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.

EARLY PLANTING

SITE INFORMATION

Soil Type: Berrien Sand Loam

Tillage: 1 pass fall soil saver, 2 passes spring land cultivator

Soil Fertility: pH 7.3, P(bicarb) 19, K(ppm) 168, Mg(ppm) 247, CEC 17.2, OM 3.1

Herbicides: Roundup transorb 1 L/ac, Dual II Magnum 0.6 L/ac pre-emerge application

Planting Date: April 22, 2024

The trial design was a randomized complete block design, with 4 replications per variety. Each variety was assigned an ID which was used for observations and data collection. Each plot was planted 6 rows wide with 7.5" row spacing to a length of approximately 18 feet. Each plot was split into three, five-foot long sections. This allowed for a maximum of 3 separate harvest days for each variety. Harvest data was obtained by compiling the harvest sections from all 4 replications.

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

LATE PLANTING

SITE INFORMATION

Soil Type: Tuscola Loam

Tillage: Fall disc chisel, spring cultivated

Herbicides: 0.6L/ac Dual II Magnum + 120mL/ac Pursuit applied May 25, 2024

Planting Date: June 12, 2024

The trial design was a randomized incomplete block design, with 4 replications per variety. Each variety was assigned an ID which was used for observations and data collection. Each plot was planted 6 rows wide with 7.5" row spacing to a length of approximately 18 feet. Each plot was split into three, five-foot long sections. This allowed for a maximum of 3 separate harvest days for each variety. Harvest data was obtained by compiling the harvest section from all 4 replications.

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

Results
Early Planting - Tupperville, ON

Season Summary - Early Planting

The trial was planted into good soil conditions and adequate moisture. Following planting, nighttime temperatures remained cool with next to no rain for 5 days. For the remainder of the season it continued to rain frequently. Air HU were higher than usual for April, May and June but due to frequent rainfall, moisture levels in the soil remained high.

Weed control was done prior to emergence and escapes were removed by hand.

During early vegetative development all varieties showed symptoms of a suspected rhizoctonia infections, however it did not appear to be severe enough to impact yield and all varieties were impacted relatively equally.

Harvest started on June 17th, fifty-six (56) days after planting and continued almost daily until June 26th, sixty-five (65) days after planting.

Weather 2024

April	High (°C)	Low (°C)	Daily HU	Daily Precip. (mm)
22	15.5	-1.2	5	0
23	13.4	8.1	11	0
24	8.7	-2.4	0	0.8
25	12.9	-3.8	0	0
26	17.7	-2.4	6	0
27	24.4	11.2	24	4.6
28	23.4	11.0	23	14.2
29	25.7	13.4	27	10.4
30	21.6	9.7	20	8

Total Air HU	1469
Total Precip. (mm)	216.40
Total Precip. (in.)	8.52

Daily HUs were calculated using daily maximum and minimum temperatures. When the calculated daily HUs were below 0 or exceeded 30, the daily total was manually adjusted to 0 and 30 respectively.

May	High (°C)	Low (°C)	Daily HU	Daily Precip. (mm)
1	25.1	5.8	20	0
2	21.6	7.3	18	0
3	18.1	11.4	19	19.6
4	23.1	10.8	23	0
5	22.7	8.1	20	0
6	18.9	6.3	15	0
7	21.7	3.8	15	7
8	24.5	8.4	22	0
9	15.7	7.8	13	0.6
10	18.1	6.5	14	0
11	13.2	8.9	12	6.6
12	18.6	5.1	13	0
13	26.2	11.6	26	2.8
14	19.9	9.5	18	0
15	21.3	9.0	19	0
16	23.0	7.3	19	0
17	19.5	14.4	23	5.2
18	24.2	14.0	26	0
19	29.8	11.1	29	0
20	31.0	13.9	30	0
21	30.2	18.7	30	0
22	29.6	20.1	30	0
23	26.4	14.8	29	0
24	27.4	12.2	28	0
25	26.2	15.4	29	10
26	25.1	11.7	25	30.4
27	22.3	14.6	25	8.6
28	20.9	12.5	22	14
29	17.5	7.2	14	0
30	18.4	4.6	13	0
31	23.5	5.0	18	0

June	High (°C)	Low (°C)	Daily HU	Daily Precip. (mm)
1	24.5	8.9	22	0
2	23.3	14.5	26	17.2
3	24.6	12.9	26	0
4	29.0	14.7	30	0
5	27.2	17.9	30	10.4
6	25.5	16.7	30	0
7	20.1	13.4	22	0
8	23.7	11.9	24	8.6
9	23.0	10.5	22	1.2
10	17.0	8.4	15	0
11	21.7	6.5	17	0
12	27.1	11.6	27	0
13	30.6	20.5	30	0
14	24.4	12.6	25	0
15	22.7	10.7	22	0
16	27.9	12.4	28	0
17	33.3	17.7	30	1.2
18	31.9	22.1	30	0.0
19	32.7	19.5	30	10.6
20	32.2	18.5	30	6.2
21	31.7	17.4	30	3.2
22	31.7	19.0	30	0.2
23	27.8	17.5	30	1.8
24	27.8	16.2	30	0.8
25	25.0	17.9	30	9
26	25.5	15.8	29	3.2

2024 Pea Cultivar Evaluation Trial (Ontario)

NORTERA

Small Sieve Peas

Variety	Growing Days	Acc Air HU	Sieve 1	Sieve 2	Sieve 3	Sieve 4	Sieve 5	Avg Sieve	Expected Sieve	Unadjusted Yield (tons/acre)	Avg TD	Adjusted Yield (tons/acre)	Yield Index (2024)	Yield Index (2023)	Yield Index (2022)
Natalie	59	1290	26.0%	43.6%	29.6%	0.4%	0.4%	2.1	2.4	1.60	109	1.61	81%	72%	
CS529F	60	1320	9.0%	16.5%	62.9%	10.7%	0.9%	2.8	3.2	2.36	116	2.24	113%	59%	
BSC489	60	1320	36.6%	25.5%	36.1%	1.3%	0.5%	2.0	2.3	1.12	95	1.40	71%		
EXP098	61	1350	25.1%	38.4%	35.8%	0.5%	0.3%	2.1	1.9	1.67	97	1.99	101%		
CS566F	61	1350	16.4%	40.5%	42.8%	0.2%	0.2%	2.3	1.8	2.71	101	3.01	152%		
Nitro	63	1410	16.2%	42.1%	41.0%	0.6%	0.2%	2.3		2.36	119	2.22	112%	106%	110%
DGF0086	63	1410	25.3%	31.7%	41.2%	1.4%	0.5%	2.2	2.1	0.96	107	0.99	50%		
ASR40.2007	63	1410	16.1%	43.5%	39.5%	0.7%	0.2%	2.3		1.92	108	1.96	99%		
Valese (ASR40.4021)	65	1469	9.7%	22.7%	65.1%	2.1%	0.4%	2.6	2.6	2.57	123	2.36	119%	127%	
								Trial Average		1.92	108	1.98	1.98	1.85	1.58

EARLY PLANTING	Date		6/17	6/18	6/19	6/20	6/21	6/22	6/23	6/24	6/25	6/26
Variety	Acc. HU		1200	1230	1260	1290	1320	1350	1380	1410	1440	1469
PETITE PEAS	Adj. Yield	Avg. Sieve	PETITE PEAS									
Natalie	1.61	2.1		89	97	109						
CS529F	2.24	2.8			97	102	116					
BSC489	1.40	2.0					95					
EXP098	1.99	2.1					93	97		144		
CS566F	3.01	2.3					95	101		145		
Nitro	2.22	2.3						89		119		
DGF0086	0.99	2.2								107		
ASR40.2007	1.96	2.3						86		108		
Valese (ASR40.4021)	2.36	2.6								92	102	123

2024 Pea Cultivar Evaluation Trial (Ontario)

NORTERA

Large Sieve Peas

Variety	Growing Days	Acc Air HU	Sieve 1	Sieve 2	Sieve 3	Sieve 4	Sieve 5	Avg Sieve	Expected Sieve	Unadjusted Yield (tons/acre)	Avg TD	Adjusted Yield (tons/acre)	Yield Index (2024)	Yield Index (2023)	Yield Index (2022)
Sherwood	57	1230	3.5%	3.0%	14.7%	20.3%	58.6%	4.3		2.35	114	2.26	98%	77%	72%
Dakota	57	1230	2.1%	0.5%	12.2%	15.6%	69.7%	4.5	3.9	2.80	114	2.68	116%		
CS504AF	57	1230	1.6%	0.9%	10.5%	14.4%	72.6%	4.6	3.7	2.85	110	2.85	123%		
Hesbana	58	1260	2.4%	4.3%	25.3%	32.2%	35.9%	4.0		2.59	116	2.46	106%		
SV3628QH	59	1290	2.0%	2.4%	13.9%	27.2%	54.5%	4.3	3.3	3.30	127	2.97	128%		
PLS534	59	1290	4.4%	5.8%	26.2%	25.5%	38.1%	3.9	3.2	1.99	112	1.95	84%	101%	
Austin	59	1290	1.1%	1.0%	12.5%	27.2%	58.3%	4.4	3.5	2.14	115	2.06	89%		
M-14	60	1320	3.9%	6.5%	29.5%	36.1%	23.9%	3.7	4.2	2.14	105	2.24	97%		
CS560DAF	60	1320	1.7%	3.4%	41.4%	44.3%	9.3%	3.6	4	2.50	124	2.28	99%		
Portage	59	1290	6.6%	11.3%	36.0%	24.0%	22.2%	3.4		1.77	93	2.32	100%	111%	91%
SVQH2015	60	1320	7.2%	11.1%	46.6%	26.9%	8.1%	3.2	3.5	1.88	95	2.35	102%		
BSC312	61	1350	2.8%	3.6%	40.0%	40.4%	13.3%	3.6	3.3	2.69	111	2.66	115%		
BSC304	61	1350	5.3%	7.9%	39.3%	38.3%	9.3%	3.4	3.2	2.31	119	2.17	94%	87%	101%
SVQF2070	61	1350	3.4%	7.1%	52.3%	32.2%	5.1%	3.3	3.1	2.28	111	2.26	98%		
Reliance	61	1350	4.4%	9.2%	56.6%	23.1%	6.6%	3.2		2.36	103	2.53	109%	101%	112%
PLS613-89	61	1350	16.8%	18.9%	54.8%	8.0%	1.6%	2.6	2.7	1.69	101	1.87	81%	103%	
ASR 40.3030	63	1410	6.2%	16.2%	70.3%	6.4%	1.0%	2.8		2.74	139	2.36	102%		
DGL0062 (Kudo)	64	1440	3.5%	4.1%	33.6%	35.5%	23.3%	3.7		2.33	135	2.03	88%		
Idalgo	63	1410	2.8%	4.0%	28.8%	39.6%	24.8%	3.8		3.13	125	2.85	123%		
BSC471	63	1410	11.0%	14.8%	61.7%	10.1%	2.4%	2.8	2.8	2.11	108	2.15	93%		
SVQB2566	63	1410	25.4%	34.2%	38.5%	1.4%	0.5%	2.2	2.8	1.82	108	1.86	80%		
SV3946QB	65	1469	10.6%	17.9%	60.7%	8.7%	2.1%	2.7	2.8	1.89	122	1.74	75%		111%
									Trial Average	2.35	114	2.31	2.31	1.86	1.99

EARLY PLANTING	Date		6/17	6/18	6/19	6/20	6/21	6/22	6/23	6/24	6/25	6/26
Varieties	Acc. HU		1200	1230	1260	1290	1320	1350	1380	140	1440	1469
LARGE PEAS	Adj. Yield	Avg. Sieve	LARGE PEAS									
Sherwood	2.26	4.3	99	114								
Dakota	2.68	4.5	100	114								
CS504AF	2.85	4.6	100	110								
Hesbana	2.46	4.0	91		116							
SV3628QH	2.97	4.3	82		106	127						
PLS534	1.95	3.9			101	112						
Austin	2.06	4.4	77		102	115						
M-14	2.24	3.7					105					
CS560DAF	2.28	3.6			94	100	124					
Portage	2.32	3.4				93				158		
SVQH2015	2.35	3.2					95					
BSC312	2.66	3.6						111				
BSC304	2.17	3.4						119				
SVQF2070	2.26	3.3					99	111				
Reliance	2.53	3.2						103				
PLS613-89	1.90	2.6						101				
ASR 40.3030	2.36	2.8								139		
DGL0062 (Kudo)	2.03	3.7									135	
Idalgo	2.85	3.8								125		
BSC471	2.15	2.8								107		
SVQB2566	1.90	2.2								107		
SV3946QB	1.70	2.7								94	100	122

Late Planting - Belmont, ON

Season Summary

Due to constant rain conditions the trial was planted later than desired. Field conditions were good at planting. Temperatures were higher than optimal following planting and remained high throughout the season. Heat units accumulated quickly due to high day and nighttime temperatures.

Mycosphaerella blight symptoms appeared around the third week of July and impacted all varieties relatively equally. Infection level did not appear to be severe enough to impact reproduction.

Weed control was good, with escapes being removed by hand throughout the season.

Harvest started July 26th, forty-four (44) days after planting and continued until August 16th, sixty-five (65) days after planting.

Weather

June	High (°C)	Low (°C)	Daily HU	Daily Precip. (mm)
12	26.7	10.2	25	0
13	29.9	17.3	30	0
14	25.6	13.8	27	0
15	25.1	8.6	22	0
16	29.3	18.4	30	0
17	33.7	16.0	30	0
18	34.3	21.6	30	0
19	35.7	22.2	30	0
20	24.4	23.0	30	0
21	33.2	22.1	30	2.29
22	33.4	19.5	30	0.25
23	26.7	17.0	30	1.27
24	28.6	15.3	30	0
25	26.5	15.4	30	0.51
26	29.2	16.1	30	2.03
27	22.4	13.1	24	0
28	23.9	8.6	21	0
29	29.1	17.4	30	15.75
30	24.4	10.1	23	0

Total Air HU	1899
Total Precip. (mm)	180.34
Total Precip. (in.)	7.1

Daily HUs were calculated using daily maximum and minimum temperatures. When the calculated daily HUs exceeded 30, the daily total was manually adjusted to 30.

July	High (°C)	Low (°C)	Daily HU	Daily Precip. (mm)
1	27.9	7.8	24	0
2	27.5	9.8	26	0
3	30.9	18.4	30	0
4	31.4	16.8	30	0
5	32.5	16.5	30	0
6	28.6	16.9	30	0
7	30.2	14.6	30	0
8	31.2	15.6	30	0
9	28.7	19.8	30	0
10	25.0	18.0	30	44.7
11	27.9	17.9	30	0
12	30.8	15.2	30	0
13	33.7	15.9	30	0
14	30.9	18.1	30	0.51
15	28.8	18.8	30	49.28
16	30.2	19.8	30	14.48
17	29.1	17.9	30	0.25
18	23.8	13.4	25	0
19	28.3	9.8	26	0
20	28.7	12.2	29	0
21	30.0	13.9	30	0
22	30.2	15.4	30	1.27
23	29.7	14.9	30	0
24	25.4	17.5	30	0
25	27.5	13.3	29	0
26	30.0	9.9	26	0
27	31.4	11.4	30	0
28	31.6	12.8	30	0
29	32.7	14.8	30	0
30	29.9	21.4	30	15.24
31	32.9	21.0	30	0

August	High (°C)	Low (°C)	Daily HU	Daily Precip. (mm)
1	33.5	20.8	30	0
2	29.9	21.3	30	6.1
3	31.9	18.8	30	0
4	31.2	17.3	30	0
5	30.8	20.9	30	2.03
6	20.9	15.6	25	16.25
7	26.3	13.7	28	0
8	27.6	14.8	30	0.51
9	27.2	14.6	30	0.51
10	23.9	12.8	25	0
11	23.7	14.3	26	0
12	25.2	12.9	26	0
13	25.5	15.6	29	0
14	31.8	12.5	30	0
15	30.0	12.6	30	0
16	26.7	17.1	30	7.11

NORTERA

Small Sieve Peas

Variety	Growing Days	Acc Air HU	Sieve 1	Sieve 2	Sieve 3	Sieve 4	Sieve 5	Avg Sieve	Expected Sieve	Unadjusted Yield (tons/acre)	Avg TD	Adjusted Yield (tons/acre)	Yield Index (2024)	Yield Index (2023)	Yield Index (2022)
Natalie	46	1350	23.7%	59.0%	16.8%	0.3%	0.3%	1.9	2.4	1.18	113	1.14	71%	101%	
BSC489	50	1470	15.1%	36.5%	45.7%	2.0%	0.7%	2.4	2.3	1.69	113	* 1.63 **	102%		
EXP098	51	1500	11.4%	46.8%	41.0%	0.7%	0.2%	2.3	1.9	2.32	126	2.08	130%		
Nitro	52	1530	9.4%	37.2%	52.2%	0.8%	0.4%	2.5		2.09	139	1.79 **	112%	123%	110%
ASR40.2007	52	1530	14.8%	46.4%	36.5%	1.3%	1.0%	2.3		1.82	120	* 1.69	106%		
DGF0086	54	1590	19.5%	42.6%	36.5%	1.5%	0.0%	2.2	2.1	1.43	113	1.39	87%		
Valese (ASR40.4021)	54	1590	11.8%	32.3%	55.3%	0.6%	0.0%	2.4	2.6	2.04	108	2.08	130%	156%	
CS561DAF	54	1590	9.3%	32.4%	56.5%	1.6%	0.2%	2.5	2.3	2.25	117	* 2.13 **	133%		
CS565F	55	1615	13.1%	29.0%	50.1%	7.0%	0.7%	2.5	2.1	1.86	124	1.69 **	106%		
CS522AF	55	1615	9.8%	33.0%	56.0%	1.0%	0.2%	2.5	2.4	2.22	120	2.06	129%		99%
CS533F	56	1643	22.6%	33.4%	40.5%	2.9%	0.6%	2.3	1.9	1.37	105	1.44	90%	59%	
CS564AF	56	1643	14.0%	41.9%	43.0%	1.1%	0.0%	2.3	2.2	1.96	117	1.86	116%		
BSC482	56	1643	27.2%	48.6%	22.0%	1.3%	1.0%	2.0	2.1	1.36	110	1.36	85%		
Flovert	57	1673	30.1%	53.0%	16.2%	0.7%	0.0%	1.9	2.1	1.29	113	1.25	78%		
CS568AF	60	1754	25.5%	55.2%	17.8%	1.2%	0.3%	2.0	2.2	1.42	119	1.33	83%		
PL0122	60	1754	50.3%	38.9%	9.6%	1.2%	0.0%	1.6	2.2	0.73	122	0.67	42%	73%	
								Trial Average		1.69	117	1.60	1.60	1.29	1.58

* Yield was obtained from three replications rather than four
** One harvested replication from marked varieties was negatively impacted by an undiagnosed environmental problem

Harvest Data

Varieties	Date	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	8/10	8/11	8/12
	Acc. HU	1290	1320	1350	1380	1410	1440	1470	1500	1530	1560	1590	1615	1643	1673	1703	1728	1754	1780
PETITE PEAS	Adj. Yield	Avg. Sieve	PETITE PEAS																
Natalie	1.14	1.9	94		113														
BSC489	1.63	2.4					87		113										
EXP098	2.08	2.3				71			105	126									
Nitro	1.79	2.5					77		91		139								
ASR40.2007	1.69	2.3							87		120								
DGF0086	1.39	2.2									100		113						
Valese (ASR40.4021)	2.08	2.4									88		108	126					
CS561DAF	2.13	2.5									92		117						
CS565F	1.69	2.5									82		97	124					
CS522AF	2.06	2.5									78			120					
CS533F	1.44	2.3									77			96	105				
CS564AF	1.86	2.3											90	107	117				
BSC482	1.36	2												99	110				
Flovert	1.25	1.9												104	103	113			
CS568AF	1.33	2													86	86		119	
PL0122	0.67	1.6														82		122	

2024 Pea Cultivar Evaluation Trial (Ontario)

NORTERA

Large Sieve Peas

Variety	Growing Days	Acc Air HU	Sieve 1	Sieve 2	Sieve 3	Sieve 4	Sieve 5	Avg Sieve	Expected Sieve	Unadjusted Yield (tons/acre)	Avg TD	Adjusted Yield (tons/acre)	Yield Index (2024)	Yield Index (2023)	Yield Index (2022)
PLS613-89	51	1500	7.5%	23.9%	62.4%	5.2%	1.0%	2.7	2.7	2.12	120	1.98	108%	79%	
ASR 40.3030	52	1530	2.7%	6.1%	48.1%	34.3%	8.9%	3.4		2.45	117	2.33	127%		
Reliance	52	1530	2.9%	6.2%	48.1%	35.2%	7.6%	3.4		2.53	122	2.32	127%	141%	112%
PLS566	52	1530	3.0%	5.9%	27.6%	37.5%	26.0%	3.8	4.2	2.29	120	* 2.13	116%	114%	
BSC471	52	1530	7.7%	14.1%	53.9%	20.5%	3.7%	3.0	2.8	1.63	103	1.75	95%		
Idalgo	52	1530	1.2%	3.3%	18.2%	50.5%	26.9%	4.0		2.64	126	2.38	130%		
SVQB2566	54	1590	21.5%	37.4%	39.8%	1.0%	0.4%	2.2	2.8	1.12	109	1.13 **	62%		
SV3946QB	54	1590	13.5%	23.7%	58.6%	4.2%	0.0%	2.5	2.8	1.45	112	1.42	77%	69%	111%
PLS602	54	1590	5.3%	13.7%	65.3%	15.1%	0.7%	2.9	3.1	2.46	122	2.26	123%		
BSC799	56	1643	6.3%	9.7%	38.2%	35.9%	9.9%	3.3	3.4	1.93	104	2.05	112%		
EXP649	57	1673	2.4%	5.6%	17.1%	37.2%	37.7%	4.0	4.3	1.78	108	1.82	99%		
SV5685QG	65	1899	4.8%	9.5%	44.8%	26.7%	14.3%	3.4	4.3	0.33	95	0.42	23%	47%	127%
								Trial Average		1.89	113	1.83	1.83	2.00	1.99

* Yield was obtained from three replications rather than four
** One harvested replication from marked varieties was impacted by an undiagnosed environmental problem

Harvest Data

Varieties	Date	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	8/10	8/11	8/12	8/13	8/14	8/15	8/16
	Acc. HU	1290	1320	1350	1380	1410	1440	1470	1500	1530	1560	1590	1615	1643	1673	1703	1728	1754	1780	1809	1839	1869	1899
LARGE PEAS	Adj. Yield	Avg. Sieve	LARGE PEAS																						
PLS613-89	1.98	2.7							101	120															
ASR 40.3030	2.33	3.4								106	117														
Reliance	2.32	3.4								105	122														
PLS566	2.13	3.8								106	120														
BSC471	1.75	3.0									103														
Idalgo	2.38	4.0							88		126														
SVQB2566	1.13	2.2								84			109												
SV3946QB	1.42	2.5									90		112												
PLS602	2.26	2.9									95		122												
BSC799	2.05	3.3											84	102	104										
EXP649	1.82	4.0												96	95	108									
SV5685QG	0.42	3.4																							95