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**METHODS:** Thirty eight pea cultivars were submitted to the 2004 trial, with Spring, Citation, and Encore included as standards for comparison. Plots were established on 06 May 2004 on a Brookston clay loam sand spot phase soil at the Ridgetown College Research Farm. Based on soil nutrient analysis, additional phosphorous and potassium were not required, and no nitrogen was applied. No seed treatments were applied other than what was present when the seed came from the supplier. The peas were seeded at a rate of 1 375 000 plant/ha (550 000 plants/acre) into rows spaced at 18 cm (7") using a 12- row Wintersteiger double cone plot seeder. Seed lots for small plots were prepared by counting a reference sample with a seed counter and making additional samples based on weight. Separate 100 seed plots were established to determine percent emergence.

Weeds were controlled by a pre plant incorporated application of Pursuit (240 g/l).

Plots were monitored as they matured by harvesting a subsample of 0.5 m x 6 rows per plot, and combining the 4 samples (replicates) and shelling. Tenderometer readings were made using an F.M.C. pea tenderometer. A target tenderometer value of 100 was used to determine harvest date. At harvest, 2.0 m x 8 rows (2.88 m<sup>2</sup>) were harvested per plot, and shelled in a stationary pea sheller.

**DATA COLLECTION:** Emergence counts were taken with 1 month of seeding, and at harvest the following data was collected using the methodology described:

- a) days to harvest
- b) heat units - determined using a base temperature of 40° F
- c) adjusted heat units - adjusted by 2 heat units for every tenderometer point above or below 100. This correction was made for each plot, rather than for plot means.
- d. Disease rating. Bacterial diseases were present in the plots, and were rated according to the following scale
  - 1 = < 30% infection on lower 1/3 of plant
  - 2 = 30-60% infection on lower 1/3 of plant
  - 3 = 60-90% infection on lower 1/3 of plant
  - 4 = < 30% infection on lower 2/3 of plant
  - 5 = 30-60% infection on lower 2/3 of plant
  - 6 = 60 - 90% infection on lower 2/3 of plant
  - 7 = < 30% infection on entire plant
  - 8 = 30 - 60 % infection on entire plant
  - 9 = 60 - 90% infection on entire plant
  - 10 = infection on pods
- d) tenderometer - average of 2 readings per sample (plot)
- e) yield - lbs/acre
- f) adjusted yield - yields were adjusted by 28 lbs for every tenderometer point above or below

100 (Dr. Earl Gritton, University of Wisconsin). This correction was made for each plot, rather than for plot means.

g) canopy height - average of 2 measurements per plot

h) sieve distribution - percentage weight distribution of different sieve sizes of an 800 g sample per plot. The sample is hand sieved through a set of steel sieves (Seedburo Equipment Co., Chicago, Ill) This data is not adjusted to a standard tenderometer value. Sieve sizes are defined as follows, according to USDA standards:

SIEVE SIZES OF PEAS

SIEVE SIZE	DIAMETER OF CIRCULAR OPENING IN MM (INCHES)	
	Will not pass through	Will pass through
<b>1</b>	-	7.1 (18/64)
<b>2</b>	7.1 (18/64)	7.9 (20/64)
<b>3</b>	7.9 (20/64)	8.7 (22/64)
<b>4</b>	8.7 (22/64)	9.5 (24/64)
<b>5</b>	9.5 (24/64)	10.3 (26/64)
<b>6</b>	10.3 (26/64)	11.1 (28/64)

**EXPERIMENTAL DESIGN AND DATA ANALYSIS:** The trial was established as a randomized complete block design with 4 replications. A single plot consisted of 12 rows, 18 cm (7") apart, 8.0 m (36') in length.

The data was statistically analyzed using analysis of variance for a randomized complete block design. A protected LSD was used to separate the treatments with significant differences. Values followed by a similar letter do not differ statistically, based on a Type 1 error rate of 0.05.

**DISCUSSION**

The spring of 2004 was cool and wet, allowing for good emergence and establishment of the pea plots. Weed control was good, with few ragweed escapes. Excessive rainfall was a problem, and flooding occurred on 3 occasions in parts of the trial. Plots which were repeatedly flooded and whose plants were obviously damaged were dropped from the trials; the number of replicates harvested per variety (if less than 4) are indicated as a superscript beside the variety name on Table 2.

Since the plots in the main trial are seeded into 12 rows using a double-cone seeder, the exact number of seeds in a given length of row can be variable, so emergence data is calculated by establishing 100-seed plots next to the main trial. These plots were in an area which was repeatedly flooded and the data is questionable and not included in this report.

**Table 1. Cultivars in 2004 Trial**

	<u>Cultivar</u>	<u>Source</u>	<u>Type</u>
1	CMG 389	Crites-Moscow	A
2	CMG 391	Crites-Moscow	A
3	CGM 390	Crites-Moscow	A
4	CGM 392	Crites-Moscow	A
5	EXP-1507	Crites-Moscow	A
6	EXP-1508	Crites-Moscow	A
7	EXP-1534	Crites-Moscow	A
<b>8</b>	<b>Citation**</b>	<b>Advanta</b>	<b>A</b>
9	SH 246-12	Advanta	A
10	Cabaret	Advanta	N
11	SH 562-6	Advanta	A
12	Geisha	Advanta	A
13	SH 597-4	Advanta	A
14	Zodiac	Advanta	A
15	Starlight	Advanta	N
16	Twinkle	Advanta	N
17	SH 6178-16	Advanta	A
18	Marathon	Brotherton	N
19	BSC 678	Brotherton	A
20	BSC 610	Brotherton	A
21	BSC 338	Brotherton	N
22	BSC 359	Brotherton	A
23	BSC 348	Brotherton	N
24	Cosima	Brotherton	N
25	XP 08500595	Seminis	A
26	Sherwood	Seminis	N
<b>27</b>	<b>Encore**</b>	<b>Seminis</b>	<b>N</b>
<b>28</b>	<b>Spring*</b>	<b>Seminis</b>	<b>N</b>
29	EX8704599	Seminis	A
30	Solution	Seminis	A
31	Ashton	Seminis	N
32	PLS-902	Pure Line	N
33	PLS-9	Pure Line	N
34	PLS-062	Pure Line	N
35	PLS-13413	Pure Line	A
36	PLS-13523	Pure Line	A
37	PLS-1051	Pure Line	N
38	Gallant	Rogers	A

\*,\*\* - early and main season standard cultivars

**Table 2: Maturity of pea cultivars. Ridgetown College, 2004.**

<b>Cultivar</b>	<b>Days to Harvest</b>	<b>Pea Heat Units</b>	<b>Pea Heat Units Adjusted</b>	<b>Disease Rating</b>
Geisha	68	1615	1629	3.00
Ashton <sup>3</sup>	67	1583	1585	2.25
PLS-13523	68	1615	1605	0.0
Zodiac	69	1641	1637	4.25
<b>Citation</b>	<b>71</b>	1697	1683	3.25
PLS-1051	68	1615	1617	2.00
PLS-13413	67	1583	1581	2.25
Cabaret	64	1492	1526	6.75
SH 246-12 <sup>3</sup>	68	1615	1635	5.75
BSC 359	63	1470	1478	0.00
Sherwood	58	1355	1349	0.25
Cosima	62	1448	1428	0.25
Marathon <sup>3</sup>	66	1550	1578	4.00
EXP-1508	62	1448	1436	0.25
BSC 338	62	1448	1454	2.25
<b>Encore</b>	<b>66</b>	1550	1565	4.00
Starlight	64	1492	1493	0.25
Twinkle <sup>3</sup>	60	1393	1395	7.75
BSC 348	62	1448	1465	4.50
Solution	63	1470	1481	1.75
SH 597-4	67	1583	1572	3.25
EXP-1534	67	1583	1603	3.75
BSC 678 <sup>3</sup>	66	1550	1576	2.25
PLS-902	60	1393	1393	4.75
Gallant	64	1492	1507	4.50
CMG 392	63	1470	1476	3.75
SH 562-6	65	1521	1539	5.75
PLS-9 <sup>3</sup>	56	1281	1292	4.25
BSC 610 <sup>3</sup>	64	1492	1531	4.50
<b>Spring</b>	<b>56</b>	1281	1271	1.75
CMG 391	63	1470	1477	3.75
EXP-1507	62	1448	1424	4.50
CMG 390	62	1448	1435	1.50
EX8704599 <sup>3</sup>	57	1308	1292	2.75
CMG 389 <sup>3</sup>	59	1369	1393	3.25
SH 6178-16 <sup>3</sup>	66	1550	1581	2.25
PLS-062 <sup>3</sup>	56	1281	1286	6.50
XP 08500595 <sup>3</sup>	57	1308	1316	0.25

**Table 3: Yield and plant characteristics of pea cultivars. Ridgetown College, 2004.**

Cultivar	Tenderometer (psi)	Yield (lbs/acre)	Adjusted Yield (lbs/acre)	Canopy Height (cm)
Geisha	93	8192 abc	9190 a	30 b-f
Ashton	99	8587 ab	8705 ab	22 g-j
PLS-13523	105	8618 a	8471 abc	29 b-g
Zodiac	102	8630 a	8455 abc	26 d-j
<b>Citation</b>	<b>107</b>	<b>7746 a-f</b>	<b>8275 a-d</b>	<b>30 b-f</b>
PLS-1051	99	8114 a-d	8142 a-e	19 ij
PLS-13413	101	8079 a-e	8044 a-f	27 c-i
Cabaret	83	7328 a-h	7800 a-g	29 b-g
SH 246-12	90	7411 a-g	7772 a-g	35 b
BSC 359	96	7443 a-g	7559 a-h	31 b-f
Sherwood	103	7535 a-f	7461 a-h	26 c-j
Cosima	110	7734 a-f	7458 a-h	27 c-i
Marathon	86	7219 a-h	7431 a-h	23 f-j
EXP-1508	106	7568 a-f	7404 a-h	25 d-j
BSC 338	97	7082 a-i	7162 a-h	21 hij
<b>Encore</b>	<b>92</b>	<b>6904 b-j</b>	<b>7118 b-h</b>	<b>24 e-j</b>
Starlight	100	6973 a-j	6984 b-i	30 b-f
Twinkle	99	6955 a-j	6807 b-j	19 j
BSC 348	92	6447 d-k	6685 b-k	24 e-j
Solution	95	6398 e-k	6545 c-l	31 b-f
SH 597-4	106	6685 c-k	6524 c-l	33 bcd
EXP-1534	90	6164 f-l	6448 c-l	28 b-h
BSC 678	87	6238 f-k	6418 c-l	31 b-e
PLS-902	100	6418 e-k	6414 c-l	30 b-g
Gallant	92	6142 f-l	6356 d-l	26 c-j
CMG 392	97	6108 f-l	6185 e-l	34 bc
SH 562-6	91	5786 g-m	6038 f-l	42 a
PLS-9	95	5792 g-m	5942 g-l	24 e-j
BSC 610	80	5117 klm	5753 g-l	28 b-h
<b>Spring</b>	<b>105</b>	<b>5701 h-m</b>	<b>5564 h-l</b>	<b>23 f-j</b>
CMG 391	97	5413 i-m	5511 h-l	35 b
EXP-1507	112	5357 j-m	5025 i-l	29 b-g
CMG 390	107	5099 klm	4910 jkl	29 b-g
EX8704599	108	5109 klm	4889 jkl	19 j
CMG 389	88	5091 klm	4744 kl	26 c-j
SH 6178-16	84	4408 m	4667 kl	29 b-g
PLS-062	98	4569 lm	4639 kl	24 e-j
XP 08500595	96	4396 m	4501 l	25 e-j
LSD (0.05)	-	1377	1670	6.3
CV	-	14.91	17.85	16.35
P-value	-	0.0001	0.0001	0.0001

**Table 4: Percent pea size distribution. Ridgetown College, 2004**

Cultivar	Sieve Size (size in mm/inches which the pea will not pass through)					
	1 -	2 (7.14/18/64)	3 (7.93/20/64)	4 (8.72/22/64)	5 (9.52/24/64)	6 (10.31/26/64)
Geisha	0.8	2.1	11.0	11.7	41.6	32.8
Ashton	1.1	2.4	7.5	25.1	47.3	16.6
PLS-13523	0.7	3.0	9.0	21.0	37.1	29.3
Zodiac	1.1	4.3	11.7	25.9	38.8	18.2
<b>Citation</b>	<b>0.2</b>	<b>0.6</b>	<b>3.7</b>	<b>17.6</b>	<b>45.3</b>	<b>32.5</b>
PLS-1051	0.8	2.4	6.8	17.5	41.8	30.6
PLS-13413	1.7	4.2	11.7	24.3	41.5	16.7
Cabaret	1.7	7.2	24.4	41.7	23.0	2.0
SH 246-12	3.7	10.4	19.8	37.8	26.3	2.0
BSC 359	0.7	1.4	4.3	14.3	41.3	38.2
Sherwood	0.2	1.3	6.6	22.6	36.6	32.7
Cosima	0.7	2.3	11.1	37.4	39.6	8.9
Marathon	2.4	4.8	13.1	22.6	35.1	22.1
EXP-1508	0.2	0.4	2.2	8.8	28.5	60.0
BSC 338	0.3	0.5	2.4	14.9	43.3	38.7
<b>Encore</b>	<b>1.4</b>	<b>3.8</b>	<b>10.9</b>	<b>23.1</b>	<b>38.2</b>	<b>22.8</b>
Starlight	1.1	3.9	10.3	28.3	45.5	10.9
Twinkle	0.6	1.5	7.4	23.0	42.5	25.0
BSC 348	0.8	2.0	6.9	22.3	44.8	23.1
Solution	1.7	4.5	11.0	28.4	45.4	8.8
SH 597-4	1.9	5.1	13.7	30.1	40.2	9.0
EXP-1534	2.9	8.7	20.3	42.2	23.5	2.4
BSC 678	1.2	3.4	8.8	17.3	31.6	37.6
PLS-902	0.5	2.1	7.8	19.1	39.6	30.9
Gallant	1.5	4.3	15.5	42.2	33.0	3.5
CMG 392	1.7	4.1	12.4	28.1	42.6	11.1
SH 562-6	4.4	7.9	21.8	48.6	17.0	0.3
PLS-9	0.2	1.1	5.5	14.0	28.8	50.4
BSC 610	2.1	6.4	13.5	25.0	33.8	19.1
<b>Spring</b>	<b>0.1</b>	<b>0.3</b>	<b>2.3</b>	<b>8.7</b>	<b>25.5</b>	<b>63.0</b>
CMG 391	1.0	2.7	7.3	26.0	42.0	21.0
EXP-1507	0.7	3.4	8.3	19.3	42.8	25.6
CMG 390	0.9	3.3	14.3	32.8	45.7	3.1
EX8704599	1.8	5.3	18.2	31.3	34.2	9.3
CMG 389	0.5	2.8	11.9	28.5	44.1	12.3
SH 6178-16	9.8	21.2	34.8	26.3	5.7	2.2
PLS-062	0.6	2.9	9.6	17.9	31.9	37.2
XP 08500595	0.4	2.5	11.9	28.8	44.1	12.3