Synergy,

TOS x Crop Type,
Hyden, W.A.
2015

Living Farm Trial No: LF 150459

2 Maxwell St. York W.A
PO Box 335, York. 6302
Ph/Fax (08) 9641 2845

Trial Title	TOS x Crop Type
Trial Location	Hyden
Client	Synergy
Client Contact	Craig Brown
Research Agronomist	Richard Devlin
Report Written By	Rebecca Jenkinson
Trial Number	LF150459
Report Submitted	27/01/2016
Year Trial Completed	2015

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Trial Layout/Randomisation

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3	Yitpi			3	525RT	
4	Mace			4	Buffer	
5	Hindmarsh			5	Buffer	
6	Scope			6	525RT	Rep 1
7	Williams			7	Stingray	
8	Carrolup			8	Buffer	
9	Buffer			9	Buffer	
10	Buffer			10	525RT	
11	Mace			11	Stingray	
12	Trojan			12	Buffer	
13	Yitpi	Rep 1		13	Buffer	
14	Scope			14	Stingray	
15	Hindmarsh			15	525RT	
16	Carrolup			16	Buffer	
17	Williams			17	Buffer	
18	Buffer			18	Stingray	Rep 2
19	Buffer			19	525RT	
20	Yitpi			20		
21	Mace			21	Buffer	
22	Trojan			22	525RT	
23	scope			23	Stingray	
24	Hindmarsh			24	Buffer	
25	Carrolup			25	Buffer	
26	Williams			26	525RT	
27	Buffer			27	Stingray	
28	Buffer			28	Buffer	
29	Mace			29	Buffer	
30	Yitpi			30	Stingray	Rep 3
31	Trojan			31	525RT	
32	Hindmarsh			32	Buffer	
33	Scope			33	Buffer	
34	Williams			34	Stingray	
35	Carrolup			35	525RT	
36	Buffer			36	Buffer	
37	Buffer					
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Experimental Design

Study Design	Complete Randomised Block
Replications	3
Plot Length	12m
Plot Width Sprayed	1.9m

Site Details

Co-operator	Cameron Mudge
Location	Hyden
Soil Description	Duplex
Trial History	
2014	Barley

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Crop and Sowing Details – Time of sowing 1

Wheat & Barley

Date Sown	13th April 2015	
Variety	Various	
Seeding Rate	70kg/ha	
Nutrition	Pre	50kg/ha Urea 120kg/ha DAP
	Post	60L/ha UAN
Tillage Type	Knife points and press wheels	
Row Spacing	25.4cm	
Moisture	Excellent. To surface	
Seed Bed	Standing barley stubble	
Clod size	Small	
Stubble loading	Medium	
Herbicides Applied	Pre-emergent	**All** 2L/ha Roundup CT 200ml/ha Bifenthrin 250g/ha Diuron **Wheat** 118g/ha Sakura 2L/ha Treflan **Barley** 2L/ha Treflan 1.5L/ha Avadex
	Post-emergent	1000mL/ha Precept
Insecticides applied	Pre-emergent	1000ml/ha Chlorpyrifos
	Post-emergent	100mL/ha Transform
Fungicide applied	Post-emergent	300mL/ha Prosaro

Oats

Date Sown	13th April 2015	
Variety	Various	
Seeding Rate	80kg/ha	
Nutrition	Pre	50kg/ha Urea 120kg/ha DAP
	Post	60L/ha UAN
Tillage Type	Knife points and press wheels	
Row Spacing	25.4cm	
Moisture	Excellent. To surface	
Seed Bed	Standing barley stubble	
Clod size	Small	
Stubble loading	Medium	
Herbicides Applied	Pre-emergent	2L/ha Roundup CT 200ml/ha Bifenthrin 500ml Dual Gold 400g/ha Diuron
	Post-emergent	1000mL/ha Precept
Insecticides applied	Pre-emergent	1000ml/ha Chlorpyrifos
	Post-emergent	100mL/ha Transform

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Canola

Date Sown	13th April 2015	
Variety	Various	
Seeding Rate	2.5kg/ha	
Nutrition	Pre	100kg/ha Urea 120kg/ha DAP
	Post	60L/ha UAN
Tillage Type	Knife points and press wheels	
Row Spacing	25.4cm	
Moisture	Excellent. To surface	
Seed Bed	Standing barley stubble	
Clod size	Small	
Stubble loading	Medium	
Herbicides Applied	Pre-emergent	2L/ha Roundup CT 200ml/ha Bifenthrin 1000ml/ha Propyzamide 1.1kg/ha Atrazine
	Post-emergent	1.1kg/ha Atrazine 500mL/ha Select 150mL/ha Verdict
Insecticides applied	Pre-emergent	1000ml/ha Chlorpyrifos
	Post-emergent	100mL/ha Transform

Crop and Sowing Details – Time of sowing 2

Wheat & Barley

Date Sown	24th April 2015	
Variety	Various	
Seeding Rate	70kg/ha	
Nutrition	Pre	50kg/ha Urea 120kg/ha DAP
	Post	60L/ha UAN
Tillage Type	Knife points and press wheels	
Row Spacing	25.4cm	
Moisture	Moisture @ 30mm. Drying profile	
Seed Bed	Standing barley stubble	
Clod size	Large 50-100mm	
Stubble loading	Medium	
Herbicides Applied	Pre-emergent	**All** 2L/ha Roundup CT 200ml/ha Bifenthrin 250g/ha Diuron **Wheat** 118g/ha Sakura 2L/ha Treflan **Barley** 2L/ha Treflan 1.5L/ha Avadex
	Post-emergent	1000mL/ha Precept
Insecticides applied	Pre-emergent	1000ml/ha Chlorpyrifos
	Post-emergent	100mL/ha Transform
Fungicides applied	Post-emergent	300mL/ha Prosaro

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Oats

Date Sown	24th April 2015	
Variety	Various	
Seeding Rate	80kg/ha	
Nutrition	Pre	50kg/ha Urea 120kg/ha DAP
	Post	60L/ha UAN
Tillage Type	Knife points and press wheels	
Row Spacing	25.4cm	
Moisture	Moisture @ 30mm. Drying profile	
Seed Bed	Standing barley stubble	
Clod size	Large 50-100mm	
Stubble loading	Medium	
Herbicides Applied	Pre-emergent	1L/ha Roundup 200ml/ha Bifenthrin 500ml Dual Gold 400g/ha Diuron
	Post-emergent	1000mL/ha Precept
Insecticides applied	Pre-emergent	500ml/ha Chlorpyrifos
	Post-emergent	100mL/ha Transform

Canola

Date Sown	24th April 2015	
Variety	Various	
Seeding Rate	2.5kg/ha	
Nutrition	Pre	100kg/ha Urea 120kg/ha DAP
	Post	60L/ha UAN
Tillage Type	Knife points and press wheels	
Row Spacing	25.4cm	
Moisture	Moisture @ 30mm. Drying profile	
Seed Bed	Standing barley stubble	
Clod size	Large 50-100mm	
Stubble loading	Medium	
Herbicides Applied	Pre-emergent	1L/ha Roundup 200ml/ha Bifenthrin 1000ml/ha Propyzamide 2kg/ha Atrazine
	Post-emergent	
Insecticides applied	Pre-emergent	1000ml/ha Chlorpyrifos
	Post-emergent	100mL/ha Transform

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Crop and Sowing Details – Time of sowing 3

Wheat & Barley

Date Sown	19th May 2015	
Variety	Various	
Seeding Rate	70kg/ha	
Nutrition	Pre	50kg/ha Urea 120kg/ha DAP
	Post	60L/ha UAN
Tillage Type	Knife points and press wheels	
Row Spacing	25.4cm	
Moisture	Excellent, to surface	
Seed Bed	Standing barley stubble	
Clod size	Small	
Stubble loading	Low	
Herbicides Applied	Pre-emergent	**All** 2L/ha Roundup CT 200ml/ha Bifenthrin 250g/ha Diuron **Wheat** 118g/ha Sakura 2L/ha Treflan **Barley** 2L/ha Treflan 1.5L/ha Avadex
	Post-emergent	1000mL/ha Precept
Insecticides applied	Pre-emergent	1000ml/ha Chlorpyrifos
	Post-emergent	100mL/ha Transform
Fungicides applied	Post-emergent	300mL/ha Prosaro

Oats

Date Sown	19th May 2015	
Variety	Various	
Seeding Rate	80kg/ha	
Nutrition	Pre	50kg/ha Urea 120kg/ha DAP
	Post	60L/ha UAN
Tillage Type	Knife points and press wheels	
Row Spacing	25.4cm	
Moisture	Excellent, to surface	
Seed Bed	Standing barley stubble	
Clod size	Small	
Stubble loading	Low	
Herbicides Applied	Pre-emergent	1L/ha Roundup 500ml Dual Gold 400g/ha Diuron
	Post-emergent	1000mL/ha Precept
Insecticides applied	Pre-emergent	1000ml/ha Chlorpyrifos
	Post-emergent	100mL/ha Transform

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Canola

Date Sown	19th May 2015	
Variety	Various	
Seeding Rate	2.5kg/ha	
Nutrition	Pre	100kg/ha Urea 120kg/ha DAP
	Post	60L/ha UAN
Tillage Type	Knife points and press wheels	
Row Spacing	25.4cm	
Moisture	Excellent, to surface	
Seed Bed	Standing barley stubble	
Clod size	Small	
Stubble loading	Low	
Herbicides Applied	Pre-emergent	1L/ha Roundup 300ml/ha Bifenthrin 1000ml/ha Propyzamide 2kg/ha Atrazine
	Post-emergent	
Insecticides applied	Pre-emergent	1000ml/ha Chlorpyrifos
	Post-emergent	100mL/ha Transform

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Assessment Data Scoring Systems

Yield

Plots were harvested with a Haldrup trial header and the weights in kg/plot recorded, then converted to t/ha.

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Results – Factorial Analysis

Factorial analysis comparing all varieties sown by crop types, with analysis outlining the optimal variety for each time of sowing.

Table 1: Factorial analysis of variety x TOS (t/ha)

	TOS 1	**TOS 2**	**TOS 3**	*Means*
Mace	1.39	2.71	2.40	*2.17*
Trojan	2.33	2.56	1.57	*2.15*
Yitpi	2.58	2.39	1.87	*2.28*
Scope	4.26	3.40	2.85	*3.50*
Hindmarsh	2.69	3.44	2.74	*2.95*
Williams	3.00	3.46	3.57	*3.34*
Carrolup	3.00	3.25	2.95	*3.06*
Hyola 525	0.81	1.20	0.38	*0.80*
Stingray	2.04	1.99	1.13	*1.72*
Means	*2.46*	*2.71*	*2.16*	
	Significance (Variety): P <0.001		l.s.d (P<0.05) = 0.303	
	Significance (TOS): P<0.001		l.s.d (P<0.05) = 0.175	
	Significance (Variety*TOS): P<0.001		l.s.d (P<0.05) = 0.525	

Table 2: Factorial analysis adjusted for bird damage of variety x TOS (t/ha)

	TOS 1	**TOS 2**	**TOS 3**	*Means*
Mace	3.09	2.96	2.52	*2.86*
Trojan	2.36	2.56	1.56	*2.16*
Yitpi	2.62	2.39	1.87	*2.29*
Scope	5.11	3.52	2.85	*3.83*
Hindmarsh	4.88	3.62	2.78	*3.76*
Williams	3.10	3.59	3.57	*3.42*
Carrolup	3.39	3.43	2.95	*3.26*
Hyola 525	2.38	2.01	0.71	*1.70*
Stingray	4.17	2.39	1.30	*2.62*
Means	*3.46*	*2.94*	*2.24*	
	Significance (Variety): P <0.001		l.s.d (P<0.05) = 0.425	
	Significance (TOS): P<0.001		l.s.d (P<0.05) = 0.245	
	Significance (Variety*TOS): P<0.001		l.s.d (P<0.05) = 0.736	

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Table 3: Factorial analysis of Wheat Variety x TOS (t/ha)

	TOS 1	TOS 2	TOS 3	*Mean*
Mace	1.39	2.71	2.40	*2.17*
Trojan	2.77	3.05	1.90	*2.57*
Yitpi	2.58	2.39	1.87	*2.28*
Mean	*2.25*	*2.72*	*2.28*	
	Significance (Variety): P = NS		l.s.d (P<0.05) = n.a.	
	Significance (TOS): P= 0.009		l.s.d (P<0.05) = 0.398	
	Significance (Variety*TOS): P= 0.004		l.s.d (P<0.05) = 0.389	

Table 4: Factorial analysis adjusted for bird damage of Wheat Variety x TOS (t/ha)

	TOS 1	TOS 2	TOS 3	*Mean*
Mace	3.09	2.96	2.52	*2.86*
Trojan	2.36	2.56	1.57	*2.16*
Yitpi	2.62	2.39	1.87	*2.29*
Mean	*2.69*	*2.63*	*1.99*	
	Significance (Variety): P = 0.027		l.s.d (P<0.05) = 0.514	
	Significance (TOS): P= 0.020		l.s.d (P<0.05) = 0.514	
	Significance (Variety*TOS): P= NS		l.s.d (P<0.05) = n.a.	

Table 5: Factorial analysis of Barley Variety x TOS (t/ha)

	TOS 1	TOS 2	TOS 3	*Mean*
Scope	4.26	2.30	2.85	*3.50*
Hindmarsh	2.69	3.44	2.74	*2.95*
Mean	*3.47*	*2.87*	*2.80*	
	Significance (Variety): P = 0.001		l.s.d (P<0.05) = 0.283	
	Significance (TOS): P= 0.002		l.s.d (P<0.05) = 0.346	
	Significance (Variety*TOS): P < 0.001		l.s.d (P<0.05) = 0.489	

Table 6: Factorial analysis adjusted for bird damage of Barley Variety x TOS (t/ha)

	TOS 1	TOS 2	TOS 3	*Mean*
Scope	5.11	3.52	2.85	*3.83*
Hindmarsh	4.88	3.62	2.78	*3.76*
Mean	*5.00*	*3.57*	*2.82*	
	Significance (Variety): P = NS		l.s.d (P<0.05) = n.a.	
	Significance (TOS): P < 0.001		l.s.d (P<0.05) = 0.533	
	Significance (Variety*TOS): P = NS		l.s.d (P<0.05) = n.a.	

Table 7: Factorial analysis Oat Variety x TOS (t/ha)

	TOS 1	TOS 2	TOS 3	*Mean*
Carrolup	3.00	3.25	2.95	*3.06*
Williams	3.00	3.46	3.57	*3.34*
Mean	*3.00*	*3.35*	*3.26*	
	Significance (Variety): P = NS		l.s.d (P<0.05) = n.a.	
	Significance (TOS): P= NS		l.s.d (P<0.05) = n.a.	
	Significance (Variety*TOS): P = NS		l.s.d (P<0.05) = n.a.	

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Table 8: Factorial analysis adjusted for bird damage of Oat Variety x TOS (t/ha)

	TOS 1	TOS 2	TOS 3	*Mean*
Carrolup	3.39	3.43	2.95	*3.26*
Williams	3.10	3.59	3.57	*3.42*
Mean	*3.25*	*3.51*	*3.26*	
	Significance (Variety): P = NS		l.s.d (P<0.05) = n.a.	
	Significance (TOS): P= NS		l.s.d (P<0.05) = n.a.	
	Significance (Variety*TOS): P = NS		l.s.d (P<0.05) = n.a.	

Table 9: Factorial analysis Canola Variety x TOS (t/ha)

	TOS 1	TOS 2	TOS 3	*Mean*
Stingray	2.13	1.99	1.13	*1.75*
Hyola 525	0.81	1.20	0.38	*0.80*
Mean	*1.47*	*1.60*	*0.75*	
	Significance (Variety): P <0.001		l.s.d (P<0.05) = 0.170	
	Significance (TOS): P <0.001		l.s.d (P<0.05) = 0.209	
	Significance (Variety*TOS): P = 0.023		l.s.d (P<0.05) = 0.295	

Table 10: Factorial analysis adjusted for bird damage of Canola Variety x TOS (t/ha)

	TOS 1	TOS 2	TOS 3	*Mean*
Stingray	4.29	2.39	1.30	*2.66*
Hyola 525	2.38	2.00	0.71	*1.70*
Mean	*3.34*	*2.20*	*1.00*	
	Significance (Variety): P = 0.002		l.s.d (P<0.05) = 0.510	
	Significance (TOS): P <0.001		l.s.d (P<0.05) = 0.624	
	Significance (Variety*TOS): P = 0.043		l.s.d (P<0.05) = 0.883	

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Results – General ANOVA

General analysis of variance looking at the optimal variety by each individual time of sowing separately. In this analysis comparison cannot be made between the three times of sowing.

Table 11: General ANOVA yield results (t/ha)

	TOS 1	TOS 2	TOS 3
Mace	1.39 *ef*	2.71 *b*	2.40 *c*
Trojan	2.33 *cd*	2.56 *b*	1.64 *d*
Yitpi	2.58 *bcd*	2.86 *b*	1.87 *d*
Scope	4.26 *a*	3.40 *a*	2.85 *b*
Hindmarsh	2.69 *bc*	3.44 *a*	2.74 *bc*
Williams	3.00 *b*	3.46 *a*	3.57 *a*
Carrolup	3.00 *b*	3.25 *a*	2.95 *b*
Hyola 525	0.81 *f*	1.20 *d*	0.38 *f*
Stingray	2.03 *de*	1.99 *c*	1.13 *e*
LSD	*0.655*	*0.325*	*0.37*
CV	*15.34*	*6.76*	*9.92*
F Prob	*<0.001*	*<0.001*	*<0.001*

Table 12: General ANOVA adjusted for bird damage yield results (t/ha)

	TOS 1	TOS 2	TOS 3
Mace	3.09 *cd*	2.96 *ab*	2.52 *c*
Trojan	2.36 *d*	2.56 *bc*	1.65 *de*
Yitpi	2.62 *cd*	2.39 *bc*	1.87 *d*
Scope	5.11 *a*	3.52 *a*	2.85 *bc*
Hindmarsh	4.88 *a*	3.62 *a*	2.78 *bc*
Williams	3.10 *cd*	3.59 *a*	3.57 *a*
Carrolup	3.39 *bc*	3.43 *a*	2.95 *b*
Hyola 525	2.38 *cd*	2.01 *c*	0.71 *f*
Stingray	4.14 *ab*	2.39 *bc*	1.30 *e*
LSD	*1.026*	*0.674*	*0.419*
CV	*17.07*	*13.24*	*10.72*
F Prob	*<0.001*	*<0.001*	*<0.001*

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Results – Raw Data

Crop yield

Cereals

Table 13: Cereal grain yield (t/ha)

Time of Sowing	Variety	Weight kg/plot	Yield t/ha	Adjusted for bird damage
1	Trojan	2.09	1.75	1.84
1	Yitpi	2.35	1.96	2.07
1	Mace	0.87	0.73	1.82
1	Hindmarsh	2.57	2.15	3.91
1	Scope	5.31	4.44	5.22
1	Williams	3.84	3.21	3.21
1	Carrolup	3.84	3.21	3.57
2	Mace	3.44	2.88	3.20
2	Trojan	2.74	2.29	2.29
2	Yitpi	1.64	1.37	1.37
2	Scope	3.64	3.04	3.20
2	Hindmarsh	3.73	3.12	3.28
2	Carrolup	3.96	3.31	3.48
2	Williams	4.15	3.47	3.47
3	Yitpi	1.93	1.61	1.61
3	Mace	3.01	2.52	2.65
3	Trojan	1.66	1.39	1.39
3	Scope	3.02	2.52	2.52
3	Hindmarsh	2.99	2.50	2.63
3	Carrolup	2.83	2.37	2.37
3	Williams	3.92	3.28	3.28
3	Mace	2.43	2.05	2.15
3	Yitpi	2.46	2.07	2.07
3	Trojan	1.98	1.67	1.67
3	Hindmarsh	3.24	2.73	2.73
3	Scope	3.38	2.85	2.85
3	Williams	4.40	3.70	3.70
3	Carrolup	3.92	3.30	3.30
2	Mace	3.12	2.63	2.92
2	Yitpi	3.50	2.95	2.95
2	Trojan	3.24	2.73	2.73
2	Scope	4.41	3.71	3.91
2	Hindmarsh	4.32	3.64	3.83
2	Williams	4.13	3.48	3.86
2	Carrolup	3.92	3.30	3.67
1	Mace	2.05	1.73	4.31
1	Yitpi	3.88	3.27	3.27
1	Trojan	3.30	2.78	2.78

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1	Hindmarsh	3.86	3.25	5.91
1	Scope	4.99	4.20	4.94
1	Carrolup	3.39	2.85	3.17
1	Williams	3.79	3.19	3.36
2	Trojan	3.17	2.65	2.65
2	Mace	3.13	2.62	2.75
2	Yitpi	3.41	2.85	2.85
2	Scope	4.11	3.44	3.44
2	Hindmarsh	4.26	3.56	3.75
2	Carrolup	3.74	3.13	3.13
2	Williams	4.10	3.43	3.43
3	Trojan			
3	Mace	3.15	2.63	2.77
3	Yitpi	2.32	1.94	1.94
3	Hindmarsh	3.56	2.98	2.98
3	Scope	3.82	3.19	3.19
3	Williams	4.46	3.73	3.73
3	Carrolup	3.80	3.18	3.18
1	Mace	2.06	1.72	3.13
1	Trojan	2.93	2.45	2.45
1	Yitpi	3.00	2.51	2.51
1	Hindmarsh	3.18	2.66	4.83
1	Scope	4.95	4.14	5.17
1	Williams	3.11	2.60	2.74
1	Carrolup	3.50	2.93	3.44

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Canola

Table 14: Canola grain yield (t/ha)

Time of Sowing	Variety	Weight kg/plot	Yield t/ha	Adjusted for bird damage
1	Stingray	No weight	0.00	0.00
1	525RT	1.04	0.87	2.90
2	525RT	1.47	1.23	1.64
2	Stingray	2.34	1.96	2.45
3	525RT	0.41	0.34	0.69
3	Stingray	1.23	1.03	1.14
3	Stingray	1.19	1.00	1.25
3	525RT	0.27	0.23	0.32
2	Stingray	2.33	1.96	2.31
2	525RT	1.22	1.03	1.71
1	525RT	1.09	0.92	2.62
1	Stingray	2.69	2.26	4.53
2	525RT	1.61	1.35	2.69
2	Stingray	2.46	2.06	2.42
3	Stingray	1.61	1.35	1.5
3	525RT	0.67	0.56	1.12
1	Stingray	2.42	2.02	4.05
1	525RT	0.78	0.65	1.63

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Grain Quality

Cereals

Table 15: Grain quality of cereals collected from composite grain samples

Time of Sowing	Variety	Protein	Hectolitre Weight	Screenings	Colour
1	Trojan	10.72	80.33	1.57	
1	Yitpi	10.27	80.69	2.37	
1	Mace	12.23	76.93	1.55	
1	Hindmarsh	9.97	68.50	5.15	63.45
1	Scope	9.55	69.55	1.67	64.44
1	Williams	10.07			
1	Carrolup	10.62			
2	Mace	10.95	79.76	2.24	
2	Trojan	10.99	80.92	3.09	
2	Yitpi	11.41	80.59	2.14	
2	Scope	12.15	64.85	8.92	63.80
2	Hindmarsh	10.71	66.69	7.13	63.81
2	Carrolup	11.02			
2	Williams	10.83			
3	Yitpi	10.98	79.58	2.31	
3	Mace	10.31	80.42	2.70	
3	Trojan	10.79	80.42	2.87	
3	Scope	10.62	63.11	5.56	63.26
3	Hindmarsh	11.37	64.67	11.48	63.90
3	Carrolup	10.61			
3	Williams	9.63			

Canola

Table 16: Grain quality of canola collected from composite grain samples

Time of Sowing	Variety	Oil	Protein
1	Stingray	47.16	19.57
1	525RT	45.63	20.15
2	525RT	45.91	20.18
2	Stingray	46.03	20.35
3	525RT	42.71	22.29
3	Stingray	45.18	21.15

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Weather Data

Weather	10568	Hyden

Day	Rainfall						
	Apr	May	Jun	Jul	Aug	Sep	Oct
1	0.0	0.0	0.0	0.0	9.2	2.0	0.0
2	0.0	0.0	0.0	0.6	0.0	0.6	0.0
3	0.0	0.0	0.0	1.6	0.1	0.3	0.0
4	0.0	0.8	0.1	0.0	0.0	0.0	0.0
5	0.0	0.0	0.0	0.0	0.4	0.0	0.0
6	0.0	0.0	0.0	6.4	0.2	0.0	0.0
7	0.0	0.0	0.0	0.0	0.0	0.0	0.0
8	7.4	0.0	0.0	4.8	1.6	0.0	0.0
9	0.1	0.0	0.0	5.3	8.8	0.0	0.0
10	13.8	0.0	0.0	0.0	0.0	0.0	0.0
11	0.0	0.0	0.0	0.1	1.4	1.5	1.8
12	0.8	0.0	0.4	0.0	0.0	0.0	0.0
13	0.6	0.0	0.0	0.0	0.0	3.8	4.0
14	0.0	0.0	0.0	0.1	0.0	1.3	0.0
15	0.0	0.0	0.0	0.0	0.0	0.0	0.0
16	0.0	0.0	0.0	0.0	0.0	0.0	0.0
17	0.0	6.0	0.0	0.0	4.8	0.0	0.0
18	0.0	4.3	2.6	0.0	1.4	0.0	0.4
19	0.0	1.0	6.6	0.0	0.4	0.0	0.4
20	0.0	0.8	0.2	2.0	7.4	0.0	0.0
21	0.0	0.0	10.4	2.3	0.0	0.0	0.0
22	0.0	0.4	14.0	0.0	12.4	0.0	0.0
23	0.0	0.0	1.0	0.4	0.9	0.0	0.0
24	0.0	0.0	0.0	0.0	1.4	0.0	0.0
25	0.0	0.0	0.0	0.0	0.1	0.0	0.2
26	0.0	0.0	0.0	0.5	0.0	0.0	0.1
27	0.0	0.0	0.2	0.0	0.0	0.0	0.0
28	0.0	0.0	0.0	0.0	0.0	0.0	0.8
29	0.0	0.0	0.1	4.4	0.0	0.0	0.0
30	0.0	0.0	0.0	0.6	0.2	0.0	0.0
31		0.0		15.5	0.4		2.2
Total	22.7	13.3	35.6	44.6	51.1	9.5	9.9

Day	Temperature (min)						
	Apr	May	Jun	Jul	Aug	Sep	Oct
1	14.9	12.8	4.0	9.3	9.3	3.1	9.0
2	10.2	8.5	9.5	10.5	8.1	-1.0	9.1
3	11.0	12.6	11.1	9.5	2.4	2.2	11.0
4	14.0	6.3	8.8	5.5	1.6	5.4	11.5
5	16.2	3.8	4.6	5.8	6.7	11.6	13.8
6	13.0	0.5	6.4	9.3	3.0	4.8	2.6
7	14.0	8.0	3.0	8.9	6.5	2.8	6.3
8	12.9	3.3	1.4	7.9	8.2	6.6	11.0
9	13.0		4.4	-0.7	1.1	8.8	11.9
10	18.3	3.5	3.8	1.4	3.0	11.3	14.9
11	14.7	11.0	5.9	4.2	6.0	7.0	12.5
12	14.3	6.0	9.9		8.7	6.5	11.4
13	14.4	7.5	7.8	0.4	10.2	4.3	13.2
14	9.2	5.7	5.0	4.0	1.5	2.2	12.7
15	11.1	9.2	1.8	4.5	6.7	3.6	8.7
16	4.8	14.6	4.8	-0.3	7.2	0.6	
17	5.6	10.5	6.7	3.3	12.8	4.0	9.6
18	6.7	10.4	9.5	7.9	9.8	4.8	13.9
19	11.4	8.4	12.0	6.0	6.9	9.2	9.7
20	9.4	3.8	12.6	9.8	9.0	1.2	7.6
21	6.6	3.9	12.6	6.3	4.7	1.6	11.4
22	6.2	8.3	6.9	1.8	3.9	5.6	16.1
23	9.1	5.5	2.5	8.0	6.0	8.4	13.4
24	11.1	5.8	0.5	0.2	5.5	9.9	13.3
25	5.8	4.8	2.1	5.5	6.3	10.5	12.5
26	6.8	3.0	0.5	3.8	2.8	12.9	13.4
27	6.0	3.0	4.7	1.5	5.2	9.6	12.5
28	7.7	-0.5	5.5	6.5	5.3	8.2	14.9
29	9.5	4.0	4.4	9.3	5.7	9.5	15.3
30	13.8	1.1	3.0	9.5	8.9	5.9	14.8
Avg		22.6		18.6	17.3		26.8

Day	Temperature (max)						
	Apr	May	Jun	Jul	Aug	Sep	Oct
1	22.5	22.0	20.0	21.6	13.3	13.4	35.4
2	25.2	23.5	20.9	15.8	15.3	14.6	31.5
3	27.3	22.8	22.6	18.9	16.4	20.7	30.0
4	28.4	16.9	22.8	18.7	17.2	23.0	29.4
5	27.0	19.7	25.6	16.0	16.7	19.9	23.6
6	23.5	20.7	21.7	18.0	17.0	17.4	21.3
7	24.0	21.2	18.6	19.5	16.8	23.4	26.2
8	19.0	22.8	19.1	12.3	15.2	25.5	32.6
9	24.2	22.3	19.9	13.0	15.2	29.6	36.7
10	28.3	23.8	22.0	15.6	16.8	26.7	35.1
11	24.8	22.0	23.4	15.6	15.5	22.3	27.5
12	23.3	22.0	19.7	15.9	13.1	15.1	35.4
13	20.6	22.1	18.5	15.2	14.5	17.3	36.0
14	22.7	23.5	17.6	16.2	22.6	18.0	26.3
15	22.6	23.8	18.1	15.3	25.8	16.5	22.5
16	20.9	19.3	20.4	17.0	25.9	19.0	26.8
17	25.2	18.1	14.0	19.5	21.7	25.0	35.2
18	24.8	19.5	16.1	21.9	20.2	29.6	27.8
19	26.0	16.3	19.5	22.0	19.4	19.5	23.7
20	26.2	15.2	19.6	19.6	16.8	18.4	29.3
21	26.8	18.1	16.4	14.6	17.7	21.6	34.8
22	27.5	21.0	14.1	16.8	14.6	24.8	39.3
23	22.6	21.9	13.0	15.7	16.1		29.4
24	19.2	21.5	17.8	16.0	16.9	29.5	26.2
25	21.5	22.5	18.0	16.2	16.7	29.5	25.8
26	22.9	20.5	17.0	16.2	19.3	24.0	23.0
27	23.0	16.5	17.8	20.5	23.0	23.0	27.8
28	23.4	17.5	18.2	14.3	23.2	30.1	31.1
29	25.5	19.2	21.0	17.8	24.0	25.9	33.5
30	29.8	20.0	21.8	18.0	18.2	28.4	34.6
31		22.0		15.8	18.1		29.1
Avg	24.3	20.6	19.2	17.1	18.2	22.5	29.9

TOS 1

TOS 2

TOS 3

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