

Click the tabs above or scroll  
down to view all results.



# HYOLA<sup>®</sup> CT 2019 IMI RESIDUE TRIAL RESULTS





# 2019

## Hyola® CT IMI Residue Research Trial Results

Compared to CT Technology	Summary of Treatment Results (TT Canola Losses)		
Herbicide Treatment Description	Yield kg/ha Loss Range	% Yield Loss Range	Gross Returns \$/ha Loss Range
Application Timing / IMI Rates	Loss Expressed from Lowest to Highest Yielding Trial Sites		
PSPE Low IMI Residue/TT spray - 93.75mL/ha Intervix®	30 - 1520	28.6 - 62.5	28 - 914
PSPE High IMI Residue/TT spray - 375mL/ha Intervix®	60 - 1890	15.2 - 84.7	36 - 1138
PSPE IMI Residue/TT spray - 5g/ha OnDuty®	40 - 1330	34.9 - 88.5	22 - 802
PSPE IMI Residue/TT spray - 20g/ha OnDuty®	70 - 1670	22.8 - 77.4	42 - 1007
(4-6L) IMI Tank Contamination/TT spray - 30mL/ha Intervix®	40 - 1830	14 - 76	26 - 1064

**CT Technology provided up to \$1000 per Ha Crop Protection**

CT Technology  
with High IMI Soil Carryover

TT Technology  
with High IMI Soil Carryover

## CT TECHNOLOGY BENEFITS & IMI TREATMENT RESULTS SUMMARY

- Pacific Seeds is the only company in the World currently to have developed and released CT Technology dual herbicide stacked technology
- CT stacked technology is set to take over from straight Triazine technology as they are demonstrating competitive yields and more flexibility.
- CT Technology will be more popular also due to significant increases in area across Australia being sown into IMI Tolerant Wheat, Barley, Lentils, Beans and Oats.
- CT Technology is aimed at both Improving weed control options in IWM programs and providing vital crop protection for growers from IMI soil residual carryover
- Current CT hybrids are adapted between 1t/ha right through to 3.5t/ha yield growing environments; Hyola Enforcer CT and Hyola 580CT.
- In 2019, CT IMI replicated residue trials showed up to \$1000/ha protection value using PSPE IMI or SU timings as simulated treatments.
- Boom spray contamination with low levels of IMI or SU showed up to \$1500/ha protection value from using CT technology over TT technology.



## GROUP B IMI & SU TREATMENT COMPARISONS

### Hyola® CT IMI Residue and Tank Contamination Herbicide Treatment Comparisons

Hyola® 580CT									
									
	Low IMI Residue	Mod IMI Residue	Low OnDuty® Residue	High OnDuty® Residue	Low Glean® Residue	High Glean® Residue	Low IMI Contamination	Low Glean® Contamination	Standard TT Control
	Stage: IBS Rustler® 1L/ha Stage: PSPE Intervix® 93mL/ha TT 1.1kg/ha Stage: Post Em (4-6Leaf) TT 1.1kg/ha Select® 500mL/ha Uptake® 0.5%	Stage: IBS Rustler® 1L/ha Stage: PSPE Intervix® 375mL/ha TT 1.1kg/ha Stage: Post Em (4-6Leaf) TT 1.1kg/ha Select® 500mL/ha Uptake® 0.5%	Stage: IBS Rustler® 1L/ha Stage: PSPE OnDuty® 5g/ha TT 1.1kg/ha Stage: Post Em (4-6Leaf) TT 1.1kg/ha Select® 500mL/ha Uptake® 0.5%	Stage: IBS Rustler® 1L/ha Stage: PSPE OnDuty® 20g/ha TT 1.1kg/ha Stage: Post Em (4-6Leaf) TT 1.1kg/ha Select® 500mL/ha Uptake® 0.5%	Stage: IBS Rustler® 1L/ha Stage: PSPE Glean® 2.5g/ha TT 1.1kg/ha Stage: Post Em (4-6Leaf) TT 1.1kg/ha Select® 500mL/ha Uptake® 0.5%	Stage: IBS Rustler® 1L/ha Stage: PSPE Glean® 10g/ha TT 1.1kg/ha Stage: Post Em (4-6Leaf) TT 1.1kg/ha Select® 500mL/ha Uptake® 0.5%	Stage: IBS Rustler® 1L/ha Stage: PSPE TT 1.1kg/ha Stage: Post Em (4-6Leaf) TT 1.1kg/ha Intervix® 30mL/ha Select® 500mL/ha Uptake® 0.5%	Stage: IBS Rustler® 1L/ha Stage: PSPE TT 1.1kg/ha Stage: Post Em (4-6Leaf) TT 1.1kg/ha Glean® 1g/ha Select® 500mL/ha Uptake® 0.5%	Stage: IBS Rustler® 1L/ha Stage: PSPE TT 1.1kg/ha Stage: Post Em (4-6Leaf) TT 1.1kg/ha Select® 500mL/ha Uptake® 0.5%
OP TT Variety									
									

## AGRONOMIC DETAILS

**2019 Pacific Seeds Hyola CT IMI Residual Trial - Overall Details**

Trial	Trial	Trial Service	# of Plots	Crop	Sowing	PSPE	GSR (mm)
Location	State	Provider	(incl Buff) - Reps	History	Date	Spray Date	Rainfall
Watheroo	WA	Living Farms	72 - 3	L,W,W	02.05.19	07.05.19	201
Temora	NSW	Kalyx Australia	72 - 3	W,W,B	09.05.19	13.05.19	165
Rutherglen	VIC	Eurofins	72 - 3	C,W,L	30.04.19	02.05.19	257
Lake Bolac	VIC	Eurofins	72 - 3	P,W,B	30.04.20	03.05.19	400
Inverleigh	VIC	SFS	72 - 3	O,W,FP	22.04.19	30.04.19	341

**2019 Pacific Seeds Hyola CT IMI Residual Trials - Soil Details**

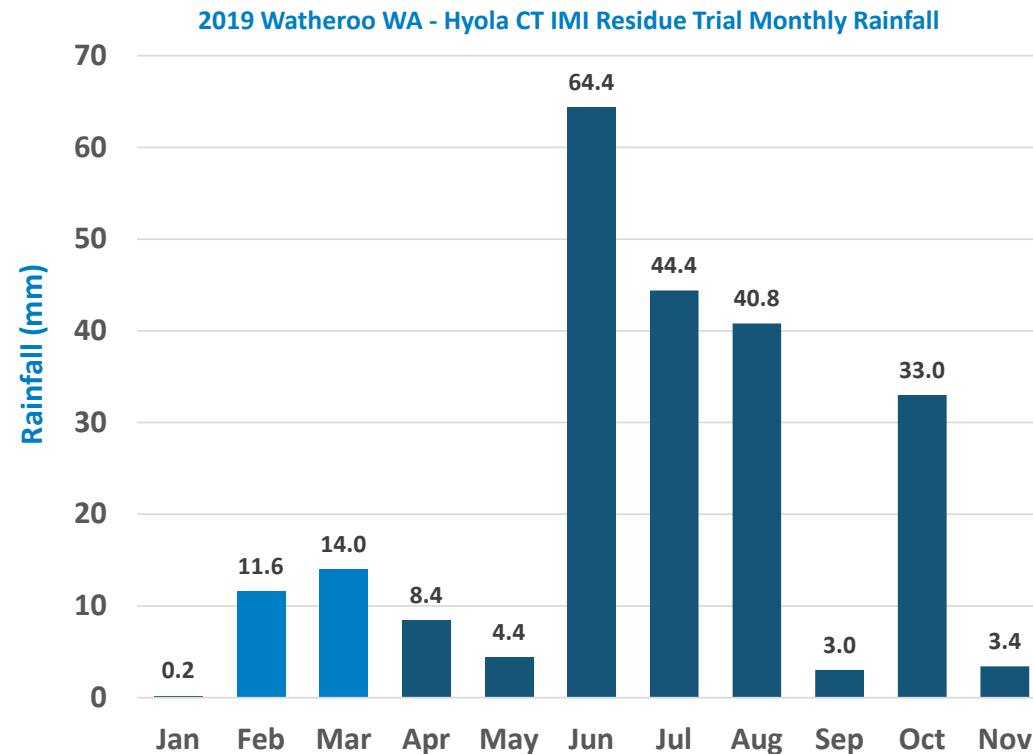
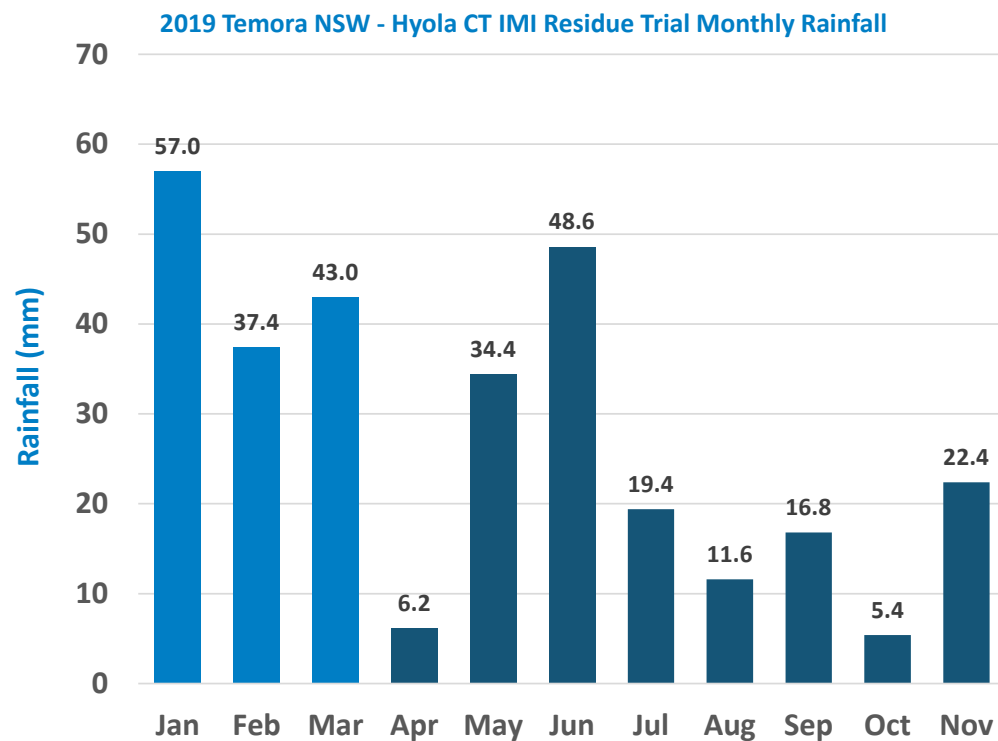
Trial	Trial	Soil	pH (0-10)	pH (10-20)	EC dS/m	OC %	PBI
Location	State	Type	CaCl2	CaCl2	(0-10)	(0-10)	Score
Watheroo	WA	Grey Sand	5.1	4.5	0.04	0.69	25.1
Temora	NSW	Silty Brown Loam	5.0	5.6	0.24	1.36	67.0
Rutherglen	VIC	Brown Clay Loam	4.9	4.6	0.01	0.70	73.0
Lake Bolac	VIC	Brown Clay	4.8	5.0	0.10	1.80	110.0
Inverleigh	VIC	Clay Loam	6.4	5.2	0.06	1.03	58.0

**2019 Pacific Seeds Hyola CT IMI Residual Trials - Sowing Details**

Trial	Trial	Sowing	Tillage	Soil Moisture	Seed	Seeding	Stubble
Location	State	Equipment	Type	Depth (0-10cm)	Bed	Depth (cm)	Loading
Watheroo	WA	KPPW	Minimum tillage	Poor	Stubble	1.0	10-20%
Temora	NSW	TPS014	Direct drilled	Dry	Friable	2.5	100%
Rutherglen	VIC	KPPW	Direct drilled	Average	Friable	2.0	10-20%
Lake Bolac	VIC	KPPW	Minimum tillage	Average	Stubble	2.0	30%
Inverleigh	VIC	KPPW	Direct drilled	Low	Friable	1.5	<10%

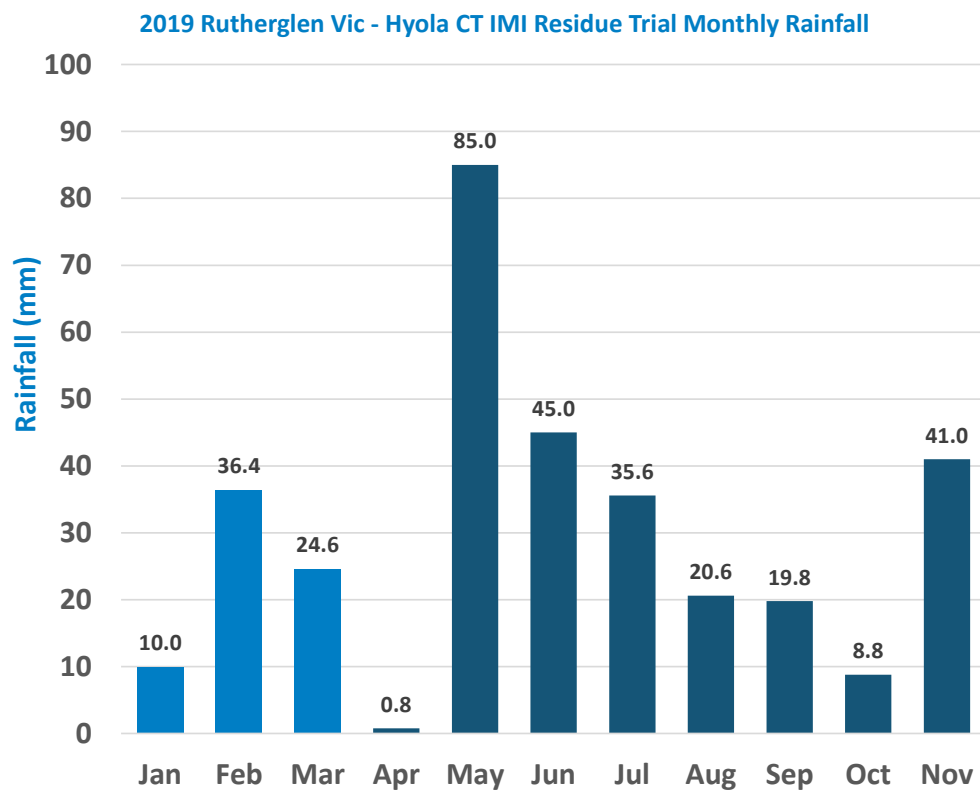


## RAINFALL DISTRIBUTION DETAILS





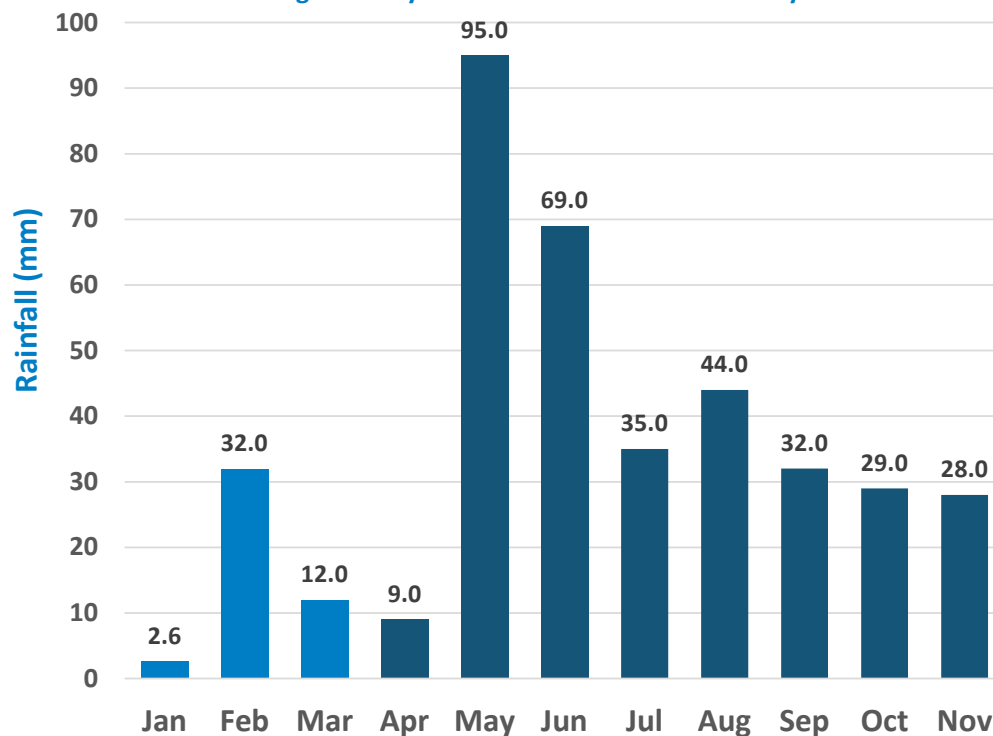
## RAINFALL DISTRIBUTION DETAILS



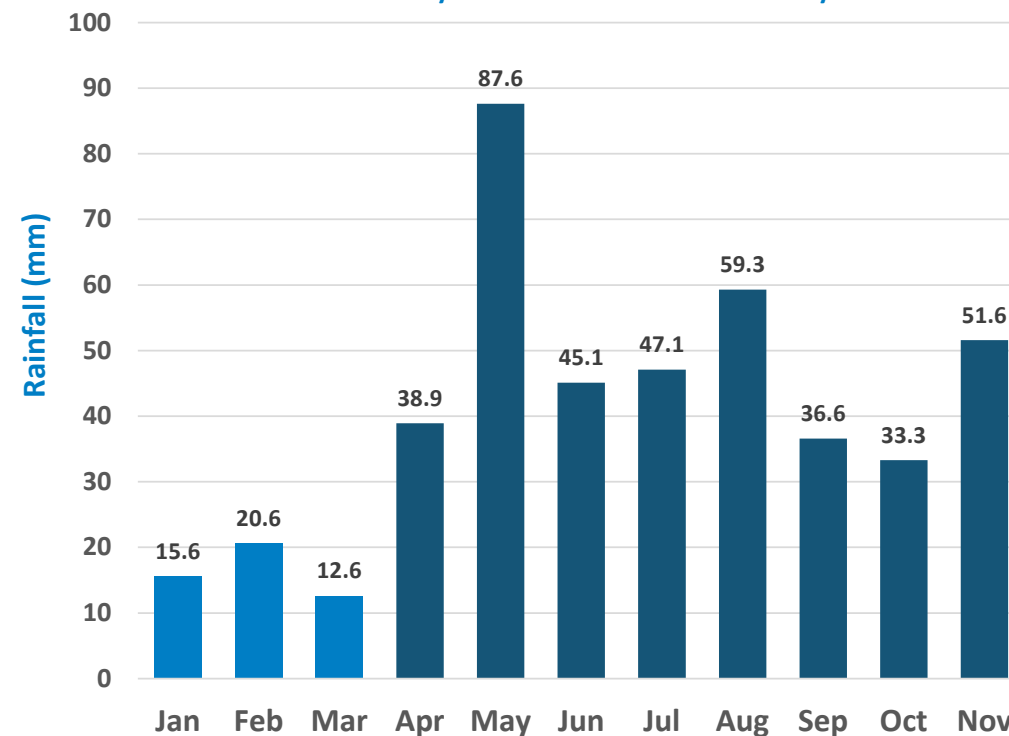


## RAINFALL DISTRIBUTION DETAILS

2019 Inverleigh Vic - Hyola CT IMI Residue Trial Monthly Rainfall



2019 Lake Bolac Vic - Hyola CT IMI Residue Trial Monthly Rainfall





## TREATMENT LISTING

Treatments:	TRT	Canola	Target Density	Herbicide Treatments by Active Ingredient and Application Timing		
Scenario	#	Variety	Seeding Rate	IBS (Code A)	PSPE (Code B)	Post Em (4-6 Leaf stage) (Code D)
Imi Residues/TT spray regime	1	Hyola 580CT	40/m2	1L/ha Rustler 500	1.1kg/ha Kelpie A-zine + 93.75mL/ha Intervix	1.1kg/ha Kelpie A-zine + 500mL/ha Select + 0.5% Uptake
Imi Residues/TT spray regime	2	ATR-Bonito	40/m2	1L/ha Rustler 500	1.1kg/ha Kelpie A-zine + 93.75mL/ha Intervix	1.1kg/ha Kelpie A-zine + 500mL/ha Select + 0.5% Uptake
Imi Residues/TT spray regime	3	Hyola 580CT	40/m2	1L/ha Rustler 500	1.1kg/ha Kelpie A-zine + 375mL/ha Intervix	1.1kg/ha Kelpie A-zine + 500mL/ha Select + 0.5% Uptake
Imi Residues/TT spray regime	4	ATR-Bonito	40/m2	1L/ha Rustler 500	1.1kg/ha Kelpie A-zine + 375mL/ha Intervix	1.1kg/ha Kelpie A-zine + 500mL/ha Select + 0.5% Uptake
Imi Residues/TT spray regime	5	Hyola 580CT	40/m2	1L/ha Rustler 500	1.1kg/ha Kelpie A-zine + 5g/ha OnDuty	1.1kg/ha Kelpie A-zine + 500mL/ha Select + 0.5% Uptake
Imi Residues/TT spray regime	6	ATR-Bonito	40/m2	1L/ha Rustler 500	1.1kg/ha Kelpie A-zine + 5g/ha OnDuty	1.1kg/ha Kelpie A-zine + 500mL/ha Select + 0.5% Uptake
Imi Residues/TT spray regime	7	Hyola 580CT	40/m2	1L/ha Rustler 500	1.1kg/ha Kelpie A-zine + 20g/ha OnDuty	1.1kg/ha Kelpie A-zine + 500mL/ha Select + 0.5% Uptake
Imi Residues/TT spray regime	8	ATR-Bonito	40/m2	1L/ha Rustler 500	1.1kg/ha Kelpie A-zine + 20g/ha OnDuty	1.1kg/ha Kelpie A-zine + 500mL/ha Select + 0.5% Uptake
SU Residues/TT spray regime	9	Hyola 580CT	40/m2	1L/ha Rustler 500	1.1kg/ha Kelpie A-zine + 2.5 g/ha Glean	1.1kg/ha Kelpie A-zine + 500mL/ha Select + 0.5% Uptake
SU Residues/TT spray regime	10	ATR-Bonito	40/m2	1L/ha Rustler 500	1.1kg/ha Kelpie A-zine + 2.5 g/ha Glean	1.1kg/ha Kelpie A-zine + 500mL/ha Select + 0.5% Uptake
SU Residues/TT spray regime	11	Hyola 580CT	40/m2	1L/ha Rustler 500	1.1kg/ha Kelpie A-zine + 10 g/ha Glean	1.1kg/ha Kelpie A-zine + 500mL/ha Select + 0.5% Uptake
SU Residues/TT spray regime	12	ATR-Bonito	40/m2	1L/ha Rustler 500	1.1kg/ha Kelpie A-zine + 10 g/ha Glean	1.1kg/ha Kelpie A-zine + 500mL/ha Select + 0.5% Uptake
IMI Tank contamination/TT spray regime	13	Hyola 580CT	40/m2	1L/ha Rustler 500	1.1kg/ha Kelpie A-zine	1.1kg/ha Kelpie A-zine + 30mL/ha Intervix + 500mL/ha Select + 0.5% Uptake
IMI Tank contamination/TT spray regime	14	ATR-Bonito	40/m2	1L/ha Rustler 500	1.1kg/ha Kelpie A-zine	1.1kg/ha Kelpie A-zine + 30mL/ha Intervix + 500mL/ha Select + 0.5% Uptake
SU Tank contamination/TT spray regime	15	Hyola 580CT	40/m2	1L/ha Rustler 500	1.1kg/ha Kelpie A-zine	1.1kg/ha Kelpie A-zine + 1g/ha Glean + 500mL/ha Select + 0.5% Uptake
SU Tank contamination/TT spray regime	16	ATR-Bonito	40/m2	1L/ha Rustler 500	1.1kg/ha Kelpie A-zine	1.1kg/ha Kelpie A-zine + 1g/ha Glean + 500mL/ha Select + 0.5% Uptake
control	17	Hyola 580CT	40/m2	1L/ha Rustler 500	1.1kg/ha Kelpie A-zine	1.1kg/ha Kelpie A-zine + 500mL/ha Select + 0.5% Uptake
control	18	ATR-Bonito	40/m2	1L/ha Rustler 500	1.1kg/ha Kelpie A-zine	1.1kg/ha Kelpie A-zine + 500mL/ha Select + 0.5% Uptake

## ALS INHIBITORS

### Imidazolinones

#### Imazapic

Getting to the soil			When in the soil		
Solubility (mg/L)	2 230	High	Binding ( $K_{oc}$ )	137	Moderately mobile
Volatility (mPa)	0.01	Non-volatile	Half-life ( $DT_{50}$ )	31-410 (av. 232)	Persistent
Photodegradation	Negligible		Mobility	Moderate due to high solubility and only moderate binding	
Breakdown	Predominantly microbial.				

Source: 2019 GRDC PUBLICATION - SOIL BEHAVIOUR OF PRE-EMERGENT HERBICIDES IN AUSTRALIAN FARMING SYSTEMS

### Imidazolinones (imazapic)

#### Practical Considerations:

- With volatility and photodegradation both being low, the herbicide will not breakdown rapidly on the soil surface after application.
- High solubility and only moderate binding allows for the herbicide to be readily washed off stubble and incorporated with rainfall.
- Moderate binding prevents excessive losses via leaching. Binding increases at lower soil pH.
- Very Persistent due to slow microbial breakdown, especially under conditions of low soil pH and low soil moisture. Substantial plantback constraints exist. Observe label constraints for pH, time and rainfall requirements.





## ALS INHIBITORS

### Imazethapyr

Getting to the soil			When in the soil		
Solubility (mg/L)	1400	High	Binding ( $K_{oc}$ )	52	Mobile
Volatility (mPa)	$1.3 \times 10^{-2}$	Non-volatile	Half-life ( $DT_{50}$ )	14-290 (av. 51)	Moderately persistent
Photodegradation	Negligible		Mobility	Mobile in the soil water	
Breakdown	Predominantly microbial.				

Source: 2019 GRDC PUBLICATION - SOIL BEHAVIOUR OF PRE-EMERGENT HERBICIDES IN AUSTRALIAN FARMING SYSTEMS

### Imazethapyr

#### Practical Considerations:

- With volatility and photodegradation both being low, the herbicide will not breakdown rapidly on the soil surface after application.
- Imazethapyr has post-emergent and pre-emergent activity. Once in the plant it is readily translocated.
- Low binding in neutral and alkaline soils means the herbicide is likely to be freely available in soils with higher organic matter and soils where pH is below 6.5
- Persistence is moderate, however it can be quite long under conditions of low soil pH and low soil mixture, where binding increases and microbial activity is reduced. Substantial plantback constraints for pH, time and rainfall requirements.
- Crop Selectively comes from rapid metabolism in tolerant plants.





## ALS INHIBITORS

### Sulfonylureas

#### Chlorsulfuron

Getting to the soil			When in the soil		
Solubility (mg/L)	12 500	High	Binding ( $K_{oc}$ )	40*	Mobile
Volatility (mPa)	$3.07 \times 10^{-4}$	Non-volatile	Half-life ( $DT_{50}$ )	10 - 185 (av. 36)	Moderately persistent
Photodegradation	Negligible		Mobility	Mobile in the soil	
Breakdown	Potential to leach, especially at higher pH				
Hydrolysis cleaves the sulfonylurea bridge with the speed of breakdown increasing with lower soil pH. Microbial breakdown is slow.					

\* Shaner, D. (2014). Herbicide Handbook (10th Edition) Weed Society of America

Source: 2019 GRDC PUBLICATION - SOIL BEHAVIOUR OF  
PRE-EMERGENT HERBICIDES IN AUSTRALIAN FARMING SYSTEMS

### Sulfonylureas (chlorsulfuron)

#### Practical Considerations:

- With volatility and photodegradation both being low, the herbicide will not breakdown rapidly on the soil surface after application.
- Solubility is high and binding to organic matter is low, assisting rainfall to wash herbicide of the stubble.
- Speed of breakdown depends on soil pH and moisture content. Plantback to sensitive crops can be very long in alkaline soils especially under dry summer conditions. Observe label constraints for time and rainfall.
- This also means the compound is freely available for root uptake and translocation once in the soil however there is potential for leaching down the profile following large rainfall events, particularly in alkaline soils. If applied to dry soil without mechanical incorporation and followed by a significant rainfall event during emergence, there is potential for it to move down the profile and damage germinating crops.





## SITE HERBICIDE BEHAVIOUR SUMMARY

### 2019 Temora NSW

Minimal establishment effects mainly due to soil having even dry profile establishment conditions and pH related IMI & SU movement into a zone 'slightly' below the roots of the young seedlings. The canola was impeded initially by ongoing dry conditions and frosts which didn't allow plants to find either water or IMI residue below the roots of the young seedlings until later in the season (July to Sept) but symptoms were somewhat variable because it was more alkaline at depth which changes the movement pattern of different chemistries.

Acid topsoil may have led to faster Glean® breakdown where as not the case of IMI chemistry. Channels of IMI chemistry in the profile after minimal movement maximised the damage effect expected on the OP TT technology with PSE application timing. The canola roots did make it into the chemical zone eventually and then treatment damage occurred, very often to significant levels.

Variations in solubility have effected the IMI chemistry breakdown (less movement for OnDuty® chemistry). 1g of Glean® tank-mix and 30ml Intervix® tank-mix contamination treatments over the top has significantly impacted plant growth and yield in the OP TT variety with no inbuilt CL protection.

The CT dual stack technology has shown very good resilience to Intervix® and OnDuty®, as well as good tolerance to SU chemistry residue in this low yielding site. The OP TT had significantly lower yields with high rates of Intervix® and OnDuty® as well as the high rate of Glean® applied PSPE.



## SITE HERBICIDE BEHAVIOUR SUMMARY

### 2019 Watheroo WA

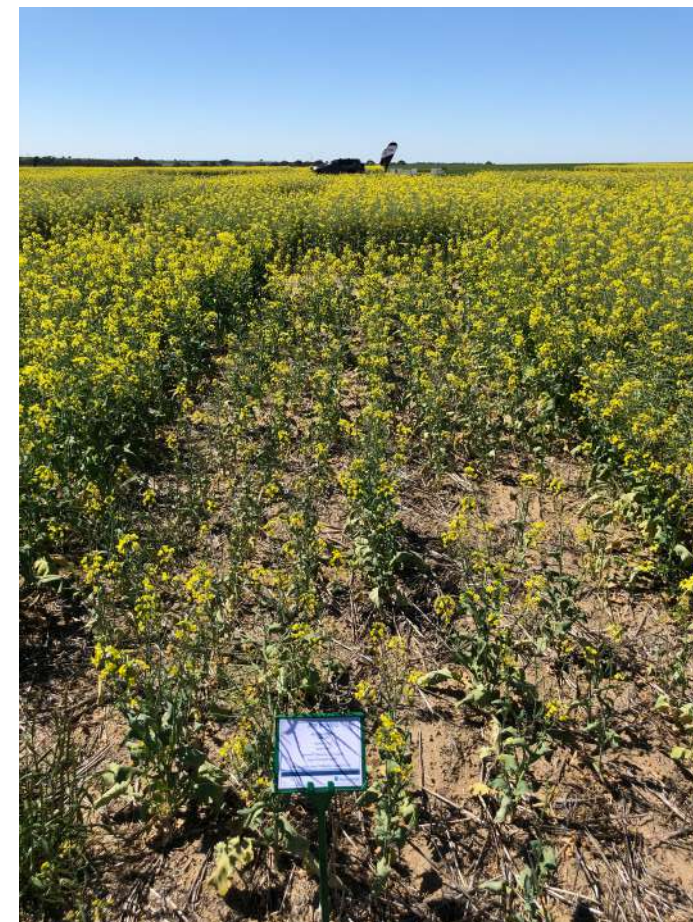
Varied establishment effects were mainly due to drier establishment conditions in May and pH related IMI & SU movement into azone within the roots of the young seedlings. The canola plants were impeded initially by dry conditions and then by specific treatments mainly being PSPE applied high rates of OnDuty<sup>®</sup> as well as low and high rates of Glean<sup>®</sup>.

Acid soils both in the top 10cm and in the 10-20cm depth have led to faster Glean<sup>®</sup> breakdown where as not the case of IMI chemistry. Reasonable amounts of IMI remained in the root profile especially with the higher rates of both Intervix<sup>®</sup> and OnDuty<sup>®</sup> where the damage to yield was significant.

When the plants were older symptoms developed quite effectively with some treatments and because there was more acid at depth, changes to the movement pattern of different chemistries would have occurred. Roots did make it into the chemical zone relatively early in the crop growth and then crop damage occurred to varying levels depending on treatment.

Variations in solubility have effected the IMI chemistry breakdown (less movement for OnDuty<sup>®</sup> chemistry). 1g of Glean<sup>®</sup> tank-mix and 30ml Intervix<sup>®</sup> tank-mix contamination treatments over the top has significantly impacted plant growth and yield in the OP TT variety with no inbuilt CL protection.

The CT dual stack technology has shown very good resilience to Intervix<sup>®</sup> and OnDuty<sup>®</sup>, as well as moderate tolerance to SU chemistry residue applied PSPE in this site. The OP TT variety had significantly lower yields with the higher rate of Intervix<sup>®</sup>, the low and high rates of OnDuty<sup>®</sup> applied PSPE as well as the low and high rates of Glean<sup>®</sup> applied PSPE.





## SITE HERBICIDE BEHAVIOUR SUMMARY

### 2019 Inverleigh Vic

Sown on the 22nd April into a heavier soil type with drier profile conditions led to varied establishment effects and lower than expected or targeted plant populations. Topsoil 0-10cm 6.4 pH at neutral levels leading into slightly acidic 5.2 at 10-20cm would have affected both movement and breakdown of IMI & SU chemistry as well as movement into a zone within the roots of the young seedlings. The canola plants were impeded initially by dryish conditions and then affected in plant number and leaf growth by specific treatments in May to August with some good follow-up rains.

Neutral soil both in the top 10cm may have led to some breakdown of IMI type chemistries whereas in the 10-20cm depth where acidity was higher, faster Glean<sup>®</sup> breakdown may have occurred. Reasonable amounts of IMI remained in the root profile especially with the higher rates of both Intervix<sup>®</sup> and OnDuty<sup>®</sup> where the damage to yield was significant.

Mid-way through the crops growth, when the plants were more developed, symptoms developed quite effectively with some treatments, possibly due to more acid at depth where root development making it into the chemical zone provided damage to varying levels depending on treatment, however all IMI and SU treatments significantly impacted the OP TT variety yield results.

Variations in solubility have effected the IMI chemistry breakdown (less movement for OnDuty<sup>®</sup> chemistry). 1g of Glean<sup>®</sup> tank-mix and 30ml Intervix<sup>®</sup> tank-mix contamination treatments over the top has significantly impacted plant growth and yield in the OP TT variety with no inbuilt CL protection. The CT dual stack technology has shown very good resilience to Intervix<sup>®</sup> and OnDuty<sup>®</sup>, as well as good tolerance to SU chemistry residue applied PSPE in this site. The OP TT variety had significantly lower yields with the low and high rates of Intervix<sup>®</sup> and OnDuty<sup>®</sup> applied PSPE as well as the low and high rates of Glean<sup>®</sup> applied PSPE. Grain oil% contents for the OP TT and the CT technology did not show any major deviation from the control treatments in this higher rainfall site.





## SITE HERBICIDE BEHAVIOUR SUMMARY

### 2019 Rutherglen Vic

Sown on the 30th April provided good establishment with any variability mainly due to soil conditions and pH related IMI & SU movement within the root zone of the young seedlings. The canola plants grew actively in all plots with many treatments taking effect early and visual symptoms were easily observable. Many treatments showed classic effects of damage associated with the actual chemistry treatments applied PSPE.

Acid soils (pH 4.9 - top 10cm and pH 4.6 in 10-20cm) may have led to faster Glean® breakdown where as not the case of IMI chemistry. IMI chemistry appears to have dispersed throughout the root zone which has led to significant damage as expected. When the plants were older, the treatments took even bigger effect and the resultant plant populations, plant height and grain yields reflect the significant reductions.

Variations in solubility have effected the IMI chemistry breakdown (less movement for OnDuty® chemistry). 1g of Glean® tank-mix and 30ml Intervix® tank-mix contamination treatments over the top has significantly impacted plant growth and yield in the OP TT variety with no inbuilt CL protection.

The CT dual stack technology has shown very good resilience to Intervix® and OnDuty®, as well as moderate tolerance to SU chemistry residue applied PSPE in this site, however the higher rate of Glean® applied PSPE significantly reduced the yield of the CT technology at this site.

The OP TT variety had significantly lower yields with the low and high rates of Intervix® and OnDuty® applied PSPE as well as the low and high rates of Glean® applied PSPE.





## SITE HERBICIDE BEHAVIOUR SUMMARY

### 2019 Lake Bolac Vic

Sown on the 30th April into a heavier brown clay soil type provided good establishment with any variability mainly due to soil conditions and pH related IMI & SU movement within the root zone of the young seedlings. The canola plants grew actively in all plots with some treatmentstakeing effect early and visual symptoms were easily observable. Many treatments showed classic effects of damage associated with the actual chemistry treatments applied PSPE.

The soil pH (pH 4.8 - top 10cm and pH 5.0 in 10-20cm) may have led to faster Glean® breakdown where as not the case of IMI chemistry. The organic carbon level of 1.8% and heavier clay content may have increased the binding effects and slowed breakdown with some of the chemistries applied. IMI chemistry appears to be have dispersed through the active root zone region which has led to significant damage. When the plants were older, the treatments took even bigger effect and the resultant plant populations, plant height and grain yields reflect the significant reductions.

Variations in solubility have effected the IMI chemistry breakdown (less movement for OnDuty® chemistry). 1g of Glean® tank-mix and 30ml Intervix® tank-mix contamination treatments over the top has significantly impacted plant growth and yield in the OP TT variety with no inbuilt CL protection.

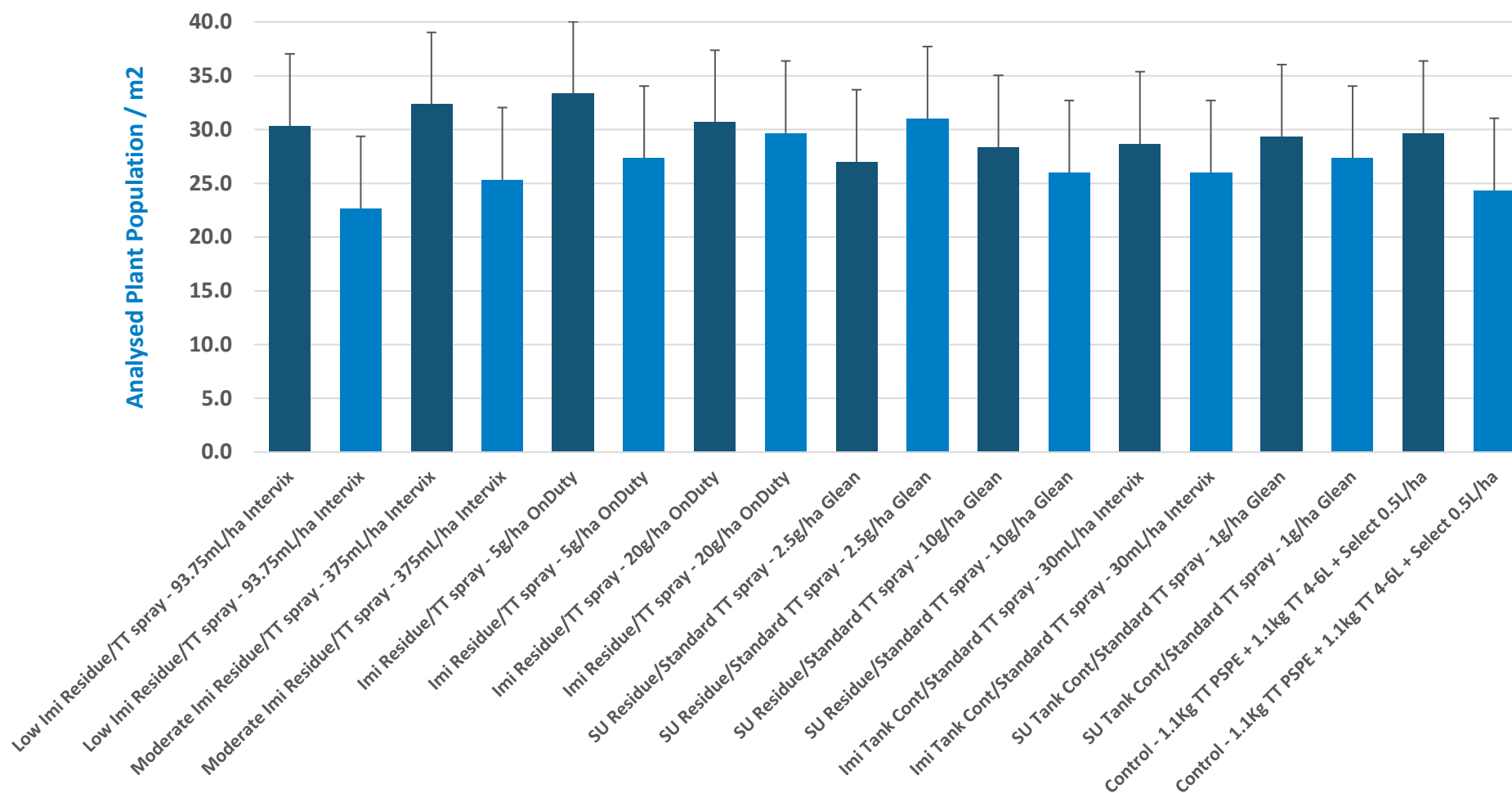
The CT dual stack technology has shown very good resilience to Intervix® and OnDuty®, as well as moderate to good tolerance to SU chemistry applied PSPE in this site. The OP TT variety had significantly lower yields with the low and high rates of Intervix® and OnDuty® applied PSPE as well as the low and high rates of Glean® applied PSPE.

Grain oil% contents for the OP TT and the CT technology did not show any major deviation from the control treatments in this higher rainfall site.



## ANALYSED PLANT POPULATIONS PER M2

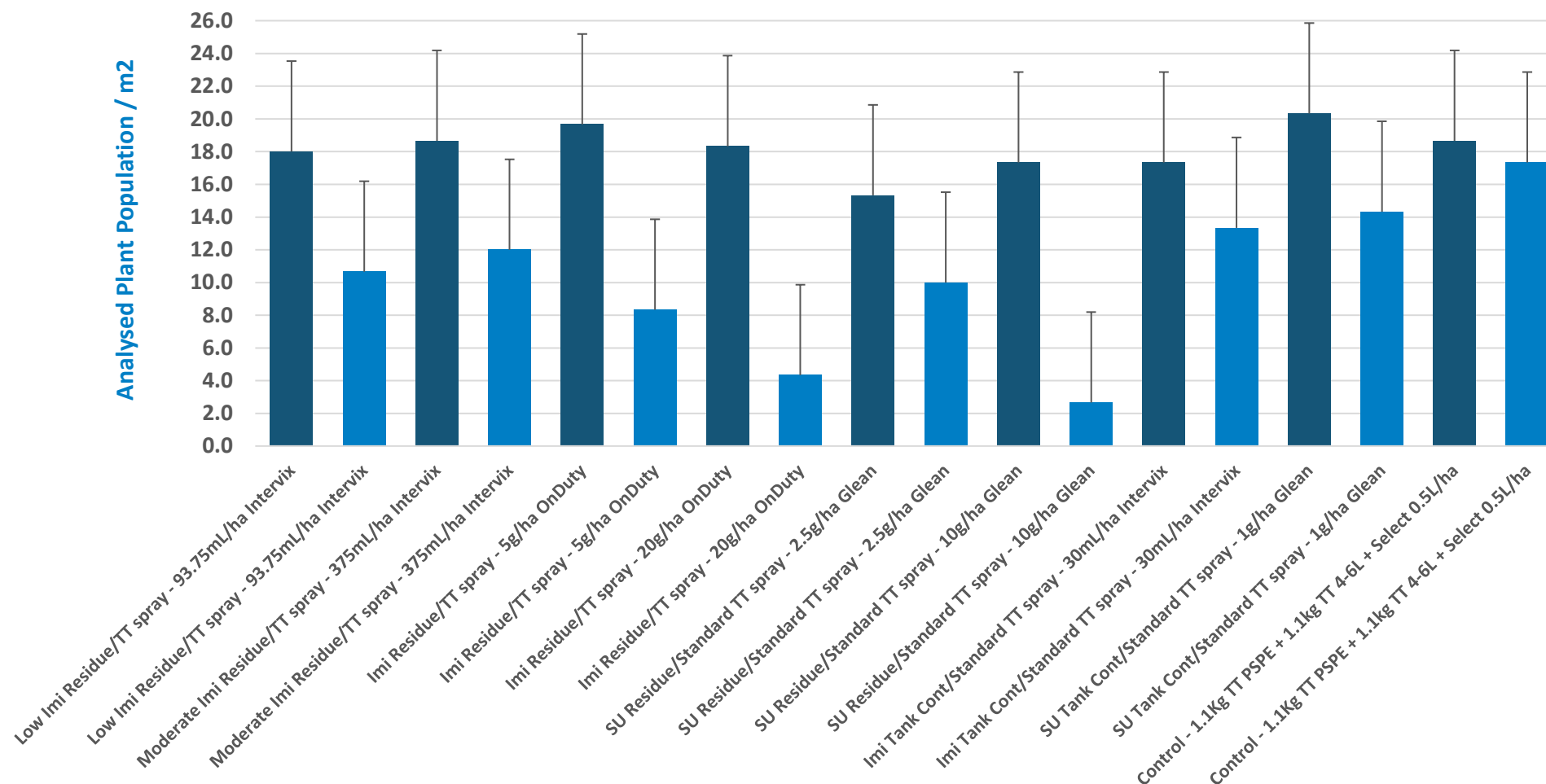
2019 Temora NSW - Hyola CT IMI Residue Trial Analysed Plant Populations per m2





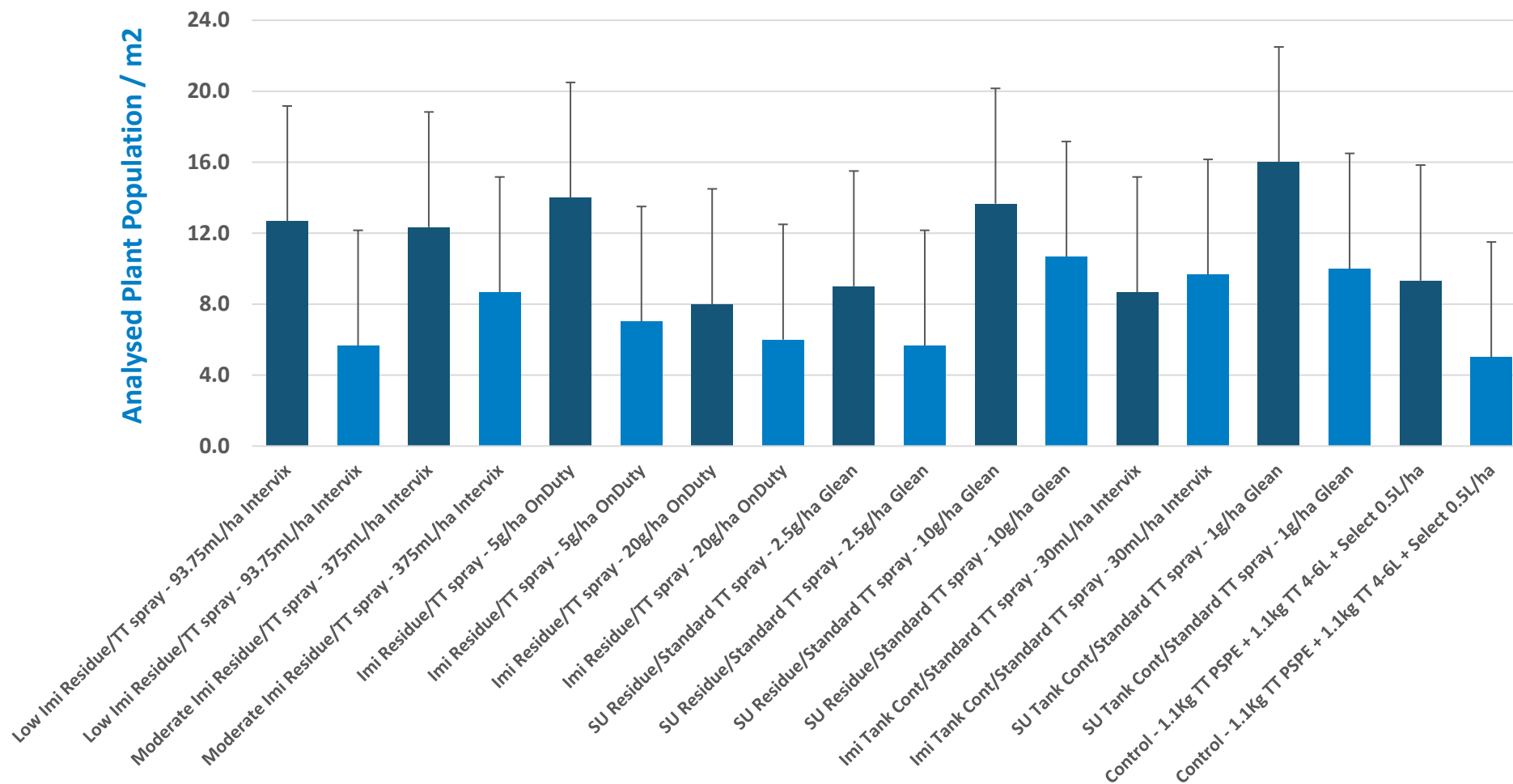
## ANALYSED PLANT POPULATIONS PER M2

2019 Watheroo WA - Hyola CT IMI Residue Trial Analysed Plant Populations per m2



## ANALYSED PLANT POPULATIONS PER M2

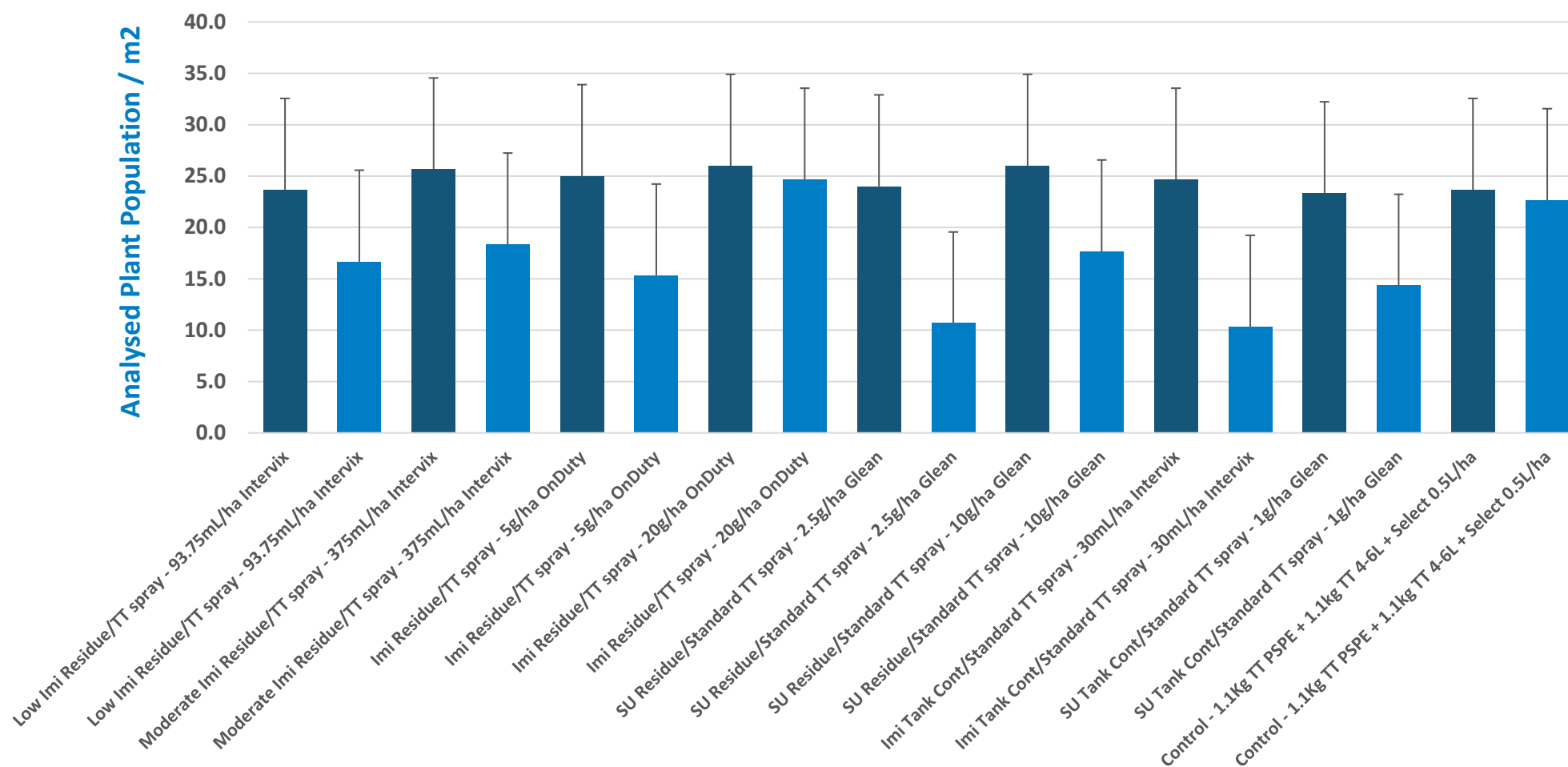
2019 Inverleigh Vic - Hyola CT IMI Residue Trial Analysed Plant Populations per m2





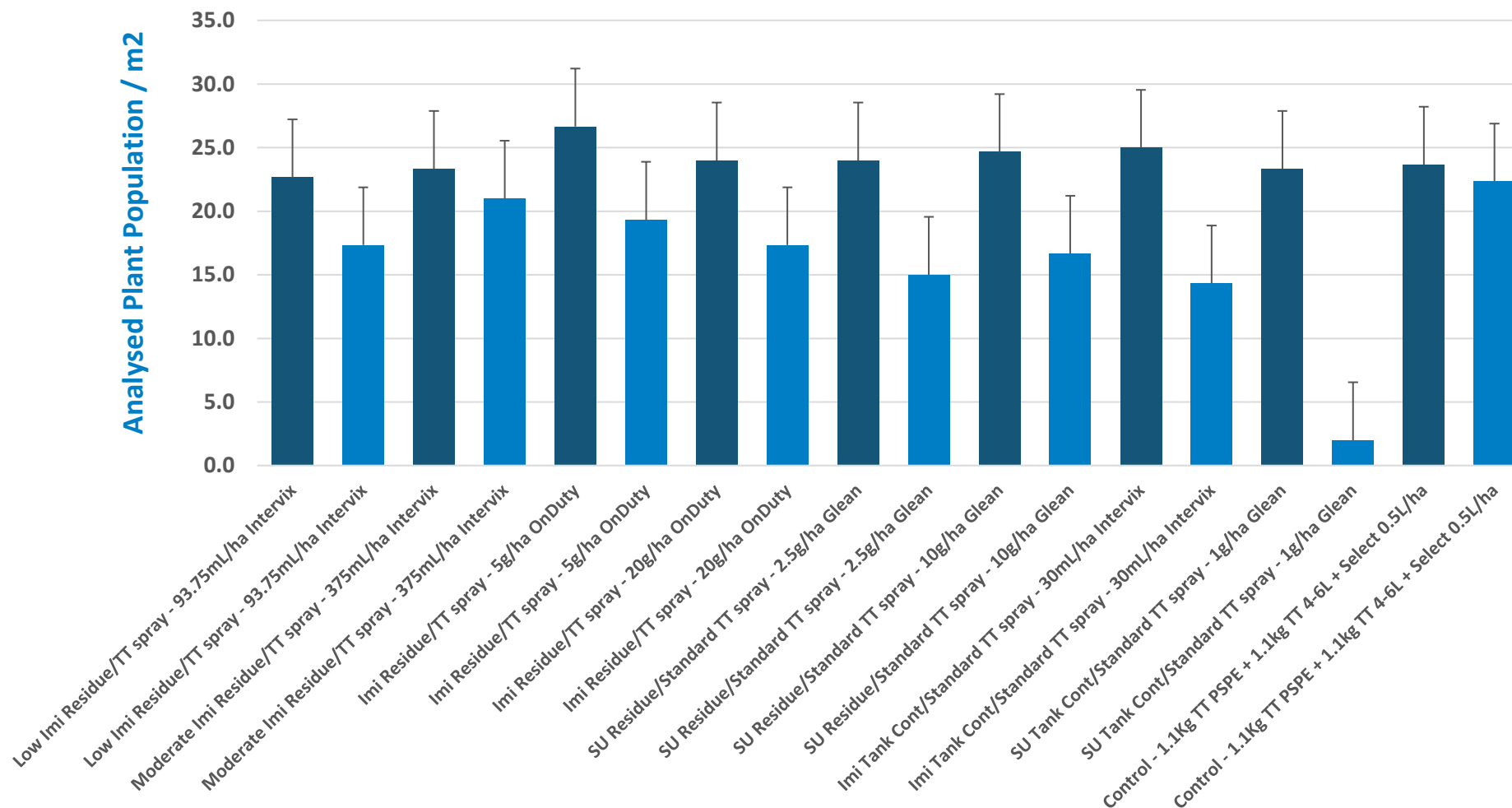
## ANALYSED PLANT POPULATIONS PER M2

2019 Rutherglen Vic - Hyola CT IMI Residue Trial Analysed Plant Populations per m2



## ANALYSED PLANT POPULATIONS PER M2

2019 Lake Bolac Vic - Hyola CT IMI Residue Trial Analysed Plant Populations per m2





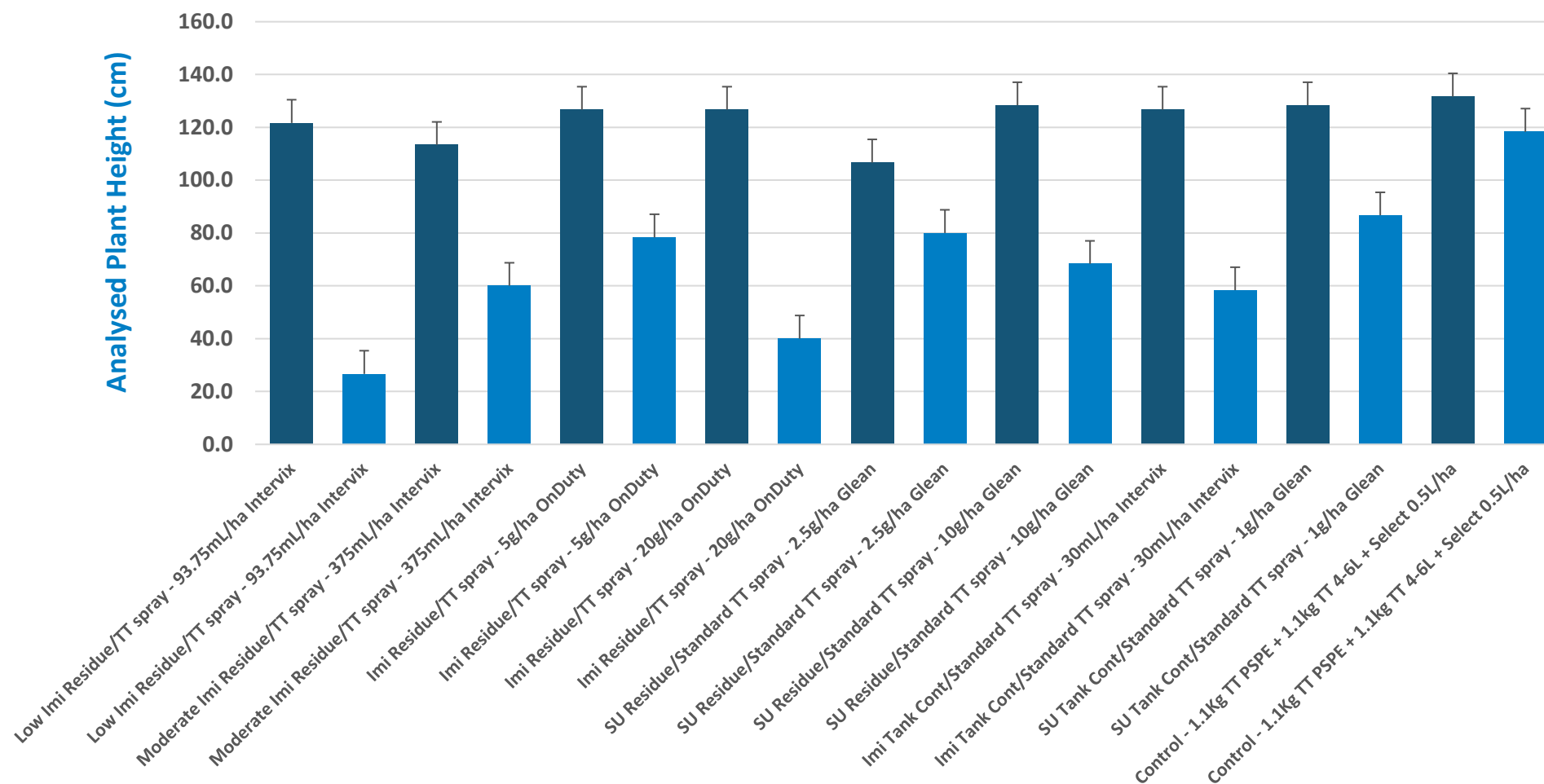
## ANALYSED PLANT POPULATION RESULTS SUMMARY

Herbicide Application	Plant Population/m2	Plant Population/m2
Treatment Regime	Range vs Control CT	Range vs Control TT
Low Imi Residue/TT spray - 93.75mL/ha Intervix	(-1 to +4)	(-6 to +1)
Moderate Imi Residue/TT spray - 375mL/ha Intervix	(-1 to +3)	(-5 to +4)
Imi Residue/TT spray - 5g/ha OnDuty	(+1 to +5)	(-9 to +3)
Imi Residue/TT spray - 20g/ha OnDuty	(-1 to +2)	(-13 to +6)
SU Residue/Standard TT spray - 2.5g/ha Glean	(-4 to 0)	(-12 to +7)
SU Residue/Standard TT spray - 10g/ha Glean	(-2 to +5)	(-14 to +6)
Imi Tank Cont/Standard TT spray - 30mL/ha Intervix	(-2 to +1)	(-13 to +5)
SU Tank Cont/Standard TT spray - 1g/ha Glean	(-1 to +7)	(-20 to +5)



## ANALYSED PLANT HEIGHT (CM)

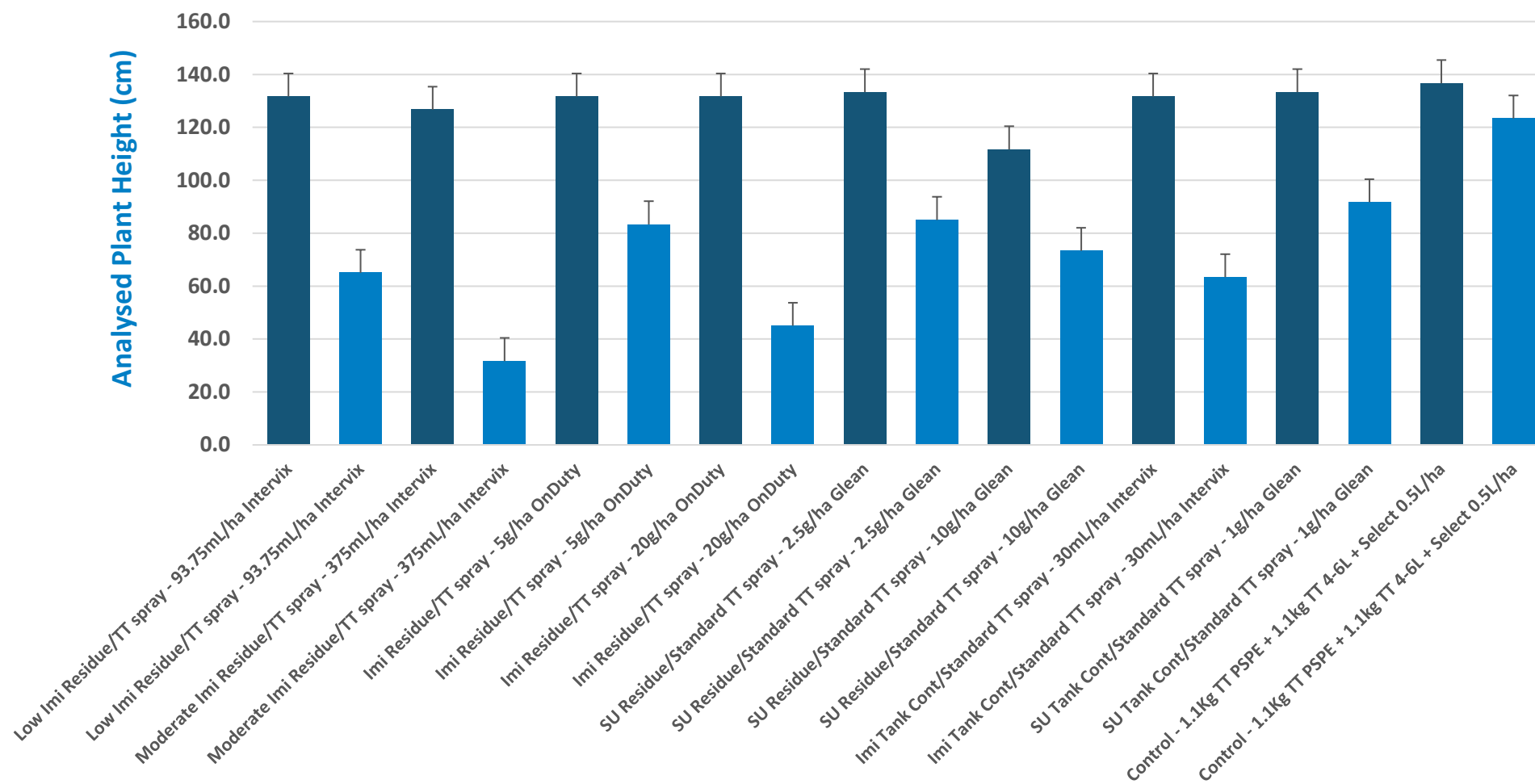
2019 Temora NSW - Hyola CT IMI Residue Trial Analysed Plant Height (cm)





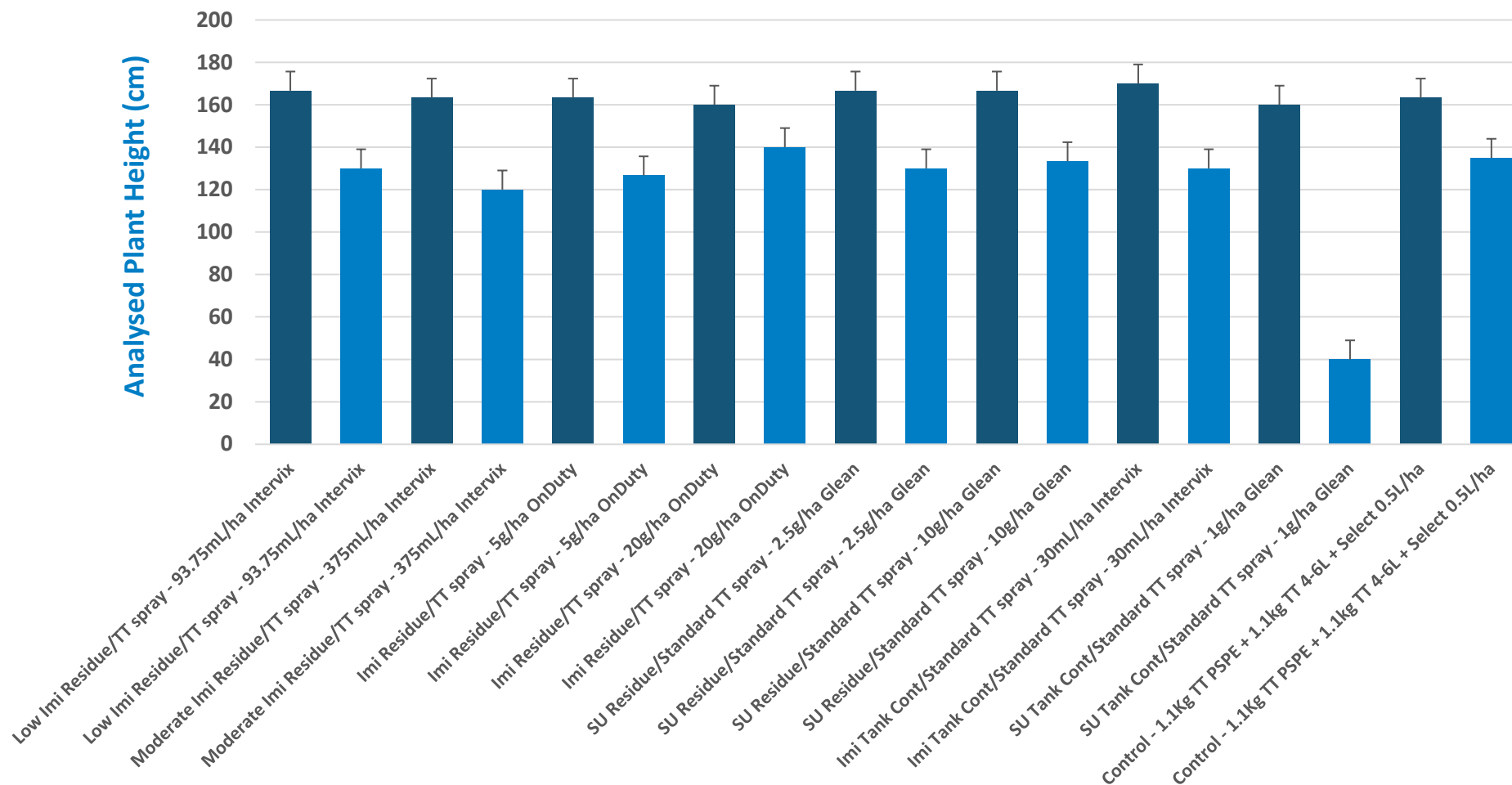
## ANALYSED PLANT HEIGHT (CM)

2019 Watheroo WA - Hyola CT IMI Residue Trial Analysed Plant Height (cm)



## ANALYSED PLANT HEIGHT (CM)

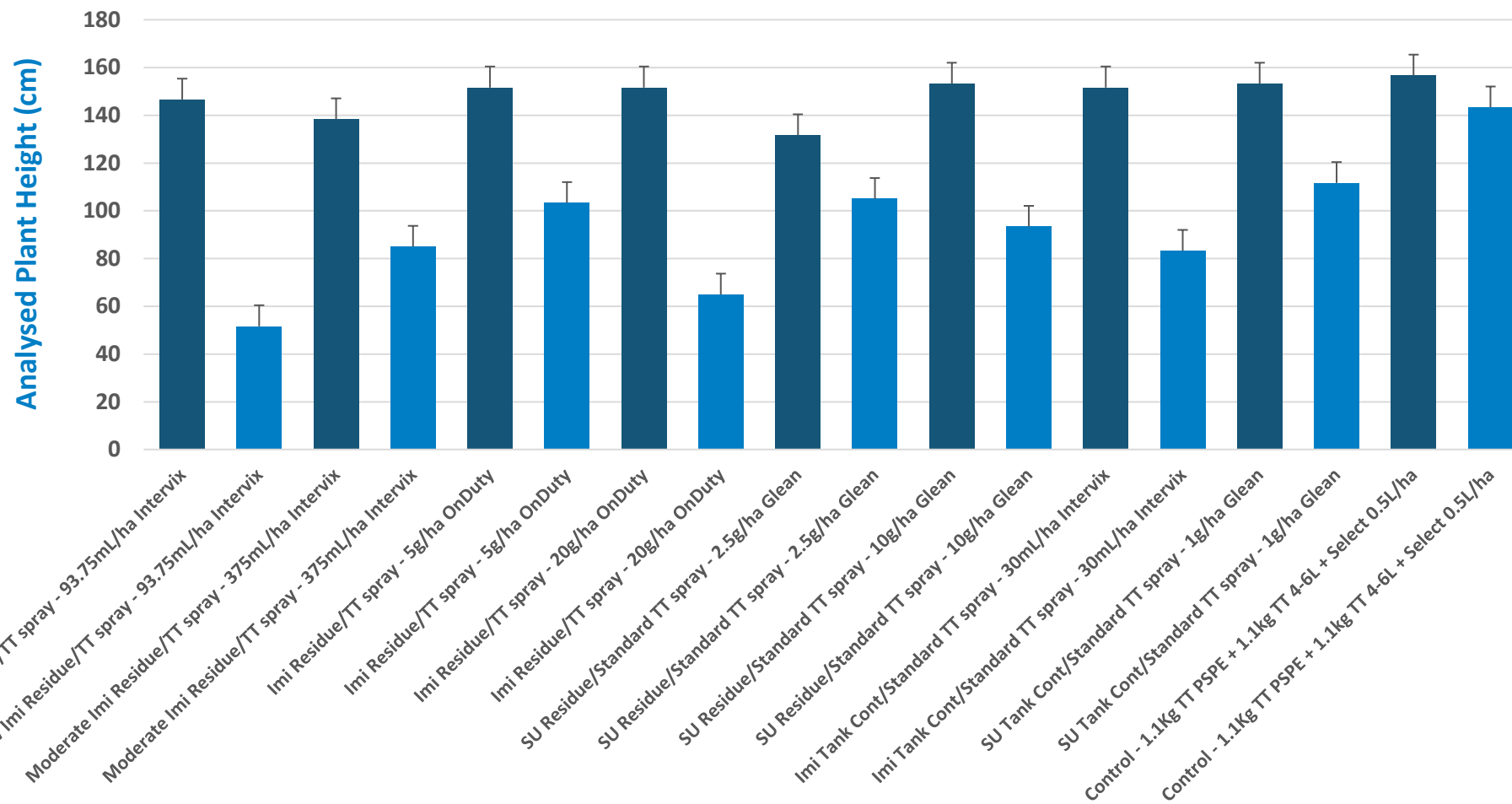
2019 Inverleigh Vic - Hyola CT IMI Residue Trial Analysed Plant Height (cm)





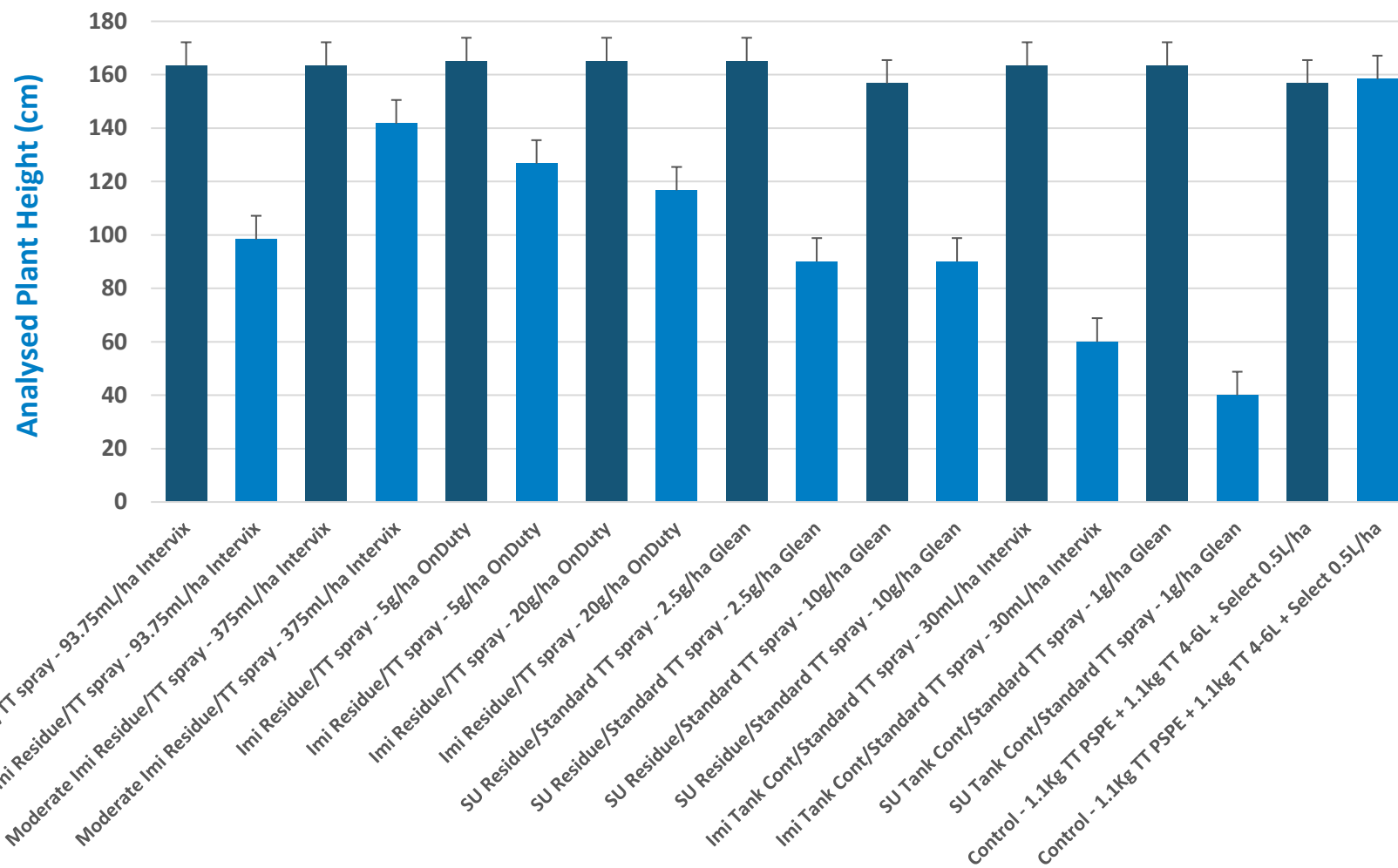
## ANALYSED PLANT HEIGHT (CM)

2019 Rutherglen Vic - Hyola CT IMI Residue Trial Analysed Plant Height (cm)



## ANALYSED PLANT HEIGHT (CM)

2019 Lake Bolac Vic - Hyola CT IMI Residue Trial Analysed Plant Height (cm)



**Pacific Seeds**  
Growing possibilities

Hyola® CT IMI Residue Trial Results 2019



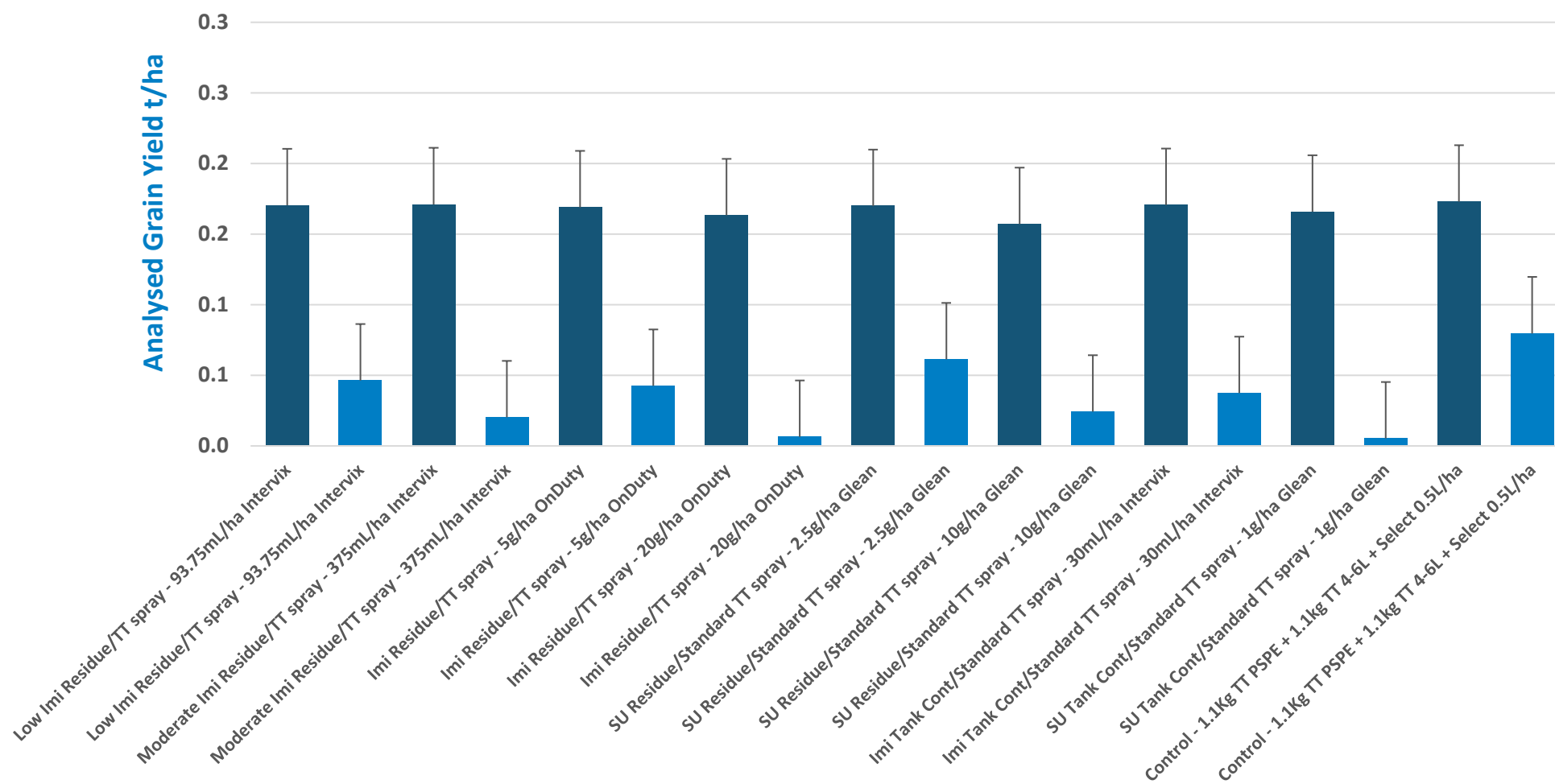
## ANALYSED PLANT HEIGHT (CM) RESULTS SUMMARY

Herbicide Application	Plant Height (cm)	Plant Height (cm)
Treatment Regime	Range vs Control CT	Range vs Control TT
Low Imi Residue/TT spray - 93.75mL/ha Intervix	(-10 to +6)	(-91 to -5)
Moderate Imi Residue/TT spray - 375mL/ha Intervix	(-19 to +6)	(-91 to -15)
Imi Residue/TT spray - 5g/ha OnDuty	(-5 to +8)	(-40 to -8)
Imi Residue/TT spray - 20g/ha OnDuty	(-5 to +8)	(-78 to +5)
SU Residue/Standard TT spray - 2.5g/ha Glean	(-25 to +8)	(-68 to -5)
SU Residue/Standard TT spray - 10g/ha Glean	(-25 to +4)	(-68 to -2)
Imi Tank Cont/Standard TT spray - 30mL/ha Intervix	(-5 to +7)	(-98 to -5)
SU Tank Cont/Standard TT spray - 1g/ha Glean	(-4 to +6)	(-118 to -30)



## ANALYSED GRAIN YIELD (T/HA)

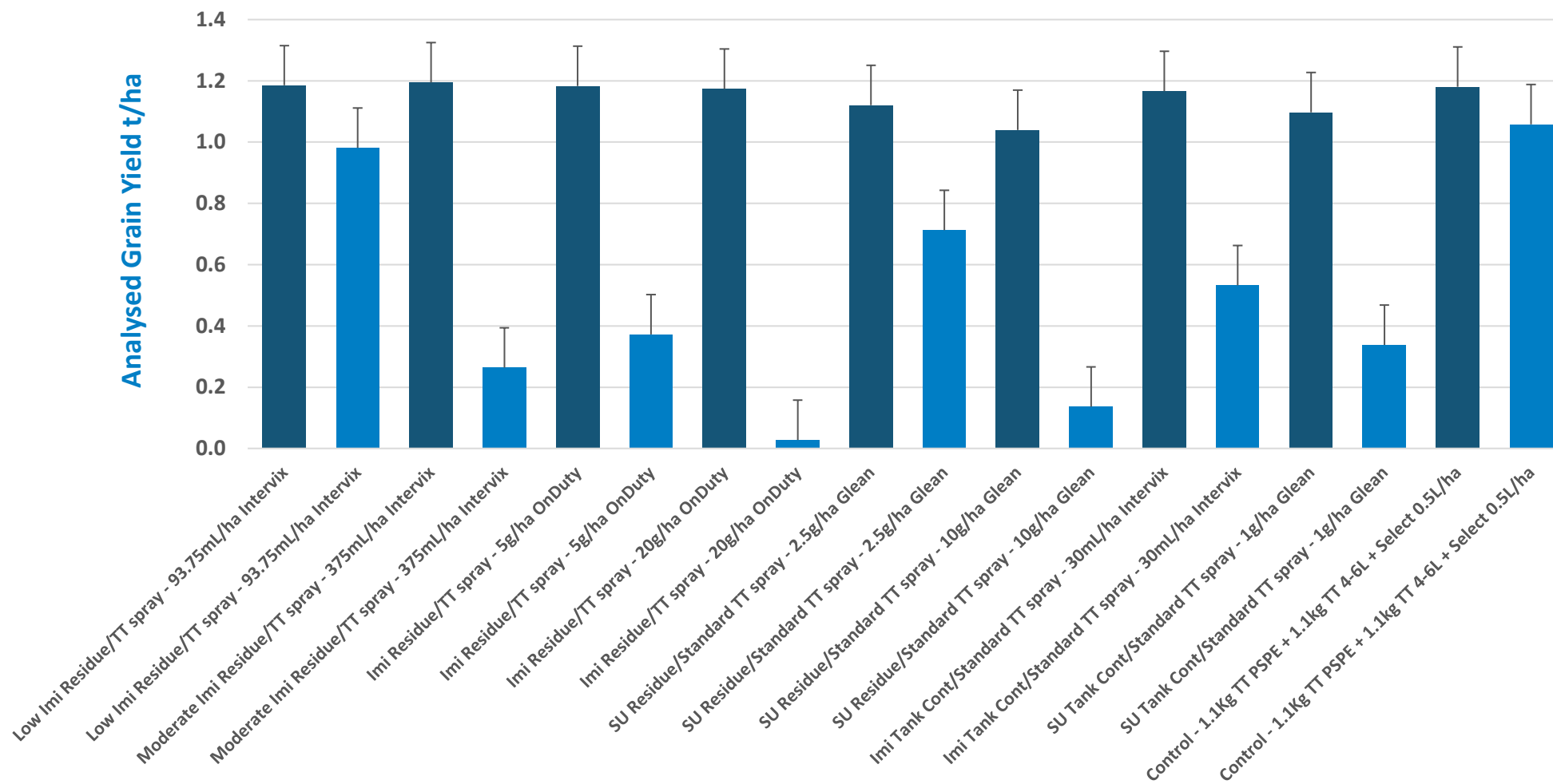
### 2019 Temora NSW- Hyola CT IMI Residue Trial Analysed Grain Yield Results





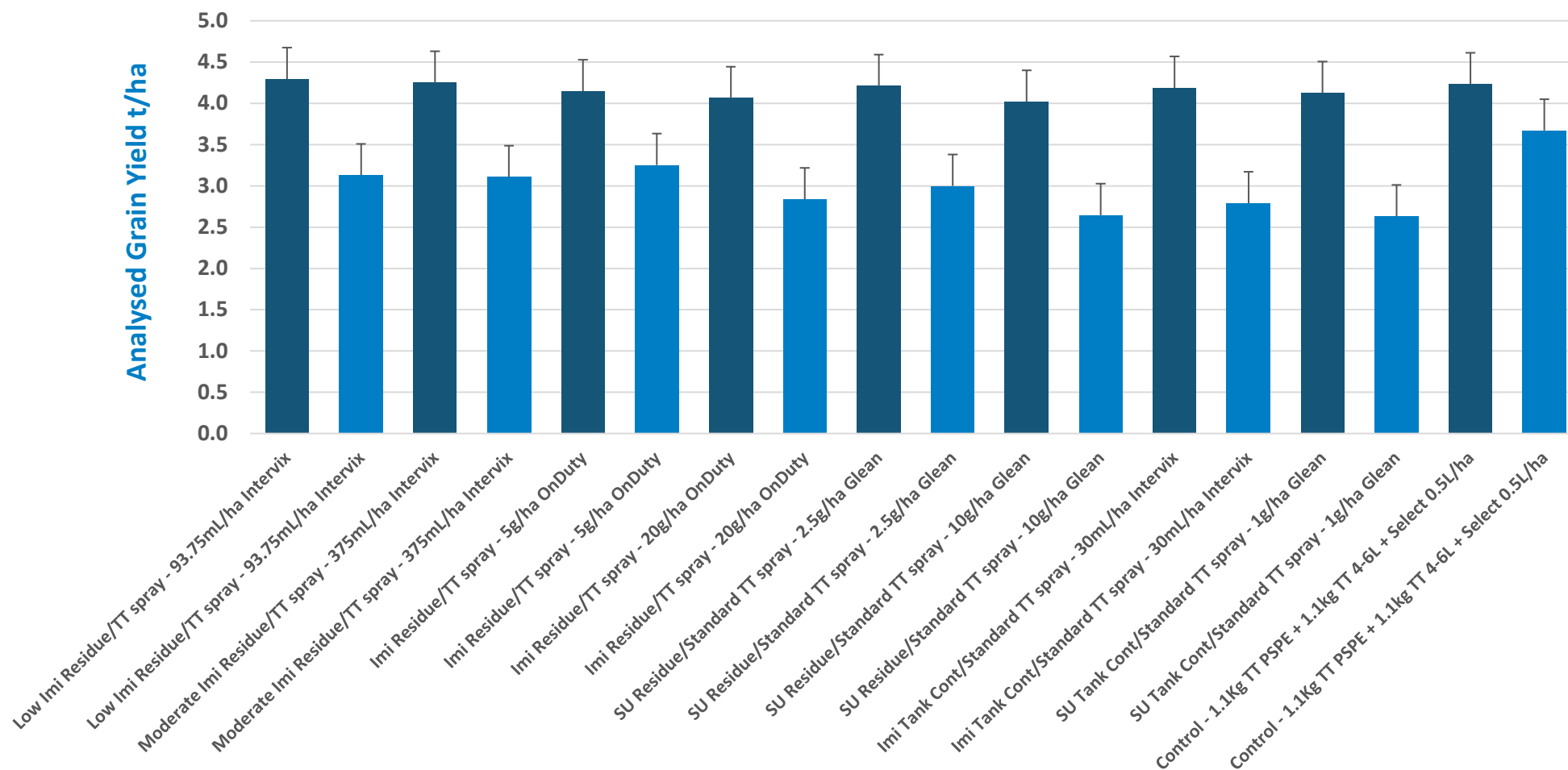
## ANALYSED GRAIN YIELD T/HA

### 2019 Watheroo WA - Hyola CT IMI Residue Trial Analysed Grain Yield Results



## ANALYSED GRAIN YIELD T/HA

2019 Inverleigh Vic - Hyola CT IMI Residue Trial Analysed Grain Yield Results



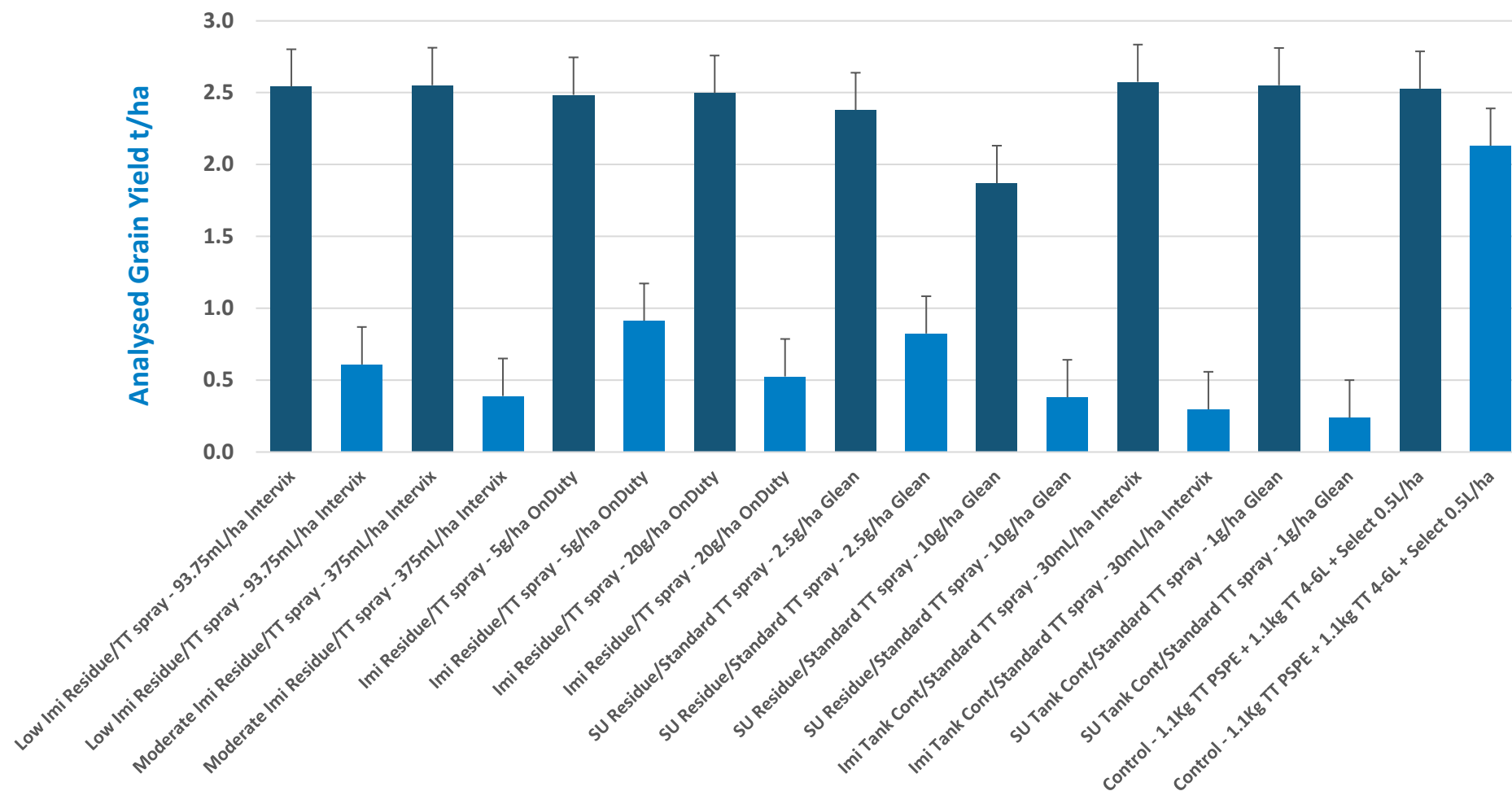
**Pacific Seeds**  
Growing possibilities

Hyola® CT IMI Residue Trial Results 2019



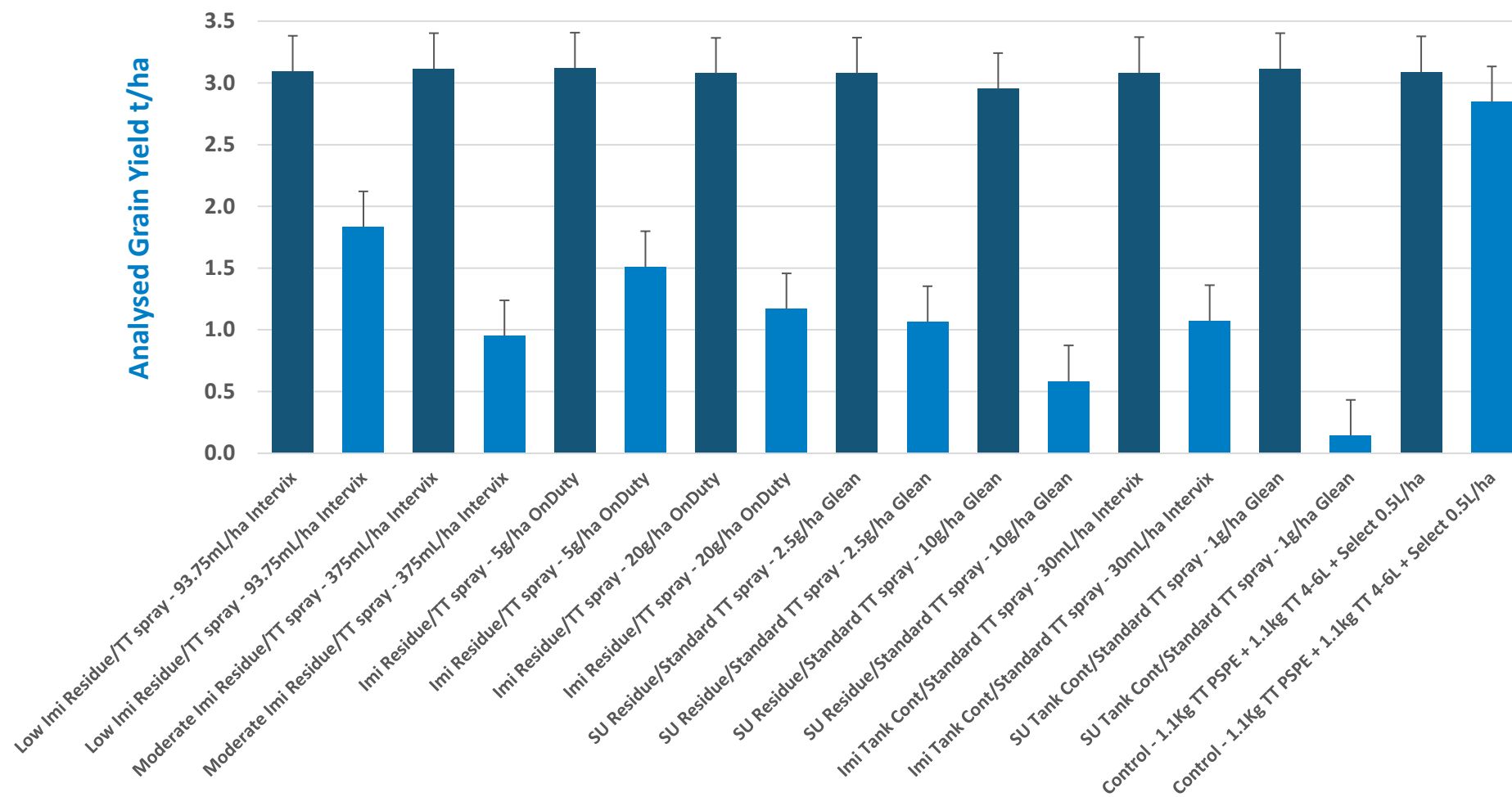
## ANALYSED GRAIN YIELD T/HA

### 2019 Rutherglen Vic - Hyola CT IMI Residue Trial Analysed Grain Yield Results



## ANALYSED GRAIN YIELD T/HA

### 2019 Lake Bolac Vic - Hyola CT IMI Residue Trial Analysed Grain Yield Results



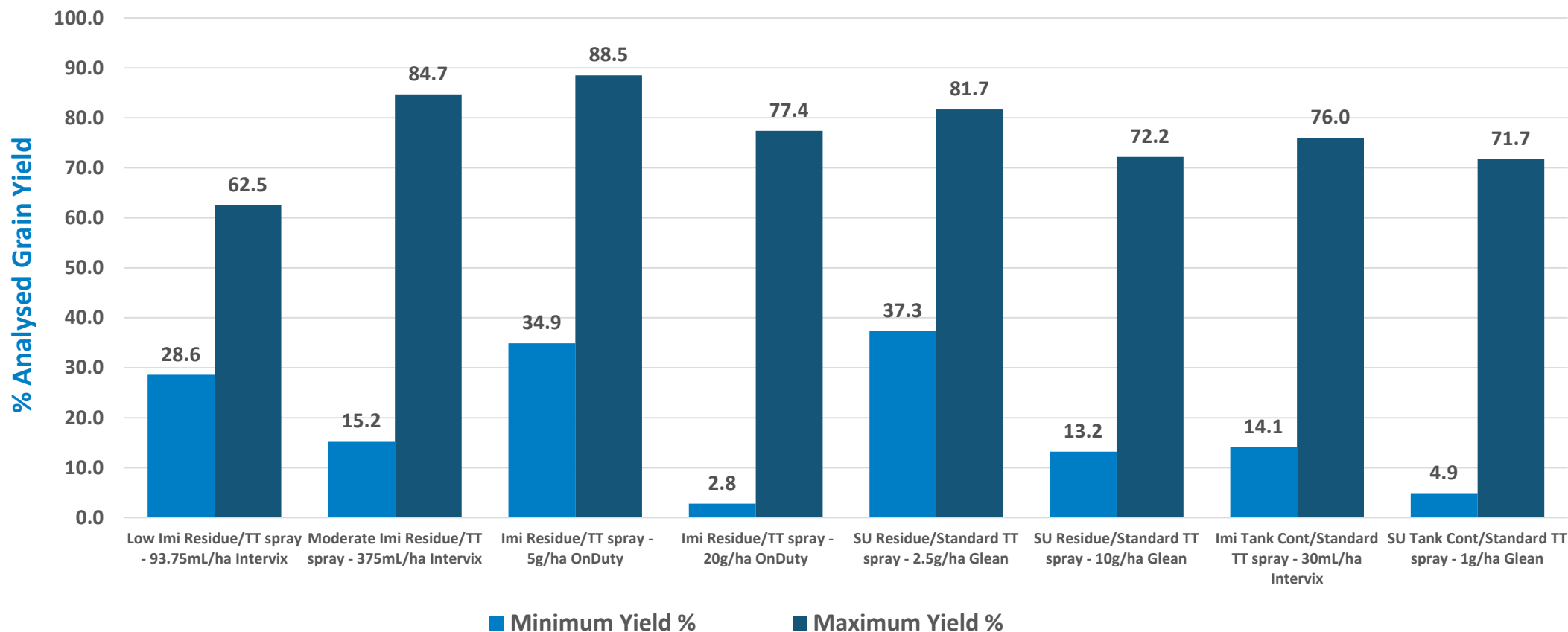
## ANALYSED GRAIN YIELD T/HA RESULTS SUMMARY

Herbicide Application	Grain Yield t/ha	Grain Yield t/ha	Grain Yield t/ha	Grain Yield t/ha	Grain Yield t/ha
Treatment Regime	Range vs Control CT	Range vs Control TT	% Range vs Control CT	% Range vs Control TT	% Range loss vs Control TT
Low Imi Residue/TT spray - 93.75mL/ha Intervix	(0.00 to +0.06)	(-1.52 to -0.03)	(100.0% to 101.4%)	(28.6% to 62.5%)	(71.4% to 37.5%)
Moderate Imi Residue/TT spray - 375mL/ha Intervix	(0.00 to +0.02)	(-1.89 to -0.06)	(100.0% to 100.8%)	(15.2% to 84.7%)	(84.8% to 15.3%)
Imi Residue/TT spray - 5g/ha OnDuty	(-0.08 to +0.03)	(-1.33 to -0.04)	(98.1% to 100.9%)	(34.9% to 88.5%)	(65.1% to 11.5%)
Imi Residue/TT spray - 20g/ha OnDuty	(-0.17 to -0.01)	(-1.67 to -0.07)	(94.6% to 99.7%)	(2.8% to 77.4%)	(97.2% to 22.6%)
SU Residue/Standard TT spray - 2.5g/ha Glean	(-0.21 to -0.06)	(-1.78 to -0.02)	(91.7% to 100.0%)	(37.3% to 81.7%)	(62.7% to 18.3%)
SU Residue/Standard TT spray - 10g/ha Glean	(-0.66 to -0.06)	(-2.26 to -0.06)	(73.9% to 95.4%)	(13.2% to 72.2%)	(86.8% to 27.8%)
Imi Tank Cont/Standard TT spray - 30mL/ha Intervix	(-0.04 to +0.04)	(-1.83 to -0.04)	(99.1% to 101.6%)	(14.1% to 76.0%)	(85.9% to 24.0%)
SU Tank Cont/Standard TT spray - 1g/ha Glean	(-0.10 to +0.02)	(-2.70 to -0.07)	(93.2% to 100.8%)	(4.9% to 71.7%)	(95.1% to 28.3%)



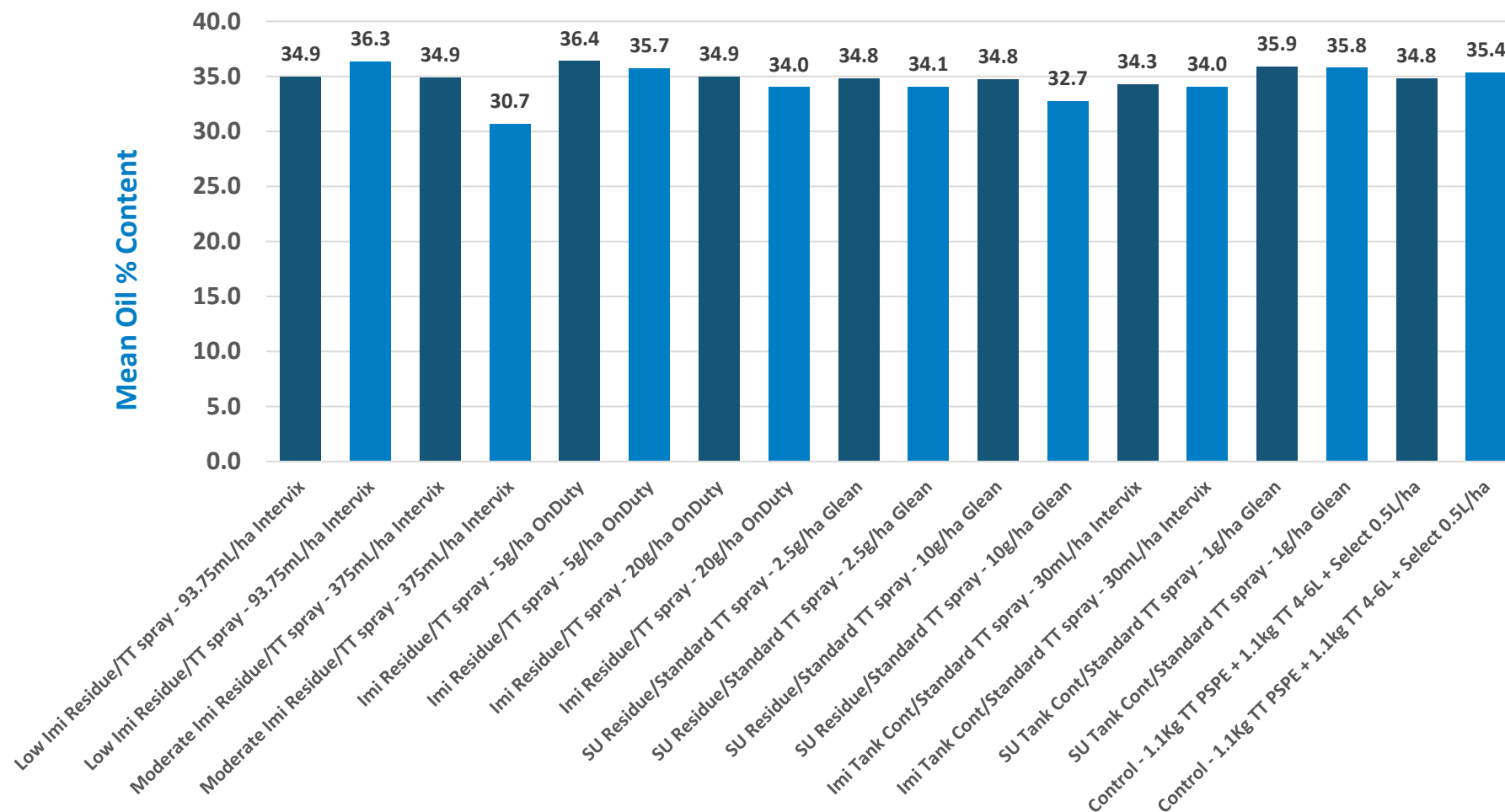
## OP TT % RANGE OF YIELD RESPONSES VS 100% TT CONTROL

2019 TT Technology IMI & SU Treatment - % Grain Yield Comparisons Range vs 100% TT Control across 5 Trial locations



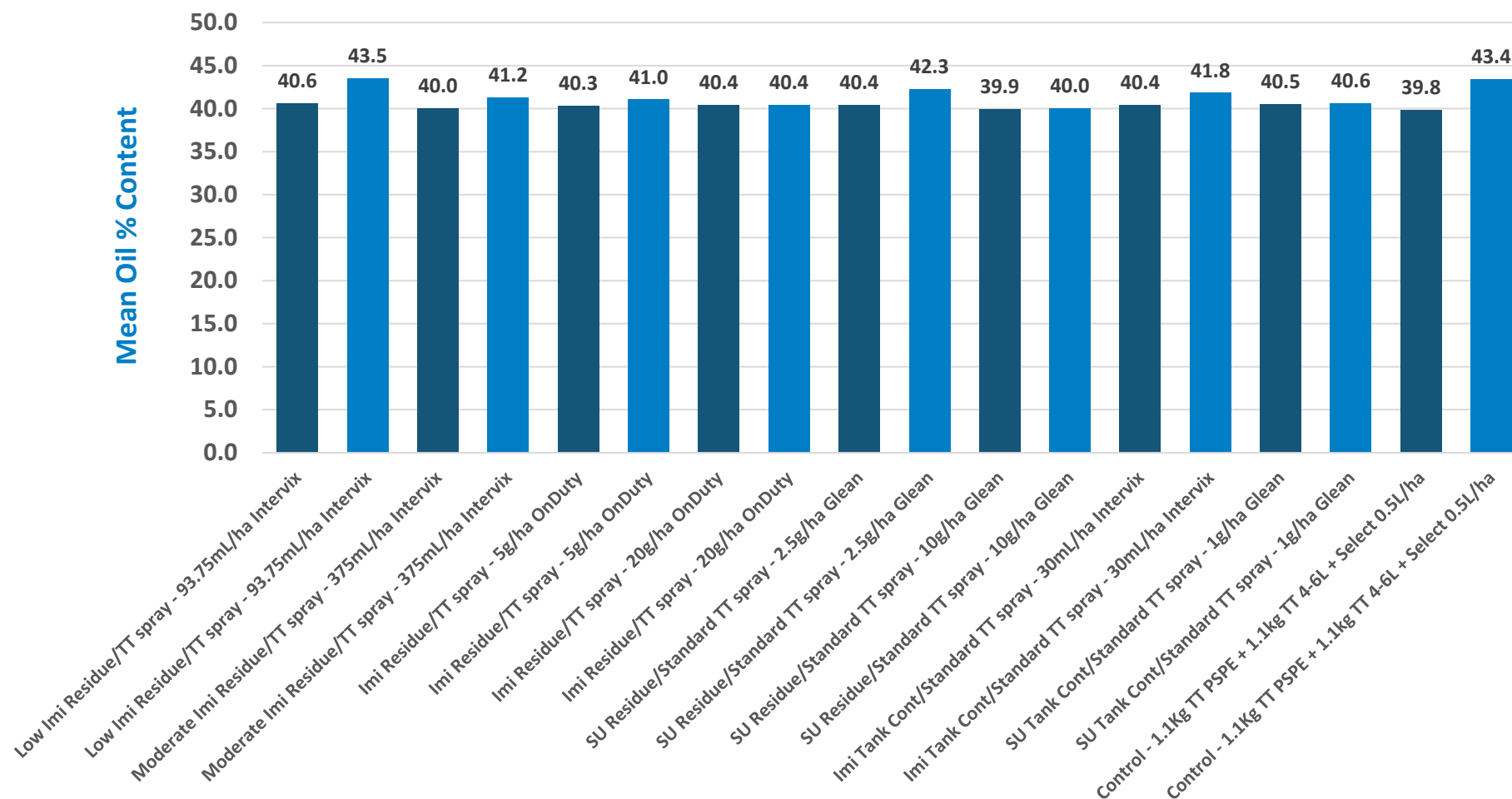
## MEAN GRAIN OIL%

2019 Temora NSW - Hyola CT IMI Residue Trial Mean Grain Oil % Content



## MEAN GRAIN OIL%

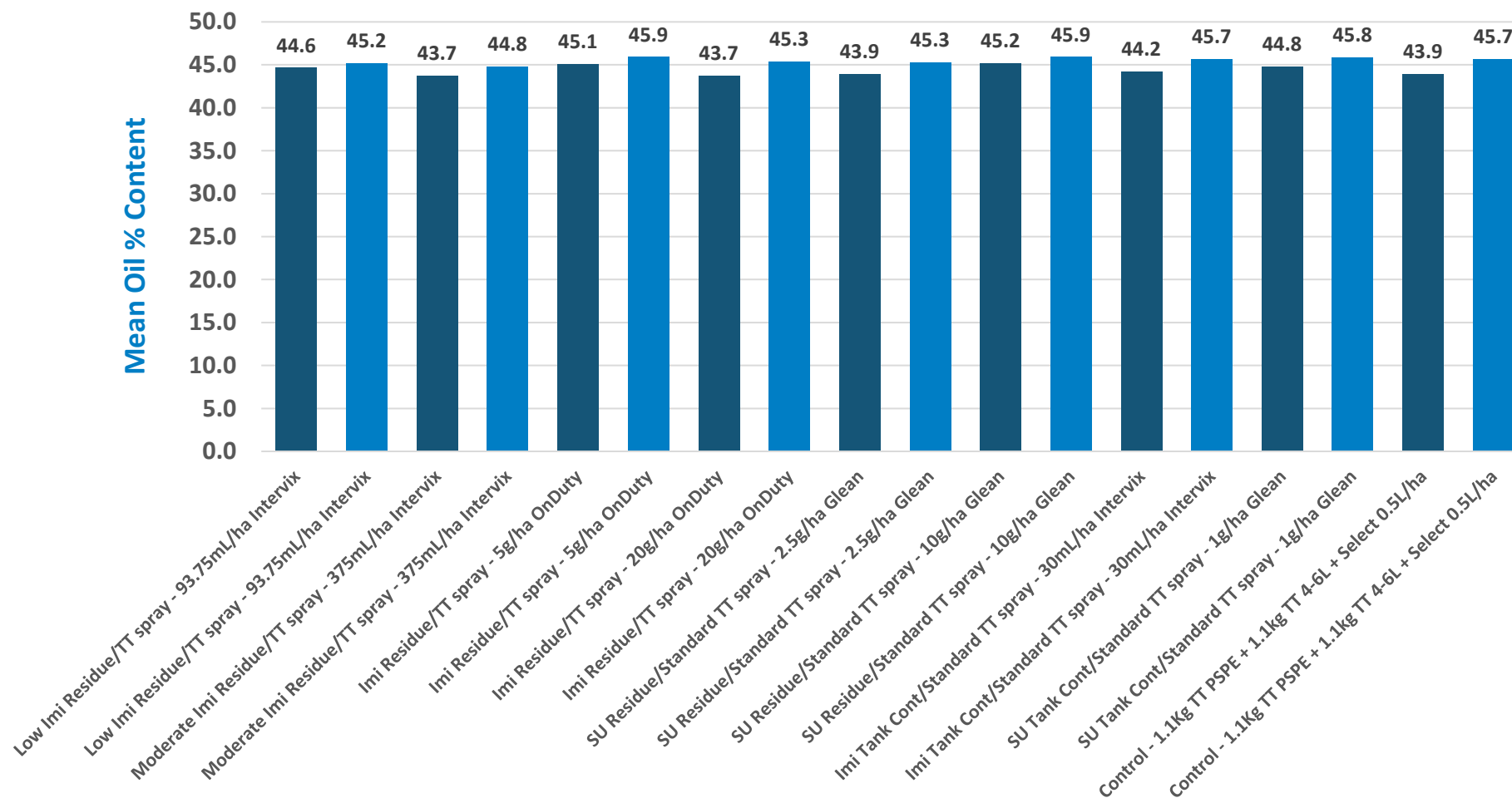
2019 Watheroo WA - Hyola CT IMI Residue Trial Mean Grain Oil % Content





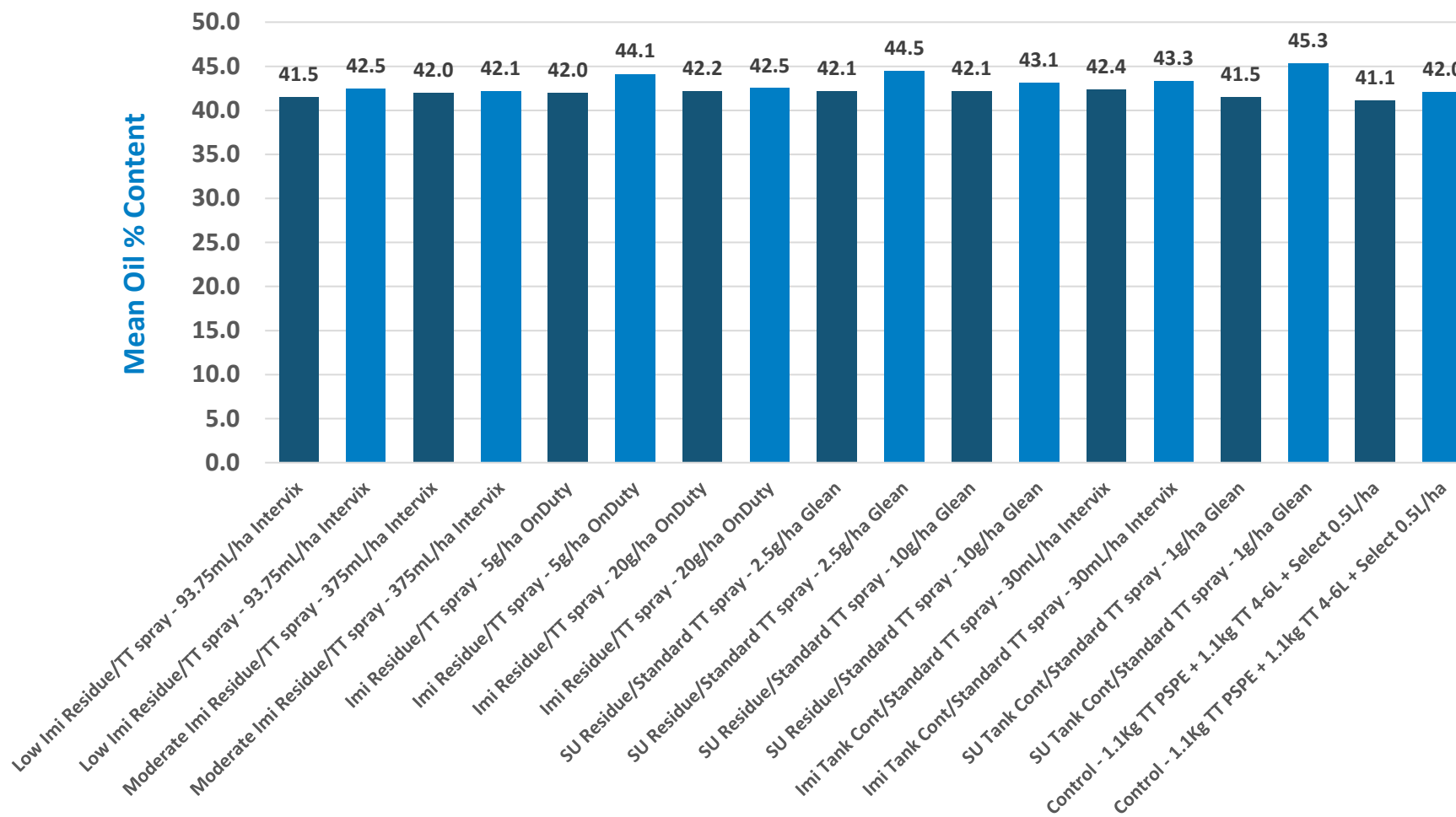
## MEAN GRAIN OIL%

2019 Inverleigh Vic - Hyola CT IMI Residue Trial Mean Grain Oil % Content



## MEAN GRAIN OIL%

2019 Rutherglen Vic - Hyola CT IMI Residue Trial Mean Grain Oil % Content

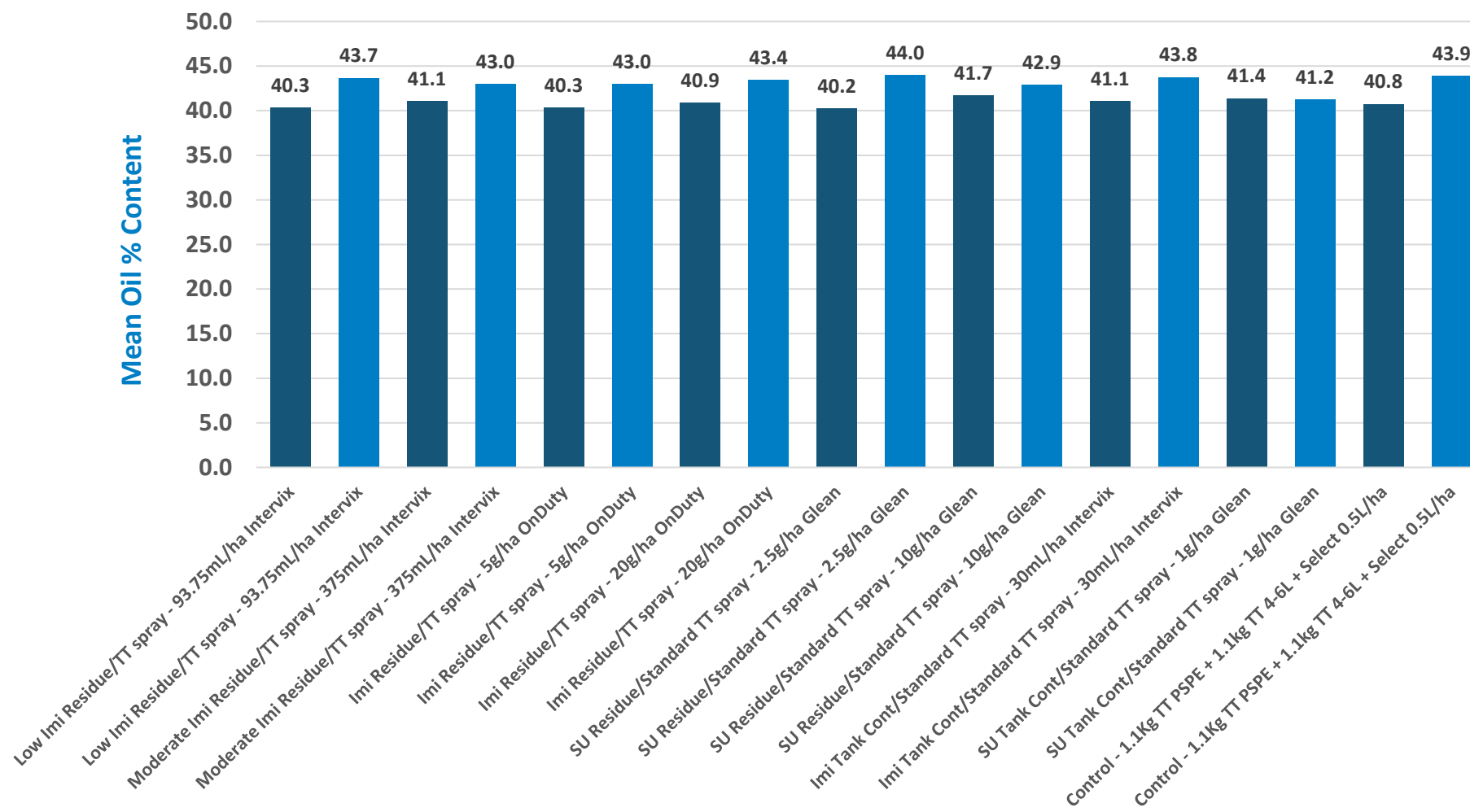


**Pacific Seeds**  
Growing possibilities

Hyola® CT IMI Residue Trial Results 2019

## MEAN GRAIN OIL%

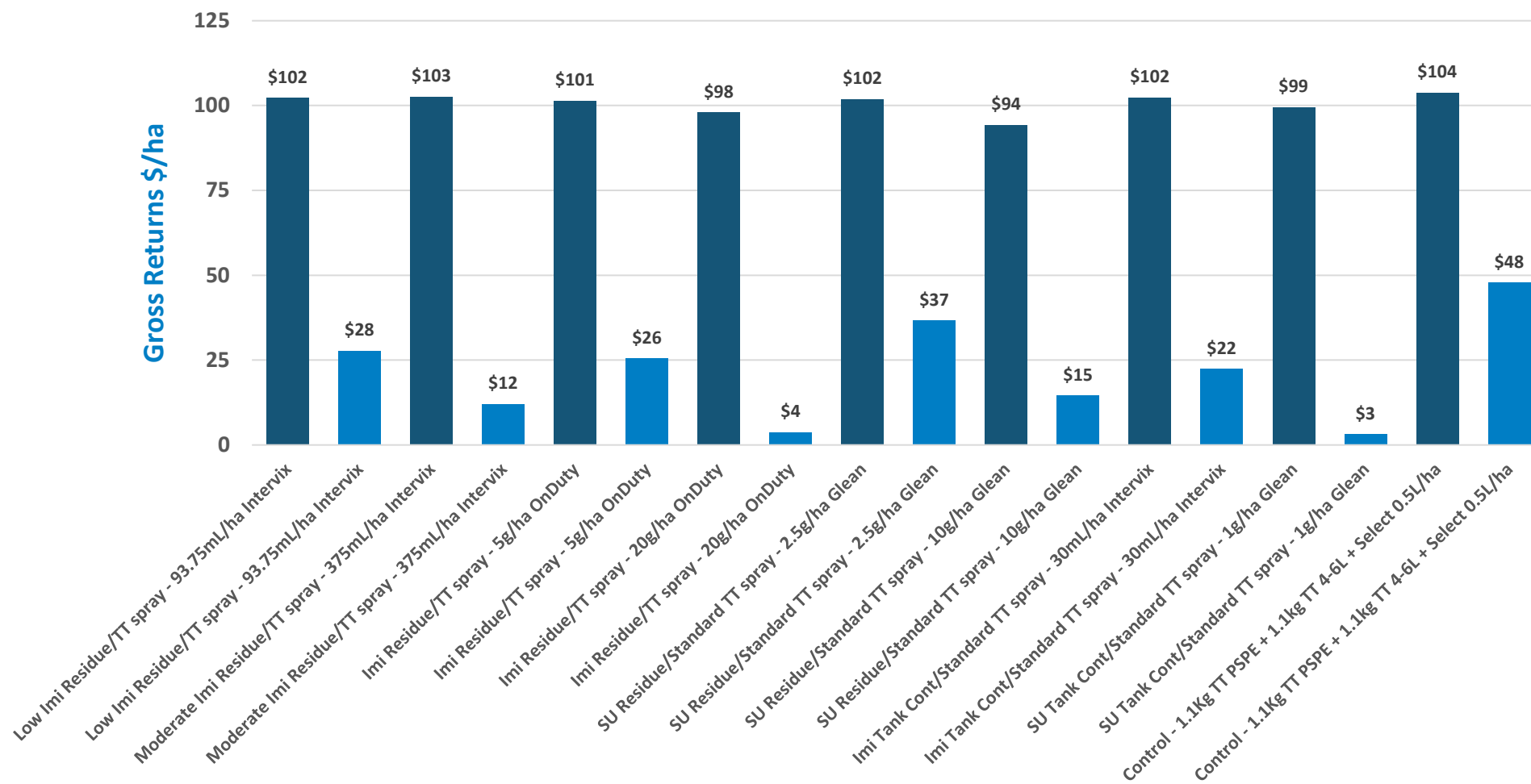
2019 Lake Bolac Vic - Hyola CT IMI Residue Trial Mean Grain Oil % Content





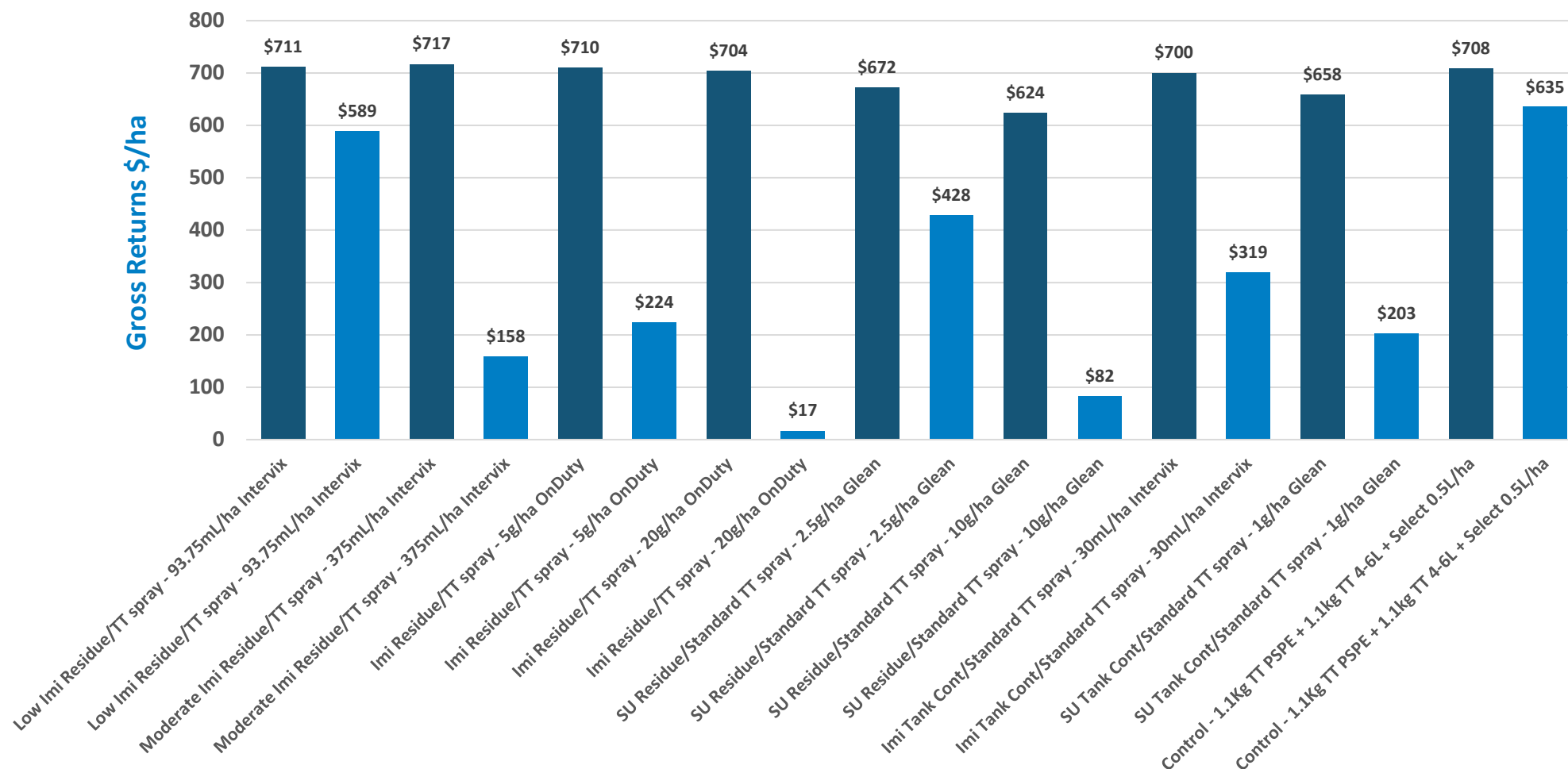
## GROSS RETURNS \$/HA

2019 Temora NSW - Hyola CT IMI Residue Trial Gross Returns \$/ha



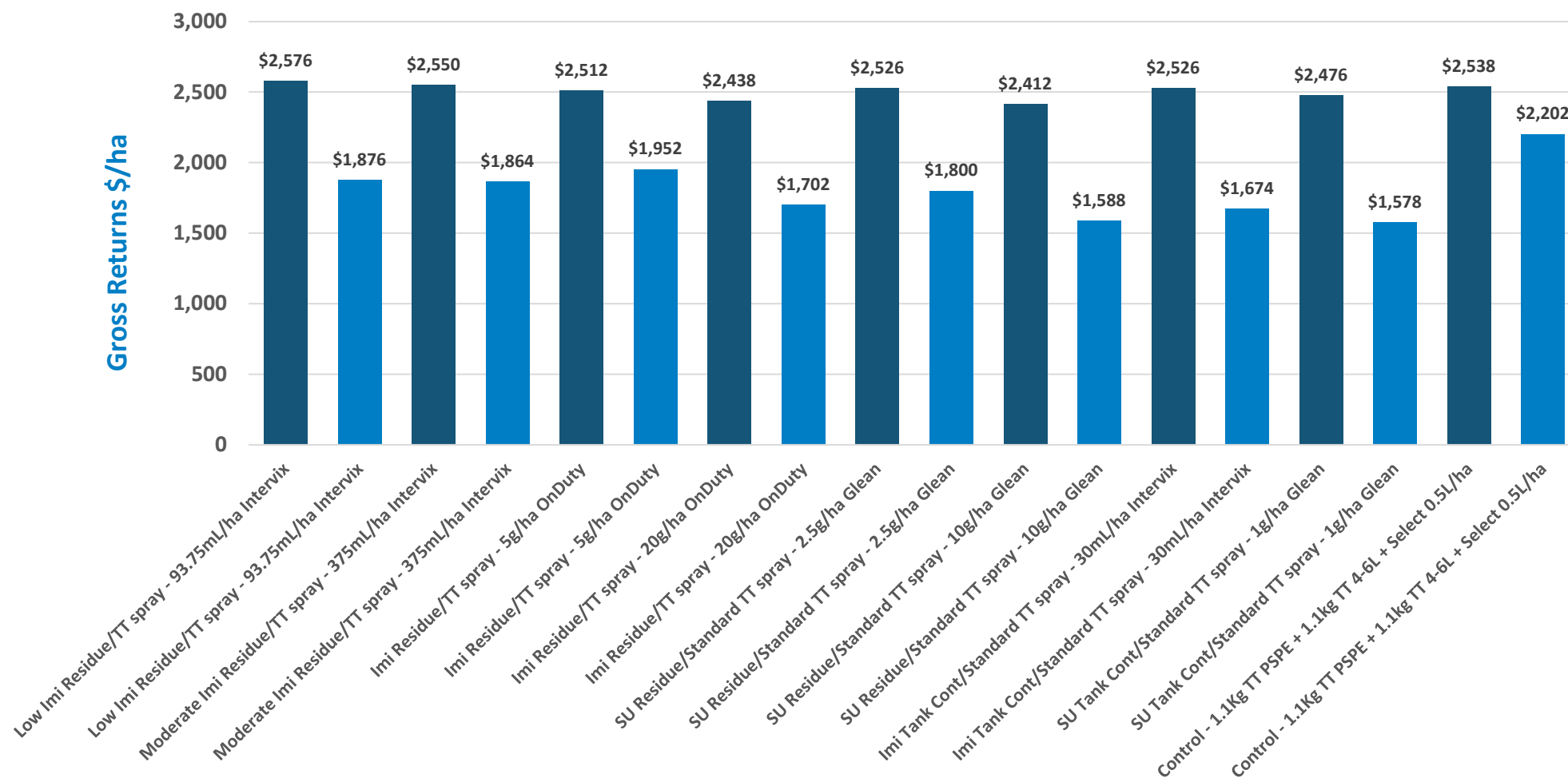
## GROSS RETURNS \$/HA

2019 Watheroo WA - Hyola CT IMI Residue Trial Gross Returns \$/ha



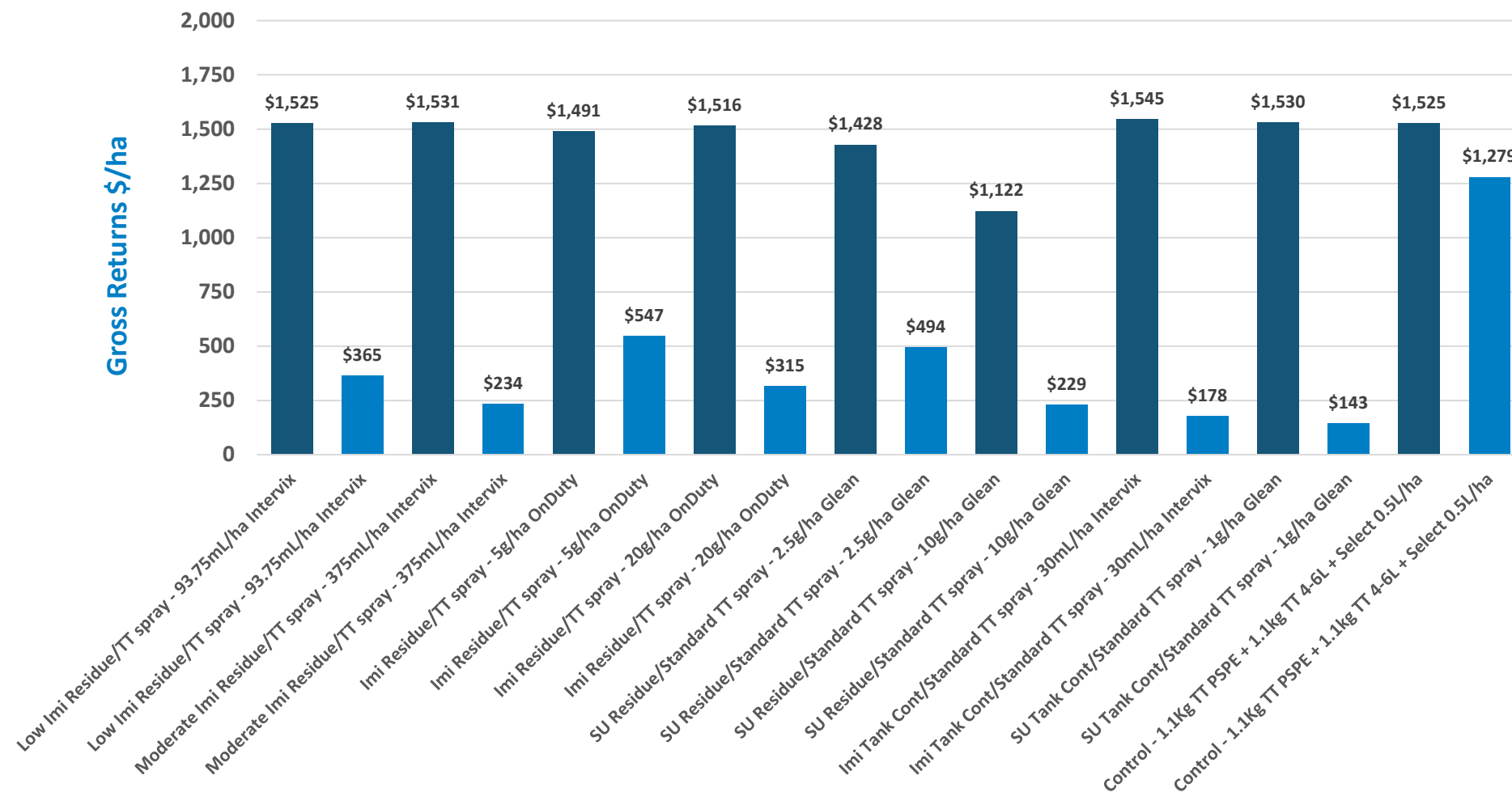
## GROSS RETURNS \$/HA

## 2019 Inverleigh Vic - Hyola CT IMI Residue Trial Gross Returns \$/ha



## GROSS RETURNS \$/HA

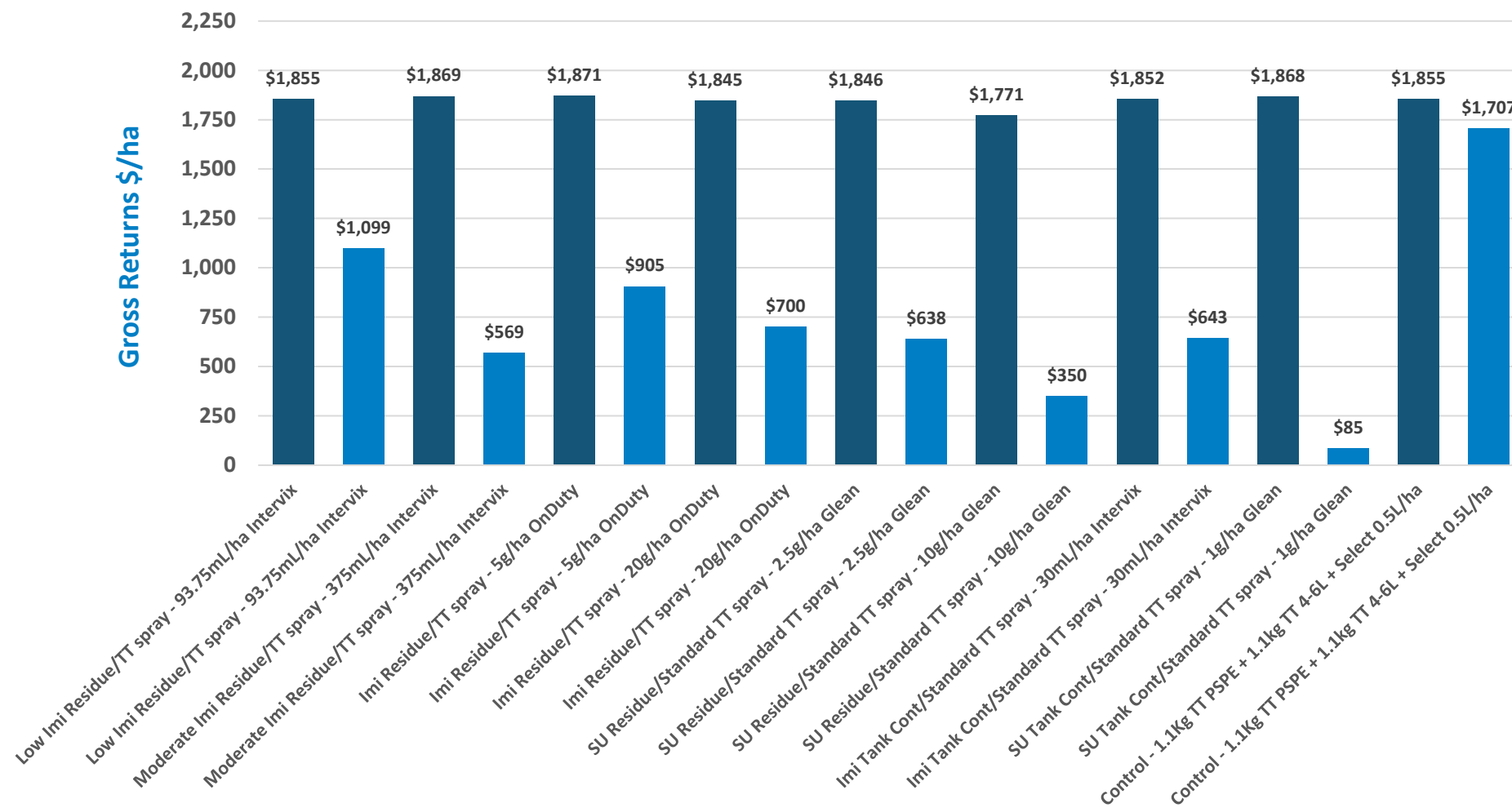
2019 Rutherglen Vic - Hyola CT IMI Residue Trial Gross Returns \$/ha





## GROSS RETURNS \$/HA

2019 Lake Bolac Vic - Hyola CT IMI Residue Trial Gross Returns \$/ha



## GROSS RETURNS \$/HA RESULTS SUMMARY

Herbicide Application Treatment Regime	Gross Return \$/ha Range vs Control CT	Gross Return \$/ha Range vs Control TT
Low Imi Residue/TT spray - 93.75mL/ha Intervix	(-\$2 to +\$38)	(-\$914 to -\$28)
Moderate Imi Residue/TT spray - 375mL/ha Intervix	(-\$1 to +\$14)	(-\$1138 to -\$36)
Imi Residue/TT spray - 5g/ha OnDuty	(-\$33 to +\$16)	(-\$802 to -\$22)
Imi Residue/TT spray - 20g/ha OnDuty	(-\$100 to -\$4)	(-\$1007 to -\$42)
SU Residue/Standard TT spray - 2.5g/ha Glean	(-\$97 to -\$2)	(-\$1069 to -\$11)
SU Residue/Standard TT spray - 10g/ha Glean	(-\$157 to -\$10)	(-\$1357 to -\$33)
Imi Tank Cont/Standard TT spray - 30mL/ha Intervix	(-\$12 to +\$20)	(-\$1064 to -\$26)
SU Tank Cont/Standard TT spray - 1g/ha Glean	(-\$62 to +\$13)	(-\$1622 to -\$45)

