NEW

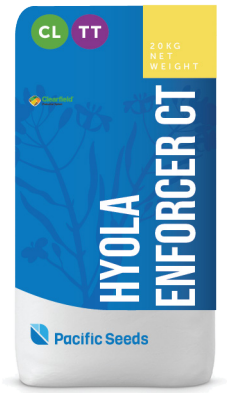
TECHNOTE 2020

CANOLA

HYOLA ENFORCER CT

CLEARFIELD®
+ TRIAZINE TOLERANT

Clearfield Production System



High yielding Clearfield® + Triazine hybrid protecting growers' investment & returns

HYBRID ATTRIBUTES

CT Technology shows up to $1000/ha value in crop protection from Group B IMI soil residue (*PSPE application timing)

Dual herbicide tolerance perfect for IWM cropping rotations and herbicide resistance management

Risk mitigation tool after low rainfall summers with dry soil profiles

High grain yields and oil% with competitive gross returns in $/ha across some environments vs hybrids; InVigor T4510 and HyTTec Trophy.

Specifically adapted to the 1.25t/ha to 3.5t/ha growing regions

Excellent Blackleg Quad-Gene Rating of R, much higher resistance than all OP TT varieties

Excellent early vigour providing higher weed suppression than most OP TT varieties

Yield adaptability	1.25 - 3.5t/ha
Blackleg rating	R
Blackleg groups	*ABDF
Oil potential	High
Herbicide tolerance	CL + TT
Maturity	Mid - Early
Plant vigour	7.5
Plant height	Medium
#Lodging resistance	7
**Shatter tolerance	8
^Hectolitre weight	8
Growing regions	NSW, SA, Vic, WA
Irrigation/dryland	Both
Alternatives to	HyTTec Trophy, InVigor T4510, ATR Bonito, ATR Wahoo, SF Ignite

(P) Indicates provisional rating and blackleg groups from Pacific Seeds blackleg nurseries and R gene screening
# Indicates observed visual rating from Pacific Seeds R&D internal replicated research trial evaluations
*Indicates preliminary blackleg groups screened from Pacific Seeds R&D internal disease nursery evaluations
**Indicates observed visual rating from Pacific Seeds R&D replicated research trial evaluations comparing Hyola products
^ Indicates calculated weight rating from Pacific Seeds R&D internal replicated research trial evaluations
Scale: 1 = poor - 9 = best

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2019 IMI Residue Research Trials showed up to $1000 per Ha Crop Protection

CT TECHNOLOGY WITH HIGH IMI CARRYOVER

TT TECHNOLOGY WITH HIGH IMI CARRYOVER

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

2019 Pacific Seeds Hyola CT Replicated IMI Residue Trials over 5 locations across Australia where Trial mean yields ranged from 0.15 – 3.67t/ha. Mean *Effects are greater in soil types where the herbicides were more mobile due to acid soils and higher rainfall after sowing. Hyola® CT 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® CT Stewardship guide for specific growing guidelines.

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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

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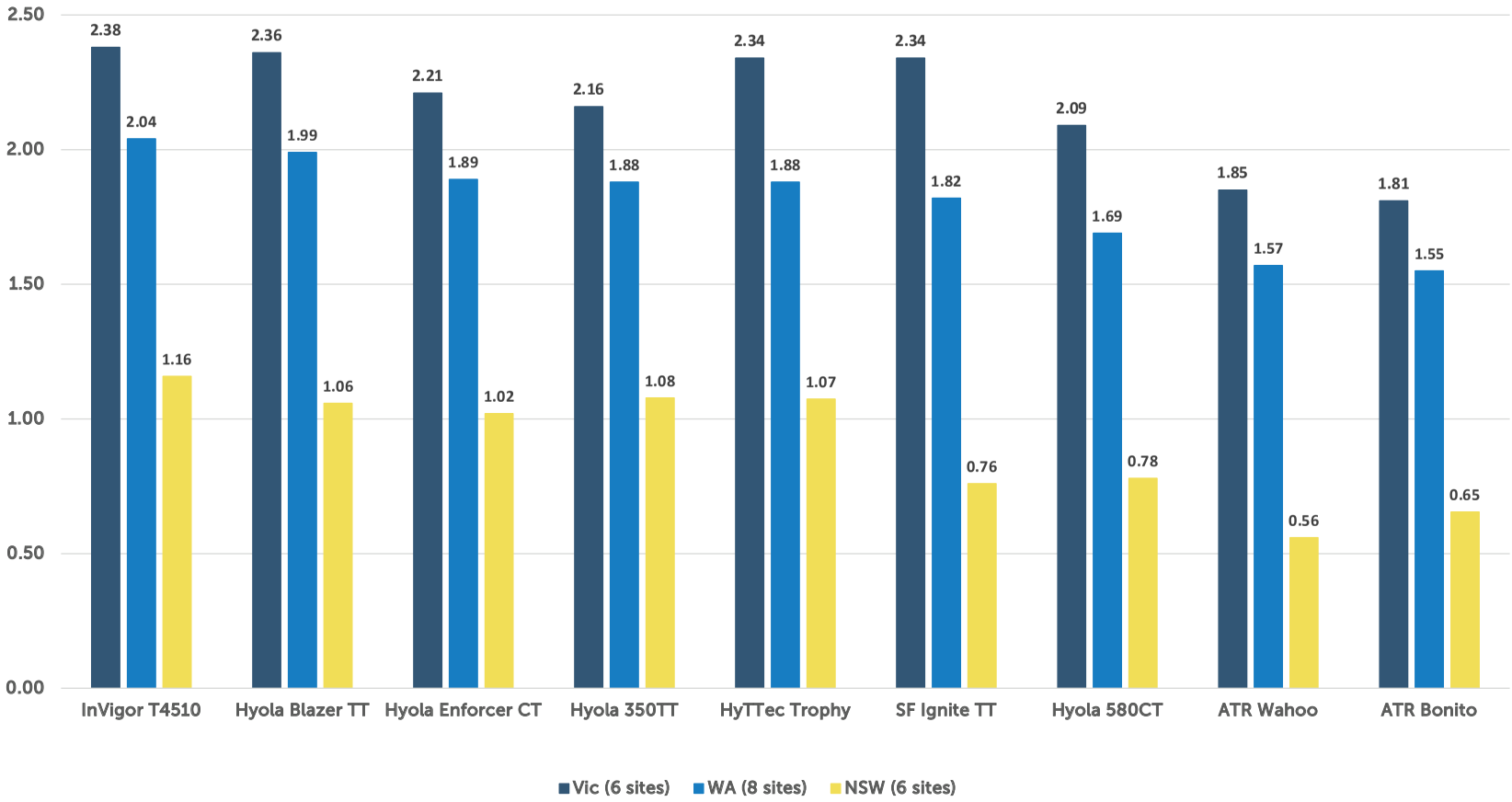
2019 Pacific Seeds Research State trials show Hyola Enforcer CT with competitive yields



2019 Pacific Seeds Breeding Research TT Trials - Mean Analysed Yield (t/ha) by State over 20 Sites where all varieties where common.

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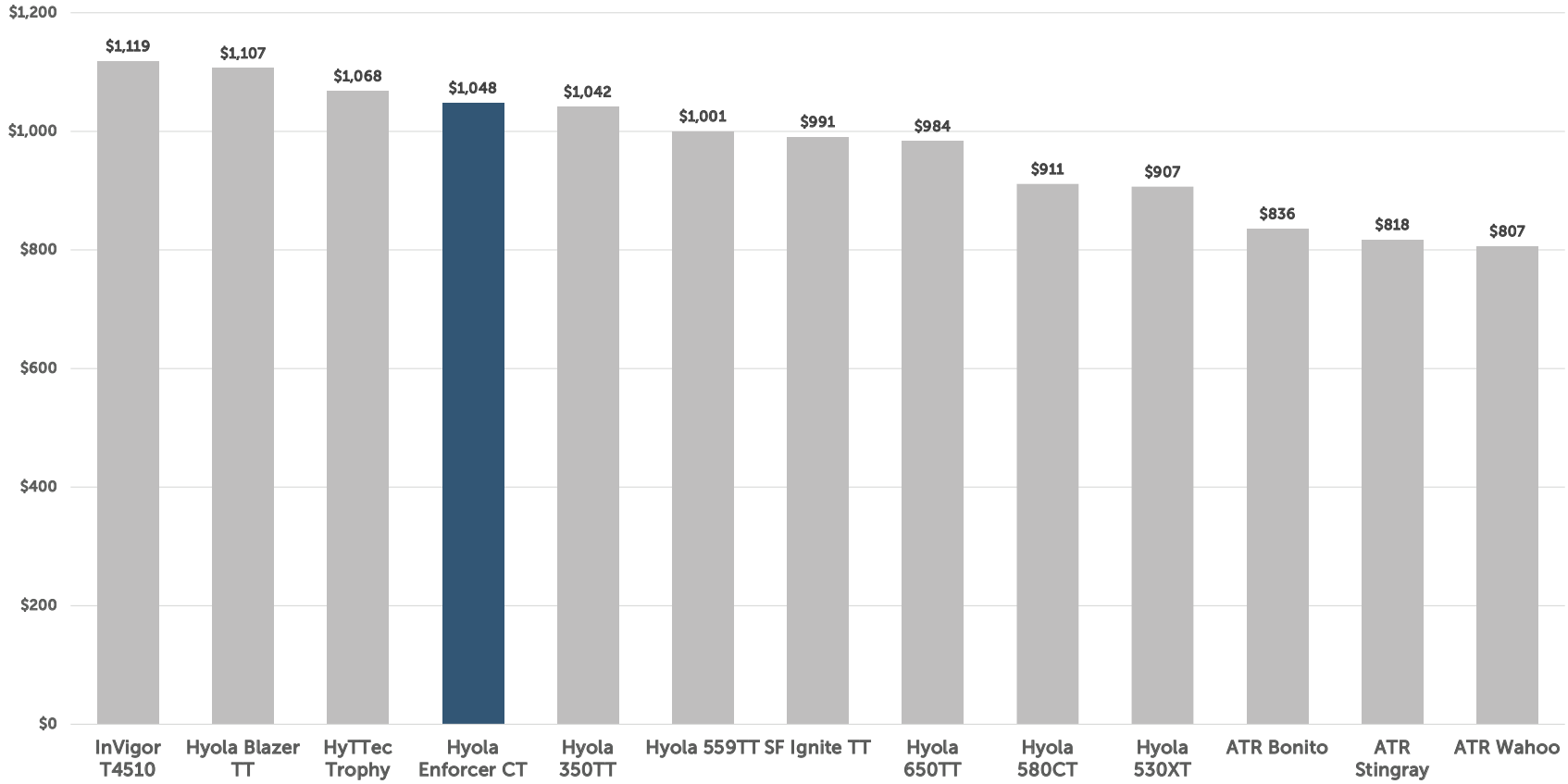
Hyola Enforcer CT shows exceptionally competitive Gross Returns vs Popular TT hybrids



2019 Pacific Seeds Breeding Research TT Trials - Mean Analysed Yield (t/ha) over 20 Sites where all varieties where common. Gross returns $/ha based on Mean Yield * $600/MT including Oil% bonuses or deductions.

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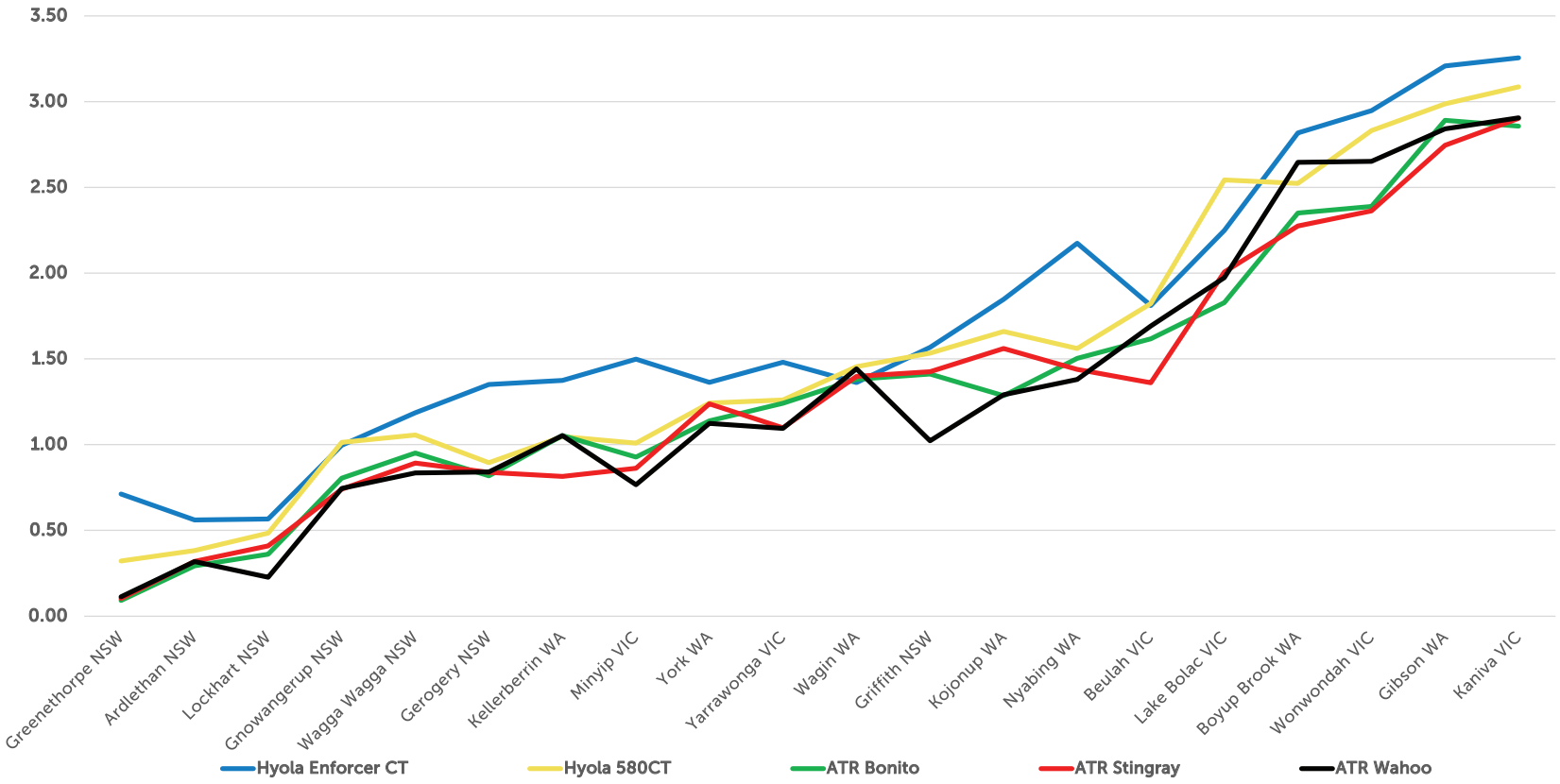
CT Technology hybrids express higher yields than OP TT varieties across many environments



2019 Pacific Seeds replicated breeding research trial results expressed as the mean analysed yield (t/ha) across lower to higher yielding environments in 20 locations where all 5 varieties were common.

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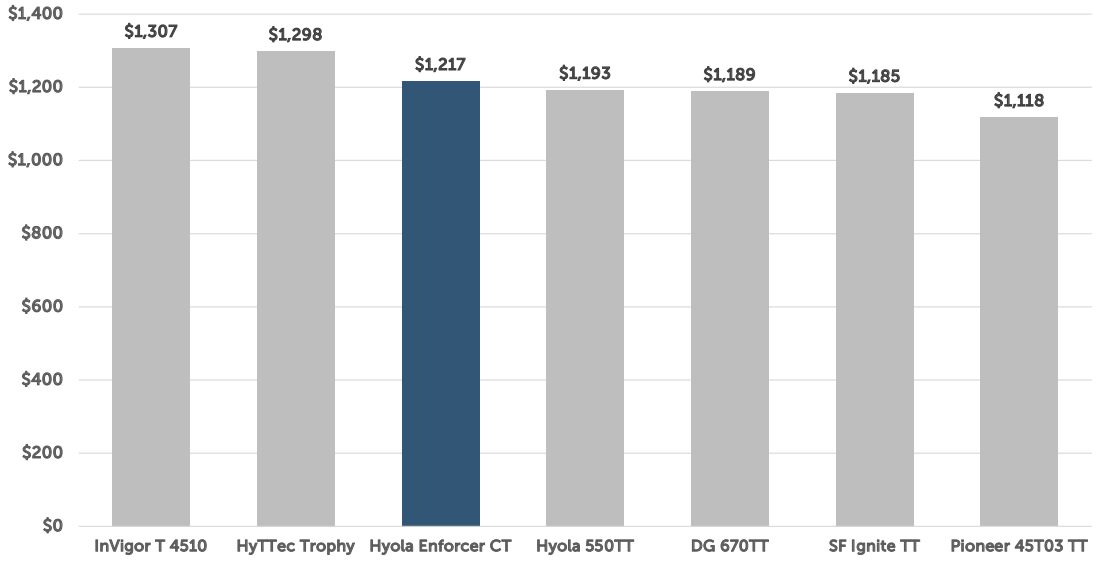
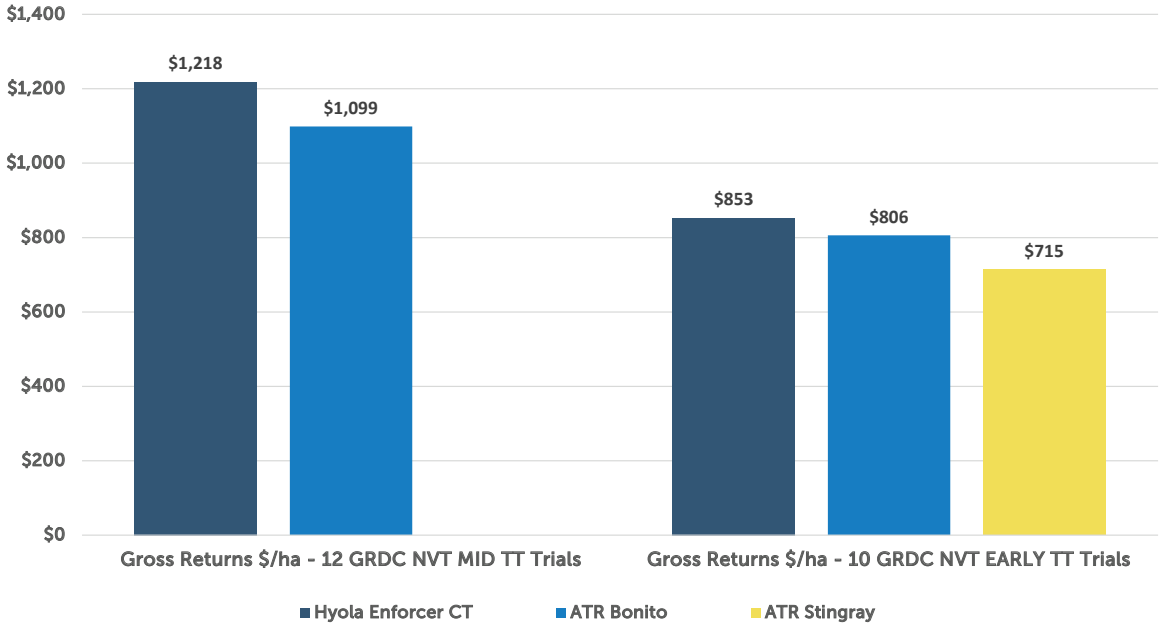
2019 GRDC NVT MID TT Trials show Hyola Enforcer CT with outstanding $/ha gross returns vs competitor TT hybrids



2019 GRDC NVT Mid TT Trials over 18 locations using published analysed yields (t/ha) where all varieties are common. Gross returns $/ha are based on Mean Yield (t/ha) * $600/MT including Oil% bonuses or deductions.

2019 NVT Mid & Early TT Trials show Hyola Enforcer CT higher returns ($/ha) than OP TT varieties across multiple locations



2019 GRDC NVT Mid TT Trials over 12 locations where all varieties are common. 2019 GRDC NVT Early TT Trials over 10 locations where all varieties are common. Gross returns $/ha based on Analysed Mean Yield (t/ha) * $600/MT including Oil% bonuses or deductions.

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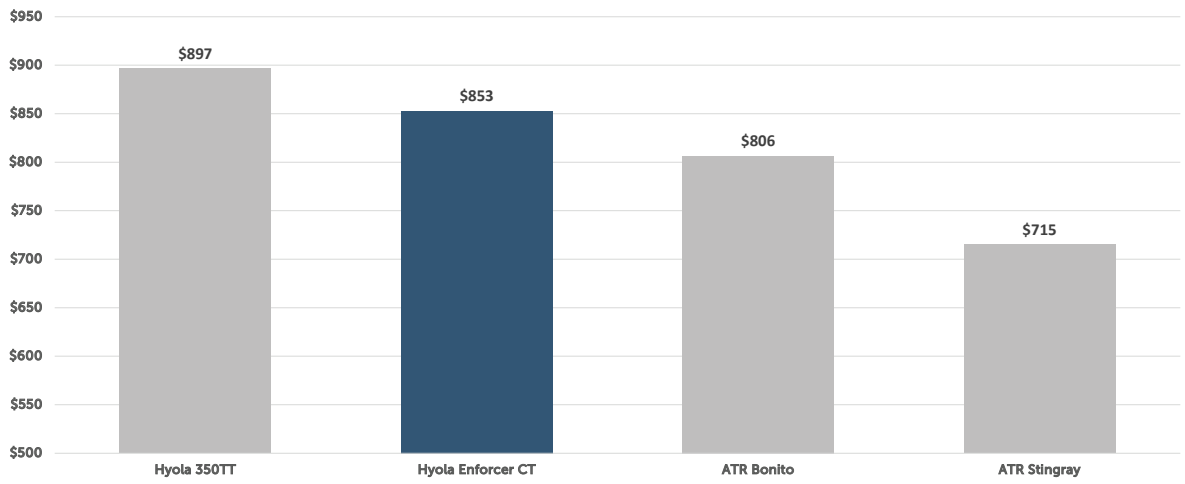
Drier Environments - Hyola Enforcer CT provides competitive Gross Returns



2019 GRDC NVT Early TT Trials over 10 locations where all 4 varieties are common.
Gross returns $/ha based on Analysed Mean Yield (t/ha) * $600/MT including Oil% bonuses or deductions.

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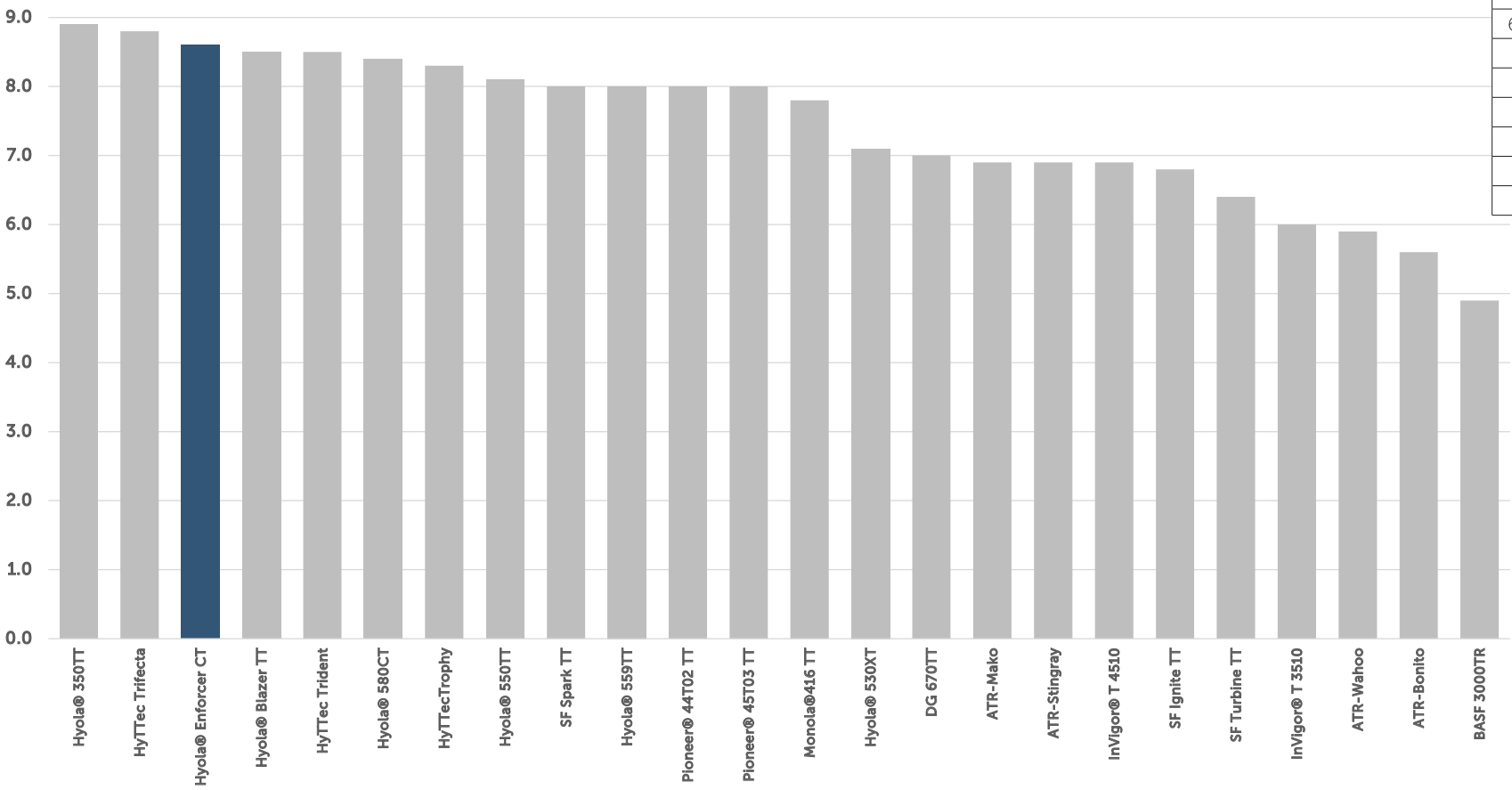
CT Technology Hybrids exhibit Official high rating of "R" for Blackleg Resistance

Value	Rating
8->	R
7.5-7.9	R-MR
6.5-7.49	MR
6-6.49	MR-MS
5-5.9	MS
4-4.9	MS-S
3-3.9	S
2-2.9	S-VS
0-1.9	VS



2020 Official GRDC Autumn Blackleg Ratings (bare seed comparison based on analysed values)

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HYOLA CT TECHNOLOGY STEWARDSHIP GUIDELINES

Pacific Seeds advocates the preservation of Australia's canola herbicide production systems through the correct selection and application of canola production systems. Part of any sustainable farming practice involves good stewardship, and adapting to new farming practices and technologies, especially with regards to integrated weed management (IWM).

Pacific Seeds also recommends that no more than two (2) Group B herbicides are applied in any four (4) year period on the same paddock as this is an important component of the Clearfield® stewardship program.

Where possible, care should be taken to avoid applications of Group B herbicides in consecutive years unless at least two years' previous good weed control has been achieved with methods other than Group B herbicides.

Pacific Seeds also encourages any person applying pesticides to keep accurate records of all herbicide usage.

To preserve the effectiveness of any herbicide a good resistance management approach is recommended. Intervix® herbicide is a Group B herbicide. Other group B (ALS inhibitors) include sulfonylureas, and triazolopyrimidines (sulphonamides).

To assist with resistance management, rotate Clearfield® winter crops with spring crops to break the cycle of winter annual weeds and allow the use of alternate site of action herbicides. If winter cropping is rotated with a fallow season, control weeds before they set seed and use alternate mode of action herbicides. ALS-inhibiting herbicides should not be used more than 2 out of 4 years.

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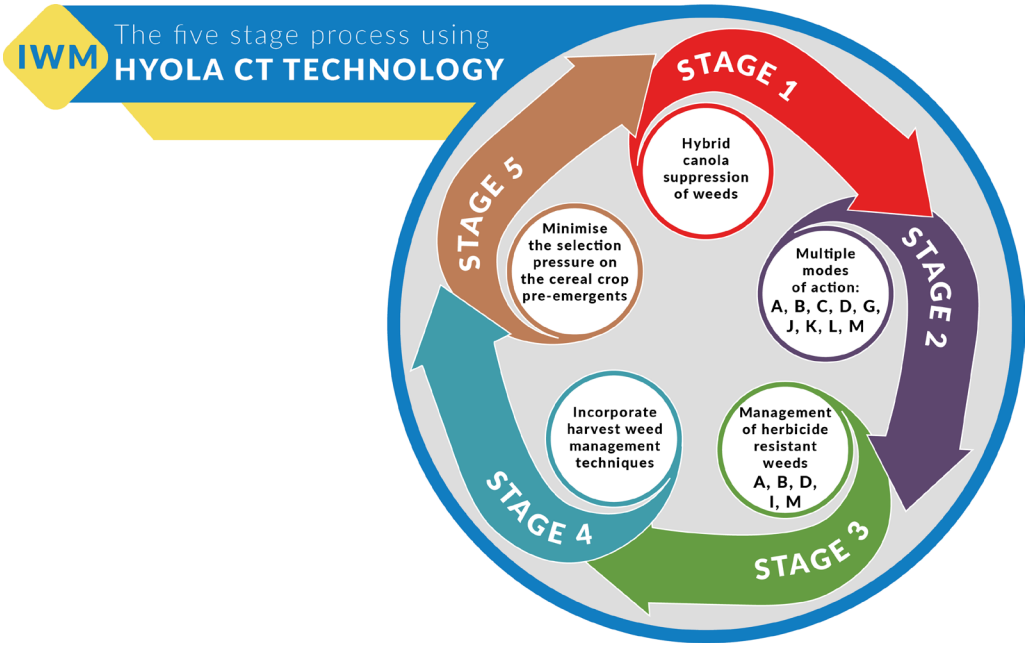
HYOLA CT INTEGRATED WEED MANAGEMENT

When utilising the CT technology, a sound IWM strategy utilising alternative modes of action across pre-emergent, post emergent and fallow application in different crops should be adopted.

Also, the ongoing strategy should consider non-herbicide control measures such as harvest weed seed control (chaff carts, seed destructors, narrow windrow burn, chaff lining, chaff baling etc.).



Through Pacific Seeds leadership in developing new and novel canola dual herbicide tolerant technologies, we can provide growers with increased options and flexibility…"more tools in the tool box" during the canola phase of their cropping rotation.

This aligns well with the industry WEEDSMART's "The Big 6" basis for an IWM program (https://weedsmart.org.au/the big-6/), which can be summarised as followed:

1. ROTATE CROPS AND PASTURES
2. DOUBLE KNOCK – TO PRESERVE GLYPHOSATE
3. MIX AND ROTATE HERBICIDES
4. STOP WEED SEED SET
5. CROP COMPETITION
6. HARVEST WEED SEED CONTROL

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