying higher rates of nitrogen, phosphorous, or trace elements than considered “district practice”.
- At the two 2021 sites canola yields were similar following a 2020 wheat crop as they were for a 2020 lupin or faba bean crop.



## Canola – taking profitability to the next level

		District Practice	P high	N High	TE High	Everything high
<b>Nitrogen (N)</b>	2020	9(+125)*	9 (+125)	159 (+125)	9 (+125)	159 (+125)
	2021	148	148	148	148	148
	Total	157 (+125)	157 (+125)	307 (+125)	157 (+125)	307 (+125)
<b>Phosphorus (P)</b>	2020	18	36	18	18	36
	2021	22	22	22	22	22
	Total	40	58	40	40	58

Trace Element High = 1.7 kg/ha Zn, 5 kg/ha Ca, 2.6 kg/ha Mn, 1 kg/ha Cu, 40 g/ha B, 2 g/ha Mo, and 1.35 kg/ha Fe in 2020, through streaming nozzles. This treatment also received 120 g/ha Zn, 150 g/ha Mn, 40 g/ha Cu, 50 g/ha Ca and 6 g/ha Mo applied as a foliar spray at early bloom in 2021.





# Canola – taking profitability to the next level

## 2020 Planted to Wheat and Pulse (Beans or Lupins)

- 80mm more soil water after beans than wheat at Yeltukka to a depth of 1m
- 40kg/ha more Mineral Nitrogen present in soil after beans than wheat



## Canola – taking profitability to the next level

***Grain yield of canola 2021 at Yeltukka following the different 2020 crops.***

<b>2020 Crop</b>	<b>Yield (t/ha)</b>
Faba Bean	3.53
Wheat	3.55
<i>LSD (P=0.05)</i>	<i>ns</i>



# Canola – taking profitability to the next level

Grain yield of canola 2021 at Yeltukka as a result of treatments applied in both 2020 and 2021

Treatment	Yield (t/ha)
District Practice	3.45
P High	3.49
N High	3.58
TE High	3.58
Everything High	3.58
CV	8.8
LSD ( $P=0.05$ )	<i>ns</i>

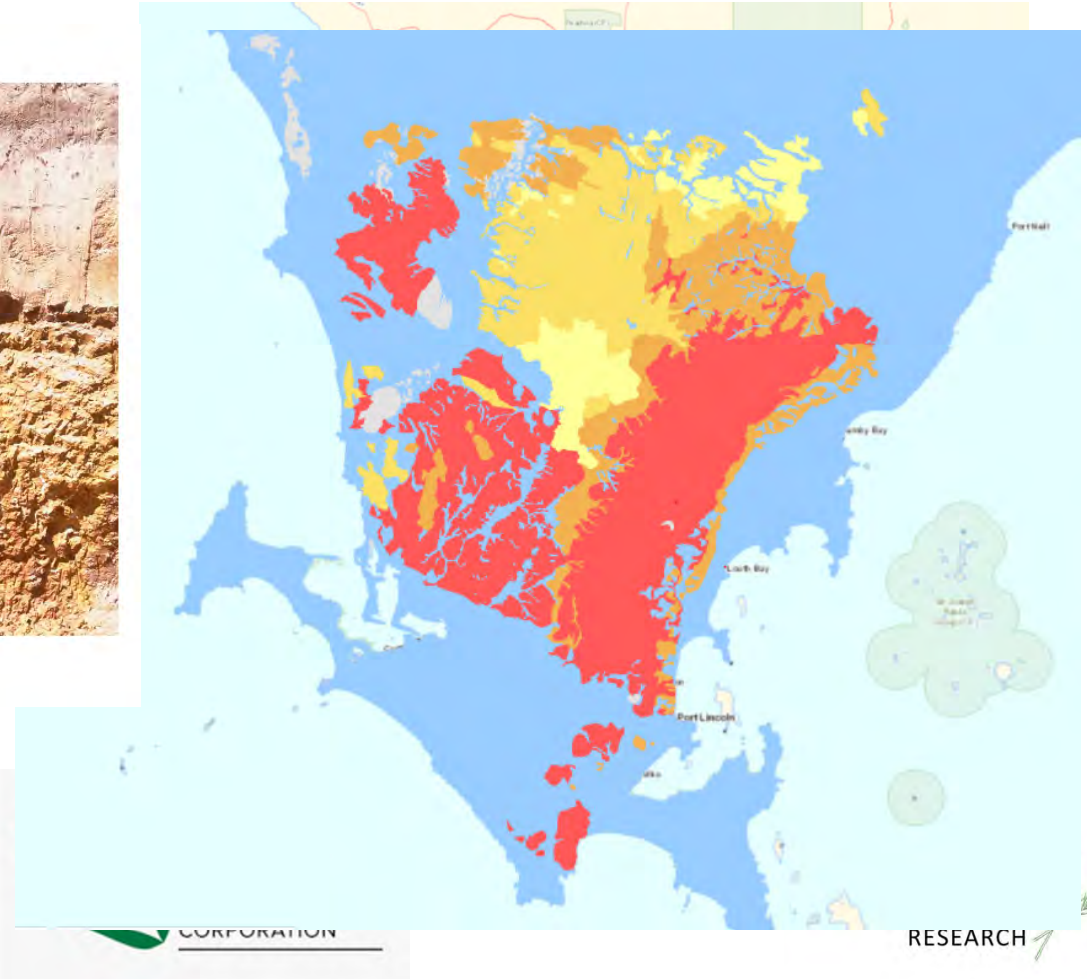




# Theme 1: Growing high value pulse crops on acidic sandy soils

## Soil Description:

Depth (cm)	Description
0-12	Dark brown loose sand. Clear to:
12-30	Pale brown loose sand. Gradual to:
30-60	Brownish yellow loose sand with a thin bleached layer at the base. Sharp to:
60-100	Yellowish brown and red very hard medium heavy clay with strong coarse columnar structure. Gradual to:
100-160	Yellowish brown and red hard medium clay with minor fine carbonate segregations. Gradual to:
160-	Yellowish brown and red hard medium clay with more than 50% fine carbonate segregations.



# Theme 1: Growing high value pulse crops on acidic sandy soils



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## *Nodule scores, biomass and grain yield of pulse crops grown at Mt Hope in 2021*

		Plants/m <sup>2</sup>	Nodule score 3/8	Nodule score 6/9	Biomass (t/ha) 11/10	Biomass maturity (t/ha)	Hand cut grain yield (t/ha)	Harvester yield (t/ha)
Lupin	Ripped	48	5.6	7.2	7.66	8.43	3.29	1.79
	unripped	50			3.92	5.47	2.27	
Faba bean	Ripped	28	7	6.4	4.50	5.10	2.60	2.0
	unripped	30			3.15	4.60	2.20	
Lentil	Ripped	92	4.4	4.8	3.00	3.12	1.07	0.8**
	unripped	96			1.85	2.51	0.75	



## Theme 1: Growing high value pulse crops on acidic sandy soils

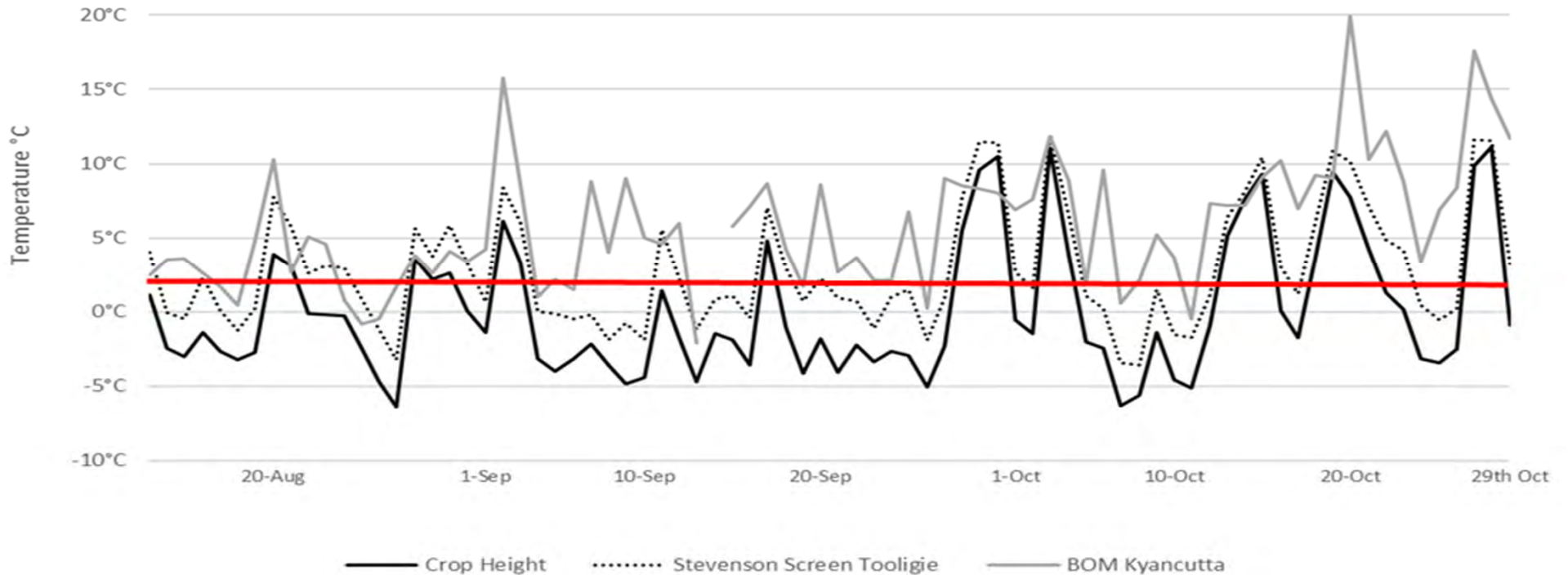
*Pulse crop gross margin x grain price sensitivity (\$/ha) based on Mt Hope yields*

Crop	Grain Price (\$/t)									
	300	350	400	450	500	600	700	800	900	1000
Lupin	624	789	953	1118	1282	1611	1940	2269	2598	2927
Faba bean	262	392	522	652	782	1042	1302	1562	1822	2082
Lentil	-176	-123	-69	-16	38	145	252	359	466	573



# Frost – Tooligie

38 possible frost events between stem elongation and maturity



## Frost – Tooligie

Variety	Biomass on 19 Oct (t/ha)	Grain Yield (t/ha)	Grain Delivery Grade
Spartacus	5.3ab	1.84 c	F3
Denison	5.6ab	1.56 bc	Undeliverable
RockStar	6.6b	0.62 ab	Undeliverable
Scepter	5.8b	0.60 ab	AUW1
Mixture	5.8b	0.56 ab	AGP1
Mace	6.8b	0.31 a	Undeliverable
LR Dual	3.9a	0.31 a	FED1
Vixen	5.6ab	0.27 a	FED1



# Thank you

Thank you to the land holders who host our trials

EPAG Research Staff:

Jacob Giles, Rhaquelle Meiklejohn, Mark Saunders,  
Gary Miler and Ashley Flint

