Background

New processing pea cultivars are being bred all the time. These new cultivars need to be tested in an Ontario growing environment in order to select those with optimum performance in an Ontario climate. Having data to support future cultivar purchases will ensure maximum productivity for Ontario pea growers.

Objective

1. Evaluate the suitability of available pea cultivars to the Ontario climate and their relative performance as compared to cultivars grown extensively in Ontario's pea program.
2. Identify cultivars that will fit into gaps in the Ontario pea program

EARLY PLANTING

SITE INFORMATION

Soil Type: Colwood Silt Loam

Tillage: Fall chisel, spring cultivate

Soil Fertility: pH 7.2, P(bicarb) 15, K(ppm) 143, Mg(ppm) 270, CEC 21.7

Herbicides: 0.6L Dual II Magnum, applied PPI

Planting Date: April 27, 2023

Each plot was planted in 7.5" row spacing to a length of 19 feet, and replicated 4 times. Each plot was split into three, five-foot long sections. At harvest, the middle 4 rows from each 5 foot section were used for harvest data collection. This allowed for a maximum of 3 separate harvest days for each entry.

Heat units to harvest are calculated at the end of the day of harvest.

LATE PLANTING

SITE INFORMATION

Soil Type: Tuscola Clay

Tillage: Fall chisel, spring cultivate

Herbicides: 0.6L Dual II Magnum + 130mL Pursuit applied PPI May 13, 2023

Planting Date: May 26, 2023

Each plot was planted in 7.5" row spacing to a length of 20 feet, and replicated 4 times. Each plot was split into three, five-foot long sections. At harvest, the middle 4 or 6 rows from each 5 foot section were used for harvest data collection. This allowed for a maximum of 3 separate harvest days for each entry.

Heat units to harvest are calculated at the end of the day of harvest.

Results
Early Planting - Tupperville, ON

Season Summary - Early Planting

The trial was planted into good conditions and adequate moisture. Following planting, the plot received a little over an inch of rain over a 4-5 days period, then remained dry until the second week of June. Temperatures remained relatively cool throughout the growing season, with nighttime temperature remaining relatively low.

Weed control was excellent, and any weed escapes were removed by hand throughout the season.

Due to the dry growing season, there was virtually no incidence of any of the root rot complexes, downy mildew, or powdery mildew throughout the season.

Harvest started on June 24th, fifty-eight (58) days after planting, and continued almost daily until July 1st, sixty-five (65) days after planting.

NORTERA

Weather

April	High	Low	Daily HU	Daily Percip
27	13.6	1.0	5	0
28	12.7	4.5	7	18.03
29	14.8	8.7	13	5.84
30	11.7	8.7	10	2.29

May	High	Low	Daily HU	Daily Percip
1	9.4	3.1	3	2.54
2	6.4	2.8	0	4.57
3	10.4	2.8	4	2.29
4	15.6	7.4	13	0
5	15.7	4.1	10	0
6	20.1	6.8	16	0
7	22.6	11.8	23	0.51
8	12.0	9.6	11	0
9	17.1	7.4	14	0.25
10	23.3	5.1	18	0
11	26.6	8.8	24	0
12	27.2	10.2	26	0
13	24.7	11.7	25	0
14	17.7	7.8	15	0
15	22.5	3.7	16	0
16	25.9	9.3	24	0
17	9.6	1.9	2	0
18	18.2	-0.8	8	0
19	24.0	5.8	19	0
20	14.7	10.7	15	3.81
21	23.1	9.7	22	0
22	21.8	8.6	19	0
23	25.9	9.2	24	0
24	17.6	6.5	14	0.25
25	14.9	4.6	10	0
26	21.4	3.3	14	0
27	26.3	5.4	21	0
28	26.5	9.1	24	0
29	29.2	9.9	27	0
30	30.3	12.2	30	0
31	30.4	15.8	30	0

June	High	Low	Daily HU	Daily Percip
1	32.1	14.6	30	0
2	30.8	15.3	30	0
3	24.3	16.2	28	0
4	25.7	9.9	24	0
5	25.8	10.9	25	0
6	20.4	10.8	20	0
7	20.9	8.9	19	0
8	21.2	9.9	20	0
9	25.3	9.3	23	0
10	27.5	12.9	28	0
11	21.3	13.8	24	11.94
12	17.6	12.1	19	2.29
13	16.7	10.4	16	3.81
14	28.1	9.1	25	0
15	22.1	12.4	23	4.06
16	18.0	13.7	21	13.21
17	25.4	11.2	25	0
18	26.3	10.5	25	0
19	28.2	11.8	28	0
20	28.9	15.7	30	0
21	28.3	15.5	30	0
22	25.1	16.1	29	0
23	20.6	17.7	26	11.68
24	28.2	17.4	30	3.81
25	28.5	17.8	30	8.13
26	22.5	17.5	28	6.1
27	19.9	17.1	25	0.25
28	24.4	13.2	26	0
29	26.2	13.7	28	0
30	28.2	18.4	30	0

July	High	Low	Daily HU	Daily Percip
1	28.2	19.8	30	0
2	26.4	21.4	30	1.52
3	28.4	19.7	30	11.94
4	29.6	17.6	30	0
5	30.8	19.1	30	0
6	28.7	20.1	30	4.83
7	26.3	18.3	30	0

Total Air HU	1526
Total Percip	123.95

Small Sieve Peas

Variety	Harvest Date	Growing Days	Acc Air HU	Harvested Weight (lbs)	Sieve 1	Sieve 2	Sieve 3	Sieve 4	Sieve 5	Avg Sieve	Expected Sieve	Unadjusted Yield (tons/acre)	Avg TD	Adjusted Yield (tons/acre)
CS-529F	27-Jun	61	1232	2.22	8.6%	8.1%	54.1%	20.3%	9.0%	3.1	2.2	0.97	100	1.09
Natalie	29-Jun	63	1285	3.45	20.9%	39.4%	33.0%	3.8%	2.9%	2.3	1.9	1.50	129	1.34
Nitro	3-Jul	67	1405	4.81	10.8%	35.6%	49.5%	3.1%	1.0%	2.5		2.10	118	1.97
ASR 40.4021	5-Jul	69	1465	5.73	8.9%	26.9%	60.7%	3.3%	0.2%	2.6	1.9	2.50	118	2.35
EXP798	5-Jul	69	1465	5.53	6.7%	22.6%	65.8%	4.7%	0.2%	2.7	2.2	2.41	132	2.12
Rhianna	7-Jul	71	1526	5.09	29.3%	40.7%	24.6%	2.9%	2.6%	2.1		2.22	117	2.11
Wav-202	7-Jul	71	1526	4.69	19.0%	38.6%	40.3%	1.9%	0.2%	2.3	2.1	2.04	112	2.00
													Trial Average	1.85

Varieties	Date	6/24	6/25	6/26	6/27	6/28	6/29	6/30	7/1	7/2	7/3	7/4	7/5	7/6	7/7
	Acc. HU	1148	1178	1206	1232	1257	1285	1315	1345	1375	1405	1435	1465	1495	1526
PETITE PEAS	Adj. Yield	Avg. Sieve	PETITE PEAS													
CS-529F	1.09	3.1	75		98	100									
Natalie	1.34	2.3	72			99		129							
Nitro	1.97	2.5							94		118				
ASR 40.4021	2.35	2.6											118		
EXP798	2.12	2.7											132		
Wav-202	2.00	2.3											85	91	112
Rhianna	2.11	2.1											94	103	117
AVERAGE	1.85														

2023 Pea Cultivar Evaluation Trial (Ontario)

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Large Sieve Peas

Variety	Harvest Date	Growing Days	Acc Air HU	Harvested Weight (lbs)	Sieve 1	Sieve 2	Sieve 3	Sieve 4	Sieve 5	Avg Sieve	Expected Sieve	Unadjusted Yield (tons/acre)	Avg TD	Adjusted Yield (tons/acre)
Sherwood	26-Jun	60	1206	3.63	2.2%	2.8%	28.7%	21.5%	44.9%	4.0		1.58	126	1.42
CS-503AF	26-Jun	60	1206	2.99	0.0%	1.0%	13.7%	39.8%	45.5%	4.3	3.4	1.30	118	1.22
PLS-534	27-Jun	61	1232	4.7	0.0%	1.3%	9.6%	16.4%	72.8%	4.6	3.8	2.05	122	1.88
BSC304	29-Jun	63	1285	4.01	6.7%	7.7%	39.7%	21.4%	24.4%	3.5	3.0	1.75	121	1.62
EXP461	29-Jun	63	1285	4.77	5.0%	3.4%	20.5%	26.2%	44.9%	4.0	3.4	2.08	125	1.89
PLS-613-89	1-Jul	65	1345	4.73	6.6%	18.4%	58.1%	14.6%	2.3%	2.9	3.0	2.06	120	1.92
Reliance	3-Jul	67	1405	4.55	2.9%	10.1%	34.9%	34.3%	17.8%	3.5		1.98	116	1.88
CS-492AF	3-Jul	67	1405	5.68	1.2%	3.2%	17.6%	40.7%	37.3%	4.1	3.4	2.47	129	2.20
Portage	3-Jul	67	1405	5.66	0.7%	1.6%	8.8%	22.4%	66.4%	4.5		2.47	147	2.07
PLS-566	5-Jul	69	1465	5.45	2.2%	1.5%	12.5%	33.0%	50.8%	4.3	3.7	2.37	128	2.11
389	5-Jul	69	1465	5.3	4.3%	8.7%	52.3%	30.9%	3.8%	3.2	2.6	2.31	158	1.92
ASR 40.3007	5-Jul	69	1465	5.12	6.6%	16.2%	59.0%	15.4%	2.7%	2.9	3.0	2.23	115	2.14
												Trial Average		1.86

Varieties	Date	6/24	6/25	6/26	6/27	6/28	6/29	6/30	7/1	7/2	7/3	7/4	7/5	7/6	7/7
	Acc. HU	1148	1178	1206	1232	1257	1285	1315	1345	1375	1405	1435	1465	1495	1526
LARGE PEAS	Adj. Yield / Avg. Sieve	LARGE PEAS													
Sherwood	1.42 / 4.0	88		126											
CS-503AF	1.22 / 4.3	78		118											
PLS-534	1.88 / 4.6				122										
BSC304	1.62 / 3.5				101		121								
EXP461	1.89 / 4.0				97		125								
PLS-613-89	1.92 / 2.9						97		120						
Portage	2.07 / 4.5										147				
Reliance	1.88 / 3.5										116				
CS-492AF	2.20 / 4.1								98		129				
389	1.92 / 3.2												158		
ASR 40.3007	2.14 / 2.9												115		
PLS-566	2.11 / 4.3												128		
AVERAGE	1.86														

Late Planting - Belmont, ON

Season Summary

The trial was planted into good conditions, however needed to be planted deeper than optimal to reach adequate soil moisture. Following planting, the trial remained dry until the second week of June, at which point frequent and heavy rains fell. Temperatures remained relatively cool throughout the growing season, with nighttime temperature remaining relatively low, providing for excellent growing conditions.

Weed control was excellent, and any weed escapes were removed by hand throughout the season.

Late in the season, incidence of the root rot complexes and foliar blights became evident due to excessive rainfall events and heavy dews nightly.

Harvest started on July 17th, fifty-two (52) days after planting, and continued almost daily until August 9th, seventy-five (75) days after planting.

Weather

May	High	Low	Daily HU	Daily Percip
26	23.5	2.5	0	0
27	26.7	4.6	20	0
28	28.9	7.1	24	0
29	29.7	9	27	0
30	30.1	15.6	30	0
31	31.2	12.4	30	0

June	High	Low	Daily HU	Daily Percip
1	32.2	13	30	0
2	33.5	14.6	30	0
3	23.4	16.7	28	0
4	24	10.9	23	0
5	24.6	10.4	24	0
6	24.9	12.2	25	0
7	21.6	6.6	17	0
8	22.8	11.1	23	0.51
9	24.5	9.6	23	0
10	29.5	7.5	25	0
11	25.1	14.6	28	3.3
12	15.1	12.2	17	12.19
13	19	9.3	17	17.02
14	21.3	9.3	20	1.52
15	23.2	8.1	20	1.02
16	20.9	13.6	23	0.25
17	25.3	11.2	25	0
18	31.5	7.2	27	0
19	28.6	10.8	27	0
20	28.4	17.7	30	0
21	29.4	16.6	30	0
22	25.3	14.2	28	0
23	22.6	16.2	27	7.62
24	28.4	18.1	30	0.76
25	29.8	15.9	30	1.02
26	23.7	16.8	28	18.52
27	23.2	15.8	27	0.51
28	25.1	10.7	24	0
29	27.4	8.2	24	0
30	20.3	18	26	0

July	High	Low	Daily HU	Daily Percip
1	30.7	19.8	30	1.78
2	22.1	20.3	30	36.58
3	28.5	18.6	30	5.84
4	33	16.6	30	0
5	31.9	17	30	0
6	29.8	19	30	12.95
7	24.9	13.1	26	0
8	20.9	11.7	21	0
9	24	13.7	26	
10	29.4	24	30	0
11	29.6	16.9	30	10.16
12	27.6	12.7	28	2.54
13	24.6	15.1	28	9.4
14	20.3	14.1	28	1.78
15	24.8	16.1	29	1.52
16	27.5	17.9	30	0.25
17	27.8	14.2	30	0
18	26.5	13.6	28	0
19	28.3	12.4	29	0
20	28.7	15.1	30	1.27
21	25.7	16.9	30	0
22	26.7	12.3	29	0
23	28.6	13.8	30	0
24	27.9	18.1	30	10.41
25	30.4	16.4	30	0
26	29.2	17.9	30	11.94
27	28.4	18.4	30	3.3
28	31.9	16.7	30	0
29	26.6	17.2	30	8.69
30	24.8	13	26	0
31	25.1	10.9	24	0

August	High	Low	Daily HU	Daily Percip
1	27.9	10.7	27	0
2	26	12.2	26	0
3	29.6	18	30	0
4	21.5	16.6	25	0
5	26.3	14.8	29	0
6	25.7	12.1	26	9.65
7	22.6	10.6	27	0
8	25.9	15.4	29	0
9	29.6	16.4	33	3.56

Total Air HU	2035
Total Percip	196.06

2023 Pea Cultivar Evaluation Trial (Ontario)

NORTERA

Small Sieve Peas

Variety	Harvest Date	Growing Days	Acc Air HU	Total Weight (lbs)	Sieve 1	Sieve 2	Sieve 3	Sieve 4	Sieve 5	Avg Sieve	Expected Sieve	Unadjusted Yield (tons/acre)	Avg TD	Adjusted Yield (tons/acre)
Natalie	Jul 18	53	1403	4.67	21.4%	37.0%	41.3%	0.2%	0.0%	2.2	1.9	1.36	114	1.30
Retrovert	Jul 18	53	1403	4.46	12.1%	19.5%	63.5%	4.9%	0.0%	2.6		1.30	112	1.27
Nitro	Jul 25	60	1611	3.88	10.1%	24.2%	61.3%	3.9%	0.5%	2.6		1.69	118	1.59
ASR 40.4021	Jul 26	61	1641	6.84	14.5%	22.5%	56.3%	6.0%	0.7%	2.6	1.9	1.99	109	2.01
SV3946QB	Jul 26	61	1641	4.9	10.0%	13.5%	55.9%	18.8%	1.8%	2.9	2.3	1.42	113	1.38
CS-533F	Jul 27	62	1671	2.45	17.1%	13.5%	57.1%	11.0%	1.2%	2.7	2.1	0.71	103	0.76
Rhianna	Jul 29	64	1731	4.95	40.4%	32.9%	24.4%	2.2%	0.0%	1.9		1.44	105	1.51
EXP800	Jul 31	66	1781	3.62	16.9%	27.6%	53.3%	2.2%	0.0%	2.4	2.0	1.05	121	0.98
PL-0122	Jul 31	66	1781	3.51	24.5%	31.9%	42.7%	0.9%	0.0%	2.2	2.1	1.02	122	0.94
Wav-202	Jul 31	66	1781	4.41	17.5%	37.2%	42.6%	2.7%	0.0%	2.3	2.1	1.28	119	1.20
												Trial Average		**1.29**

Varieties	Date	7/14	7/15	7/16	7/17	7/18	7/19	7/20	7/21	7/22	7/23	7/24	7/25	7/26	7/27	7/28	7/29	7/30	7/31
	Acc. HU	1286	1315	1345	1375	1403	1431	1461	1492	1521	1551	1581	1611	1641	1671	1701	1731	1757	1781
PETITE PEAS	Adj. Yield	Avg. Sieve	PETITE PEAS																
Retrovert	1.27	2.6	80			96	112												
Natalie	1.30	2.2	82			103	114												
Nitro	1.59	2.6							85		95		118						
ASR 40 4021	2.01	2.6												109					
SV3946QB	1.38	2.9									80		100	113					
CS355F	0.76	2.7									74		87		103				
Rhianna	1.51	1.9												87	95	105			
WAV 202	1.20	2.3													82	96		119	
EXP800	0.98	2.4														99		121	
PL-0122	0.94	2.2														101		122	
AVERAGE	**1.29**																		

Large Sieve Peas

Variety	Harvest Date	Growing Days	Acc Air HU	Total Weight (lbs)	Sieve 1	Sieve 2	Sieve 3	Sieve 4	Sieve 5	Avg Sieve	Expected Sieve	Unadjusted Yield (tons/acre)	Avg TD	Adjusted Yield (tons/acre)
CS-492AF	Jul 23	58	1551	6.54	5.4%	6.9%	28.9%	35.8%	23.1%	3.6	3.4	1.90	111	1.88
PLS-566	Jul 23	58	1551	6.73	4.5%	4.3%	19.8%	38.6%	32.8%	3.9	3.7	1.95	98	2.29
PLS-613-89	Jul 23	58	1551	5.17	21.9%	15.9%	44.3%	15.1%	2.9%	2.6	3.0	1.50	105	1.58
Reliance	Jul 25	60	1611	7.28	1.2%	2.1%	17.7%	35.3%	43.7%	4.2		3.17	128	2.82
Welland	Jul 26	61	1641	8.39	6.8%	12.2%	49.1%	26.0%	6.0%	3.1		2.44	108	2.49
CS-513F	Jul 27	62	1671	4.1	8.8%	6.8%	28.5%	23.2%	32.7%	3.6	3.8	1.19	114	1.14
PLS-576	Jul 27	62	1671	7.255	1.1%	2.2%	9.6%	17.6%	69.4%	4.5		2.11	121	1.96
BSC737 (EXP115)	Jul 29	64	1731	6.3	2.4%	3.3%	34.4%	41.1%	18.7%	3.7	3.6	1.83	121	1.70
CS-515AF	Jul 29	64	1731	6.53	2.9%	3.2%	20.4%	32.2%	41.3%	4.1	3.8	1.90	125	1.73
SV0823QG	Jul 29	64	1731	9.58	4.3%	7.1%	41.8%	34.2%	12.6%	3.4	3.3	2.78	122	2.56
SV1231QF	Jul 29	64	1731	7.71	3.4%	1.3%	16.0%	27.2%	52.1%	4.2	3.2	2.24	143	1.90
Tyne	Jul 29	64	1731	9.93	3.1%	3.6%	25.2%	40.0%	28.1%	3.9		2.88	124	2.62
SV6844QG	Jul 31	66	1781	8.79	1.0%	1.4%	17.9%	29.9%	49.8%	4.3	3.6	2.55	120	2.37
SV5685QG	Aug 9	75	2035	2.94	0.7%	3.4%	24.1%	28.2%	43.5%	4.1	3.4	0.85	102	0.93
												Trial Average		**2.00**

NORTERA

Varieties	Date	7/19	7/20	7/21	7/22	7/23	7/24	7/25	7/26	7/27	7/28	7/29	7/30	7/31	8/1	8/2	8/3	8/4	8/5	8/6	8/7	8/8	8/9
	Acc. HU	1431	1461	1492	1521	1551	1581	1611	1641	1671	1701	1731	1757	1781	1808	1834	1864	1891	1920	1946	1973	2002	2035
LARGE PEAS	Adj. Yield	Avg. Sieve	LARGE PEAS																					
PLS-613-09	1.58	2.6	81		99		105																	
CS-492AF	1.88	3.6	82		97		111																	
PLS-566	2.29	3.9	81		92		98																	
Reliance	2.82	4.2			87		102		128															
389	1.71	2.9					91		111															
828	2.56	4.0			84		95		118															
Welland	2.49	3.1							99	108														
ASR.40.3007	1.75	3.1			75				100	112														
CS-513F	1.14	3.6									114													
PLS576	1.96	4.5									121													
SV1231QF	1.90	4.2										143												
BSC737 (EXP115)	1.70	3.7									99	121												
Tyne	2.62	3.9									102	124												
CS-515AF	1.73	4.1									105	125												
SV0823OG	2.56	3.4										122												
SV6844OG	2.37	4.3									79	91		120										
SV5685OG	0.93	4.1															77				85		102	
AVERAGE	2.00																							

Acknowledgements

We wish to thank Cavanaleck Farms Ltd. for hosting this year's cultivar evaluations (late planting), the Ontario Processing Vegetable Growers and numerous seed companies for their financial contributions to this project.