Hyola® FCT 2012 Fungicide Best Practice Trial Results

Pacific Seeds: Flexible Cropping Technology 2012

Trial Summary

The trial at the Westmere site was sown, maintained and harvested as per protocols with excellent establishment across most plots with the % CV for the Fungicide Best Practice trial was 5.10, which indicates a great dataset for interpreting the results. The trial was sown on the 8th of May and harvested on the 6th of December.

The Triazine herbicides were applied as per standard industry practice at registered rates and timings. The level of blackleg infection was moderate to high in lower rated varieties as all varieties were also cut for internal infection scores. These final analysed cut scores will be available on our website.

All gross returns in $/ha have been calculated using industry average sowing rates and hybrid vs open pollinated planting seed costs respectively. The cost of each of the seed, fertiliser or foliar fungicide treatments has also been included. Base price for grain was $600/t with an oil bonification or deduction adjusted based on 42%.

50% of the trial had (Impact®) flutriafol treated fertiliser ("plus Impact") and the remainder has normal fertiliser ("minus Impact"). The eight trial treatments were: Bare Seed, Bare seed + Impact®, Jockey® treated seed, Jockey® treated seed + Impact®, Prosaro® foliar treatment, Prosaro® + Impact®, Prosaro + Jockey® treated seed, Prosaro® + Jockey® treated seed + Impact®. The four TT varieties used have blackleg ratings varying from MS to MR-MS to MR to R-MR. All treatments were applied at the correct registered rates and timings.

Plus Impact®

In the Impact treated section there were some significant yield differences between varieties by treatments. Within varieties, across the various treatments there were also some significant yield differences. Crusher TT with Jockey® seed treatment + Prosaro® + Impact® significantly out-yielded the other Crusher TT treatments whereas, with the other varieties most combinations of treatments out-yielded the bare seed with Impact® treatment albeit not significantly.

Variety	Yield (t/ha) ± Standard Error			Oil %	Bonus	Gross	Gross Return Seed+Fung ($/ha)
CRUSHER TT + JOCKEY	3.65	±	0.10	42.2	100.3	$2,195	$2,145
CRUSHER TT + PR + JOCKEY	3.94	±	0.10	42.7	101.1	$2,391	$2,311
CRUSHER TT + PROSARO	3.63	±	0.10	42.9	101.4	$2,206	$2,131
CRUSHER TT BARE	3.62	±	0.10	42.5	100.8	$2,186	$2,136
HYOLA 555TT + JOCKEY	3.65	±	0.10	43.9	102.9	$2,255	$2,180
HYOLA 555TT + PR + JOCKEY	3.67	±	0.10	43.9	102.9	$2,264	$2,164
HYOLA 555TT + PROSARO	3.63	±	0.10	44.1	103.2	$2,249	$2,154
HYOLA 555TT BARE	3.51	±	0.10	42.8	101.2	$2,134	$2,064
HYOLA 559TT + JOCKEY	3.85	±	0.10	45.9	105.9	$2,446	$2,371
HYOLA 559TT + PR + JOCKEY	3.93	±	0.10	45.5	105.3	$2,482	$2,382
HYOLA 559TT + PROSARO	3.97	±	0.10	45.9	105.9	$2,521	$2,426
HYOLA 559TT BARE	3.84	±	0.10	46.0	106.0	$2,441	$2,371
JACKPOT TT + JOCKEY	3.31	±	0.10	46.8	107.2	$2,128	$2,073
JACKPOT TT + PR + JOCKEY	3.53	±	0.10	46.7	107.1	$2,267	$2,187
JACKPOT TT + PROSARO	3.45	±	0.10	47.3	108.0	$2,234	$2,159
JACKPOT TT BARE	3.31	±	0.10	47.8	108.7	$2,161	$2,111

The highest blackleg rated varieties, Hyola® 559TT and Hyola® 555TT did not show any significant yield responses from the application of fungicides in any combination in the presence of Impact®. This may have been due to a number of factors such as the varieties inherent genetic resistance, the actual level of isolates present for blackleg

infection or the specific types of isolates in and around the trial site or a combination of all these.

Minus Impact®

In the normal fertiliser (no Impact®) section there were some significant yield differences between varieties by treatments. Within varieties, across the various treatments there were also some significant yield differences. All Crusher TT and Jackpot TT treatments with combinations of fungicides showed significantly higher yields than the bare seed treatments in the absence of Impact®. Hyola® 559TT with a range of treatments consistently showed the highest gross returns in the trial. The highest blackleg rated varieties, Hyola® 559TT and Hyola® 555TT did not show any significant yield responses from the application of fungicides in any combination in the absence of Impact®.

Variety	Yield (t/ha) ± Standard Error			Oil %	Bonus	Gross	Gross Return Seed+Fung ($/ha)
CRUSHER TT + JOCKEY	3.44	±	0.10	43.6	102.4	$2,111	$2,061
CRUSHER TT + PR + JOCKEY	3.75	±	0.10	43.7	102.6	$2,310	$2,235
CRUSHER TT + PROSARO	3.45	±	0.11	45.5	105.3	$2,177	$2,107
CRUSHER TT BARE	3.14	±	0.11	45.4	105.1	$1,979	$1,934
HYOLA 555TT + JOCKEY	3.53	±	0.10	43.3	102.0	$2,159	$2,089
HYOLA 555TT + PR + JOCKEY	3.57	±	0.10	43.5	102.3	$2,191	$2,096
HYOLA 555TT + PROSARO	3.53	±	0.10	43.1	101.7	$2,152	$2,062
HYOLA 555TT BARE	3.59	±	0.10	44.4	103.6	$2,232	$2,167
HYOLA 559TT + JOCKEY	3.78	±	0.10	45.7	105.6	$2,391	$2,321
HYOLA 559TT + PR + JOCKEY	3.84	±	0.10	46.0	106.0	$2,445	$2,350
HYOLA 559TT + PROSARO	3.91	±	0.11	46.2	106.3	$2,493	$2,403
HYOLA 559TT BARE	3.71	±	0.10	44.5	103.8	$2,313	$2,248
JACKPOT TT + JOCKEY	3.19	±	0.10	47.8	108.7	$2,082	$2,032
JACKPOT TT + PR + JOCKEY	3.55	±	0.10	48.1	109.2	$2,322	$2,247
JACKPOT TT + PROSARO	3.04	±	0.10	49.2	110.8	$2,019	$1,949
JACKPOT TT BARE	2.51	±	0.11	47.7	108.6	$1,637	$1,592

Hyola® FCT Fungicide Best Practice trials in other regions across Australia are also showing some significant yield responses from the different fungicides especially on the lower rated varieties where environmental conditions were conducive to increased disease activity and the existence of specific pathogenic isolates infecting selected varieties. The multi-across-site analysed trial results across the different fungicides and combinations of treatments will be made available on our website.

Key Messages – what does this mean for the grower?

Fertiliser, seed and foliar fungicide treatments for canola have specific fits for different varieties and environmental circumstances.

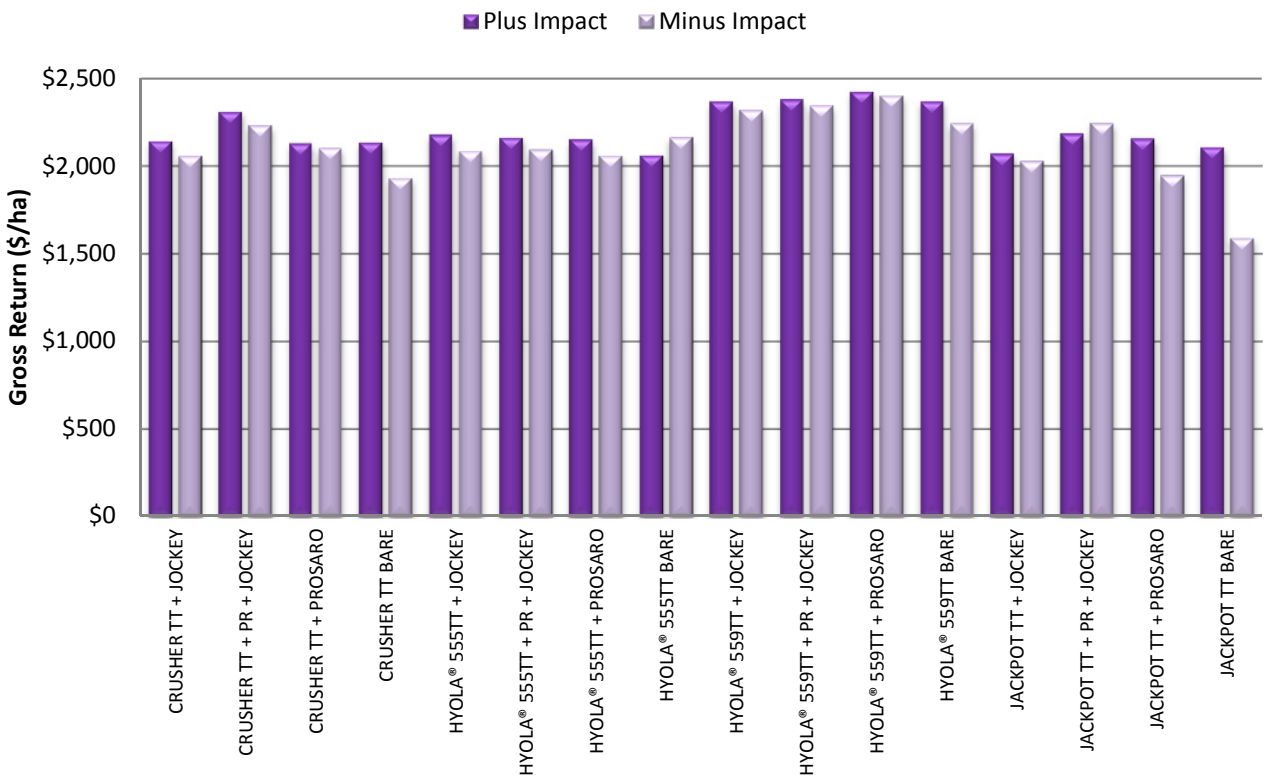

Figure 1. Mean gross returns ($/ha) of each treatment plus and minus Impact in the Hyola FCT 2012 Fungicide Best Practice trial

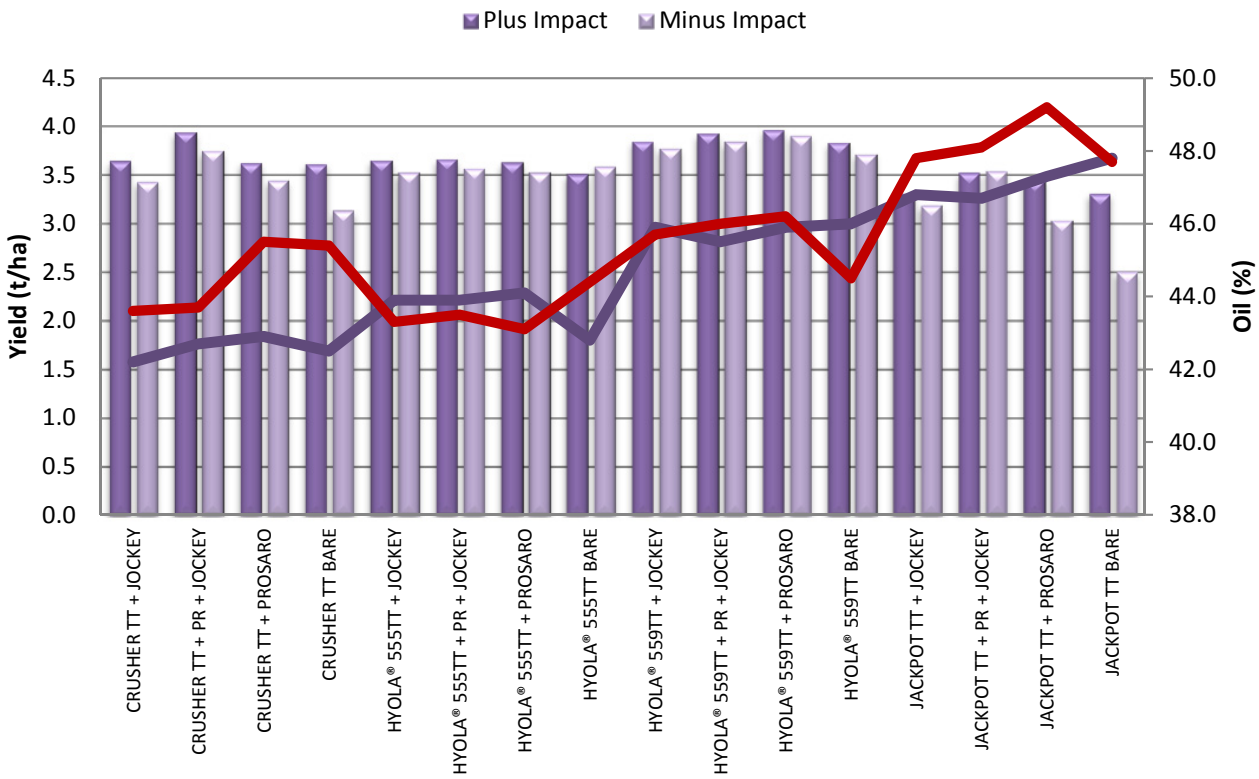

Figure 1. Mean yield (t/ha) and oil content of each treatment plus and minus Impact in the Hyola FCT 2012 Fungicide Best Practice trial

The key points for growers from this year's research are:

- **The value of genetic resistance:** Genetic Blackleg resistance (in-built protection) is the key component to variety choice and use of Intake/Impact or Prosaro as backup or fallback blackleg control measures
- **Preferential use of the triazole fungicides:** use Intake (flutriafol) and/or Prosaro (prothioconazole + tebuconazole) as blackleg control measures where required in preference to Jockey (fluquinconazole) seed treatment – (reduced seed hypocotyl length and quality longevity)
- **Preservation of the triazole fungicides – reducing fungicide resistance:** growers also need to be wary of the ongoing use of these three products and the potential for resistance to the Triazole group of fungicides.
- **Extra cost ($10 - $40/ha) of fungicides to prop up lower rated varieties:** growers need to consider the costs associated with fungicide treatments on lower rated varieties and the savings they can make by just choosing a variety with a higher rating and applying the proper cultural practices
- Jockey (fluquinconazole) works internally on slowing internal infection at early seedling stage - hence lower CAA blackleg rated varieties increase resistance with Jockey applied
- Impact (flutriafol) works on internal infection during early to mid-plant growth especially on lower CAA blackleg rated varieties
- Neither Jockey or Impact are showing significant reduction in seedling blackleg lesion infection on leaves after 3 to 4 leaf stage
- Both Jockey and Impact have shown significant reduction in internal infection and increases in grain yield with lower rated varieties – (MR-MS and below)
- Prosaro foliar fungicide (prothioconazole + tebuconazole) has shown significant reduction in existing leaf infection and reduces internal infection and has shown increases in grain yield with lower rated varieties – (MR-MS and below)

Hyola® FCT 2012 Seed Treatment Trial Results

Different insecticide and fungicide seed treatments were applied on Hyola® 474CL and Hyola® 559TT in replication throughout the performance yield trial to evaluate any effects on early vigour, height, yield, oil and gross returns. Both Cruiser® Opti (CO) and Poncho® Plus (PP) insecticide treated seed showed some visual enhanced early vigour over other treatments such as Gaucho (G) and the bare seed control especially the Cruiser® Opti and Maxim XL (M) treatment. In general terms, visual observations of any treatments combined with Jockey® (J) showed slightly reduced early vigour, where that effect may have been masked somewhat by the positive growth influences of some of the insecticides.

Some of the seed treatments yielded up to 270kg/ha higher than the bare seed control, however none of these being statistically different. Gross returns of some of the seed treatments showed increases over bare seed up to $128/ha which could be attributed to either the insecticide component or the specific treatment combinations effect as there was flutriafol applied under the whole performance trial which would have assisted with blackleg prevention or control. This increase in $/ha returns covers the extra costs associated with treated seed and commonly provides additional returns on top of that for the grower.

Key Message

Seed treatments are vital risk management tools for early insect and disease control with the added bonus of enhanced vigour in some cases. Cruiser® Opti and Maxim XL is an excellent option for higher blackleg rated varieties in many situations especially in conjunction with flutriafol fungicide on the fertiliser. Cruiser® Opti and Jockey® should be used in high blackleg pressure situations on varieties with any blackleg rating along with flutriafol fungicide on the fertiliser.

Hyola® FCT 2012 Hybrid F1 vs. F2 Generation Trial Results

The F2 retained seed generations had lower yields than all F1 purchased seed of all varieties including Hyola® 555TT, Hyola® 656TT, Hyola® 559TT, Hyola® 404RR, Hyola® 505RR, Hyola® 575CL and Hyola® 474CL with all of these yield differences were statistically different. The mean gross returns of the seven hybrids evaluated showed the F2 retained seed generations provided an overall loss of $350/ha.

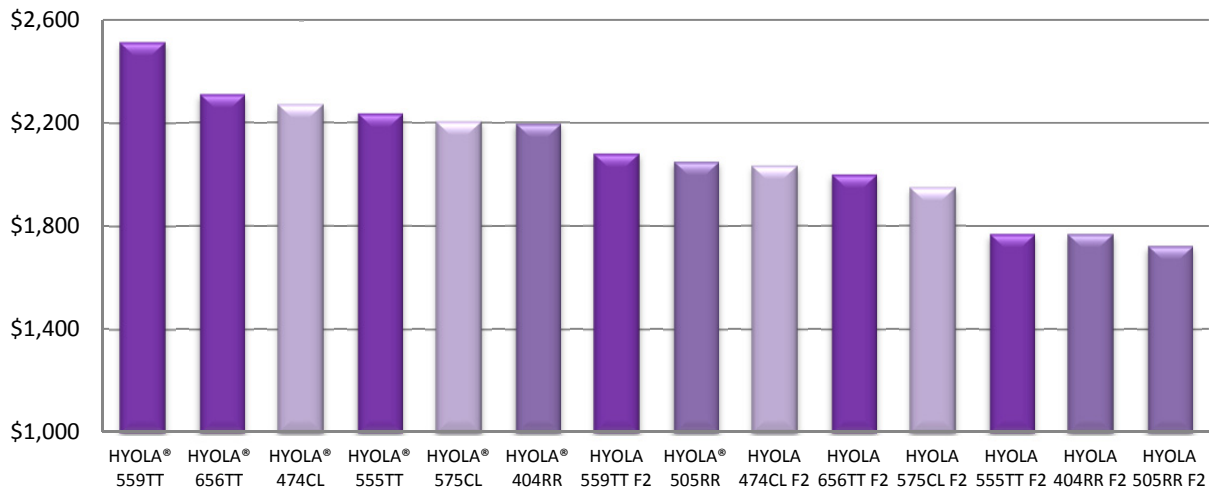

Figure 1. F1 vs F2 generation gross returns ($/ha) in the Hyola FCT 2012 Performance trial

This is consistent with previous research which has shown F2 retained generations to have lower gross returns ranging from $100/ha to $400/ha across different locations in Australia. In general terms the oil % of the F2 retained generations are also slightly lower compared to the purchased F1 hybrid seed which is also consistent with previous research.

Key message

Due to the associated gross return losses, don't retain your harvested F2 canola seed from any herbicide tolerant hybrid for sowing seed purposes.