

# Yardstick Trials - Trial Report



York - 14/02/2018

## Wheat:

<b>Specific Location:</b>	York NVT	<b>Sowing Date:</b>	31/05/2018
<b>Varieties:</b>	Scepter and Trojan	<b>Harvest Date:</b>	10/12/2018
<b>Previous Crop:</b>	Canola		

## Barley:

<b>Specific Location:</b>	York NVT	<b>Sowing Date:</b>	31/05/2018
<b>Varieties:</b>	La Trobe & Bass	<b>Harvest Date:</b>	10/12/2018
<b>Previous Crop:</b>	Canola		

## Canola:

<b>Specific Location:</b>	York	<b>Sowing Date:</b>	12/05/2018
<b>Varieties:</b>	Hyola 559 & InViaor T4510	<b>Harvest Date:</b>	12/11/2018
<b>Previous Crop:</b>	Wheat		

## Weather Conditions

1- Cereals

Event	Comments
<b>Frost Event</b>	This trial experienced frost conditions on the following dates throughout the flowering period: -0.3 °C on Aug 5, -0.6 °C on Aug 10, -0.8 °C on Aug 11, -0.1 °C on Aug 23, -0.7 °C on Sep 6, -0.4 °C on Sep 12, -2.7 °C on Sep 15, -2.1 °C on Sep 16. Interpret results with caution.
<b>Heat Event</b>	This trial experienced extreme heat conditions on the following dates throughout the flowering period: 33.3 °C on Sep 3, 32.8 °C on Sep 21, 33.2 °C on Sep 22, 33.6 °C on Sep 23, 34.2 °C on Sep 30, 32.1 °C on Oct 10, 34.6 °C on Oct 11, 34.2 °C on Oct 16, 38.2 °C on Oct 17, 33 °C on Oct 23, 32.2 °C on Oct 24, 36.3 °C on Oct 25, 35.8 °C on Oct 26, 34.2 °C on Oct 27, 37.8 °C on Oct 28, 39.5 °C on Oct 29, 33.4 °C on Oct 30. Interpret results with caution.

## Rainfall (mm) Data Source: DPIRD weather station

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
91.8	27.2	0.2	11.4	0.4	51.2	111.8	86.4	7	38	1	0.4

## Soil Testing

Soil Classification Details	
<b>Order</b>	Chromosols Chromosols: soils with a strong texture contrast between the topsoil and subsoil. Subsoils are not strongly acid and are not sodic
<b>Sub-Order</b>	Grey
<b>Identification Source</b>	CSIRO SoilMapp

	Depth	Texture	Total Nitrogen	Phosphorous	P Test Type
	cm	1 sand, 2 sandy loam, 3 loam, 4 loamy clay, 5 clay	mg/kg	mg/kg	
16/03/2018	0-10	1.0	17.0	59.00	Colwell
16/03/2018	10-60	1.5	6.0	59.00	Colwell

	Organic Carbon	pH (water)	pH (CaCl <sub>2</sub> )	Conductivity (EC)	ESP
	%	pH	pH	dS/m	%
16/03/2018	1.1	7.10	6.60	0.2	na
16/03/2018	0.8	6.10	5.60	0.1	2.9

#### Fertiliser Treatments

	N (Pre)	N (Post)	P
Decile 0	0	0	0
Decile 3	10	0	5
Decile 6	30	0	5
Play Season	30	20	5

#### Post emergent applications

- Cereals applied 20/07/2018
- Canola applied 13/07/2018

#### Results

##### Wheat

Table 1: Crop Establishment (plants/m<sup>2</sup>) wheat

	Decile 0	Decile 3	Decile 6	Play Season	Means
Scepter	127	124	120	124	124
Trojan	117	120	118	118	118
Means	122	122	119	121	
	Significance (Variety) P= NS			l.s.d (P<0.05) = n.a.	
	Significance (Decile) P= NS			l.s.d (P<0.05) = n.a.	
	Significance (Variety*Decile) P= NS			l.s.d (P<0.05) = n.a.	

Table 2: Crop emergence (0-9) wheat

	Decile 0	Decile 3	Decile 6	Play Season	Means
<b>Scepter</b>	8.3	8.7	8.3	9.0	8.6
<b>Trojan</b>	8.7	9	8.7	8.0	8.6
<b>Means</b>	8.5	8.8	8.5	8.5	
	Significance (Variety) P= NS			l.s.d (P<0.05) = n.a.	
	Significance (Decile) P= NS			l.s.d (P<0.05) = n.a.	
	Significance (Variety*Decile) P= 0.048			l.s.d (P<0.05) = 0.8	

Table 3: Crop vigour (0-9) wheat

	Decile 0	Decile 3	Decile 6	Play Season	Means
<b>Scepter</b>	8.0	8.3	8.7	8.0	8.3
<b>Trojan</b>	8.0	8.7	8.3	7.7	8.2
<b>Means</b>	8.0	8.5	8.5	7.8	
	Significance (Variety) P= NS			l.s.d (P<0.05) = n.a.	
	Significance (Decile) P= NS			l.s.d (P<0.05) = n.a.	
	Significance (Variety*Decile) P= NS			l.s.d (P<0.05) = n.a.	

Table 4: Tiller count (number of tillers per main stem) wheat

	Decile 0	Decile 3	Decile 6	Play Season	Means
<b>Scepter</b>	1	1	1	1	1
<b>Trojan</b>	1	1	1	1	1
<b>Means</b>	1	1	1	1	
	Significance (Variety) P= NS			l.s.d (P<0.05) = n.a.	
	Significance (Decile) P= NS			l.s.d (P<0.05) = n.a.	
	Significance (Variety*Decile) P= NS			l.s.d (P<0.05) = n.a.	

Table 5: NDVI reading wheat

	Decile 0	Decile 3	Decile 6	Play Season	Means
<b>Scepter</b>	0.43	0.52	0.59	0.62	0.54
<b>Trojan</b>	0.42	0.42	0.52	0.50	0.47
<b>Means</b>	0.43	0.47	0.56	0.56	
	Significance (Variety) P= 0.002			l.s.d (P<0.05) = 0.042	
	Significance (Decile) P <0.001			l.s.d (P<0.05) = 0.059	
	Significance (Variety*Decile) P= NS			l.s.d (P<0.05) = n.a.	

Table 6: Days to Z61 (start of flowering) wheat

	Decile 0	Decile 3	Decile 6	Play Season	Means
<b>Scepter</b>	270	266	266	266	267
<b>Trojan</b>	278	274	276	273	275
<b>Means</b>	274	270	271	270	
	Significance (Variety) P<0.001			l.s.d (P<0.05) = 2.0	
	Significance (Decile) P = 0.025			l.s.d (P<0.05) = 2.8	
	Significance (Variety*Decile) P= NS			l.s.d (P<0.05) = n.a.	

Table 7: Floret Sterility (%) wheat

	Decile 0	Decile 3	Decile 6	Play Season
<b>Scepter</b>	4.4	1.6	4.6	4.0
<b>Trojan</b>	7.9	6.0	6.8	4.3

Table 8: Yield (t/ha) wheat

	Decile 0	Decile 3	Decile 6	Play Season	Means
<b>Scepter</b>	2.45	3.13	3.54	3.76	3.22
<b>Trojan</b>	2.06	2.46	2.50	3.26	2.57
<b>Means</b>	2.26	2.80	3.02	3.51	
	Significance (Variety) P<0.001			l.s.d (P<0.05) = 0.257	
	Significance (Decile) P<0.001			l.s.d (P<0.05) = 0.364	
	Significance (Variety*Decile) P= NS			l.s.d (P<0.05) = n.a.	

Table 9: Protein (%) wheat

	Decile 0	Decile 3	Decile 6	Play Season	Means
<b>Scepter</b>	7.3	7.9	7.4	7.8	7.6
<b>Trojan</b>	8.3	8.1	8.1	8.1	8.1
<b>Means</b>	7.8	8.0	7.8	7.9	
	Significance (Variety) P= NS			l.s.d (P<0.05) = n.a.	
	Significance (Decile) P= NS			l.s.d (P<0.05) = n.a.	
	Significance (Variety*Decile) P= NS			l.s.d (P<0.05) = n.a.	

Table 10: Hectolitre weight (kg/hL) wheat

	Decile 0	Decile 3	Decile 6	Play Season	Means
<b>Scepter</b>	79.7	79.8	81.4	79.2	80.1
<b>Trojan</b>	79.5	81.8	81.8	82.0	81.3
<b>Means</b>	79.6	80.8	81.6	80.6	
	Significance (Variety) P= NS			l.s.d (P<0.05) = n.a.	
	Significance (Decile) P= NS			l.s.d (P<0.05) = n.a.	
	Significance (Variety*Decile) P= NS			l.s.d (P<0.05) = n.a.	

Table 11: Screenings (%) wheat

	Decile 0	Decile 3	Decile 6	Play Season	Means
<b>Scepter</b>	4.8	6.0	4.3	5.5	5.2
<b>Trojan</b>	6.9	4.8	5.7	5.2	5.7
<b>Means</b>	5.8	5.4	5.0	5.4	
	Significance (Variety) P= NS			l.s.d (P<0.05) = n.a.	
	Significance (Decile) P= NS			l.s.d (P<0.05) = n.a.	
	Significance (Variety*Decile) P= NS			l.s.d (P<0.05) = n.a.	

**BARLEY**
*Table 6: Crop Establishment (plants/m<sup>2</sup>) barley*

	Decile 0	Decile 3	Decile 6	Play Season	Means
<b>LaTrobe</b>	103	98	95	91	97
<b>Bass</b>	99	96	97	98	97
<b>Means</b>	100	97	96	94	
	Significance (Variety) P=NS			l.s.d (P<0.05) =	n.a
	Significance (Decile) P=NS			l.s.d (P<0.05) =	n.a
	Significance (Variety*Decile) P=NS			l.s.d (P<0.05) =	n.a

*Table 7: Crop emergence (0-9) barley*

	Decile 0	Decile 3	Decile 6	Play Season	Means
<b>LaTrobe</b>	8.3	8.3	8.0	8.3	8.2
<b>Bass</b>	8.7	8.7	9.0	8.5	8.7
<b>Means</b>	8.5	8.5	8.5	8.4	
	Significance (Variety) P=NS			l.s.d (P<0.05) =	n.a
	Significance (Decile) P=NS			l.s.d (P<0.05) =	n.a
	Significance (Variety*Decile) P=NS			l.s.d (P<0.05) =	n.a

*Table 8: Crop vigour (0-9) barley*

	Decile 0	Decile 3	Decile 6	Play Season	Means
<b>LaTrobe</b>	8.3	8.7	8.6	7.7	8.3
<b>Bass</b>	8.0	7.7	8.7	8.1	8.1
<b>Means</b>	8.2	8.2	8.6	7.9	
	Significance (Variety) P=NS			l.s.d (P<0.05) =	n.a
	Significance (Decile) P=NS			l.s.d (P<0.05) =	n.a
	Significance (Variety*Decile) P=NS			l.s.d (P<0.05) =	n.a

*Table 9: Tiller count (number of tillers per main stem) barley*

	Decile 0	Decile 3	Decile 6	Play Season	Means
<b>LaTrobe</b>	1	2	2	2	2
<b>Bass</b>	3	3	3	3	3
<b>Means</b>	2	3	3	3	
	Significance (Variety) P < 0.001			l.s.d (P<0.05) =	0.4
	Significance (Decile) P= 0.02			l.s.d (P<0.05) =	0.6
	Significance (Variety*Decile) P=			l.s.d (P<0.05) =	n.a

*Table 10: NDVI reading barley*

	Decile 0	Decile 3	Decile 6	Play Season	Means
<b>LaTrobe</b>	0.47	0.52	0.52	0.65	0.54
<b>Bass</b>	0.48	0.53	0.59	0.61	0.55
<b>Means</b>	0.47	0.53	0.56	0.63	
	Significance (Variety) P=NS			l.s.d (P<0.05) =	n.a
	Significance (Decile) P= 0.005			l.s.d (P<0.05) =	0.074
	Significance (Variety*Decile) P=NS			l.s.d (P<0.05) =	n.a

Table 6: Days to Z61 (start of flowering) barley

	Decile 0	Decile 3	Decile 6	Play Season	Means
<b>LaTrobe</b>	257	254	254	253	254
<b>Bass</b>	268	266	267	266	267
<b>Means</b>	263	260	260	259	
	Significance (Variety) P <0.001			l.s.d (P<0.05) =	1.7
	Significance (Decile) P= 0.0499			l.s.d (P<0.05) =	2.4
	Significance (Variety*Decile) P=NS			l.s.d (P<0.05) =	n.a

Table 7: Floret Sterility (%) barley

	Decile 0	Decile 3	Decile 6	Play Season
<b>LaTrobe</b>	5.0	4.4	4.1	4.5
<b>Bass</b>	3.2	5.7	3.3	3.9

Table 8: Yield (t/ha) barley

	Decile 0	Decile 3	Decile 6	Play Season	Means
<b>LaTrobe</b>	2.55	3.13	3.26	3.83	3.19
<b>Bass</b>	2.36	2.91	3.60	3.43	3.07
<b>Means</b>	2.45	3.02	3.43	3.63	
	Significance (Variety) P=NS			l.s.d (P<0.05) =	n.a
	Significance (Decile) P <0.001			l.s.d (P<0.05) =	0.4
	Significance (Variety*Decile) P=NS			l.s.d (P<0.05) =	n.a

Table 9: Protein (%) barley

	Decile 0	Decile 3	Decile 6	Play Season	Means
<b>LaTrobe</b>	7.8	7.9	8.5	9.8	8.5
<b>Bass</b>	8.9	9.0	9.5	9.1	9.1
<b>Means</b>	8.4	8.5	9.0	9.5	
	Significance (Variety) P= 0.049			l.s.d (P<0.05) =	0.61
	Significance (Decile) P=NS			l.s.d (P<0.05) =	n.a
	Significance (Variety*Decile) P=NS			l.s.d (P<0.05) =	n.a

Table 10: Colour (%) barley

	Decile 0	Decile 3	Decile 6	Play Season	Means
<b>LaTrobe</b>	64.0	63.5	63.1	65.0	63.9
<b>Bass</b>	66.2	63.6	62.9	63.0	63.9
<b>Means</b>	65.1	63.6	63.0	64.0	
	Significance (Variety) P=NS			l.s.d (P<0.05) =	n.a
	Significance (Decile) P=NS			l.s.d (P<0.05) =	n.a
	Significance (Variety*Decile) P=NS			l.s.d (P<0.05) =	n.a

Table 11: Hectolitre weight (kg/hL) barley

	Decile 0	Decile 3	Decile 6	Play Season	Means
<b>LaTrobe</b>	69.1	70.0	68.8	68.1	69.0
<b>Bass</b>	65.5	67.0	68.4	65.9	66.7
<b>Means</b>	67.3	68.5	68.6	67.0	
	Significance (Variety) P <0.001			l.s.d (P<0.05) =	1.11
	Significance (Decile) P=NS			l.s.d (P<0.05) =	n.a
	Significance (Variety*Decile) P=NS			l.s.d (P<0.05) =	n.a

Table 12: <2.2 screenings (%) barley

	Decile 0	Decile 3	Decile 6	Play Season	Means
<b>LaTrobe</b>	5.0	4.2	6.1	8.0	5.8
<b>Bass</b>	3.1	2.7	2.3	3.3	2.8
<b>Means</b>	4.1	3.4	4.2	5.7	
	Significance (Variety) P=0.002			l.s.d (P<0.05) =	1.63
	Significance (Decile) P=NS			l.s.d (P<0.05) =	n.a
	Significance (Variety*Decile) P=NS			l.s.d (P<0.05) =	n.a

Table 13: 2.2-2.5 screenings (%) barley

	Decile 0	Decile 3	Decile 6	Play Season	Means
<b>LaTrobe</b>	15.6	14.6	15.3	27.3	18.2
<b>Bass</b>	15.3	15.1	11.8	15.2	14.3
<b>Means</b>	15.5	14.9	13.5	21.3	
	Significance (Variety) P=NS			l.s.d (P<0.05) =	n.a
	Significance (Decile) P=NS			l.s.d (P<0.05) =	n.a
	Significance (Variety*Decile) P=NS			l.s.d (P<0.05) =	n.a

Table 14: Plump grain (%) barley

	Decile 0	Decile 3	Decile 6	Play Season	Means
<b>LaTrobe</b>	79.3	81.2	78.6	64.7	76.0
<b>Bass</b>	81.6	82.2	85.9	81.5	82.8
<b>Means</b>	80.5	81.7	82.3	73.1	
	Significance (Variety) P=NS			l.s.d (P<0.05) =	n.a
	Significance (Decile) P=NS			l.s.d (P<0.05) =	n.a
	Significance (Variety*Decile) P=NS			l.s.d (P<0.05) =	n.a

## CANOLA

Table 11: Crop Establishment (plants/m<sup>2</sup>) canola

	Decile 0	Decile 3	Decile 6	Play Season	Means
<b>Hyola 559</b>	47	54	41	49	48
<b>InVigor T4510</b>	46	43	44	44	44
<b>Means</b>	46	49	43	47	
	Significance (Variety) P= NS			l.s.d (P<0.05) =	n.a
	Significance (Decile) P= NS			l.s.d (P<0.05) =	n.a
	Significance (Variety*Decile) P= NS			l.s.d (P<0.05) =	n.a

Table 12: Crop emergence (0-9) canola

	Decile 0	Decile 3	Decile 6	Play Season	Means
<b>Hyola 559</b>	9.0	9.0	8.7	9.0	8.9
<b>InVigor T4510</b>	8.7	9.0	9.0	8.7	8.8
<b>Means</b>	8.8	9.0	8.8	8.8	
	Significance (Variety) P= NS			l.s.d (P<0.05) =	n.a
	Significance (Decile) P= NS			l.s.d (P<0.05) =	n.a
	Significance (Variety*Decile) P= NS			l.s.d (P<0.05) =	n.a

Table 13: Crop vigour (0-9) canola

	Decile 0	Decile 3	Decile 6	Play Season	Means
<b>Hyola 559</b>	8.0	8.7	8.3	9.0	8.5
<b>InVigor T4510</b>	6.7	8.0	8.0	8.7	7.8
<b>Means</b>	7.3	8.3	8.2	8.8	
	Significance (Variety) P= 0.004			l.s.d (P<0.05) =	0.4
	Significance (Decile) P <0.001			l.s.d (P<0.05) =	0.6
	Significance (Variety*Decile) P= NS			l.s.d (P<0.05) =	n.a

Table 14: NDVI reading canola

	Decile 0	Decile 3	Decile 6	Play Season	Means
<b>Hyola 559</b>	0.74	0.73	0.72	0.75	0.74
<b>InVigor T4510</b>	0.72	0.73	0.70	0.73	0.72
<b>Means</b>	0.73	0.73	0.71	0.74	
	Significance (Variety) P= NS			l.s.d (P<0.05) =	n.a
	Significance (Decile) P= NS			l.s.d (P<0.05) =	n.a
	Significance (Variety*Decile) P= NS			l.s.d (P<0.05) =	n.a

Table 15: Days to 50% flowering canola

	Decile 0	Decile 3	Decile 6	Play Season	Means
<b>Hyola 559</b>	227	226	228	228	227
<b>InVigor T4510</b>	228	228	228	228	228
<b>Means</b>	228	227	228	228	
	Significance (Variety) P= NS			l.s.d (P<0.05) =	n.a
	Significance (Decile) P= NS			l.s.d (P<0.05) =	n.a
	Significance (Variety*Decile) P= NS			l.s.d (P<0.05) =	n.a



Table 16: Yield (t/ha) canola

	Decile 0	Decile 3	Decile 6	Play Season	Means
<b>Hyola 559</b>	1.78	1.89	2.03	2.25	1.99
<b>InVigor T4510</b>	1.45	1.74	2.10	2.07	1.84
<b>Means</b>	1.62	1.81	2.07	2.16	
	Significance (Variety) P= 0.017			l.s.d (P<0.05) =	0.117
	Significance (Decile) P <0.01			l.s.d (P<0.05) =	0.165
	Significance (Variety*Decile) P= NS			l.s.d (P<0.05) =	n.a

Table 7: Protein (%) canola

	Decile 0	Decile 3	Decile 6	Play Season	Means
<b>Hyola 559</b>	22.0	21.4	22.0	22.5	22.0
<b>InVigor T4510</b>	21.0	20.5	21.4	21.6	21.1
<b>Means</b>	21.5	21.0	21.7	22.1	
	Significance (Variety) P= 0.003			l.s.d (P<0.05) =	0.5
	Significance (Decile) P= 0.03			l.s.d (P<0.05) =	0.71
	Significance (Variety*Decile) P= NS			l.s.d (P<0.05) =	n.a

Table 8: Oil canola

	Decile 0	Decile 3	Decile 6	Play Season	Means
<b>Hyola 559</b>	46.9	47.3	46.9	46.4	46.9
<b>InVigor T4510</b>	46.6	47.0	46.2	45.9	46.4
<b>Means</b>	46.8	47.2	46.6	46.2	
	Significance (Variety) P= NS			l.s.d (P<0.05) =	n.a
	Significance (Decile) P= NS			l.s.d (P<0.05) =	n.a
	Significance (Variety*Decile) P= NS			l.s.d (P<0.05) =	n.a