

## Trial 6. HYC Disease Management Trial (FAR VIC C22-06-S)

### Objectives:

To determine the impacts of cultivar choice and fungicide management for disease infection and grain yield of hyper-yielding canola.

### Key findings:

- The application of flowering fungicide Aviator Xpro at 20% bloom increased yield across all varieties compared to where no fungicide was used by 0.42 t/ha. This treatment was designed to determine the effect of late foliar diseases (sclerotinia and upper canopy blackleg) on canola yield.
- The addition of Saltro Duo to seed and Prosaro at 6-leaf stage (Complete treatment) increased yield by a further 0.23 t/ha.
- Despite differences in blackleg resistance ratings in this trial, all varieties responded to fungicide inputs in the same way.
- Oil concentration wasn't affected by fungicide input but there were differences between varieties. Highest oil came from 45Y28 RR with 45.9% and lowest oil from ATR Wahoo with 40.5%.

**Treatments:** Three fungicide strategies applied to four varieties. Flowering treatment set to control late foliar diseases only (sclerotinia and upper canopy blackleg); Complete treatment set to control early crown canker blackleg and late foliar diseases.

**Table 4.** Influence of fungicide strategy and variety of canola yield (t/ha).

|                                | HyTTec<br>Trifecta |          | ATR<br>Wahoo |          | 45Y28<br>RR  |          | Eagle TF     |          | Mean         |          |
|--------------------------------|--------------------|----------|--------------|----------|--------------|----------|--------------|----------|--------------|----------|
| Treatment                      | Yield (t/ha)       |          | Yield (t/ha) |          | Yield (t/ha) |          | Yield (t/ha) |          | Yield (t/ha) |          |
| Nil                            | 3.20               | -        | 2.68         | -        | 3.65         | -        | 3.43         | -        | <b>3.24</b>  | <b>c</b> |
| Flowering                      | 3.92               | -        | 2.99         | -        | 3.89         | -        | 3.84         | -        | <b>3.66</b>  | <b>b</b> |
| Complete                       | 4.21               | -        | 3.20         | -        | 4.11         | -        | 4.06         | -        | <b>3.89</b>  | <b>a</b> |
| Mean                           | <b>3.77</b>        | <b>a</b> | <b>2.95</b>  | <b>b</b> | <b>3.88</b>  | <b>a</b> | <b>3.78</b>  | <b>a</b> |              |          |
| LSD Variety P=0.05             |                    |          |              |          | 0.26         |          | P val        |          | <0.001       |          |
| LSD Fungicide P=0.05           |                    |          |              |          | 0.17         |          | P val        |          | <0.001       |          |
| LSD Variety x Fungicide P=0.05 |                    |          |              |          | ns           |          | P val        |          | 0.277        |          |
| CV                             |                    |          |              |          | 6.31         |          |              |          |              |          |

**Table 2.** Grain quality assessment- oil (%), test weight (kg/HL) & protein (%).

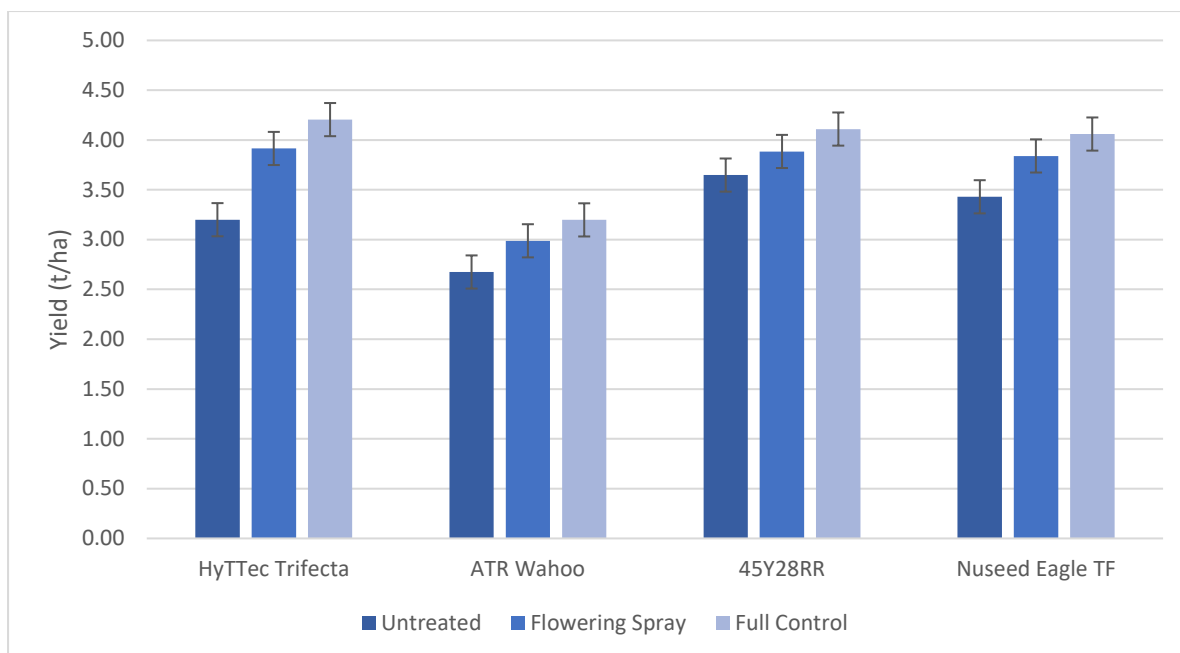
| Grain quality assessments |         |        |                     |    |             |   |
|---------------------------|---------|--------|---------------------|----|-------------|---|
| <i>Cultivar</i>           | Oil (%) |        | Test Weight (kg/hL) |    | Protein (%) |   |
| 1. HyTTec Trifecta        | 41.9    | c      | 66.3                | b  | 20.5        | a |
| 2. ATR Wahoo              | 40.5    | d      | 67.3                | a  | 21.6        | a |
| 3. 45Y28RR                | 45.9    | a      | 65.6                | bc | 17.5        | c |
| 4. NCH20Q732              | 44.1    | b      | 65.0                | c  | 18.9        | b |
| <i>LSD = 0.05</i>         |         | 1.38   | 0.89                |    | 1.25        |   |
| <i>Cultivar p-Value</i>   |         | <0.001 | 0.002               |    | <0.001      |   |

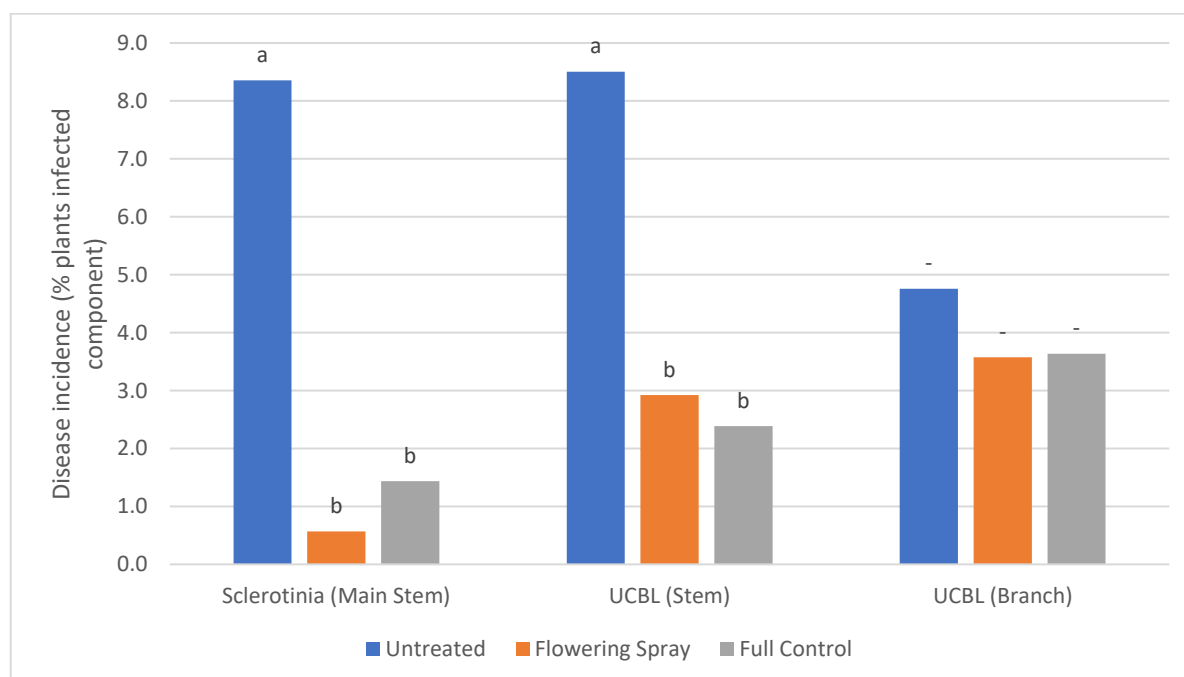
| Disease Management                |      |       |       |    |       |   |
|-----------------------------------|------|-------|-------|----|-------|---|
| 1. Nil                            | 42.7 | -     | 66.5  | a  | 19.8  | - |
| 2. Flowering                      | 43.4 | -     | 65.7  | b  | 19.3  | - |
| 3. Complete                       | 43.2 | -     | 65.9  | ab | 19.7  | - |
| <i>LSD = 0.05</i>                 |      | 1.21  | 0.64  |    | 1.07  |   |
| <i>Disease Management p-Value</i> |      | 0.459 | 0.041 |    | 0.634 |   |

**Table 3.** Details of the management levels.

|                              |                   |                          |                       |                       |
|------------------------------|-------------------|--------------------------|-----------------------|-----------------------|
| <b>Sowing date:</b>          |                   | <b>26 April</b>          |                       |                       |
| <b>Target plant density:</b> |                   | 60 plants/m <sup>2</sup> |                       |                       |
| <b>Fungicide Management:</b> |                   | <b>Nil</b>               | <b>Flowering</b>      | <b>Complete</b>       |
|                              | Seed trt:         | Maxim XL                 | Maxim XL              | Saltro Duo            |
|                              | 6 - Leaf          | ---                      | ---                   | Aviator Xpro 800mL/ha |
|                              | 20% Bloom         | ---                      | Aviator Xpro 800mL/ha | Prosaro 450mL/ha      |
| <b>Fertiliser:</b>           | Basal             | 145 kg MAP               |                       |                       |
|                              | 2-Leaf            | 84 kg ammonium sulfate   |                       |                       |
|                              | 6-Leaf            | 238 kg Urea              |                       |                       |
|                              | Green Bud Visible | 245 kg Urea              |                       |                       |



**Figure 1.** Yield (t/ha) response to fungicide management by variety ( $\pm$  LSD = 0.05).



**Figure 2.** Disease infection of different segments of the canopy structure (% plants with infect component) in response to treatment ( $\pm$  LSD 0.05).