

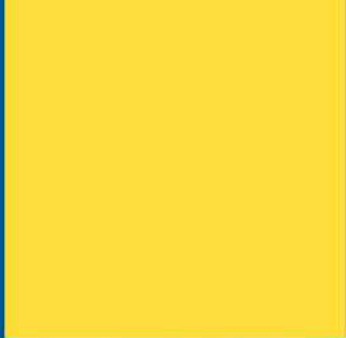


# Pacific Seeds

Growing possibilities

A stylized silhouette of a canola plant with multiple stems, leaves, and flower buds, rendered in a darker blue shade against the background. The plant is positioned on the left side of the slide, with its stems extending upwards and outwards.

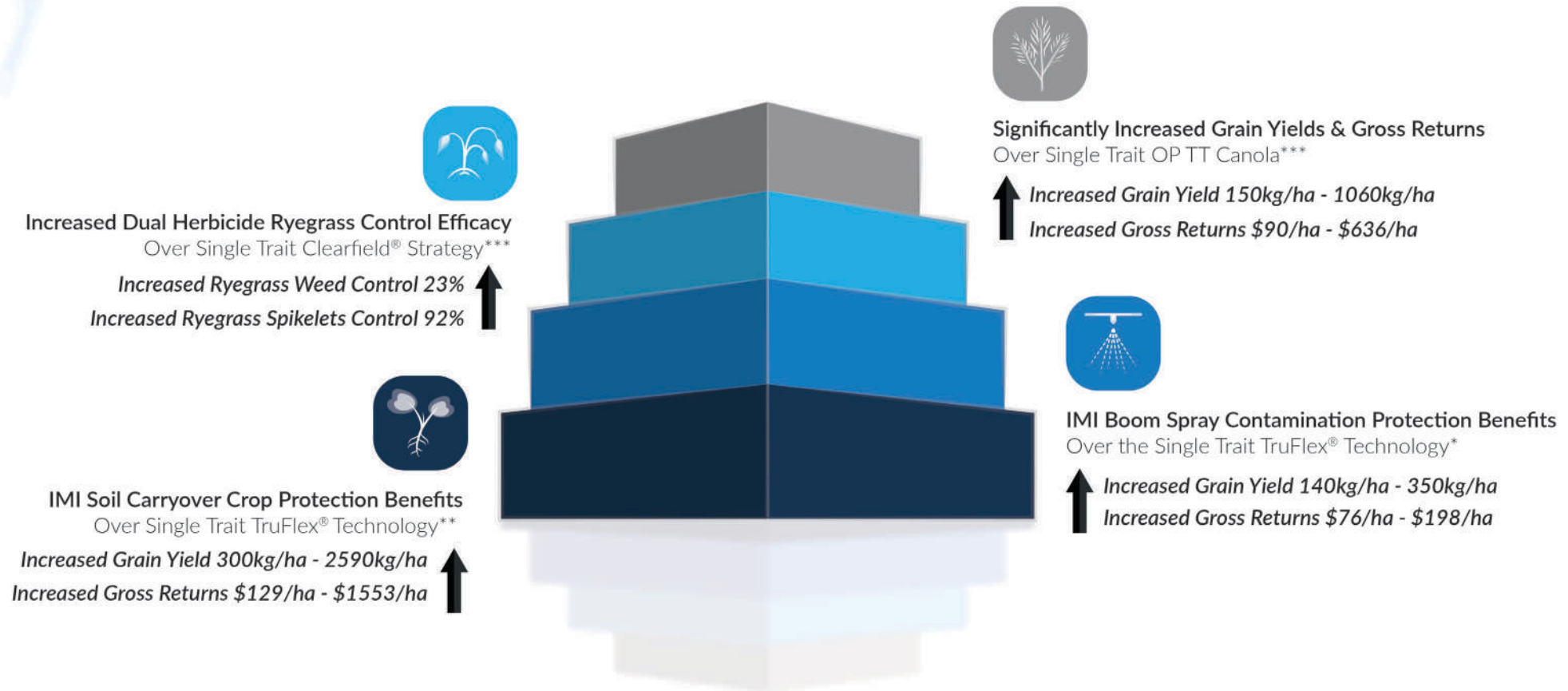
2020 Pacific Seeds  
Hyola® XC  
IMI Residue  
Trial Results

A solid yellow rectangular block located in the top right corner of the slide.

# CANOLA

# Hyola XC Technology Stacked Value

*Delivering Flexible Solution-Driven Profits to Growers*





# Hyola<sup>®</sup> XC

## Crop Protection Benefits

(Summer Applied Treatments - 4 \*MBS)  
*\*Months before Sowing*

| Compared to XC Technology                                              | ^Summary of Treatment Results (XX Canola Losses)               |                    |                                |
|------------------------------------------------------------------------|----------------------------------------------------------------|--------------------|--------------------------------|
| Herbicide Treatment Description<br><br>Application Timing/IMI Rates    | Yield kg/ha Loss Range                                         | % Yield Loss Range | Gross Returns \$/ha Loss Range |
|                                                                        | Loss Expressed from Lowest to Highest Value across Trial Sites |                    |                                |
| 4MBS - High IMI Residue/XX spray - 375mL/ha Intervix <sup>®</sup>      | 300kg/ha to 840kg/ha                                           | 9% to 29%          | \$129/ha to \$502/ha           |
| 4MBS - Very High IMI Residue/XX spray - 750mL/ha Intervix <sup>®</sup> | 470kg/ha to 1250kg/ha                                          | 15% to 44%         | \$228/ha to \$752/ha           |
| 4MBS - Mod-High IMI Residue/XX spray - 40g/ha OnDuty <sup>®</sup>      | 630kg/ha to 2490kg/ha                                          | 25% to 95%         | \$378/ha to \$1491/ha          |
| 4MBS - Mod-High IMI Residue/XX spray - 45g/ha Raptor <sup>®</sup>      | 470kg/ha to 2590kg/ha                                          | 18% to 91%         | \$285/ha to \$1553/ha          |
| 4MBS - Mod-High IMI Residue/XX spray - 70g/ha Spinnaker <sup>®</sup>   | 810kg/ha to 2360kg/ha                                          | 32% to 87%         | \$488/ha to \$1418/ha          |

2020 Pacific Seeds Hyola XC Replicated IMI Residue Trials over 4 locations across Australia where Trial mean yields ranged from 1.93 – 2.78t/ha

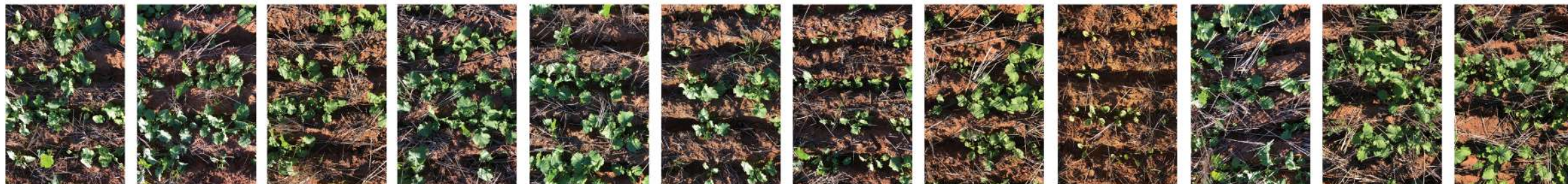
^Effects are greater in soil types where the herbicides were more mobile due to acid soils and higher rainfall after sowing and not always individual trial total rainfall. Hyola<sup>®</sup> XC Technology has been developed specifically for normal crop growth protection against Imidazolinone soil residues and is not promoted or recommended for use as having high levels of tolerance to levels of Group B - SU carryover. Refer to Pacific Seeds Hyola<sup>®</sup> XC Stewardship guide for specific growing guidelines.

## Hyola® XC Hybrid Technology vs Hyola® XX Hybrid

### Group B - IMI & SU Residue Herbicide Treatment Comparisons

XX

CL



Low IMI  
Residue

Stage: Summer 4 MBS  
**Intervix**® 375ml/ha  
Stage: IBS  
**Rustler**® 1L/ha  
Stage: Post Em  
(4-6Leaf)  
RR 1.3Kg/ha  
Stage: 1<sup>st</sup> Flower  
RR 1.3Kg/ha

High IMI  
Residue

Stage: Summer 4 MBS  
**Intervix**® 750ml/ha  
Stage: IBS  
**Rustler**® 1L/ha  
Stage: Post Em  
(4-6Leaf)  
RR 1.3Kg/ha  
Stage: 1<sup>st</sup> Flower  
RR 1.3Kg/ha

High OnDuty®  
Residue

Stage: Summer 4 MBS  
**OnDuty**® 40g/ha  
**Hasten**® 500ml/100L  
Stage: IBS  
**Rustler**® 1L/ha  
Stage: Post Em  
(4-6Leaf)  
RR 1.3Kg/ha  
Stage: 1<sup>st</sup> Flower  
RR 1.3Kg/ha

High Raptor®  
Residue

Stage: Summer 4 MBS  
**Raptor**® 45g/ha  
**Hasten**® 500ml/100L  
Stage: IBS  
**Rustler**® 1L/ha  
Stage: Post Em  
(4-6Leaf)  
RR 1.3Kg/ha  
Stage: 1<sup>st</sup> Flower  
RR 1.3Kg/ha

High Spinnaker®  
Residue

Stage: Summer 4 MBS  
**Spinnaker**® 70g/ha  
**Hasten**® 500ml/100L  
Stage: IBS  
**Rustler**® 1L/ha  
Stage: Post Em  
(4-6Leaf)  
RR 1.3Kg/ha  
Stage: 1<sup>st</sup> Flower  
RR 1.3Kg/ha

High Monza®  
Residue

Stage: Summer 4 MBS  
**Monza**® 20g/ha  
**DCTrate**® 2L/100L  
Stage: IBS  
**Rustler**® 1L/ha  
Stage: Post Em  
(4-6Leaf)  
RR 1.3Kg/ha  
Stage: 1<sup>st</sup> Flower  
RR 1.3Kg/ha

High Logran®  
Residue

Stage: Summer 4 MBS  
**Logran B-Power**® 50g/ha  
**Hasten**® 500ml/100L  
Stage: IBS  
**Rustler**® 1L/ha  
Stage: Post Em  
(4-6Leaf)  
RR 1.3Kg/ha  
Stage: 1<sup>st</sup> Flower  
RR 1.3Kg/ha

High Glean®  
Residue

Stage: Summer 4 MBS  
**Glean**® 15g/ha  
**Wetter 1000** 100ml/100L  
Stage: IBS  
**Rustler**® 1L/ha  
Stage: Post Em  
(4-6Leaf)  
RR 1.3Kg/ha  
Stage: 1<sup>st</sup> Flower  
RR 1.3Kg/ha

High Ally®  
Residue

Stage: 10 DBS  
**Ally**® 5g/ha  
**Wetter 1000** 100ml/100L  
Stage: IBS  
**Rustler**® 1L/ha  
Stage: Post Em  
(4-6Leaf)  
RR 1.3Kg/ha  
Stage: 1<sup>st</sup> Flower  
RR 1.3Kg/ha

Truflex® 3 Spray  
Strategy

Stage: IBS  
**Rustler**® 1L/ha  
Stage: Early Post Em  
(1-2Leaf)  
RR 0.9Kg/ha  
Stage: Post Em  
(4-6Leaf)  
RR 0.9Kg/ha  
Stage: 1<sup>st</sup> Flower  
RR 0.9Kg/ha

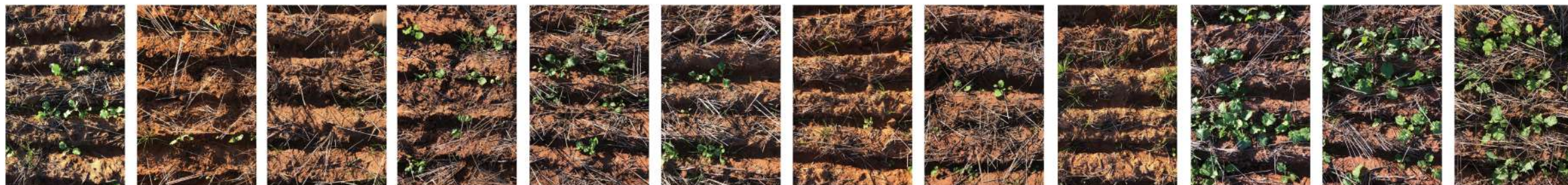
Truflex® 2 Spray  
Strategy

Stage: IBS  
**Rustler**® 1L/ha  
Stage: Post Em  
(4-6Leaf)  
RR 1.3Kg/ha  
Stage: 1<sup>st</sup> Flower  
RR 1.3Kg/ha

Standard Truflex®  
Control

Stage: IBS  
**Rustler**® 1L/ha  
Stage: Post Em  
(4-6Leaf)  
RR 1.3Kg/ha  
**Select**® 500ml/ha  
Stage: 1<sup>st</sup> Flower  
RR 1.3Kg/ha

XX





## 2020 Hyola® XC vs XX IMI Residue Trial Details & Background Information



# 2020 Hyola® XC IMI Residue Trial – Agronomic Details

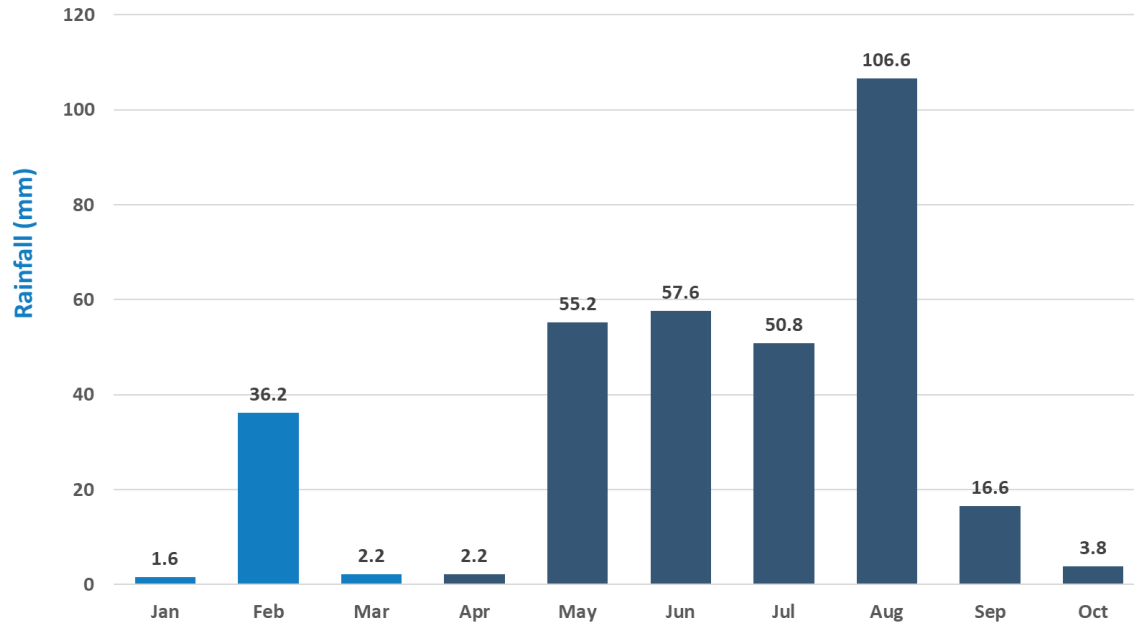
| 2020 Pacific Seeds Hyola XC IMI Residual Trial - Overall Details |       |                 |                    |         |          |            |          |
|------------------------------------------------------------------|-------|-----------------|--------------------|---------|----------|------------|----------|
| Trial                                                            | Trial | Trial Service   | # of Plots         | Crop    | Sowing   | 4-6 Leaf   | GSR (mm) |
| Location                                                         | State | Provider        | (incl Buff) - Reps | History | Date     | Spray Date | Rainfall |
| Geraldton                                                        | WA    | Crop Circle     | 131 - 3            | L,W,W   | 25.05.20 | 24.06.20   | 293      |
| Katanning                                                        | WA    | TrialCo         | 131 - 3            | W,L,W   | 22.05.20 | 04.06.20   | 281      |
| Morbinning                                                       | WA    | SLR Research    | 131 - 3            | W,F,B   | 28.04.20 | 10.06.20   | 196      |
| Horsham                                                          | VIC   | Kalyx Australia | 131 - 3            | B,L,B   | 05.05.20 | 17.06.20   | 312      |

| 2020 Pacific Seeds Hyola XC 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 |
| Geraldton                                                      | WA    | Grey Sand         | 6.8       | 4.8        | 0.09    | 0.77   | 28.0  |
| Katanning                                                      | WA    | Grey Sandy Duplex | 5.3       | 4.7        | 0.06    | 1.02   | 17.0  |
| Morbinning                                                     | WA    | Grey-Brown Loam   | 5.4       | 4.8        | 0.05    | 1.20   | 37.0  |
| Horsham                                                        | VIC   | Grey Clay Loam    | 5.4       | 5.3        | 0.22    | 2.00   | 48.0  |

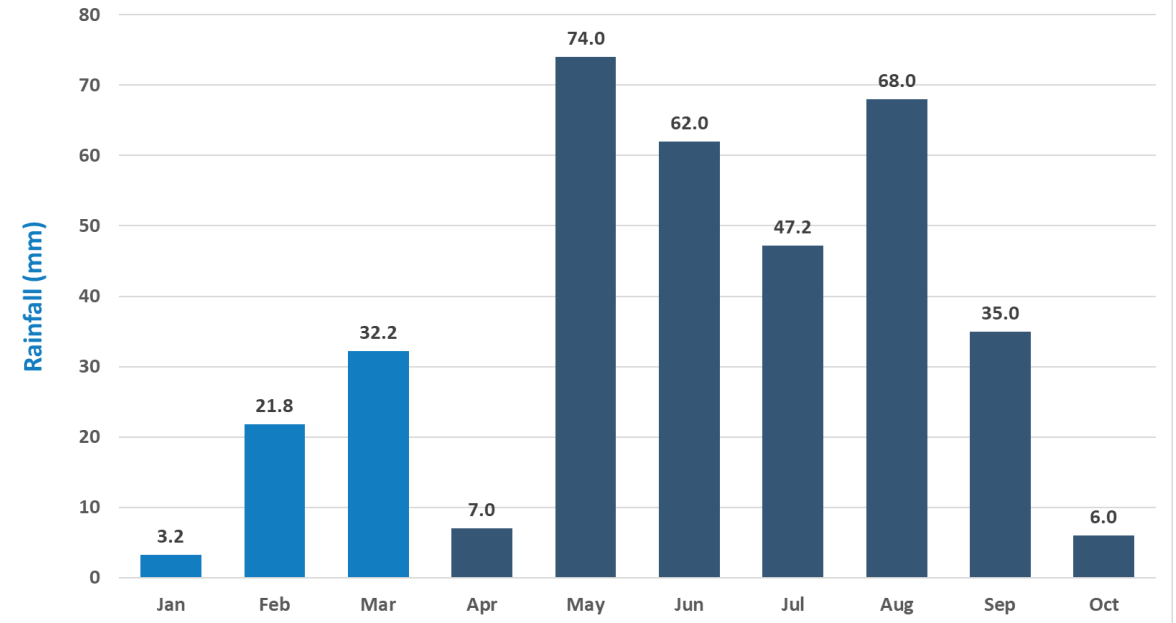
| 2020 Pacific Seeds Hyola XC IMI Residual Trials - Sowing Details |       |           |                 |                |         |            |         |
|------------------------------------------------------------------|-------|-----------|-----------------|----------------|---------|------------|---------|
| Trial                                                            | Trial | Sowing    | Tillage         | Soil Moisture  | Seed    | Seeding    | Stubble |
| Location                                                         | State | Equipment | Type            | Depth (0-10cm) | Bed     | Depth (cm) | Loading |
| Geraldton                                                        | WA    | KPPW      | Minimum tillage | Moist          | Stubble | 1.5        | 35%     |
| Katanning                                                        | WA    | KPPW      | Minimum tillage | Dry            | Stubble | 1.0        | 10-20%  |
| Morbinning                                                       | WA    | PA        | Direct drilled  | Damp           | Stubble | 2.5        | 80%     |
| Horsham                                                          | VIC   | KPPW      | Direct drilled  | Moist          | Friable | 1.0        | <10%    |

# 2020 Hyola® XC IMI Residue Trials - Rainfall Distribution Details

2020 Geraldton WA - Hyola XC IMI Residue Trial Monthly Rainfall

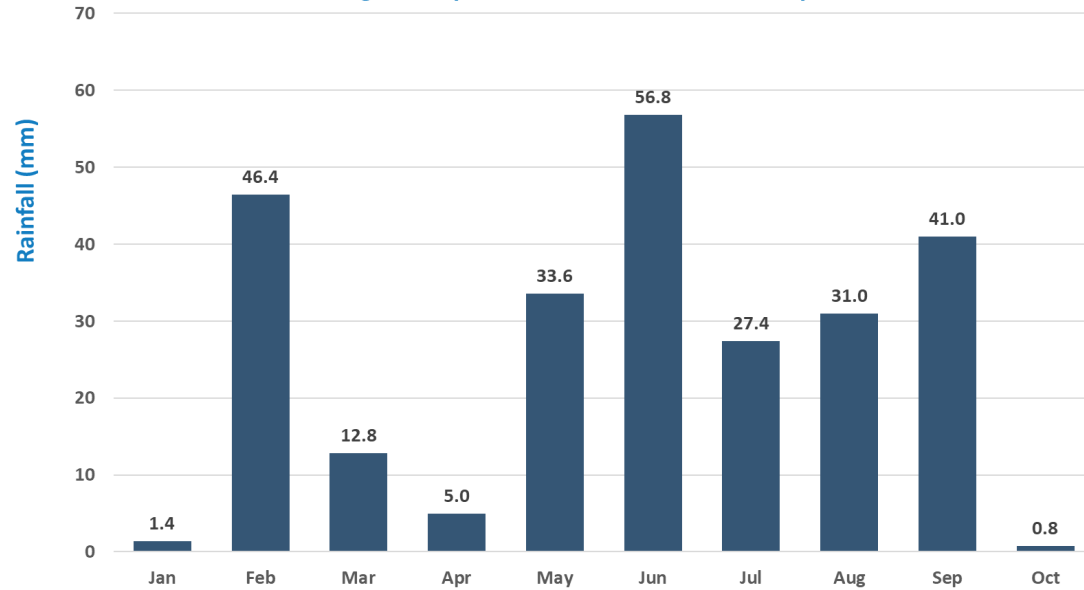


2020 Katanning WA - Hyola XC IMI Residue Trial Monthly Rainfall

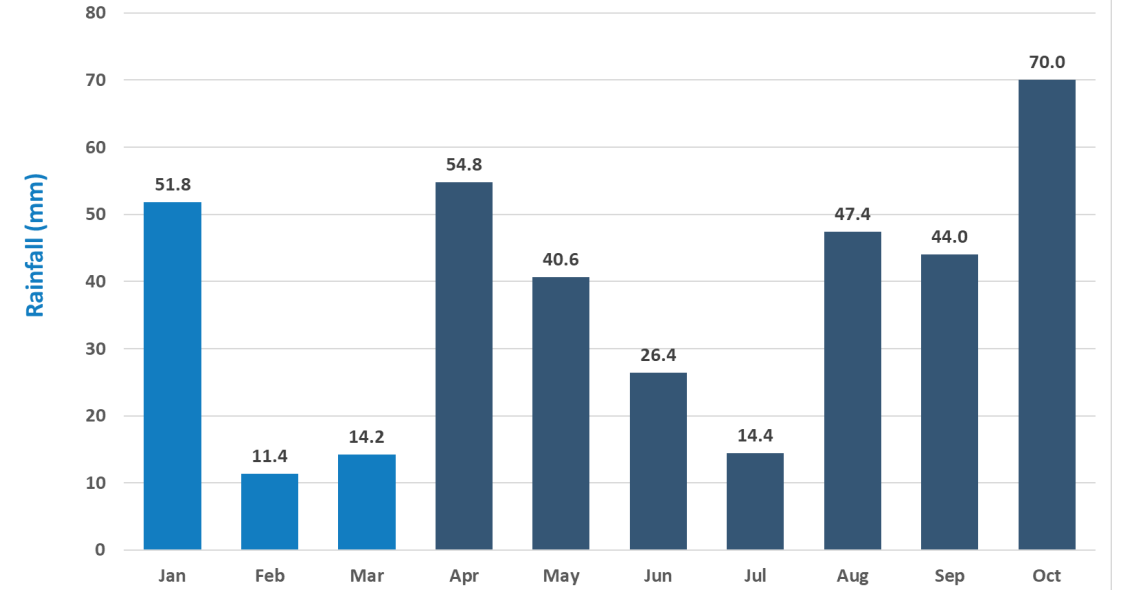


# 2020 Hyola® XC IMI Residue Trials - Rainfall Distribution Details

2020 Morbinning WA - Hyola XC IMI Residue Trial Monthly Rainfall



2020 Horsham Vic - Hyola XC IMI Residue Trial Monthly Rainfall



# 2020 Hyola® XC IMI Residue Trials – Herbicide Treatment Listing

| Variety     | Treatment         | Seed Number | TRT | Treatments:                                                                                             | TRT | Canola  | Target Density | Herbicide Treatments, Timing and Rates    |                                     |                   |                                   |                                           |                                      |
|-------------|-------------------|-------------|-----|---------------------------------------------------------------------------------------------------------|-----|---------|----------------|-------------------------------------------|-------------------------------------|-------------------|-----------------------------------|-------------------------------------------|--------------------------------------|
| Reference   | Reference         | per Packet  | #   | Scenario                                                                                                | #   | Variety | Seeding Rate   | January 2020 (Code Y)                     | 10 DBS (Code Z)                     | IBS (Code A)      | Early Post Em (1-2 Leaf) (Code B) | Post Em (4-6 Leaf stage) (Code C)         | Late Post Em (first flower) (Code D) |
| Hyola 540XC | XC-1xCLH2xRR      | 400         | 1   | 4 Month - High IMI Residues Rate Response/XX spray regime - Intervix - 33g Imazamox - 15g Imazapyr      | 1   | XC      | 40/m2          | 375mL/ha Intervix                         |                                     | 1L/ha Rustler 500 |                                   | 1.3kg/ha RRH with PS                      | 1.3kg/ha RRH with PS                 |
| Hyola 410XX | XX-1xCLH2xRR      | 400         | 2   | 4 Month - High IMI Residues Rate Response/XX spray regime - Intervix - 33g Imazamox - 15g Imazapyr      | 2   | XX      | 40/m2          | 375mL/ha Intervix                         |                                     | 1L/ha Rustler 500 |                                   | 1.3kg/ha RRH with PS                      | 1.3kg/ha RRH with PS                 |
| Hyola 540XC | XC-1xCLVH2xRR     | 400         | 3   | 4 Month - Very High IMI Residues Rate Response/XX spray regime - Intervix - 33g Imazamox - 15g Imazapyr | 3   | XC      | 40/m2          | 750mL/ha Intervix                         |                                     | 1L/ha Rustler 500 |                                   | 1.3kg/ha RRH with PS                      | 1.3kg/ha RRH with PS                 |
| Hyola 410XX | XX-1xCLVH2xRR     | 400         | 4   | 4 Month - Very High IMI Residues Rate Response/XX spray regime - Intervix - 33g Imazamox - 15g Imazapyr | 4   | XX      | 40/m2          | 750mL/ha Intervix                         |                                     | 1L/ha Rustler 500 |                                   | 1.3kg/ha RRH with PS                      | 1.3kg/ha RRH with PS                 |
| Hyola 540XC | XC-1xODVH2xRR     | 400         | 5   | 4 Month - IMI Residues/XX spray regime - On Duty- 525g Imazapic - 175g Imazapyr                         | 5   | XC      | 40/m2          | OnDuty 40gm/ha, Hasten 500ml/100L         |                                     | 1L/ha Rustler 500 |                                   | 1.3kg/ha RRH with PS                      | 1.3kg/ha RRH with PS                 |
| Hyola 410XX | XX-1xODVH2xRR     | 400         | 6   | 4 Month - IMI Residues/XX spray regime - On Duty- 525g Imazapic - 175g Imazapyr                         | 6   | XX      | 40/m2          | OnDuty 40gm/ha, Hasten 500ml/100L         |                                     | 1L/ha Rustler 500 |                                   | 1.3kg/ha RRH with PS                      | 1.3kg/ha RRH with PS                 |
| Hyola 540XC | XC-1xRAPVH2xRR    | 400         | 7   | 4 Month - IMI Residues/XX spray regime - Raptor- 700 g Imazamox                                         | 7   | XC      | 40/m2          | Raptor 45gm/ha, Hasten 500ml/100L         |                                     | 1L/ha Rustler 500 |                                   | 1.3kg/ha RRH with PS                      | 1.3kg/ha RRH with PS                 |
| Hyola 410XX | XX-1xRAPVH2xRR    | 400         | 8   | 4 Month - IMI Residues/XX spray regime - Raptor- 700 g Imazamox                                         | 8   | XX      | 40/m2          | Raptor 45gm/ha, Hasten 500ml/100L         |                                     | 1L/ha Rustler 500 |                                   | 1.3kg/ha RRH with PS                      | 1.3kg/ha RRH with PS                 |
| Hyola 540XC | XC-1xSPKVH2xRR    | 400         | 9   | 4 Month - IMI Residues/XX spray regime - Spinnaker - 700g - Imazathapyr                                 | 9   | XC      | 40/m2          | Spinnaker 70gm/ha, Hasten 500ml/100L      |                                     | 1L/ha Rustler 500 |                                   | 1.3kg/ha RRH with PS                      | 1.3kg/ha RRH with PS                 |
| Hyola 410XX | XX-1xSPKVH2xRR    | 400         | 10  | 4 Month - IMI Residues/XX spray regime - Spinnaker - 700g - Imazathapyr                                 | 10  | XX      | 40/m2          | Spinnaker 70gm/ha, Hasten 500ml/100L      |                                     | 1L/ha Rustler 500 |                                   | 1.3kg/ha RRH with PS                      | 1.3kg/ha RRH with PS                 |
| Hyola 540XC | XC-1xSUMNZVH2xRR  | 400         | 11  | 4 Month -SU Residues/Standard XX spray regime - Monza - 750g Sulfosulfuron                              | 11  | XC      | 40/m2          | Monza 20g/ha + DC Trate at 2L/100L        |                                     | 1L/ha Rustler 500 |                                   | 1.3kg/ha RRH with PS                      | 1.3kg/ha RRH with PS                 |
| Hyola 410XX | XX-1xSUMNZVH2xRR  | 400         | 12  | 4 Month - SU Residues/Standard XX spray regime - Monza - 750g Sulfosulfuron                             | 12  | XX      | 40/m2          | Monza 20g/ha + DC Trate at 2L/100L        |                                     | 1L/ha Rustler 500 |                                   | 1.3kg/ha RRH with PS                      | 1.3kg/ha RRH with PS                 |
| Hyola 540XC | XC-1xSULOGVH2xRR  | 400         | 13  | 4 Month - SU Residues/Standard XX spray regime - Logran - 520g Triasulfuron + 200g Butafenacil          | 13  | XC      | 40/m2          | Logran® B-Power 50g/ha, Hasten 500ml/100L |                                     | 1L/ha Rustler 500 |                                   | 1.3kg/ha RRH with PS                      | 1.3kg/ha RRH with PS                 |
| Hyola 410XX | XX-1xSULOGVH2xRR  | 400         | 14  | 4 Month - SU Residues/Standard XX spray regime - Logran - 520g Triasulfuron + 200g Butafenacil          | 14  | XX      | 40/m2          | Logran® B-Power 50g/ha, Hasten 500ml/100L |                                     | 1L/ha Rustler 500 |                                   | 1.3kg/ha RRH with PS                      | 1.3kg/ha RRH with PS                 |
| Hyola 540XC | XC-1xSUGLVH2xRR   | 400         | 15  | 4 Month - SU Residues/Standard XX spray regime - Glean 750g chlorsulfuron                               | 15  | XC      | 40/m2          | Glean 15gm/ha, 1000 wetter 100ml/100L     |                                     | 1L/ha Rustler 500 |                                   | 1.3kg/ha RRH with PS                      | 1.3kg/ha RRH with PS                 |
| Hyola 410XX | XX-1xSUGLVH2xRR   | 400         | 16  | 4 Month - SU Residues/Standard XX spray regime - Glean 750g chlorsulfuron                               | 16  | XX      | 40/m2          | Glean 15gm/ha, 1000 wetter 100ml/100L     |                                     | 1L/ha Rustler 500 |                                   | 1.3kg/ha RRH with PS                      | 1.3kg/ha RRH with PS                 |
| Hyola 540XC | XC-1xSUALVH2xRR   | 400         | 17  | 10 Days SU Residues/Standard XX spray regime - Ally 600g Metsulfuron Methyl                             | 17  | XC      | 40/m2          |                                           | Ally 5gm/ha, 1000 wetter 100ml/100L | 1L/ha Rustler 500 |                                   | 1.3kg/ha RRH with PS                      | 1.3kg/ha RRH with PS                 |
| Hyola 410XX | XX-1xSUALVH2xRR   | 400         | 18  | 10 Days SU Residues/Standard XX spray regime - Ally 600g Metsulfuron Methyl                             | 18  | XX      | 40/m2          |                                           | Ally 5gm/ha, 1000 wetter 100ml/100L | 1L/ha Rustler 500 |                                   | 1.3kg/ha RRH with PS                      | 1.3kg/ha RRH with PS                 |
| Hyola 540XC | XC-3RR0.9         | 400         | 19  | 3* RRH - 0.9 RRH - 2 leaf, 6 leaf and 1st Flower regime                                                 | 19  | XC      | 40/m2          |                                           |                                     | 1L/ha Rustler 500 | 0.9kg/ha RRH with PS              | 0.9kg/ha RRH with PS                      | 0.9kg/ha RRH with PS                 |
| Hyola 410XX | XX-3RR0.9         | 400         | 20  | 3* RRH - 0.9 RRH - 2 leaf, 6 leaf and 1st Flower regime                                                 | 20  | XX      | 40/m2          |                                           |                                     | 1L/ha Rustler 500 | 0.9kg/ha RRH with PS              | 0.9kg/ha RRH with PS                      | 0.9kg/ha RRH with PS                 |
| Hyola 540XC | XC-2xRR1.3        | 400         | 21  | 2* RRH - 1.3 RRH - 2 leaf and 1st Flower regime                                                         | 21  | XC      | 40/m2          |                                           |                                     | 1L/ha Rustler 500 |                                   | 1.3kg/ha RRH with PS                      | 1.3kg/ha RRH with PS                 |
| Hyola 410XX | XX-2xRR1.3        | 400         | 22  | 2* RRH - 1.3 RRH - 2 leaf and 1st Flower regime                                                         | 22  | XX      | 40/m2          |                                           |                                     | 1L/ha Rustler 500 |                                   | 1.3kg/ha RRH with PS                      | 1.3kg/ha RRH with PS                 |
| Hyola 540XC | XC-2xRR1.31xSEL   | 400         | 23  | 2 * RRH + Clethodim Control Treatment                                                                   | 23  | XC      | 40/m2          |                                           |                                     | 1L/ha Rustler 500 |                                   | 1.3kg/ha RRH with PS + Clethodim 500mL/ha | 1.3kg/ha RRH with PS                 |
| Hyola 410XX | XX-2xRR1.31xSEL   | 400         | 24  | 2 * RRH + Clethodim Control Treatment                                                                   | 24  | XX      | 40/m2          |                                           |                                     | 1L/ha Rustler 500 |                                   | 1.3kg/ha RRH with PS + Clethodim 500mL/ha | 1.3kg/ha RRH with PS                 |
| Hyola 540XC | XC-2xRR1.31xCL375 | 400         | 25  | 2 * RRH + Intervix 375mL/ha Control Treatment                                                           | 25  | XC      | 40/m2          |                                           |                                     | 1L/ha Rustler 500 |                                   | 1.3kg/ha RRH with PS + 375mL/ha Intervix  | 1.3kg/ha RRH with PS                 |
| Hyola 540XC | XC-2xRR1.31xCL750 | 400         | 26  | 2 * RRH + Intervix 750mL/ha Control Treatment                                                           | 26  | XC      | 40/m2          |                                           |                                     | 1L/ha Rustler 500 |                                   | 1.3kg/ha RRH with PS + 750mL/ha Intervix  | 1.3kg/ha RRH with PS                 |
| CL90009     | CL-1xCL1xSEL      | 400         | 27  | Intervix 750mL/ha + Select - Control Treatment                                                          | 27  | CL      | 40/m2          |                                           |                                     | 1L/ha Rustler 500 |                                   | 750mL/ha Intervix + Clethodim 500mL/ha    |                                      |

# GROUP B – IMI IMIZAPIC CHEMISTRY GENERAL PROPERTIES – 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. |              |                         |                                                           |                   |

#### 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.

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



# GROUP B – IMI IMIZAPYR CHEMISTRY GENERAL PROPERTIES – 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. |              |                         |                          |                       |

### 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 soil water in many soils. Binding increases 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 moisture, where binding increases and microbial activity is reduced. Substantial plantback constraints to susceptible crops exist. Observe label constraints for pH, time and rainfall requirements.
- Crop selectivity comes from rapid metabolism in tolerant plants.

With imidazolinone herbicides, microbial breakdown is the primary route of degradation and is typically very slow for most imidazolinones. Persistence in the soil increases with lower soil pH (acidic soils) as binding increases, making the herbicide less available for microbial breakdown.



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

# GROUP B - SU CHEMISTRY GENERAL PROPERTIES – 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)    | $3.07 \times 10^{-6}$                                                                                                              | Non-volatile | Half-life ( $DT_{50}$ ) | 10 - 185 (av. 36)                                                 | Moderately persistent |
| Photodegradation    | Negligible                                                                                                                         |              | Mobility                | Mobile in the soil<br>Potential to leach, especially at higher pH |                       |
| Breakdown           | 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

#### 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 off 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 requirements.

- 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.

For many of the sulfonylureas, hydrolysis is the primary breakdown mechanism. This can be relatively fast or quite slow, depending upon the individual compound. However, as the soil pH becomes alkaline this reaction slows, or stops, and then slow microbial degradation becomes the primary method of breakdown. For this reason, many sulfonylureas persist much longer in alkaline soils, where hydrolysis is very slow or does not occur.



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

## Hyola® XC Hybrid Technology vs Hyola® XX Hybrid Group B - IMI & SU Residue Herbicide Treatment Comparisons

2020 Geraldton WA

Hyola® 540XC



Low IMI  
Residue

Stage: Summer 4 MBS  
**Intervix®** 375ml/ha  
Stage: IBS  
**Rustler®** 1L/ha  
Stage: Post Em  
(4-6Leaf)  
**RR** 1.3Kg/ha  
Stage: 1<sup>st</sup> Flower  
**RR** 1.3Kg/ha

High IMI  
Residue

Stage: Summer 4 MBS  
**Intervix®** 750ml/ha  
Stage: IBS  
**Rustler®** 1L/ha  
Stage: Post Em  
(4-6Leaf)  
**RR** 1.3Kg/ha  
Stage: 1<sup>st</sup> Flower  
**RR** 1.3Kg/ha

High OnDuty®  
Residue

Stage: Summer 4 MBS  
**OnDuty®** 40g/ha  
**Hasten®** 500ml/100L  
Stage: IBS  
**Rustler®** 1L/ha  
Stage: Post Em  
(4-6Leaf)  
**RR** 1.3Kg/ha  
Stage: 1<sup>st</sup> Flower  
**RR** 1.3Kg/ha

High Raptor®  
Residue

Stage: Summer 4 MBS  
**Raptor®** 45g/ha  
**Hasten®** 500ml/100L  
Stage: IBS  
**Rustler®** 1L/ha  
Stage: Post Em  
(4-6Leaf)  
**RR** 1.3Kg/ha  
Stage: 1<sup>st</sup> Flower  
**RR** 1.3Kg/ha

High Spinnaker®  
Residue

Stage: Summer 4 MBS  
**Spinnaker®** 70g/ha  
**Hasten®** 500ml/100L  
Stage: IBS  
**Rustler®** 1L/ha  
Stage: Post Em  
(4-6Leaf)  
**RR** 1.3Kg/ha  
Stage: 1<sup>st</sup> Flower  
**RR** 1.3Kg/ha

High Monza®  
Residue

Stage: Summer 4 MBS  
**Monza®** 20g/ha  
**DCTrate®** 2L/100L  
Stage: IBS  
**Rustler®** 1L/ha  
Stage: Post Em  
(4-6Leaf)  
**RR** 1.3Kg/ha  
Stage: 1<sup>st</sup> Flower  
**RR** 1.3Kg/ha

High Logran®  
Residue

Stage: Summer 4 MBS  
**Logran B-Power®** 50g/ha  
**Hasten®** 500ml/100L  
Stage: IBS  
**Rustler®** 1L/ha  
Stage: Post Em  
(4-6Leaf)  
**RR** 1.3Kg/ha  
Stage: 1<sup>st</sup> Flower  
**RR** 1.3Kg/ha

High Glean®  
Residue

Stage: Summer 4 MBS  
**Glean®** 15g/ha  
**Wetter 1000** 100ml/100L  
Stage: IBS  
**Rustler®** 1L/ha  
Stage: Post Em  
(4-6Leaf)  
**RR** 1.3Kg/ha  
Stage: 1<sup>st</sup> Flower  
**RR** 1.3Kg/ha

High Ally®  
Residue

Stage: 10 DBS  
**Ally®** 5g/ha  
**Wetter 1000** 100ml/100L  
Stage: IBS  
**Rustler®** 1L/ha  
Stage: Post Em  
(4-6Leaf)  
**RR** 1.3Kg/ha  
Stage: 1<sup>st</sup> Flower  
**RR** 1.3Kg/ha

Truflex® 3 Spray  
Strategy

Stage: IBS  
**Rustler®** 1L/ha  
Stage: Early Post Em  
(1-2Leaf)  
**RR** 0.9Kg/ha  
Stage: Post Em  
(4-6Leaf)  
**RR** 0.9Kg/ha  
Stage: 1<sup>st</sup> Flower  
**RR** 0.9Kg/ha

Truflex® 2 Spray  
Strategy

Stage: IBS  
**Rustler®** 1L/ha  
Stage: Post Em  
(4-6Leaf)  
**RR** 1.3Kg/ha  
Stage: 1<sup>st</sup> Flower  
**RR** 1.3Kg/ha

Standard Truflex®  
Control

Stage: IBS  
**Rustler®** 1L/ha  
Stage: Post Em  
(4-6Leaf)  
**RR** 1.3Kg/ha  
**Select®** 500ml/ha  
Stage: 1<sup>st</sup> Flower  
**RR** 1.3Kg/ha

Hyola® 410XX



## Hyola® XC Hybrid Technology vs Hyola® XX Hybrid Group B - IMI & SU Residue Herbicide Treatment Comparisons

2020 Horsham VIC

Hyola® 540XC



Low IMI  
Residue

Stage: Summer 4 MBS  
**Intervix**® 375ml/ha  
Stage: IBS  
**Rustler**® 1L/ha  
Stage: Post Em  
(4-6Leaf)  
**RR** 1.3Kg/ha  
Stage: 1<sup>st</sup> Flower  
**RR** 1.3Kg/ha

High IMI  
Residue

Stage: Summer 4 MBS  
**Intervix**® 750ml/ha  
Stage: IBS  
**Rustler**® 1L/ha  
Stage: Post Em  
(4-6Leaf)  
**RR** 1.3Kg/ha  
Stage: 1<sup>st</sup> Flower  
**RR** 1.3Kg/ha

High OnDuty®  
Residue

Stage: Summer 4 MBS  
**OnDuty**® 40g/ha  
**Hasten**® 500ml/100L  
Stage: IBS  
**Rustler**® 1L/ha  
Stage: Post Em  
(4-6Leaf)  
**RR** 1.3Kg/ha  
Stage: 1<sup>st</sup> Flower  
**RR** 1.3Kg/ha

High Raptor®  
Residue

Stage: Summer 4 MBS  
**Raptor**® 45g/ha  
**Hasten**® 500ml/100L  
Stage: IBS  
**Rustler**® 1L/ha  
Stage: Post Em  
(4-6Leaf)  
**RR** 1.3Kg/ha  
Stage: 1<sup>st</sup> Flower  
**RR** 1.3Kg/ha

High Spinnaker®  
Residue

Stage: Summer 4 MBS  
**Spinnaker**® 70g/ha  
**Hasten**® 500ml/100L  
Stage: IBS  
**Rustler**® 1L/ha  
Stage: Post Em  
(4-6Leaf)  
**RR** 1.3Kg/ha  
Stage: 1<sup>st</sup> Flower  
**RR** 1.3Kg/ha

High Monza®  
Residue

Stage: Summer 4 MBS  
**Monza**® 20g/ha  
**DCTrate**® 2L/100L  
Stage: IBS  
**Rustler**® 1L/ha  
Stage: Post Em  
(4-6Leaf)  
**RR** 1.3Kg/ha  
Stage: 1<sup>st</sup> Flower  
**RR** 1.3Kg/ha

High Logran®  
Residue

Stage: Summer 4 MBS  
**Logran B-Power**® 50g/ha  
**Hasten**® 500ml/100L  
Stage: IBS  
**Rustler**® 1L/ha  
Stage: Post Em  
(4-6Leaf)  
**RR** 1.3Kg/ha  
Stage: 1<sup>st</sup> Flower  
**RR** 1.3Kg/ha

High Glean®  
Residue

Stage: Summer 4 MBS  
**Glean**® 15g/ha  
**Wetter 1000** 100ml/100L  
Stage: IBS  
**Rustler**® 1L/ha  
Stage: Post Em  
(4-6Leaf)  
**RR** 1.3Kg/ha  
Stage: 1<sup>st</sup> Flower  
**RR** 1.3Kg/ha

High Ally®  
Residue

Stage: 10 DBS  
**Ally**® 5g/ha  
**Wetter 1000** 100ml/100L  
Stage: IBS  
**Rustler**® 1L/ha  
Stage: Post Em  
(4-6Leaf)  
**RR** 1.3Kg/ha  
Stage: 1<sup>st</sup> Flower  
**RR** 1.3Kg/ha

Truflex® 3 Spray  
Strategy

Stage: IBS  
**Rustler**® 1L/ha  
Stage: Early Post Em  
(1-2Leaf)  
**RR** 0.9Kg/ha  
Stage: Post Em  
(4-6Leaf)  
**RR** 0.9Kg/ha  
Stage: 1<sup>st</sup> Flower  
**RR** 0.9Kg/ha

Truflex® 2 Spray  
Strategy

Stage: IBS  
**Rustler**® 1L/ha  
Stage: Post Em  
(4-6Leaf)  
**RR** 1.3Kg/ha  
Stage: 1<sup>st</sup> Flower  
**RR** 1.3Kg/ha

Standard Truflex®  
Control

Stage: IBS  
**Rustler**® 1L/ha  
Stage: Post Em  
(4-6Leaf)  
**RR** 1.3Kg/ha  
**Select**® 500ml/ha  
Stage: 1<sup>st</sup> Flower  
**RR** 1.3Kg/ha

Hyola® 410XX



## Hyola® XC Hybrid Technology vs Hyola® XX Hybrid Group B - IMI & SU Residue Herbicide Treatment Comparisons

2020 Katanning WA

Hyola® 540XC



Low IMI  
Residue

Stage: Summer 4 MBS  
**Intervix®** 375ml/ha  
Stage: IBS  
**Rustler®** 1L/ha  
Stage: Post Em  
(4-6Leaf)  
**RR** 1.3Kg/ha  
Stage: 1<sup>st</sup> Flower  
**RR** 1.3Kg/ha



High IMI  
Residue

Stage: Summer 4 MBS  
**Intervix®** 750ml/ha  
Stage: IBS  
**Rustler®** 1L/ha  
Stage: Post Em  
(4-6Leaf)  
**RR** 1.3Kg/ha  
Stage: 1<sup>st</sup> Flower  
**RR** 1.3Kg/ha



High OnDuty®  
Residue

Stage: Summer 4 MBS  
**OnDuty®** 40g/ha  
**Hasten®** 500ml/100L  
Stage: IBS  
**Rustler®** 1L/ha  
Stage: Post Em  
(4-6Leaf)  
**RR** 1.3Kg/ha  
Stage: 1<sup>st</sup> Flower  
**RR** 1.3Kg/ha



High Raptor®  
Residue

Stage: Summer 4 MBS  
**Raptor®** 45g/ha  
**Hasten®** 500ml/100L  
Stage: IBS  
**Rustler®** 1L/ha  
Stage: Post Em  
(4-6Leaf)  
**RR** 1.3Kg/ha  
Stage: 1<sup>st</sup> Flower  
**RR** 1.3Kg/ha



High Spinnaker®  
Residue

Stage: Summer 4 MBS  
**Spinnaker®** 70g/ha  
**Hasten®** 500ml/100L  
Stage: IBS  
**Rustler®** 1L/ha  
Stage: Post Em  
(4-6Leaf)  
**RR** 1.3Kg/ha  
Stage: 1<sup>st</sup> Flower  
**RR** 1.3Kg/ha



High Monza®  
Residue

Stage: Summer 4 MBS  
**Monza®** 20g/ha  
**DCTrate®** 2L/100L  
Stage: IBS  
**Rustler®** 1L/ha  
Stage: Post Em  
(4-6Leaf)  
**RR** 1.3Kg/ha  
Stage: 1<sup>st</sup> Flower  
**RR** 1.3Kg/ha



High Logran®  
Residue

Stage: Summer 4 MBS  
**Logran B-Power®** 50g/ha  
**Hasten®** 500ml/100L  
Stage: IBS  
**Rustler®** 1L/ha  
Stage: Post Em  
(4-6Leaf)  
**RR** 1.3Kg/ha  
Stage: 1<sup>st</sup> Flower  
**RR** 1.3Kg/ha



High Glean®  
Residue

Stage: Summer 4 MBS  
**Glean®** 15g/ha  
**Wetter 1000** 100ml/100L  
Stage: IBS  
**Rustler®** 1L/ha  
Stage: Post Em  
(4-6Leaf)  
**RR** 1.3Kg/ha  
Stage: 1<sup>st</sup> Flower  
**RR** 1.3Kg/ha



High Ally®  
Residue

Stage: 10 DBS  
**Ally®** 5g/ha  
**Wetter 1000** 100ml/100L  
Stage: IBS  
**Rustler®** 1L/ha  
Stage: Post Em  
(4-6Leaf)  
**RR** 1.3Kg/ha  
Stage: 1<sup>st</sup> Flower  
**RR** 1.3Kg/ha



Truflex® 3 Spray  
Strategy

Stage: IBS  
**Rustler®** 1L/ha  
Stage: Early Post Em  
(1-2Leaf)  
**RR** 0.9Kg/ha  
Stage: Post Em  
(4-6Leaf)  
**RR** 0.9Kg/ha  
Stage: 1<sup>st</sup> Flower  
**RR** 0.9Kg/ha



Truflex® 2 Spray  
Strategy

Stage: IBS  
**Rustler®** 1L/ha  
Stage: Post Em  
(4-6Leaf)  
**RR** 1.3Kg/ha  
Stage: 1<sup>st</sup> Flower  
**RR** 1.3Kg/ha



Standard Truflex®  
Control

Stage: IBS  
**Rustler®** 1L/ha  
Stage: Post Em  
(4-6Leaf)  
**RR** 1.3Kg/ha  
**Select®** 500ml/ha  
Stage: 1<sup>st</sup> Flower  
**RR** 1.3Kg/ha

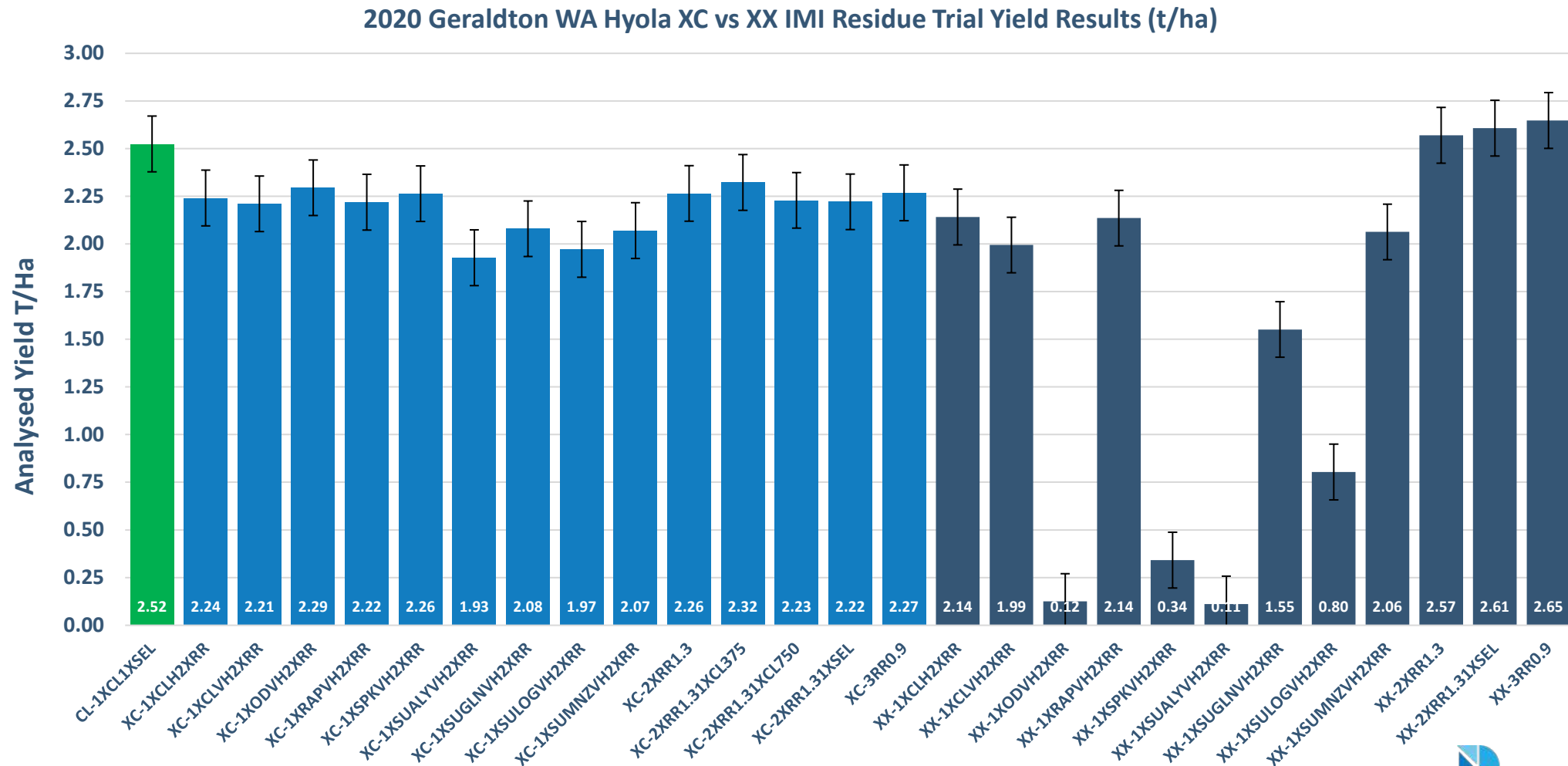
Hyola® 410XX



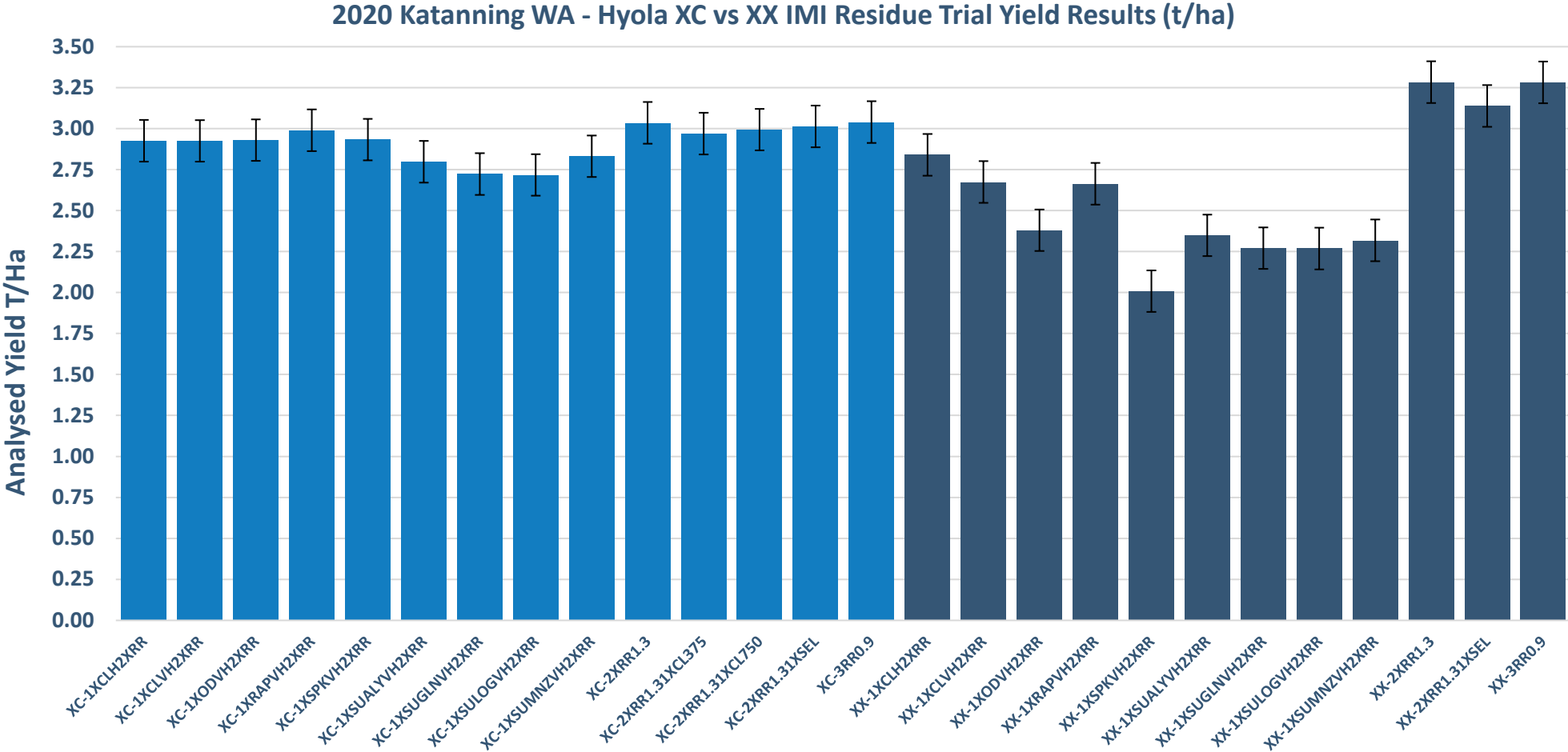
# 2020 Hyola® XC IMI Residual Trials Analysed Grain Yield Results



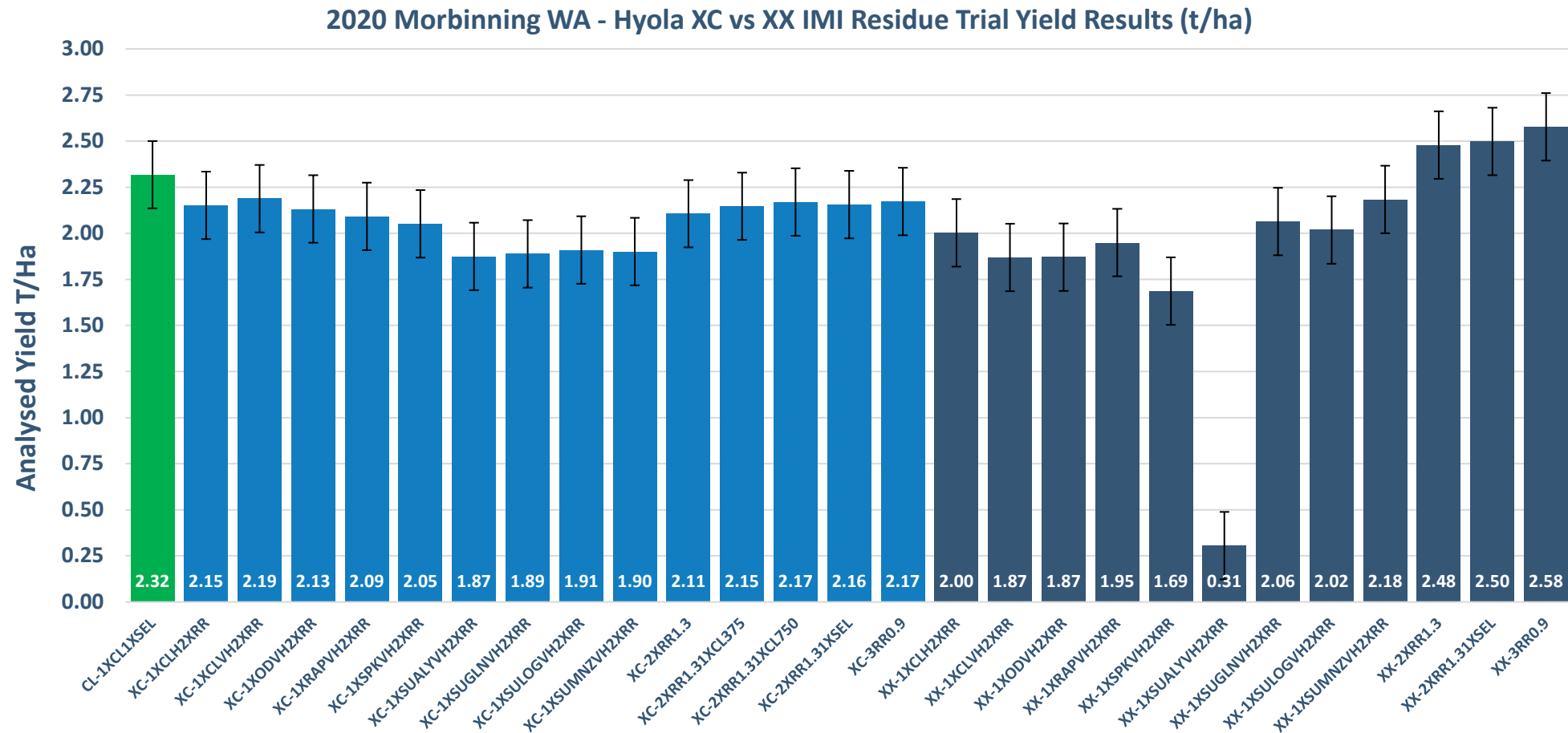
# 2020 Geraldton WA – Hyola® XC IMI Residual Trial - Analysed Grain Yield Results



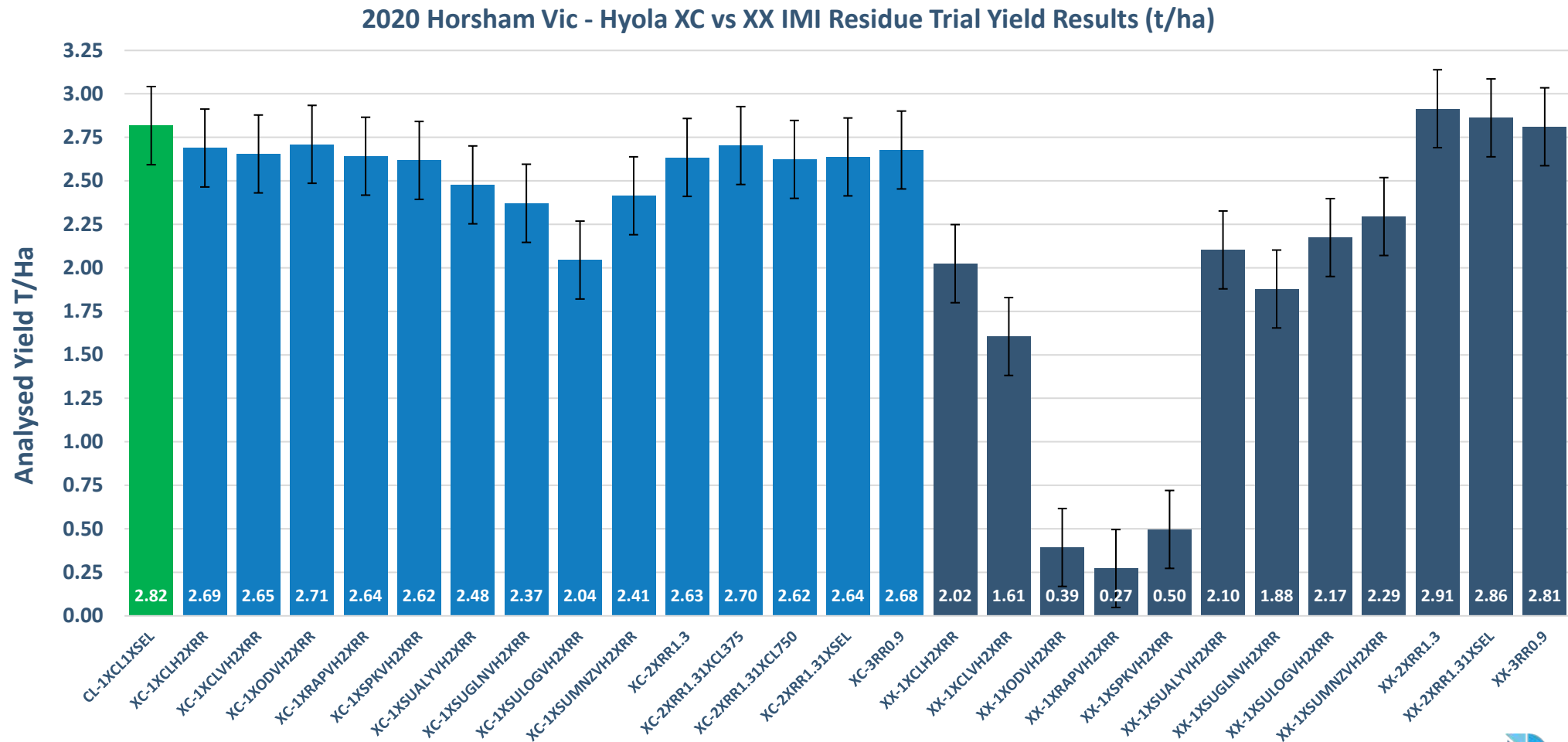
# 2020 Katanning WA – Hyola® XC IMI Residual Trial - Analysed Grain Yield Results



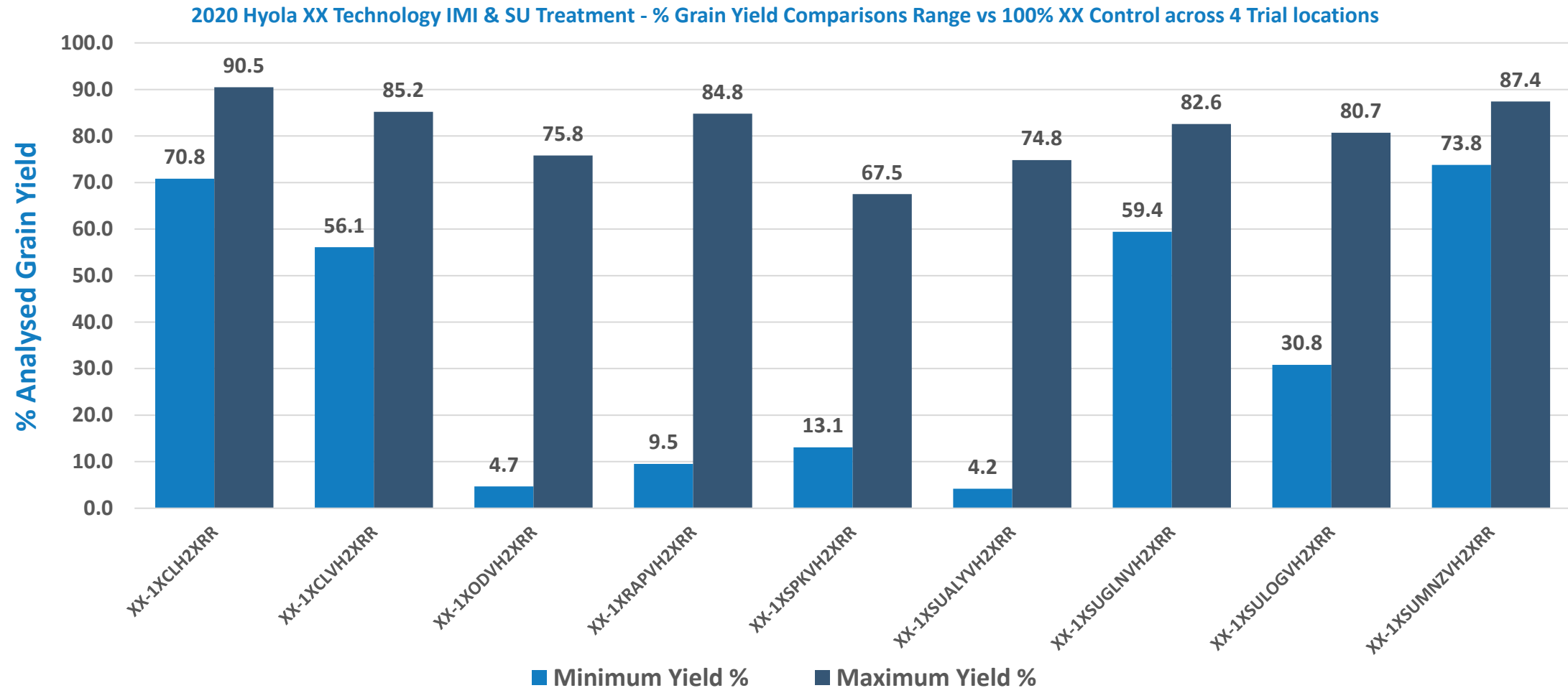
# 2020 Morbinning WA – Hyola® XC IMI Residual Trial - Analysed Grain Yield Results

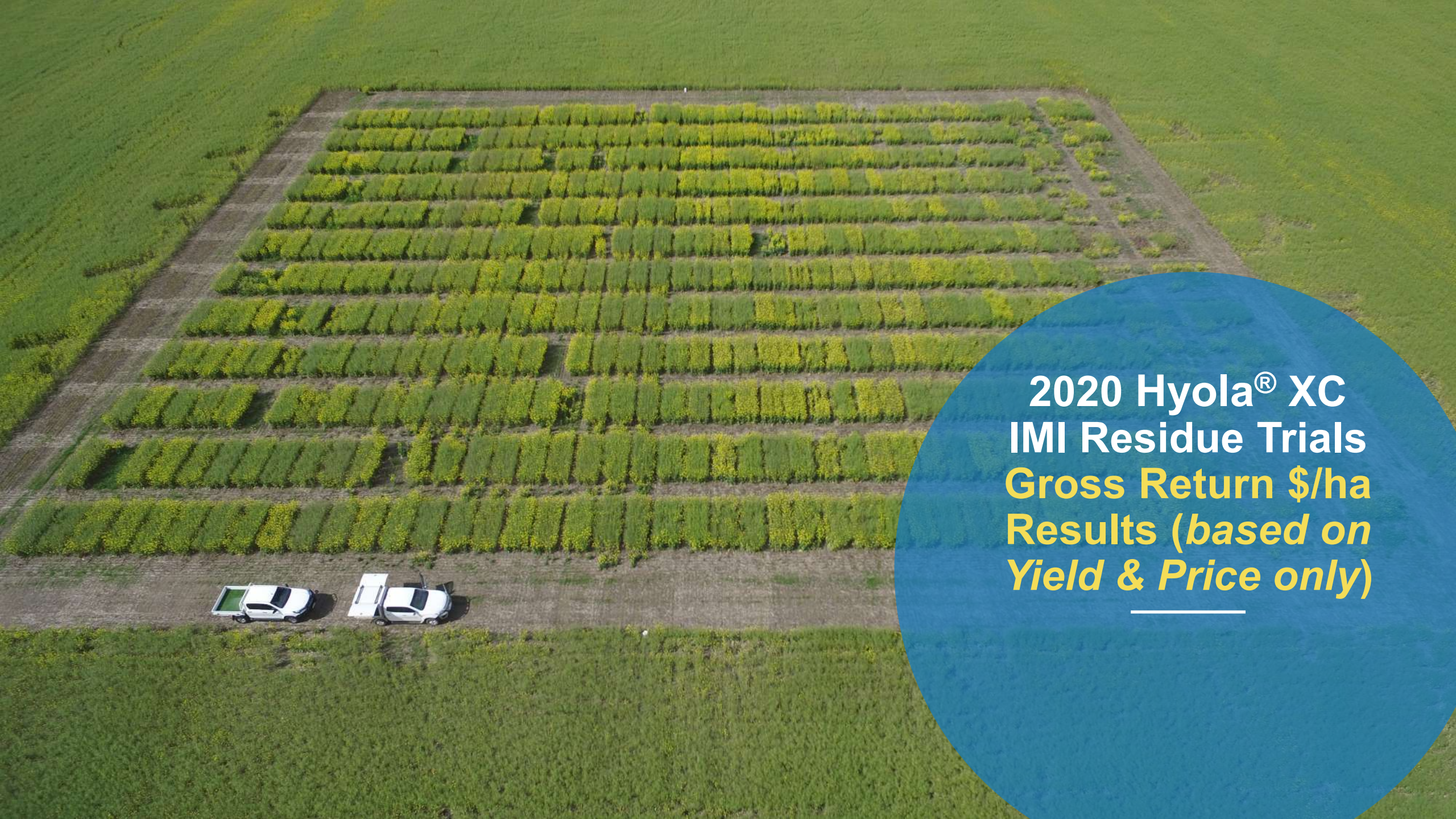


# 2020 Horsham Vic – Hyola® XC IMI Residual Trial - Analysed Grain Yield Results



# 2020 Hyola® XC IMI & SU Residue Trials – Hyola XX % Range of Grain Yield vs 100% XX Control

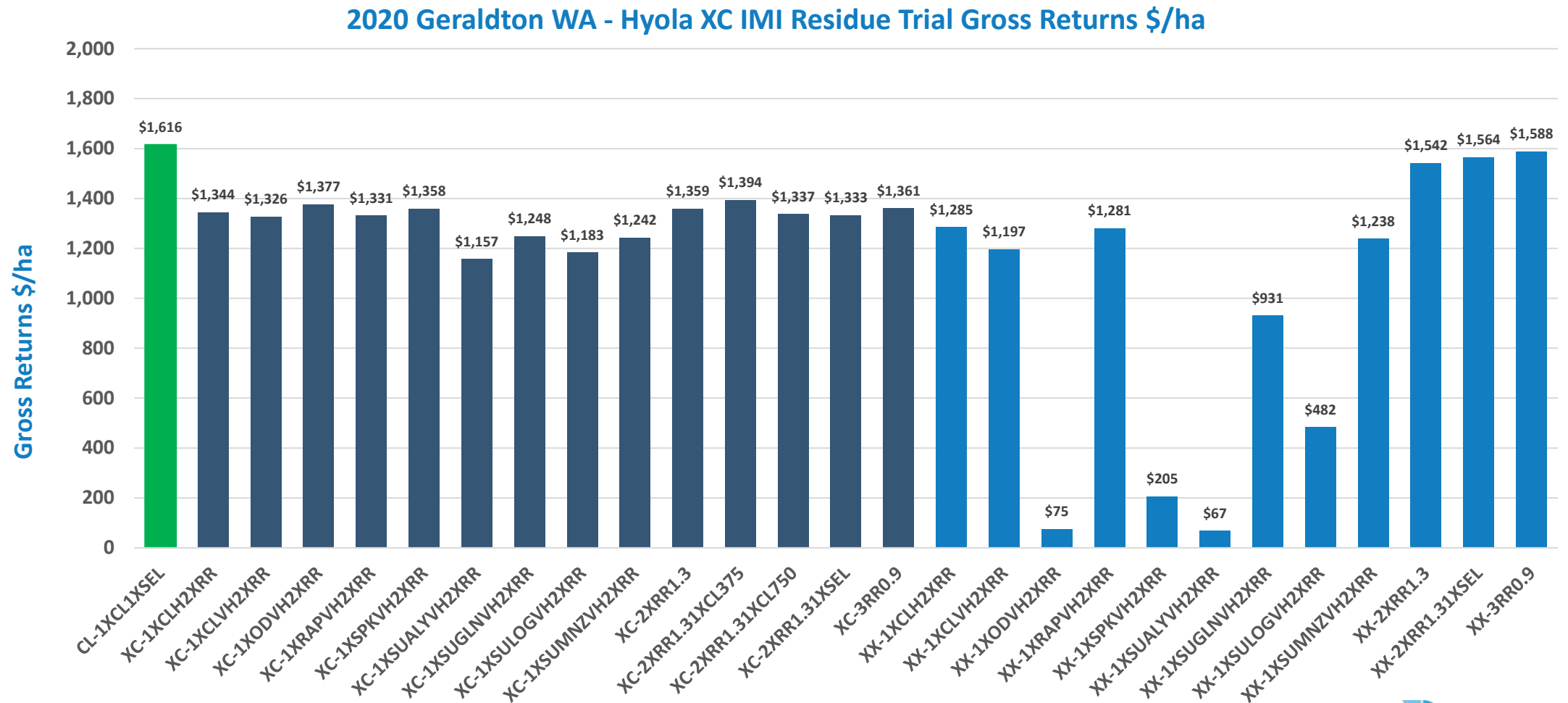




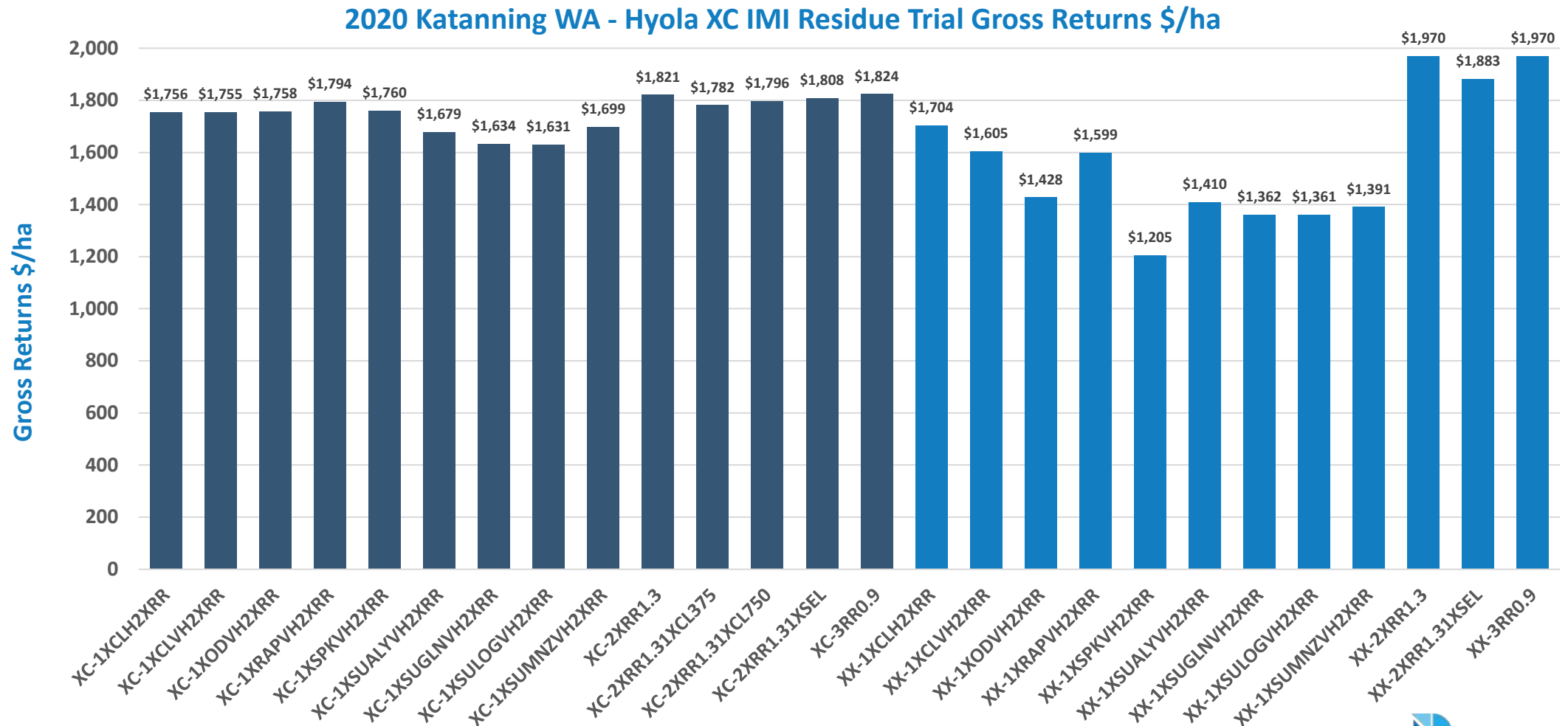
2020 Hyola® XC  
IMI Residue Trials  
**Gross Return \$/ha**  
**Results (*based on***  
***Yield & Price only*)**

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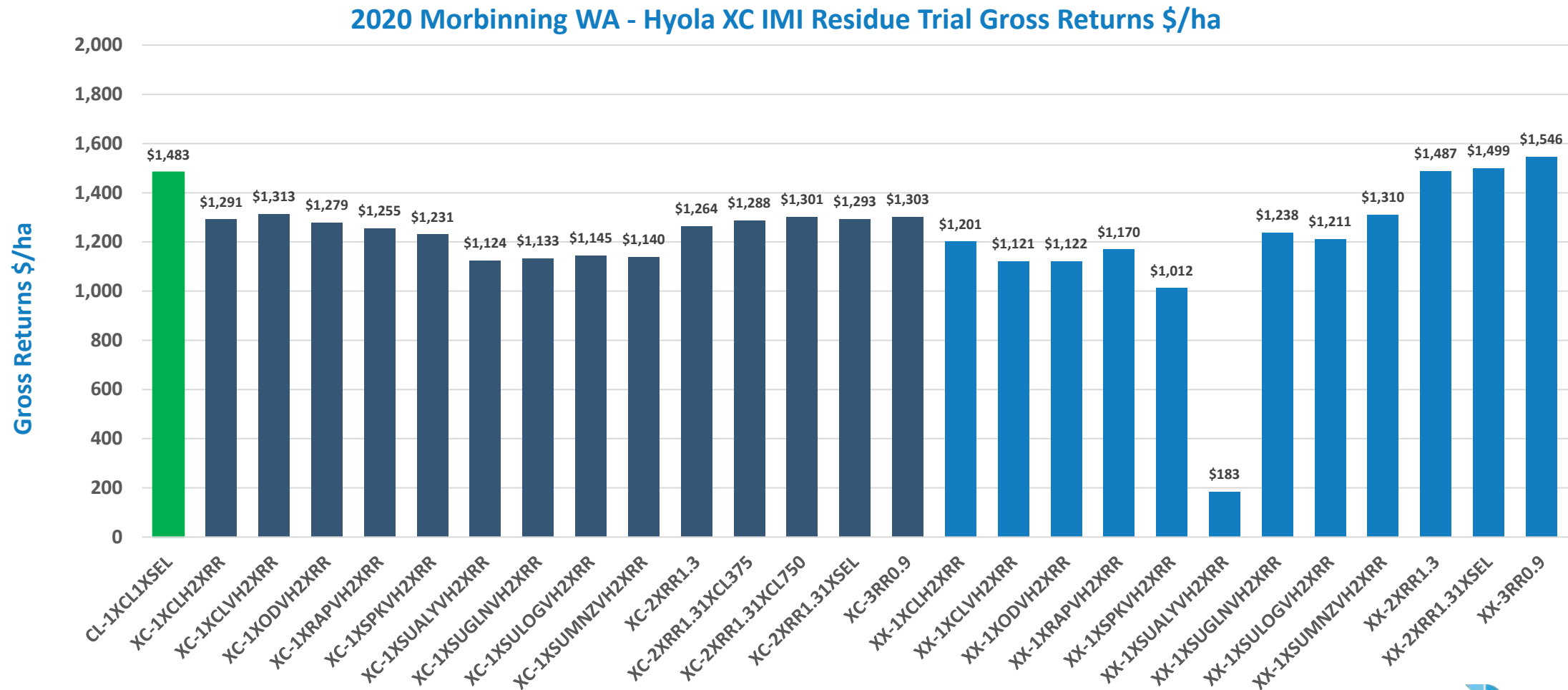
# 2020 Geraldton WA – Hyola® XC IMI Residual Trial Gross Returns \$/ha



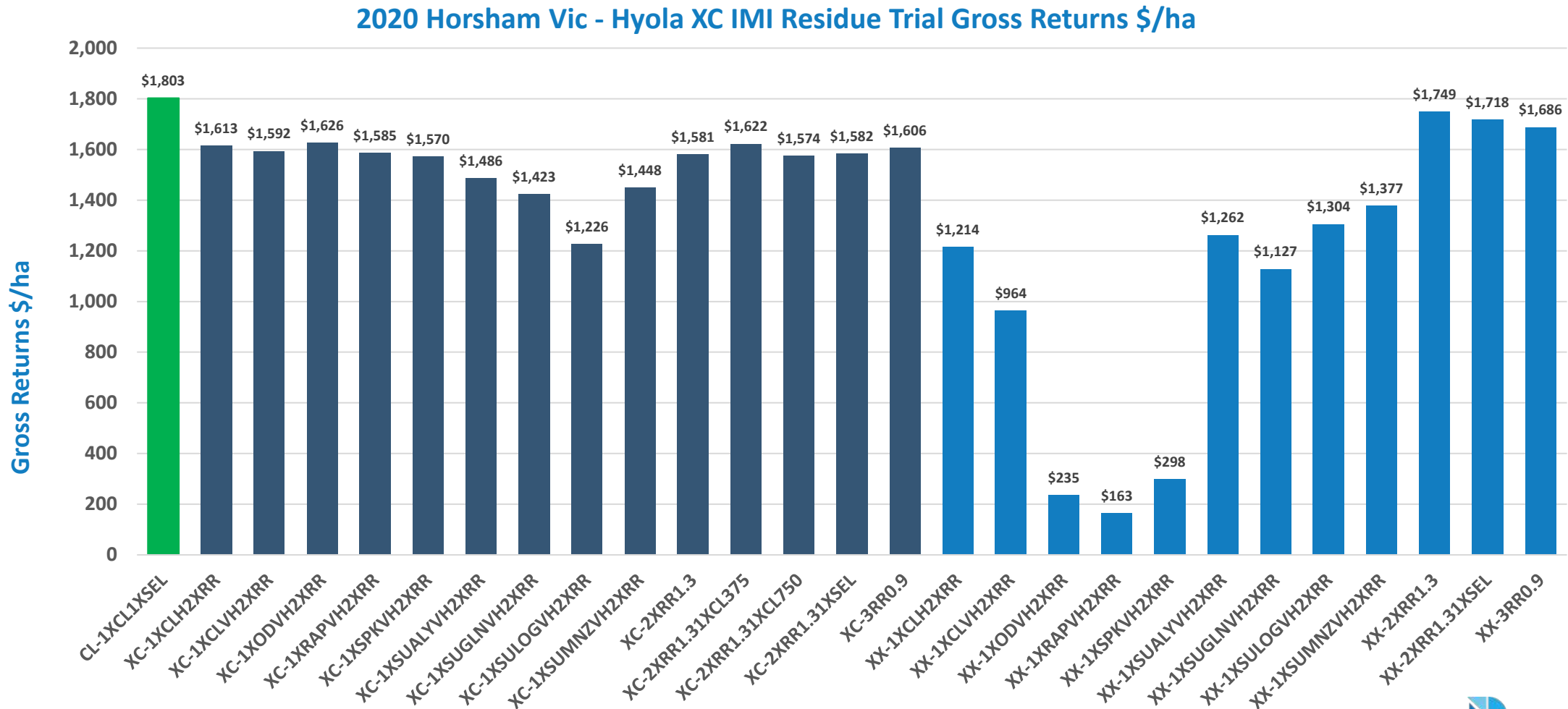
# 2020 Katanning WA – Hyola® XC IMI Residual Trial Gross Returns \$/ha



# 2020 Morbinning WA – Hyola® XC IMI Residual Trial Gross Returns \$/ha



# 2020 Horsham Vic – Hyola® XC IMI Residual Trial Gross Returns \$/ha



**2020 Hyola® XC  
IMI Residue Trials  
Overall Results  
Data Tables**



# 2020 Geraldton WA – Hyola® XC IMI Residual Trial Overall Results Table

| Herbicide Treatment                        | Herbicide Treatment Application Description                                                               | Yield t/ha | Sig Level LSD = 0.218 | Yield kg/ha vs XC Control | % Yield vs XC Control | \$/ha Difference vs XC Control |
|--------------------------------------------|-----------------------------------------------------------------------------------------------------------|------------|-----------------------|---------------------------|-----------------------|--------------------------------|
| CLEARFIELD TECHNOLOGY                      |                                                                                                           |            |                       |                           |                       |                                |
| CL-1XCL1XSEL                               | Intervix 750ml/ha + 500ml Select - Control Treatment                                                      | 2.52       | ab                    | 300                       | 109%                  | \$309                          |
| HYOLA XC - TRUFLEX + CLEARFIELD TECHNOLOGY |                                                                                                           |            |                       |                           |                       |                                |
| XC-1XCLH2XRR                               | 4 Month - Mod Imi Residues Rate Response/XX spray regime - Intervix 375ml - 33g Imazamox - 15g Imazapyr   | 2.24       | bcd                   | 20                        | 101%                  | \$12                           |
| XC-1XCLVH2XRR                              | 4 Month - High Imi Residues Rate Response/XX spray regime - Intervix 750ml - 33g Imazamox - 15g Imazapyr  | 2.21       | bcd                   | 10                        | 100%                  | -\$6                           |
| XC-1XODVH2XRR                              | 4 Month - Imi Residues/XX spray regime - On Duty 40g/ha - 525g Imazapic - 175g Imazapyr                   | 2.29       | bc                    | 70                        | 103%                  | \$45                           |
| XC-1XRAPVH2XRR                             | 4 Month - Imi Residues/XX spray regime - Raptor 45g/ha - 700 g Imazamox                                   | 2.22       | bcd                   | 0                         | 100%                  | -\$1                           |
| XC-1XSPKVH2XRR                             | 4 Month - Imi Residues/XX spray regime - Spinnaker 70g/ha - 700g - Imazapyr                               | 2.26       | bcd                   | 40                        | 102%                  | \$26                           |
| XC-1XSUALVH2XRR                            | 10 Days SU Residues/Standard XX spray regime - Ally 5g/ha - 600g Metsulfuron Methyl                       | 1.93       | e                     | -290                      | 87%                   | -\$175                         |
| XC-1XSUGLVH2XRR                            | 4 Month - SU Residues/Standard XX spray regime - Glean 15/ha - 750g chlorsulfuron                         | 2.08       | de                    | -200                      | 94%                   | -\$84                          |
| XC-1XSULOGVH2XRR                           | 4 Month - SU Residues/Standard XX spray regime - Logran B - 50g/ha - 520g Triasulfuron + 200g Butafenacil | 1.97       | e                     | -250                      | 89%                   | -\$149                         |
| XC-1XSUMNVH2XRR                            | 4 Month - SU Residues/Standard XX spray regime - Monza 20g/ha - 750g Sulfosulfuron                        | 2.07       | de                    | -150                      | 93%                   | -\$90                          |
| XC-2XRR1.3                                 | 2* RRH - 1.3kg RRH - 2 leaf & 1st Flower regime                                                           | 2.26       | bcd                   | 40                        | 102%                  | \$27                           |
| XC-2XRR1.31XCL375                          | 2 * 1.3kg RRH 4-6 leaf & 1st Flower + Intervix 375ml/ha Treatment                                         | 2.32       | bc                    | 100                       | 105%                  | \$62                           |
| XC-2XRR1.31XCL750                          | 2 * 1.3kg RRH 4-6 leaf & 1st Flower + Intervix 750ml/ha Treatment                                         | 2.23       | bcd                   | 10                        | 100%                  | \$5                            |
| XC-2XRR1.31XSEL                            | 2 * 1.3kg RRH 4-6 leaf & 1st Flower + 500ml Select Control Treatment                                      | 2.22       | bcd                   | 0                         | 100%                  | 0                              |
| XC-3RR0.9                                  | 3* RRH - 0.9kg RRH - 2 leaf, 6 leaf and 1st Flower regime                                                 | 2.27       | bcd                   | 50                        | 102%                  | \$29                           |
|                                            |                                                                                                           |            |                       |                           |                       |                                |
| Herbicide Treatment                        | Herbicide Treatment Application Description                                                               | Yield t/ha | Sig Level LSD = 0.218 | Yield kg/ha vs XX Control | % Yield vs XX Control | \$/ha Difference vs XX Control |
| HYOLA XX - TRUFLEX TECHNOLOGY              |                                                                                                           |            |                       |                           |                       |                                |
| XX-1XCLH2XRR                               | 4 Month - Mod Imi Residues Rate Response/XX spray regime - Intervix 375ml - 33g Imazamox - 15g Imazapyr   | 2.14       | cde                   | -470                      | 82%                   | -\$281                         |
| XX-1XCLVH2XRR                              | 4 Month - High Imi Residues Rate Response/XX spray regime - Intervix 750ml - 33g Imazamox - 15g Imazapyr  | 1.99       | e                     | -620                      | 76%                   | -\$369                         |
| XX-1XODVH2XRR                              | 4 Month - Imi Residues/XX spray regime - On Duty 40g/ha - 525g Imazapic - 175g Imazapyr                   | 0.12       | h                     | -2490                     | 5%                    | -\$1,491                       |
| XX-1XRAPVH2XRR                             | 4 Month - Imi Residues/XX spray regime - Raptor 45g/ha - 700 g Imazamox                                   | 2.14       | cde                   | -470                      | 82%                   | -\$285                         |
| XX-1XSPKVH2XRR                             | 4 Month - Imi Residues/XX spray regime - Spinnaker 70g/ha - 700g - Imazapyr                               | 0.34       | h                     | -2270                     | 13%                   | -\$1,361                       |
| XX-1XSUALVH2XRR                            | 10 Days SU Residues/Standard XX spray regime - Ally 5g/ha - 600g Metsulfuron Methyl                       | 0.11       | i                     | -2500                     | 4%                    | -\$1,499                       |
| XX-1XSUGLVH2XRR                            | 4 Month - SU Residues/Standard XX spray regime - Glean 15/ha - 750g chlorsulfuron                         | 1.55       | f                     | -1060                     | 59%                   | -\$635                         |
| XX-1XSULOGVH2XRR                           | 4 Month - SU Residues/Standard XX spray regime - Logran B - 50g/ha - 520g Triasulfuron + 200g Butafenacil | 0.80       | g                     | -1810                     | 31%                   | -\$1,084                       |
| XX-1XSUMNVH2XRR                            | 4 Month - SU Residues/Standard XX spray regime - Monza 20g/ha - 750g Sulfosulfuron                        | 2.06       | e                     | -550                      | 79%                   | -\$328                         |
| XX-2XRR1.3                                 | 2* RRH - 1.3kg RRH - 2 leaf & 1st Flower regime                                                           | 2.57       | a                     | -40                       | 99%                   | -\$24                          |
| XX-2XRR1.31XSEL                            | 2 * 1.3kg RRH 4-6 leaf & 1st Flower + 500ml Select Control Treatment                                      | 2.61       | a                     | 0                         | 100%                  | 0                              |
| XX-3RR0.9                                  | 3* RRH - 0.9kg RRH - 2 leaf, 6 leaf and 1st Flower regime                                                 | 2.65       | a                     | 40                        | 102%                  | \$22                           |

# 2020 Katanning WA – Hyola® XC IMI Residual Trial Overall Results Table

| Herbicide Treatment                        | Herbicide Treatment Application Description                                                               | Yield t/ha | Sig Level<br>LSD = 0.257 | Yield kg/ha<br>vs XC Control | % Yield<br>vs XC Control | \$/ha Difference<br>vs XC Control |
|--------------------------------------------|-----------------------------------------------------------------------------------------------------------|------------|--------------------------|------------------------------|--------------------------|-----------------------------------|
| HYOLA XC - TRUFLEX + CLEARFIELD TECHNOLOGY |                                                                                                           |            |                          |                              |                          |                                   |
| XC-1XCLH2XRR                               | 4 Month - Mod Imi Residues Rate Response/XX spray regime - Intervix 375ml - 33g Imazamox - 15g Imazapyr   | 2.93       | bcd                      | -80                          | 97%                      | -\$50                             |
| XC-1XCLVH2XRR                              | 4 Month - High Imi Residues Rate Response/XX spray regime - Intervix 750ml - 33g Imazamox - 15g Imazapyr  | 2.93       | bcd                      | -80                          | 97%                      | -\$51                             |
| XC-1XODVH2XRR                              | 4 Month - Imi Residues/XX spray regime - On Duty 40g/ha - 525g Imazapic - 175g Imazapyr                   | 2.93       | bcd                      | -80                          | 97%                      | -\$48                             |
| XC-1XRAPVH2XRR                             | 4 Month - Imi Residues/XX spray regime - Raptor 45g/ha - 700 g Imazamox                                   | 2.99       | bc                       | -20                          | 99%                      | -\$12                             |
| XC-1XSPKVH2XRR                             | 4 Month - Imi Residues/XX spray regime - Spinnaker 70g/ha - 700g - Imazapyr                               | 2.93       | bcd                      | -80                          | 97%                      | -\$46                             |
| XC-1XSUALYVH2XRR                           | 10 Days SU Residues/Standard XX spray regime - Ally 5g/ha - 600g Metsulfuron Methyl                       | 2.80       | cde                      | -210                         | 93%                      | -\$127                            |
| XC-1XSUGLVH2XRR                            | 4 Month - SU Residues/Standard XX spray regime - Glean 15/ha - 750g chlorsulfuron                         | 2.72       | de                       | -290                         | 90%                      | -\$172                            |
| XC-1XSULOGVH2XRR                           | 4 Month - SU Residues/Standard XX spray regime - Logran B - 50g/ha - 520g Triasulfuron + 200g Butafenacil | 2.72       | de                       | -290                         | 90%                      | -\$175                            |
| XC-1XSUMNZVH2XRR                           | 4 Month - SU Residues/Standard XX spray regime - Monza 20g/ha - 750g Sulfosulfuron                        | 2.83       | cde                      | -180                         | 94%                      | -\$107                            |
| XC-2XRR1.3                                 | 2* RRH - 1.3kg RRH - 2 leaf & 1st Flower regime                                                           | 3.04       | bc                       | 30                           | 101%                     | \$15                              |
| XC-2XRR1.31XCL375                          | 2 * 1.3kg RRH 4-6 leaf & 1st Flower + Intervix 375ml/ha Treatment                                         | 2.97       | bcd                      | -40                          | 99%                      | -\$24                             |
| XC-2XRR1.31XCL750                          | 2 * 1.3kg RRH 4-6 leaf & 1st Flower + Intervix 750ml/ha Treatment                                         | 2.99       | bc                       | -20                          | 99%                      | -\$10                             |
| XC-2XRR1.31XSEL                            | 2 * 1.3kg RRH 4-6 leaf & 1st Flower + 500ml Select Control Treatment                                      | 3.01       | bc                       | 0                            | 100%                     | \$0                               |
| XC-3RR0.9                                  | 3* RRH - 0.9kg RRH - 2 leaf, 6 leaf and 1st Flower regime                                                 | 3.04       | abc                      | 30                           | 101%                     | \$18                              |
| HYOLA XX - TRUFLEX TECHNOLOGY              |                                                                                                           |            |                          |                              |                          |                                   |
| XX-1XCLH2XRR                               | 4 Month - Mod Imi Residues Rate Response/XX spray regime - Intervix 375ml - 33g Imazamox - 15g Imazapyr   | 2.84       | cde                      | -300                         | 91%                      | -\$129                            |
| XX-1XCLVH2XRR                              | 4 Month - High Imi Residues Rate Response/XX spray regime - Intervix 750ml - 33g Imazamox - 15g Imazapyr  | 2.67       | e                        | -470                         | 85%                      | -\$228                            |
| XX-1XODVH2XRR                              | 4 Month - Imi Residues/XX spray regime - On Duty 40g/ha - 525g Imazapic - 175g Imazapyr                   | 2.38       | f                        | -760                         | 76%                      | -\$405                            |
| XX-1XRAPVH2XRR                             | 4 Month - Imi Residues/XX spray regime - Raptor 45g/ha - 700 g Imazamox                                   | 2.66       | e                        | -480                         | 85%                      | -\$234                            |
| XX-1XSPKVH2XRR                             | 4 Month - Imi Residues/XX spray regime - Spinnaker 70g/ha - 700g - Imazapyr                               | 2.01       | g                        | -1130                        | 64%                      | -\$628                            |
| XX-1XSUALYVH2XRR                           | 10 Days SU Residues/Standard XX spray regime - Ally 5g/ha - 600g Metsulfuron Methyl                       | 2.35       | f                        | -790                         | 75%                      | -\$423                            |
| XX-1XSUGLVH2XRR                            | 4 Month - SU Residues/Standard XX spray regime - Glean 15/ha - 750g chlorsulfuron                         | 2.27       | f                        | -870                         | 72%                      | -\$471                            |
| XX-1XSULOGVH2XRR                           | 4 Month - SU Residues/Standard XX spray regime - Logran B - 50g/ha - 520g Triasulfuron + 200g Butafenacil | 2.27       | f                        | -870                         | 72%                      | -\$472                            |
| XX-1XSUMNZVH2XRR                           | 4 Month - SU Residues/Standard XX spray regime - Monza 20g/ha - 750g Sulfosulfuron                        | 2.32       | f                        | -820                         | 74%                      | -\$442                            |
| XX-2XRR1.3                                 | 2* RRH - 1.3kg RRH - 2 leaf & 1st Flower regime                                                           | 3.28       | a                        | 140                          | 105%                     | \$137                             |
| XX-2XRR1.31XSEL                            | 2 * 1.3kg RRH 4-6 leaf & 1st Flower + 500ml Select Control Treatment                                      | 3.14       | ab                       | 0                            | 100%                     | \$0                               |
| XX-3RR0.9                                  | 3* RRH - 0.9kg RRH - 2 leaf, 6 leaf and 1st Flower regime                                                 | 3.28       | a                        | 140                          | 105%                     | \$137                             |

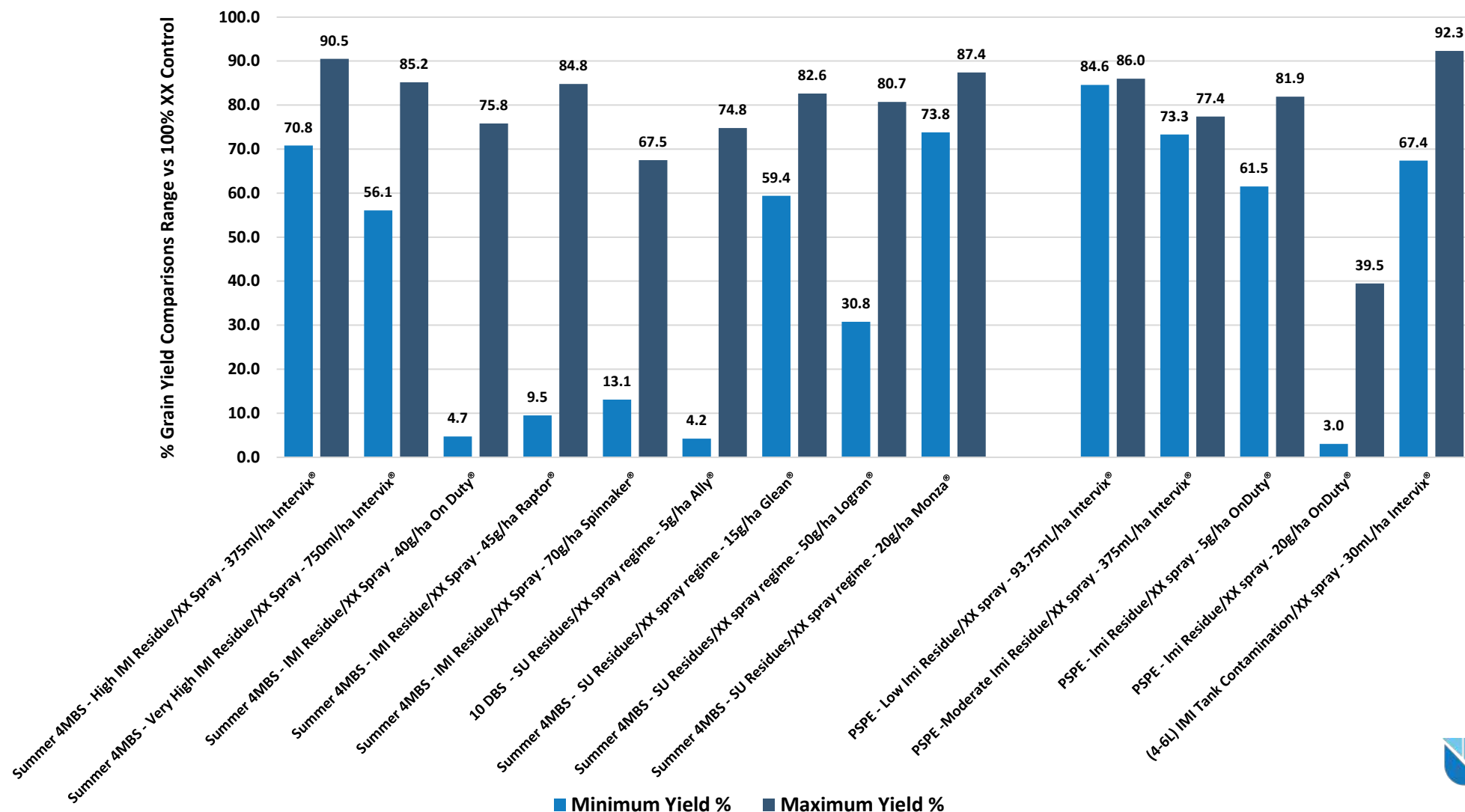
# 2020 Morbinning WA – Hyola® XC IMI Residual Trial Overall Results Table

| Herbicide Treatment                        | Herbicide Treatment Application Description                                                               | Yield t/ha | Sig Level LSD = 0.318 | Yield kg/ha vs XC Control | % Yield vs XC Control | \$/ha Difference vs XC Control |
|--------------------------------------------|-----------------------------------------------------------------------------------------------------------|------------|-----------------------|---------------------------|-----------------------|--------------------------------|
| CLEARFIELD TECHNOLOGY                      |                                                                                                           |            |                       |                           |                       |                                |
| CL-1XCL1XSEL                               | Intervix 750ml/ha + 500ml Select - Control Treatment                                                      | 2.32       | abcd                  | 160                       | 108%                  | \$211                          |
| HYOLA XC - TRUFLEX + CLEARFIELD TECHNOLOGY |                                                                                                           |            |                       |                           |                       |                                |
| XC-1XCLH2XRR                               | 4 Month - Mod Imi Residues Rate Response/XX spray regime - Intervix 375ml - 33g Imazamox - 15g Imazapyr   | 2.15       | de                    | -10                       | 100%                  | -\$5                           |
| XC-1XCLVH2XRR                              | 4 Month - High Imi Residues Rate Response/XX spray regime - Intervix 750ml - 33g Imazamox - 15g Imazapyr  | 2.19       | bcd                   | 30                        | 102%                  | \$17                           |
| XC-1XODVH2XRR                              | 4 Month - Imi Residues/XX spray regime - On Duty 40g/ha - 525g Imazapic - 175g Imazapyr                   | 2.13       | de                    | -30                       | 99%                   | -\$17                          |
| XC-1XRAPVH2XRR                             | 4 Month - Imi Residues/XX spray regime - Raptor 45g/ha - 700 g Imazamox                                   | 2.09       | de                    | -70                       | 97%                   | -\$41                          |
| XC-1XSPKVH2XRR                             | 4 Month - Imi Residues/XX spray regime - Spinnaker 70g/ha - 700g - Imazapyr                               | 2.05       | de                    | -110                      | 95%                   | -\$65                          |
| XC-1XSUALVH2XRR                            | 10 Days SU Residues/Standard XX spray regime - Ally 5g/ha - 600g Metsulfuron Methyl                       | 1.87       | ef                    | -290                      | 87%                   | -\$172                         |
| XC-1XSUGLVH2XRR                            | 4 Month - SU Residues/Standard XX spray regime - Glean 15/ha - 750g chlorsulfuron                         | 1.89       | ef                    | -270                      | 88%                   | -\$163                         |
| XC-1XSULOGVH2XRR                           | 4 Month - SU Residues/Standard XX spray regime - Logran B - 50g/ha - 520g Triasulfuron + 200g Butafenacil | 1.91       | ef                    | -170                      | 89%                   | -\$151                         |
| XC-1XSUMNZVH2XRR                           | 4 Month - SU Residues/Standard XX spray regime - Monza 20g/ha - 750g Sulfosulfuron                        | 1.90       | ef                    | -260                      | 88%                   | -\$156                         |
| XC-2XRR1.3                                 | 2* RRH - 1.3kg RRH - 2 leaf & 1st Flower regime                                                           | 2.11       | de                    | -50                       | 98%                   | -\$32                          |
| XC-2XRR1.31XCL375                          | 2 * 1.3kg RRH 4-6 leaf & 1st Flower + Intervix 375ml/ha Treatment                                         | 2.15       | de                    | -10                       | 100%                  | -\$8                           |
| XC-2XRR1.31XCL750                          | 2 * 1.3kg RRH 4-6 leaf & 1st Flower + Intervix 750ml/ha Treatment                                         | 2.17       | cde                   | 10                        | 101%                  | \$5                            |
| XC-2XRR1.31XSEL                            | 2 * 1.3kg RRH 4-6 leaf & 1st Flower + 500ml Select Control Treatment                                      | 2.16       | cde                   | 0                         | 100%                  | 0                              |
| XC-3RR0.9                                  | 3* RRH - 0.9kg RRH - 2 leaf, 6 leaf and 1st Flower regime                                                 | 2.17       | cde                   | 10                        | 101%                  | \$7                            |
| HYOLA XX - TRUFLEX TECHNOLOGY              |                                                                                                           |            |                       |                           |                       |                                |
| XX-1XCLH2XRR                               | 4 Month - Mod Imi Residues Rate Response/XX spray regime - Intervix 375ml - 33g Imazamox - 15g Imazapyr   | 2.00       | def                   | -500                      | 80%                   | -\$299                         |
| XX-1XCLVH2XRR                              | 4 Month - High Imi Residues Rate Response/XX spray regime - Intervix 750ml - 33g Imazamox - 15g Imazapyr  | 1.87       | ef                    | -630                      | 75%                   | -\$379                         |
| XX-1XODVH2XRR                              | 4 Month - Imi Residues/XX spray regime - On Duty 40g/ha - 525g Imazapic - 175g Imazapyr                   | 1.87       | ef                    | -630                      | 75%                   | -\$378                         |
| XX-1XRAPVH2XRR                             | 4 Month - Imi Residues/XX spray regime - Raptor 45g/ha - 700 g Imazamox                                   | 1.95       | ef                    | -550                      | 78%                   | -\$330                         |
| XX-1XSPKVH2XRR                             | 4 Month - Imi Residues/XX spray regime - Spinnaker 70g/ha - 700g - Imazapyr                               | 1.69       | f                     | -810                      | 68%                   | -\$488                         |
| XX-1XSUALVH2XRR                            | 10 Days SU Residues/Standard XX spray regime - Ally 5g/ha - 600g Metsulfuron Methyl                       | 0.31       | g                     | -2219                     | 12%                   | -\$1,317                       |
| XX-1XSUGLVH2XRR                            | 4 Month - SU Residues/Standard XX spray regime - Glean 15/ha - 750g chlorsulfuron                         | 2.06       | de                    | -440                      | 83%                   | -\$262                         |
| XX-1XSULOGVH2XRR                           | 4 Month - SU Residues/Standard XX spray regime - Logran B - 50g/ha - 520g Triasulfuron + 200g Butafenacil | 2.02       | de                    | -480                      | 81%                   | -\$289                         |
| XX-1XSUMNZVH2XRR                           | 4 Month - SU Residues/Standard XX spray regime - Monza 20g/ha - 750g Sulfosulfuron                        | 2.18       | bcde                  | -320                      | 87%                   | -\$190                         |
| XX-2XRR1.3                                 | 2* RRH - 1.3kg RRH - 2 leaf & 1st Flower regime                                                           | 2.48       | abc                   | -20                       | 99%                   | -\$13                          |
| XX-2XRR1.31XSEL                            | 2 * 1.3kg RRH 4-6 leaf & 1st Flower + 500ml Select Control Treatment                                      | 2.50       | ab                    | 0                         | 100%                  | 0                              |
| XX-3RR0.9                                  | 3* RRH - 0.9kg RRH - 2 leaf, 6 leaf and 1st Flower regime                                                 | 2.58       | a                     | 80                        | 103%                  | \$46                           |

# 2020 Horsham Vic – Hyola® XC IMI Residual Trial Overall Results Table

| Herbicide Treatment                        | Herbicide Treatment Application Description                                                               | Yield t/ha | Sig Level<br>LSD = 0.317 | Yield kg/ha<br>vs XC Control | % Yield<br>vs XC Control | \$/ha Difference<br>vs XC Control |
|--------------------------------------------|-----------------------------------------------------------------------------------------------------------|------------|--------------------------|------------------------------|--------------------------|-----------------------------------|
| CLEARFIELD TECHNOLOGY                      |                                                                                                           |            |                          |                              |                          |                                   |
| CL-1XCL1XSEL                               | Intervix 750ml/ha + 500ml Select - Control Treatment                                                      | 2.82       | a                        | 180                          | 107%                     | \$247                             |
| HYOLA XC - TRUFLEX + CLEARFIELD TECHNOLOGY |                                                                                                           |            |                          |                              |                          |                                   |
| XC-1XCLH2XRR                               | 4 Month - Mod Imi Residues Rate Response/XX spray regime - Intervix 375ml - 33g Imazamox - 15g Imazapyr   | 2.69       | abc                      | 50                           | 102%                     | \$29                              |
| XC-1XCLVH2XRR                              | 4 Month - High Imi Residues Rate Response/XX spray regime - Intervix 750ml - 33g Imazamox - 15g Imazapyr  | 2.65       | abc                      | 10                           | 101%                     | \$8                               |
| XC-1XODVH2XRR                              | 4 Month - Imi Residues/XX spray regime - On Duty 40g/ha - 525g Imazapic - 175g Imazapyr                   | 2.71       | ab                       | 70                           | 103%                     | \$42                              |
| XC-1XRAPH2XRR                              | 4 Month - Imi Residues/XX spray regime - Raptor 45g/ha - 700 g Imazamox                                   | 2.64       | abc                      | 0                            | 100%                     | \$1                               |
| XC-1XSPKVH2XRR                             | 4 Month - Imi Residues/XX spray regime - Spinnaker 70g/ha - 700g - Imazapyr                               | 2.62       | abc                      | -20                          | 99%                      | -\$14                             |
| XC-1XSUALVH2XRR                            | 10 Days SU Residues/Standard XX spray regime - Ally 5g/ha - 600g Metsulfuron Methyl                       | 2.48       | bcd                      | -160                         | 94%                      | -\$98                             |
| XC-1XSUGLVH2XRR                            | 4 Month - SU Residues/Standard XX spray regime - Glean 15/ha - 750g chloresulfuron                        | 2.37       | cdef                     | -270                         | 90%                      | -\$161                            |
| XC-1XSULOGVH2XRR                           | 4 Month - SU Residues/Standard XX spray regime - Logran B - 50g/ha - 520g Triasulfuron + 200g Butafenacil | 2.04       | gh                       | -600                         | 78%                      | -\$358                            |
| XC-1XSUMNVH2XRR                            | 4 Month - SU Residues/Standard XX spray regime - Monza 20g/ha - 750g Sulfosulfuron                        | 2.41       | bcde                     | -210                         | 92%                      | -\$136                            |
| XC-2XRR1.3                                 | 2* RRH - 1.3kg RRH - 2 leaf & 1st Flower regime                                                           | 2.63       | bc                       | -10                          | 100%                     | -\$3                              |
| XC-2XRR1.31XCL375                          | 2 * 1.3kg RRH 4-6 leaf & 1st Flower + Intervix 375ml/ha Treatment                                         | 2.70       | ab                       | 60                           | 102%                     | \$38                              |
| XC-2XRR1.31XCL750                          | 2 * 1.3kg RRH 4-6 leaf & 1st Flower + Intervix 750ml/ha Treatment                                         | 2.62       | abc                      | -20                          | 99%                      | -\$10                             |
| XC-2XRR1.31XSEL                            | 2 * 1.3kg RRH 4-6 leaf & 1st Flower + 500ml Select Control Treatment                                      | 2.64       | abc                      | 0                            | 100%                     | 0                                 |
| XC-3RR0.9                                  | 3* RRH - 0.9kg RRH - 2 leaf, 6 leaf and 1st Flower regime                                                 | 2.68       | abc                      | 40                           | 102%                     | \$22                              |
|                                            |                                                                                                           |            |                          |                              |                          |                                   |
| Herbicide Treatment                        | Herbicide Treatment Application Description                                                               | Yield t/ha | Sig Level<br>LSD = 0.317 | Yield kg/ha<br>vs XX Control | % Yield<br>vs XX Control | \$/ha Difference<br>vs XX Control |
| HYOLA XX - TRUFLEX TECHNOLOGY              |                                                                                                           |            |                          |                              |                          |                                   |
| XX-1XCLH2XRR                               | 4 Month - Mod Imi Residues Rate Response/XX spray regime - Intervix 375ml - 33g Imazamox - 15g Imazapyr   | 2.02       | gh                       | -840                         | 71%                      | -\$502                            |
| XX-1XCLVH2XRR                              | 4 Month - High Imi Residues Rate Response/XX spray regime - Intervix 750ml - 33g Imazamox - 15g Imazapyr  | 1.61       | i                        | -1250                        | 56%                      | -\$752                            |
| XX-1XODVH2XRR                              | 4 Month - Imi Residues/XX spray regime - On Duty 40g/ha - 525g Imazapic - 175g Imazapyr                   | 0.39       | j                        | -2470                        | 14%                      | -\$1,481                          |
| XX-1XRAPH2XRR                              | 4 Month - Imi Residues/XX spray regime - Raptor 45g/ha - 700 g Imazamox                                   | 0.27       | j                        | -2590                        | 9%                       | -\$1,553                          |
| XX-1XSPKVH2XRR                             | 4 Month - Imi Residues/XX spray regime - Spinnaker 70g/ha - 700g - Imazapyr                               | 0.50       | j                        | -2360                        | 17%                      | -\$1,418                          |
| XX-1XSUALVH2XRR                            | 10 Days SU Residues/Standard XX spray regime - Ally 5g/ha - 600g Metsulfuron Methyl                       | 2.10       | efgh                     | -700                         | 73%                      | -\$454                            |
| XX-1XSUGLVH2XRR                            | 4 Month - SU Residues/Standard XX spray regime - Glean 15/ha - 750g chloresulfuron                        | 1.88       | hi                       | -980                         | 66%                      | -\$589                            |
| XX-1XSULOGVH2XRR                           | 4 Month - SU Residues/Standard XX spray regime - Logran B - 50g/ha - 520g Triasulfuron + 200g Butafenacil | 2.17       | defgh                    | -640                         | 76%                      | -\$412                            |
| XX-1XSUMNVH2XRR                            | 4 Month - SU Residues/Standard XX spray regime - Monza 20g/ha - 750g Sulfosulfuron                        | 2.29       | defg                     | -570                         | 80%                      | -\$339                            |
| XX-2XRR1.3                                 | 2* RRH - 1.3kg RRH - 2 leaf & 1st Flower regime                                                           | 2.91       | a                        | 50                           | 102%                     | \$33                              |
| XX-2XRR1.31XSEL                            | 2 * 1.3kg RRH 4-6 leaf & 1st Flower + 500ml Select Control Treatment                                      | 2.86       | a                        | 0                            | 100%                     | 0                                 |
| XX-3RR0.9                                  | 3* RRH - 0.9kg RRH - 2 leaf, 6 leaf and 1st Flower regime                                                 | 2.81       | a                        | -50                          | 98%                      | -\$30                             |

# 2020 Summer Applications (4 Trials) vs 2019 PSPE Applications (4 Trials) Hyola XX Technology IMI & SU Treatment Comparisons





# Thank You

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