NEW YORK STATE 2022 PROCESSING PEA CULTIVAR TRIAL REPORT

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Procedure & Materials

Location: Cornell AgriTech Farm, Geneva - soil type – silt loam. **Tillage –** Conventional. **Fertilizer**: broadcast 400 lb/A of 8-14-21 and worked in. **Planter** – Modified Hege 80 (cone type). **Planting Date**: 5/01. Picking started on 6/24 and we finished on 7/14. **Herbicide** – Dual directly after planting. **Plot Size**: 7 rows by 30 ft. **Row Width**: 6 inches, Row length: 30 ft. **In-row Spacing**: All cultivars were adjusted (seed planted) to 100% germination. Our processor has asked us to target for 600,000 plants per acre for early, 570,000 for second early and 550,000 plants per acre for the rest. **Insecticide** – none. **Experimental Design** – Randomized split block design, 4 replications (3 replications were harvested, and another was left for demonstration). **Model TG4EI Integrating Texturegage** – measure for maturity.

The objective of this trial was to compare a number of normal leaf and afila type pea varieties for yield and other quality characteristics. This was accomplished in cooperation with the pea processor in New York and seed companies, in an attempt to find new, higher quality, and disease resistant varieties that are adapted to our climate and soil conditions. Evaluation of processed products was held on 11/01/22 for processing and seed company representatives.

Yield of seven rows by 5 feet per replication (**35** Row feet) was obtained by pulling the plants and hand picking the pods. Two harvests were made if possible, to plot yield increase and also tenderometer reading increase. A target tenderometer value of 110 was used for the final harvest. A stationary sheller was used to remove berries from the harvested pods. Tenderometer readings were taken on each replication and averaged for the report. Pea berries were hand sieved with Seedburo hand testing screens. See following table for details.

Table 1: Sieve size diameters.

Sieve Size	Diameter of circular Opening in MM (inches) Will not pass through	Will pass through
1	6.35 (16/64)	7.1 (18/64)
2	7.1 (18/64)	7.9 (20/64)
3	7.9 (20/64)	8.7 (22/64)
4	8.7 (22/64)	9.5 (24/64)
5	9.5 (24/64)	10.3 (26/64)
6	10.3 (26/64)	11.1 (28/64)

Temperature and Moisture Conditions

April was seasonable, with about 2.0 inches of precipitation. Towards the end of April, soils were starting to dry out enough to plant and the forecast showed consistent rains the first week of May. The trial was planted on May 1st, soil conditions were slightly clumpy due to moisture during tillage but overall conditions were adequate. The peas were planted into moist soils but they soon dried down because of lack of precipitation. The first 15 days of May resulted in 0.12 inches of precipitation. Emergence was slow due to cool temps and lack of moisture but overall emergence was decent. The second half of May was more seasonable with regards to precipitation. For the most part, June was relatively cool and wet, with about 5.2 inches of rain for the month. Then, from July 1st to July 14th, the research farm received about 0.09 inches of rain. Overall, the pea trial experienced relatively mild temps, with both dry and wet periods. See the weather insert at the end of the summary for a breakdown of temperatures and precipitation over the growing season.

Table 2: Cultivar List and Maturity from Seed Source

Cultivar	GDD (40°F)	Seed Source	Leaf Type	Seed Treatment	Seed Count/lb	Germ. %	Sieve Index	Nodes to blossom
Premium	1150	Brotherton	NL	-	2143	96	-	-
FP2269	1190	Gallatin Valley	AF	-	-	-	3.8	9 to 10
Spring	1200	Pure Line	NL	LSV	2097	88	4.5	9 to 10
Eldorado	1200	Pure Line	NL	LSV	2586	99	4.5	9 to 10
GVS171	1220	Gallatin Valley	NL	-	2105	96	3.8	10
SV6485QH	1250	Seminis	DN	-	2524	89	3.3	-
EXP455	1280	Brotherton	AF	Captan + Allegiance + Cruiser	2268	84	3.2	9 to 10
M-14	1310	Pure Line	NL	LSV	3040	93	4	9 to 10
Portage	1325	Crites	AF	-	2200	95	3.75	10
SV0969QH	1360	Seminis	NL	-	3340	95	3.1	11
EXP773	1360	Brotherton	NL	Captan + Allegiance + Cruiser	2548	93	3.4	13
Nitro	1370	Seminis	NL	-	4934	-	2	13 to 14
GVS518	1380	Gallatin Valley	AF	-	2417	94	3.8	12 to 13
Idalgo	-	Syngenta	AF	Apron + Maxim	1970	98	-	12
BSC489	1383	Brotherton	AF	Captan + Allegiance + Cruiser	4775	99	1.9	12 to 13
DGL0027	1430	Pure Line	AF	LSV	2838	-	3.5	12
GVS828	1450	Gallatin Valley	AF	-	2919	98	3.8	14 to 15
CS-492AF	1450	Crites	AF	Apron + Maxim + Cruiser	2180	99	3.5	12 to 13
Da 1470	1470	Seminis	DA	-	2985	-	3.2	12 to 15
CS-494DAF	1470	Crites	AF	Apron + Maxim + Cruiser	3780	97	3.2	14
Saltingo	1470	Pure Line	AF	LSV	3018	98	3.5	11
Boogie	1470	Brotherton	AF	-	1862	97	-	-
SV1231QF	1480	Seminis	AF	-	2668	95	3.2	15
SV0371QF	1480	Seminis	-	-	2793	-	-	-
PLS586	1490	Pure Line	AF	LSV	2441	97	4	12 to 13
PLS576	1500	Pure Line	AF	LSV	2812	93	4	12 to 13
CS-500F	1500	Crites	NL	Apron + Maxim + Cruiser	3150	98	3.4	14
Rihanna	1500	Pure Line	-	-	6090	93	-	-
SV0823QG	1525	Seminis	AF	-	2766	95	3.3	17
Jerome(712)	1530	Brotherton	AF	-	2075	98	-	-
PLS 602	1530	Pure Line	AF	LSV	3101	99	3.2	15 to 16
Ricco	1530	Gallatin Valley	AF	-	2413	98	3.8	15 to 16
FP2278	1500	Gallatin Valley	AF	-	2592	91	3.6	15
BSC482	1545	Brotherton	AF	-	4525	96	-	-
BSC737	1560	Brotherton	AF	Captan + Allegiance + Cruiser	2592	99	3.6	15 to 17
CS-441AF	1575	Crites	AF	Apron + Maxim + Cruiser	2150	97	3.5	15
BSC599	1600	Brotherton	AF	Captan + Allegiance + Cruiser	2520	100	3.8	15
Festivert	-	Syngenta	-	-	-	-	-	-
SV6844QG	1600	Seminis	FA	-	2493	95	3.6	17
PLS 196	1610	Pure Line	AF	LSV	2441	93	4	16
EXP649	1650	Brotherton	AF	Captan + Allegiance + Cruiser	2170	96	3.6	14 to 15
SV5685QG	1750	Seminis	NL	-	2346	-	3.4	14

Table 3: Plant Characteristics

Cultivar	GDD to Full Flower	Plant Height at Harvest (in)	Plant Stand Rating	Root Rot Rating (in trial)
Premium	911	9 to 11	3	5
FP2269	937	8 to 11	3	5
Spring	988	10 to 13	3	5
Eldorado	988	9 to 11	3	5
GVS171	1018	7 to 10	3	5
SV6485QH	1085	9 to 13	3.5	5
EXP455	1018	10 to 13	3	5
M-14	1102	10 to 13	2.5	5
Portage	1085	11 to 14	3.5	5
SV0969QH	1120	12 to 15	3	5
EXP773	1085	11 to 14	3.5	5
Nitro	1145	13 to 16	3.5	5
GVS518	1085	10 to 13	4	5
Idalgo	1085	13 to 16	4	5
BSC489	1120	17 to 19	3.5	5
DGL0027	1055	11 to 14	4	5
GVS828	1120	10 to 13	3	5
CS-492AF	1120	12 to 15	4	5
Da 1470	1145	12 to 15	3.5	5
CS-494DAF	1120	13 to 16	3	5
Saltingo	1055	11 to 14	4	5
Boogie	1085	12 to 15	3.5	5
SV1231QF	1145	12 to 15	4.5	5
SV0371QF	1145	11 to 14	4	5
PLS586	1120	11 to 13	3.5	5
PLS576	1102	11 to 14	3.5	5
CS-500F	1178	10 to 13	4.5	5
Rihanna	1216	18 to 20	2.5	5
SV0823QG	1245	10 to 13	4	5
Jerome(712)	1178	9 to 12	4	5
PLS 602	1145	10 to 13	3.5	5
Ricco	1216	9 to 11	4	5
FP2278	1145	11 to 14	3	5
BSC482	1216	16 to 19	4	5
BSC737	1178	13 to 16	3.5	5
CS-441AF	1216	12 to 14	3.5	5
BSC599	1120	11 to 14	3.5	5
Festivert	1245	17 to 20	3.5	5
SV6844QG	1276	19 to 22	3	5
PLS 196	1216	13 to 16	3	5
EXP649	1276	8 to 11	3.5	5
SV5685QG	1448	12 to 15	3.5	5

Explanations for Headings in Table 3:

GDD to Full Flower – Monitored peas to identify full flower date and used base 40°F for growing degree days.

Plant Height at Harvest – Height measurements are taken on the day of harvest from all 3 plot replicatioms and a range is recorded.

Plant Stand Rating – About three weeks after planting, a visual evaluation of the plant stand is made, using a scale of 1 to 5. 1 – Few plants, extremely patchy, 5 – full stand, no empty patches.

Root Rot Rating (in trial) – Root rot is scouted for in the harvested reps of the variety trial and rated on a scale of 1 to 5. 1 – completely dead, 5 – no visual symptoms.

Root Rot Trial* - Due to logistics and weather we were not able to evaluate our root rot planting for 2022. We will continue the ratings in 2023. A field at the research farm that was planted with peas too many times has turned into a root rot nursery. We plant peas annually to encourage inoculum and plant all the varieties in the variety trial into that field and rate for root rot damage using a scale of 1 to 5. 1 – completely dead, 5 – no visual symptoms.

Table 4: Maturity, Sieve Distribution and Yield - (in order of trial maturity)

Cultivar	Days to harv.	GDD (40°F)	% Sieve >1	% Sieve 1	% Sieve 2	% Sieve 3	% Sieve 4	% Sieve 5	% Sieve 6	% Sieve 6>	Sieve size index	Ten. (TU)	Berry yield (lbs/A)	Berry yield (tons/A)	Adj. yield 110 TU (tons/A)	Plants per Acre (1000)
Eldarado	55	1276	6	7	8	17	24	30	6	2	3.87	108	5961	2.98	3.04	639710
Eldarado	56	1307	2	4	5	7	28	42	11	1	4.36	131	6352	3.18	2.80	631412
FP2269	55	1276	2	2	4	11	28	39	12	2	4.40	98	7728	3.86	4.51	614818
FP2269	56	1307	1	2	3	7	22	43	20	2	4.66	113	9411	4.71	4.60	593245
Premium	55	1276	1	3	5	11	22	31	23	4	4.50	95	5178	2.59	3.24	511934
Premium	56	1307	1	3	4	7	34	25	22	4	4.47	101	8237	4.12	4.57	567524
Premium	57	1345	0	1	2	6	15	35	35	6	4.98	115	8690	4.35	4.20	570843
GVS171	55	1276	3	5	10	29	33	15	4	1	3.57	94	7629	3.81	4.87	633901
GVS171	57	1345	0	1	5	14	41	35	4	0	4.16	111	9503	4.75	4.70	598224
Spring	58	1370	1	1	3	7	14	30	22	22	4.75	117	6601	3.30	3.14	592416
Spring	59	1394	0	1	2	5	18	40	32	2	4.94	135	7713	3.86	3.36	645517
EXP455	58	1370	0	1	3	13	32	40	6	5	4.32	127	6905	3.45	3.11	512763
EXP455	59	1394	0	0	1	12	36	43	8	0	4.45	147	6505	3.25	-	487872
SV6485QH	58	1370	5	10	22	29	12	16	3	3	3.12	78	2874	1.44	-	508615
SV6485QH	60	1419	3	4	7	26	46	12	2	0	3.63	90	4332	2.17	3.08	446386
SV6485QH	62	1486	1	2	4	20	40	28	4	1	4.02	111	7512	3.76	3.72	552589
M-14	60	1419	1	3	9	22	41	20	3	1	3.77	94	6912	3.46	4.42	500317
M-14	62	1486	0	2	4	16	42	32	4	0	4.10	114	7783	3.89	3.73	381669
Portage	60	1419	1	2	5	19	35	30	7	1	4.10	97	8207	4.10	4.87	562546
Portage	61	1448	0	1	4	18	35	35	6	1	4.18	99	9367	4.68	5.38	599883
Portage	62	1486	1	1	1	6	33	46	12	0	4.60	131	10714	5.36	4.72	599054
GVS518	61	1448	0	1	3	17	43	31	4	1	4.13	105	9909	4.95	5.19	604032
GVS518	62	1486	1	1	3	14	46	31	4	0	4.16	109	10234	5.12	5.17	573334
Idalgo	60	1419	2	4	12	28	35	18	1	0	3.55	79	6777	3.39	-	632242
Idalgo	62	1486	1	1	4	16	37	32	9	0	4.23	93	8979	4.49	5.88	623115
Idalgo	63	1520	0	1	3	7	28	53	7	1	4.51	113	11460	5.73	5.56	586608

Table 4 continued: Maturity, Sieve Distribution and Yield - (in order of trial maturity)

Cultivar	Days to harv.	GDD (40°F)	% Sieve >1	% Sieve 1	% Sieve 2	% Sieve 3	% Sieve 4	% Sieve 5	% Sieve 6	% Sieve 6>	Sieve size index	Ten. (TU)	Berry yield (lbs/A)	Berry yield (tons/A)	Adj. yield 110 TU (tons/A)	Plants per Acre (1000)
EXP773	62	1486	2	2	4	12	33	39	8	0	4.30	102	7962	3.98	4.33	441408
EXP773	63	1520	0	1	5	8	24	48	13	1	4.54	116	9909	4.95	4.70	493680
BSC489	63	1520	2	7	22	53	14	2	0	0	2.82	114	8423	4.21	4.04	665430
DGL0027	62	1486	2	2	4	16	39	34	3	0	4.10	100	8873	4.44	5.01	526038
DGL0027	63	1520	0	1	4	11	30	48	6	0	4.38	112	9272	4.64	4.55	531846
SV0969QH	64	1548	2	5	10	27	32	22	2	0	3.63	111	4001	2.00	1.98	465469
CS-492AF	61	1448	0	3	9	30	41	15	2	0	3.62	82	4592	2.29	-	607350
CS-492AF	64	1548	1	2	5	16	31	34	10	1	4.22	115	5807	2.90	2.78	491605
Saltingo	64	1548	0	2	5	16	35	37	5	0	4.15	114	9918	4.96	4.76	596149
GVS828	64	1548	1	6	13	24	41	14	1	0	3.48	98	6959	3.48	4.07	535166
GVS828	65	1575	1	9	10	23	33	22	2	0	3.56	105	8009	4.00	4.20	532677
Nitro	63	1520	11	21	37	29	2	0	0	0	2.14	88	6904	3.45	5.21	629753
Nitro	66	1606	3	11	28	53	5	0	0	0	2.54	133	10527	5.26	4.63	505296
CS-494DAF	64	1548	2	4	11	31	38	12	2	0	3.50	102	5016	2.51	2.74	470448
CS-494DAF	65	1575	1	4	10	27	36	18	4	0	3.68	111	4764	2.38	2.36	384158
Boogie	65	1575	0	1	3	8	20	37	25	6	4.75	106	6297	3.15	3.28	540144
Boogie	66	1606	0	1	2	9	16	36	29	7	4.84	124	8789	4.39	3.99	462980
SV0371QF	64	1548	3	9	16	32	34	6	0	0	3.12	102	7124	3.56	3.88	577481
SV0371QF	65	1575	2	6	20	30	33	8	1	0	3.20	110	7274	3.64	3.64	487042
PLS586	64	1548	1	5	9	26	38	20	1	0	3.63	102	7623	3.81	4.15	607350
PLS586	65	1575	1	2	5	16	38	34	4	0	4.10	113	10296	5.15	4.99	565865
Ricco	64	1548	0	1	4	13	29	39	13	1	4.40	102	9132	4.57	4.98	526453
Ricco	65	1575	0	1	3	14	27	41	13	1	4.44	106	9579	4.79	4.98	561716
BSC599	65	1575	0	0	2	15	24	37	20	2	4.59	119	9041	4.52	4.25	556738
BSC599	66	1606	0	0	2	7	21	46	20	4	4.78	138	9103	4.55	-	501147

Table 4 continued: Maturity, Sieve Distribution and Yield - (in order of trial maturity)

Cultivar	Days to harv.	GDD (40°F)	% Sieve >1	% Sieve 1	% Sieve 2	% Sieve 3	% Sieve 4	% Sieve 5	% Sieve 6	% Sieve 6>	Sieve size index	Ten. (TU)	Berry yield (lbs/A)	Berry yield (tons/A)	Adj. yield 110 TU (tons/A)	Plants per Acre (1000)
Jerome (712)	64	1548	1	5	11	23	34	23	3	0	3.69	91	6932	3.47	4.93	622285
Jerome (712)	66	1606	0	2	4	18	32	34	9	1	4.20	129	9239	4.62	4.11	502806
Da1470	64	1548	1	4	9	29	44	13	0	0	3.54	97	8820	4.41	5.24	674557
Da1470	66	1606	0	1	5	19	34	28	13	0	4.22	115	8551	4.28	4.11	491190
CS-500F	64	1548	1	5	8	18	31	27	9	1	3.96	92	5192	2.60	3.48	445556
CS-500F	66	1606	2	6	7	17	25	30	12	1	4.05	110	6688	3.34	3.34	451364
CS-441AF	66	1606	2	5	26	24	31	10	2	0	3.21	113	8082	4.04	3.92	501977
FP2278	67	1633	0	1	4	18	39	34	4	0	4.13	126	9414	4.70	4.23	495339
FP2278	68	1661	0	1	2	10	36	45	6	0	4.40	155	10816	5.40	-	507785
PLS576	64	1548	0	3	9	22	28	37	1	0	3.90	83	6180	3.10	-	497828
PLS576	67	1633	0	1	3	13	33	41	8	1	4.35	119	9820	4.91	4.62	485382
BSC737	67	1633	0	0	4	20	38	31	7	0	4.17	119	7907	3.95	3.71	456342
BSC737	68	1661	0	1	2	18	37	38	3	1	4.19	144	11233	5.61	-	540144
SV0823QG	67	1633	1	5	25	38	25	6	0	0	3.02	110	6690	3.35	3.35	506125
SV0823QG	68	1661	0	4	8	35	39	13	1	0	3.52	116	7629	3.81	3.62	521890
BSC482	67	1633	2	15	46	32	4	1	0	0	2.29	109	6857	3.43	3.46	652985
BSC482	68	1661	1	24	33	32	9	1	0	0	2.29	126	7720	3.86	3.47	685344
PLS602	67	1633	1	4	17	44	29	5	0	0	3.14	107	9246	4.62	4.76	540973
PLS602	68	1661	2	5	12	39	35	6	1	0	3.29	109	7764	3.88	3.92	433110
SV1231QF	67	1633	2	4	11	30	35	17	1	0	3.54	104	8039	4.02	4.26	536825
SV1231QF	68	1661	0	1	3	17	42	35	2	0	4.13	127	8778	4.39	3.95	526038
Festivert	67	1633	3	14	40	37	4	2	0	0	2.38	99	5788	2.89	3.32	535995
Festivert	68	1661	3	26	29	38	3	1	0	0	2.22	106	5078	2.54	2.64	503636
Rihanna	67	1633	12	25	48	15	0	0	0	0	1.89	91	4507	2.25	3.10	531017
Rihanna	69	1692	10	19	35	35	1	0	0	0	2.20	107	4705	2.35	2.42	441408

Table 4 continued: Maturity, Sieve Distribution and Yield - (in order of trial maturity)

Cultivar	Days to harv.	GDD (40°F)	% Sieve >1	% Sieve 1	% Sieve 2	% Sieve 3	% Sieve 4	% Sieve 5	% Sieve 6	% Sieve 6>	Sieve size index	Ten. (TU)	Berry yield (lbs/A)	Berry yield (tons/A)	Adj. yield 110 TU (tons/A)	Plants per Acre (1000)
EXP649	69	1692	2	3	5	16	30	31	13	1	4.22	100	6919	3.46	3.91	502806
EXP649	70	1716	0	2	4	13	27	39	15	1	4.42	110	7014	3.51	3.51	487042
PLS196	69	1692	1	3	7	21	36	26	5	1	3.92	98	7651	3.83	4.48	402411
PLS196	71	1740	0	3	6	11	35	36	8	1	4.20	132	9103	4.55	4.00	368393
SV6844QG	69	1692	2	3	6	19	37	31	2	0	3.95	88	8196	4.10	-	441408
SV6844QG	72	1772	0	0	2	7	29	49	12	1	4.63	121	9480	4.74	4.41	404070
SV5685QG	72	1772	1	3	8	21	35	28	4	0	3.90	72	4844	2.42	-	500317
SV5685QG	75	1864	1	3	7	15	20	35	18	1	4.34	106	5971	2.99	3.11	460491

Explanations for Headings in Table 4:

Days to Harvest - Number of days from planting until day of harvest.

Growing Degree Days (GDD) - Accumulation of heat units (base 40 degree F.) from planting until harvest.

Average sieve percentage - Berries were hand sieved with Seedburo screens. The table on the title page describes the size of the various sieves.

Sieve Size index - Sieve size index reflects the mean sieve size of the variety at harvest.

Tenderometer measurement - A model TG4EI Integrating Texturegage was used to determine the tenderometer units of each harvested plot. The average of the three harvested plots per cultivar was listed.

Yield lbs/A - Pounds per acre was determined by extrapolating the total weight of the berries per plot to obtain lbs per acre. Harvest plot was 7 rows by 5 ft in length.

Yield - Tons per acre - The weight of the harvested berries was extrapolated to tons per acre.

Adjusted Yield lbs/acre – A correction factor was used to adjust yield based on a tenderometer reading of 110. For example, if a sample read 90 Tenderometer Units, we would then multiple the yield by a correction factor of 1.42. Please see correction factors in Table 7.

Plants/foot - Total number of plants harvested was divided by the 35 row feet harvested to arrive at plants per foot.

Plant population per acre - An extrapolation of the number of harvested plants to plants per acre.

Table 5: Plant and Pod Charactertistics (In order of trial maturity)

Cultivar	Node to first flower (avg.)	Vine length (in) (avg.)	Ht. at harvest (in)	Pods per plant (avg.)	Avg. # nodes w/ pods/plt.	# Single pods/ node	# Double pods/ node	# Triple pods/ node	# Quad. pods/ node	% of Single pods/ node	% of Double pods/ node	% of Triple pods/ node	% of Quad. pods/ node	Berries per pod (avg.)	Pod length (in) (avg.)
Eldarado	8.4	20.7	9 to 11	3.8	3.7	3.6	0.1	0.0	0	96	4	0	0	7.1	3.1
FP2269	7.3	16.7	8 to 11	3.0	2.1	1.2	0.9	0.0	0	57	43	0	0	6.8	2.9
Premium	7.7	21.0	9 to 11	3.1	2.8	2.5	0.3	0.0	0	89	11	0	0	6.8	3.1
GVS171	8.4	21.7	7 to 10	3.6	2.5	1.5	1.0	0.0	0	59	41	0	0	7.0	2.9
Spring	7.1	19.7	10 to 13	3.2	2.8	2.3	0.5	0.0	0	82	18	0	0	6.4	3.0
EXP455	8.2	20.7	10 to 13	3.4	2.3	1.1	1.2	0.0	0	50	50	0	0	8.1	3.0
SV6485QH	10.2	19.5	9 to 13	3.6	2.5	1.4	1.0	0.1	0	59	39	2	0	7.2	3.1
M-14	7.5	25.0	10 to 13	5.0	3.3	1.6	1.6	0.0	0	49	50	1	0	6.2	2.8
Portage	9.2	25.3	11 to 14	5.0	3.0	1.2	1.5	0.3	0	42	50	8	0	6.7	2.8
GVS518	10.1	25.1	10 to 13	4.3	3.2	2.2	1.0	0.0	0	67	33	0	0	6.7	3.4
Idalgo	9.9	24.6	13 to 16	3.7	2.9	2.1	0.8	0.0	0	72	28	0	0	8.8	3.6
EXP773	9.5	22.2	11 to 14	5.0	3.2	1.5	1.6	0.1	0	47	51	2	0	7.0	2.8
BSC489	10.0	18.0	17 to 19	5.8	3.2	1.2	1.6	0.5	0	39	45	16	0	7.7	2.2
DGL0027	9.7	27.8	11 to 14	5.6	3.4	1.2	2.2	0.0	0	35	65	0	0	7.2	3.1
SV0969QH	9.3	21.5	12 to 15	5.0	3.1	1.4	1.4	0.3	0	49	44	7	0	7.6	2.7
CS-492AF	10.2	19.8	12 to 15	3.3	2.2	1.2	0.8	0.1	0	53	41	6	0	7.6	2.8
Saltingo	9.7	23.0	11 to 14	4.9	3.4	1.9	1.4	0.1	0	57	41	2	0	7.4	3.2
GVS828	10.2	25.5	10 to 13	5.4	2.7	0.7	1.3	0.7	0	28	46	26	0	9.0	3.0
Nitro	9.6	25.4	13 to 16	8.6	3.7	0.5	1.6	1.6	0	14	44	42	0	8.8	2.6
CS-494DAF	9.3	19.5	13 to 16	4.3	2.5	1.0	1.4	0.1	0	41	56	3	0	7.2	3.0
Boogie	12.3	22.4	12 to 15	4.9	3.1	1.5	1.4	0.2	0	43	50	7	0	8.2	3.2
SV0371QF	10.2	28.0	11 to 14	7.2	3.5	0.6	2.1	0.8	0	17	60	23	0	8.6	2.7

Table 5 continued: Plant and Pod Charactertistics (In order of trial maturity)

Cultivar	Node to first flower (avg.)	Vine length (in) (avg.)	Ht. at harvest (in)	Pods per plant (avg.)	Avg. # nodes w/ pods/plt.	# Single pods/ node	# Double pods/ node	# Triple pods/ node	# Quad. pods/ node	% of Single pods/ node	% of Double pods/ node	% of Triple pods/ node	% of Quad. pods/ node	Berries per pod (avg.)	Pod length (in) (avg.)
PLS586	10.6	25.9	11 to 13	4.3	3.6	1.0	1.5	0.1	0	39	58	3	0	7.9	3.2
Ricco	10.6	26.8	9 to 11	4.8	3.1	1.3	1.8	0.0	0	41	59	0	0	7.0	3.4
BSC599	12.2	30.0	11 to 14	4.6	2.9	1.3	1.6	0.0	0	44	56	0	0	7.5	3.3
Jerome (712)	9.4	29.7	9 to 12	4.6	2.9	1.4	1.4	0.1	0	49	49	2	0	7.8	3.1
Da1470	8.6	23.3	12 to 15	5.4	2.9	0.9	1.4	0.6	0	28	54	18	0	7.6	2.9
CS-500F	7.0	25.7	10 to 13	4.8	2.9	1.2	1.4	0.3	0	38	53	9	0	6.7	3.0
CS-441AF	10.1	29.1	12 to 14	3.6	2.4	1.3	1.1	0.0	0	57	43	0	0	7.6	3.1
FP2278	11.4	21.7	11 to 14	5.2	3.3	1.5	1.6	0.1	0	48	49	3	0	7.7	3.0
PLS576	9.8	26.6	11 to 14	4.8	3.3	1.8	1.5	0.0	0	50	50	0	0	7.7	3.6
BSC737	11.2	25.3	13 to 16	5.1	2.9	1.1	1.5	0.2	0	33	59	8	0	8.0	3.0
SV0823QG	11.5	28.3	10 to 13	4.5	2.5	1.1	1.0	0.3	0	46	41	13	0	6.9	3.0
BSC482	13.1	25.7	16 to 19	4.6	3.1	1.7	1.3	0.1	0	52	46	2	0	8.3	2.8
PLS602	9.0	28.5	10 to 13	7.0	4.1	1.2	2.9	0.0	0	29	71	0	0	8.7	3.2
SV1231QF	10.9	23.7	12 to 15	4.5	2.6	1.0	1.4	0.2	0	40	54	6	0	8.6	2.9
Festivert	11.3	20.4	17 to 20	5.6	3.5	1.6	1.7	0.2	0	48	49	3	0	8.8	3.0
Rihanna	10.7	20.4	18 to 20	7.9	3.9	1.1	1.6	1.2	0	28	42	30	0	7.0	2.5
EXP649	10.3	22.3	8 to 11	4.3	3.1	1.9	1.2	0.0	0	58	41	1	0	6.8	3.1
PLS196	9.0	24.5	13 to 16	5.2	3.5	1.9	1.5	0.1	0	54	44	2	0	10.0	3.8
SV6844QG	12.7	28.2	19 to 22	5.2	3.5	1.8	1.6	0.1	0	55	43	2	0	7.6	3.2
SV5685QG	14.5	30.0	12 to 15	4.2	2.7	1.3	1.2	0.2	0	49	46	5	0	7.0	3.7

Explanation for Headings in Table 5:

This data was derived from 30 plants harvested the same day as our yield harvest that was closest to our objective of 110 tenderometer unit reading. 30 plants, 10 from each of the 3 replicated plots were harvested, then weighed and pods were hand stripped and berries were hand shelled.

Node to first flower - The average number of nodes on the stem until the first flower (starting at the soil line node).

Vine Length – Vines were measured from soil line on root to top tip of plant.

Height at Harvest – Height was measured day of optimal harvest.

Pods per plant - The total number of pods was divided by 30 (number of plants) to determine average pods per plant.

Average Number of nodes with pods per plant - The number of nodes that had pods were counted and recorded.

Number and percentage of single pods, double pods or triple pods per node - The number of pods per node were hand counted and the number of single pods, double pods and triple pods were recorded. This was changed to a percentage.

Berries per pod – Ten uniform pods were selected and opened. The range of berries per pod in this group was listed.

Pod length - An average of 10 pods were lined up and measured in inches.

Table 6: Maturity												
Tenderometer unit measurment (days after palnting, gray area indicates prime harvest date)												
Cultivar	Day 55 1276 HU 6/24	Day 56 1307 HU 6/25	Day 57 1345 HU 6/26	Day 58 1370 HU 6/27	Day 59 1394 HU 6/28	Day 60 1419 HU 6/29	Day 61 1448 HU 6/30	Day 62 1486 HU 7/01	Day 63 1520 HU 7/02	Day 64 1548 HU 7/03	Day 65 1575 HU 7/04	Day 66 1606 HU 7/05
Eldarado	108	131										
FP2269	98	113										
Premium	95	101	115									
GVS171	94		111									
Spring				117	135							
EXP455				127	147							
SV6485QH				78		90		111				
M-14						94		114				
Portage						97	99	131				
GVS518							105	109				
Idalgo						79		93	113			
EXP773						85		102	116			
BSC489									114			
DGL0027						84		100	112			
SV0969QH										111		
CS-492AF							82			115		
Saltingo										114		
GVS828										98	105	
Nitro									88			133
CS-494DAF										102	111	
Boogie											106	124
SV0371QF										102	110	
PLS586										102	113	
Ricco										102	106	
BSC599											119	138
Jerome (712)										91		129
Da1470										97		115

Table 6 continued: Maturity												
Tenderometer unit measurment (days after palnting, gray area indicates prime harvest date)												
Cultivar	Day 64 1548 HU 7/03	Day 65 1575 HU 7/04	Day 66 1606 HU 7/05	Day 67 1633 HU 7/06	Day 68 1661 HU 7/07	Day 69 1692 HU 7/08	Day 70 1716 HU 7/09	Day 71 1740 HU 7/10	Day 72 1772 HU 7/11	Day 73 1807 HU 7/12	Day 74 1837 HU 7/13	Day 75 1864 HU 7/14
CS-500F	92		110									
CS-441AF			113									
FP2278				126	155							
PLS576	83			119								
BSC737				119	144							
SV0823QG				110	116							
BSC482				109	126							
PLS602				107	109							
SV1231QF				104	127							
Festivert				99	106							
Rihanna				91		107						
EXP649						100	110					
PLS196						98		132				
SV6844QG						88			121			
SV5685QG									72			106

Table 7: Weather Summary and Adjusted Yield Factors

Day	Mean Temp. (F)	Max Temp. (F)	Min. Temp. (F)	Daily Precip. (in)	Accum. Precip. (in)	GDD Base 40°F	Acc. GDD Base 40°F	Tend. Units (TU)	Correction factor for Yield
5/1/22	50.8	68.3	33.4	0.00	0.00	11	11	80	2.33
5/2/22	54.7	58.1	51.2	0.02	0.02	15	26	81	2.18
5/3/22	55.1	64.4	45.8	0.00	0.02	15	41	82	2.05
5/4/22	56.1	62.9	49.3	0.10	0.12	16	56	83	1.93
5/5/22	51.5	60.1	42.9	0.00	0.12	12	68	84	1.82
5/6/22	52.3	59.0	45.5	0.00	0.12	12	80	85	1.72
5/7/22	50.5	57.9	43.2	0.00	0.12	9	89	86	1.64
5/8/22	48.8	63.2	34.4	0.00	0.12	9	98	87	1.57
5/9/22	54.1	71.1	37.2	0.00	0.12	14	112	88	1.51
5/10/22	59.6	75.8	43.4	0.00	0.12	20	132	89	1.46
5/11/22	63.3	79.6	47.0	0.00	0.12	23	155	90	1.42
5/12/22	66.5	82.5	50.5	0.00	0.12	27	182	91	1.38
5/13/22	70.8	81.2	60.3	0.00	0.12	31	212	92	1.34
5/14/22	70.3	80.2	60.5	0.00	0.12	30	243	93	1.31
5/15/22	70.9	80.6	61.3	0.00	0.12	31	274	94	1.28
5/16/22	60.4	68.2	52.5	0.25	0.37	20	294	95	1.25
5/17/22	55.2	58.7	51.7	0.00	0.37	15	308	96	1.22
5/18/22	52.5	60.7	44.4	0.03	0.40	13	321	97	1.19
5/19/22	56.5	63.9	49.2	0.06	0.46	17	338	98	1.17
5/20/22	65.3	79.4	51.3	0.04	0.50	25	363	99	1.15
5/21/22	76.9	89.2	64.6	0.15	0.65	37	400	100	1.13
5/22/22	65.3	78.9	51.7	0.05	0.70	25	425	101	1.11
5/23/22	54.5	62.7	46.3	0.00	0.70	14	439	102	1.09
5/24/22	55.6	69.5	41.7	0.00	0.70	16	454	103	1.07
5/25/22	60.8	73.7	47.8	0.00	0.70	21	475	104	1.06
5/26/22	70.7	80.0	61.4	0.00	0.70	31	506	105	1.05
5/27/22	65.5	69.5	61.6	0.78	1.48	25	530	106	1.04
5/28/22	61.7	68.4	54.9	0.18	1.66	22	552	107	1.03
5/29/22	65.1	76.5	53.7	0.00	1.66	25	577	108	1.02
5/30/22	71.5	87.1	56.0	0.00	1.66	32	609	109	1.01
5/31/22	76.2	88.7	63.7	0.00	1.66	36	645	110	1.00
6/1/22	72.5	77.6	67.5	0.42	2.08	33	677	111	0.99
6/2/22	66.1	74.0	58.2	0.00	2.08	26	703	112	0.98
6/3/22	63.8	73.6	54.1	0.00	2.08	24	727	113	0.97
6/4/22	58.6	66.4	50.7	0.00	2.08	19	746	114	0.96
6/5/22	61.0	74.6	47.4	0.00	2.08	21	767	115	0.96
6/6/22	69.3	79.8	58.9	0.00	2.08	29	796	116	0.95
6/7/22	66.3	71.0	61.5	0.30	2.38	25	821	117	0.95
6/8/22	64.1	72.9	55.2	0.18	2.56	24	845	118	0.94

Table 7 continued: Weather Summary and Adjusted Yield Factors

Day	Mean Temp. (F)	Max Temp. (F)	Min. Temp. (F)	Daily Precip. (in)	Accum. Precip. (in)	GDD Base 40°F	Acc. GDD Base 40°F	Tend. Units (TU)	Correction factor for Yield
6/9/22	60.4	65.7	55.0	0.93	3.49	20	865	119	0.94
6/10/22	63.0	71.6	54.5	0.00	3.49	23	888	120	0.93
6/11/22	62.5	73.8	51.3	0.00	3.49	23	911	121	0.93
6/12/22	66.5	74.5	58.5	0.50	3.99	27	937	122	0.92
6/13/22	65.1	73.4	56.7	0.00	3.99	25	962	123	0.92
6/14/22	66.0	77.0	55.0	0.00	3.99	26	988	124	0.91
6/15/22	69.4	83.8	55.0	0.00	3.99	29	1018	125	0.91
6/16/22	77.9	85.8	70.0	1.14	5.13	38	1055	126	0.90
6/17/22	70.2	77.4	63.0	0.00	5.13	30	1085	127	0.90
6/18/22	57.5	64.2	50.7	0.13	5.26	17	1102	128	0.89
6/19/22	57.8	66.6	48.9	0.00	5.26	18	1120	129	0.89
6/20/22	64.6	75.9	53.2	0.00	5.26	25	1145	130	0.89
6/21/22	72.8	88.7	57.0	0.00	5.26	33	1178	131	0.88
6/22/22	78.1	89.4	66.7	0.75	6.01	38	1216	132	0.88
6/23/22	69.8	78.8	60.8	0.00	6.01	30	1245	133	0.88
6/24/22	70.7	82.2	59.2	0.00	6.01	31	1276	134	0.87
6/25/22	71.3	85.8	56.8	0.00	6.01	31	1307	135	0.87
6/26/22	77.1	87.3	66.9	0.77	6.78	37	1345	136	0.87
6/27/22	66.9	73.9	59.9	0.06	6.84	26	1370	137	0.86
6/28/22	63.9	73.8	54.0	0.00	6.84	24	1394	138	0.86
6/29/22	64.8	76.1	53.6	0.00	6.84	25	1419	139	0.86
6/30/22	69.0	82.2	55.8	0.00	6.84	29	1448	140	0.86
7/1/22	78.2	88.2	68.2	0.00	6.84	38	1486	141	0.85
7/2/22	74.0	81.9	66.0	0.06	6.90	34	1520	142	0.85
7/3/22	68.3	76.6	59.9	0.00	6.90	28	1548	143	0.85
7/4/22	67.1	81.3	52.9	0.00	6.90	27	1575	144	0.85
7/5/22	71.1	75.6	66.6	0.02	6.92	31	1606	145	0.85
7/6/22	66.7	73.6	59.7	0.00	6.92	26	1633	146	0.84
7/7/22	68.2	80.8	55.6	0.00	6.92	28	1661	147	0.84
7/8/22	70.7	81.0	60.3	0.00	6.92	31	1692	148	0.84
7/9/22	64.8	72.7	57.0	0.00	6.92	25	1716	149	0.84
7/10/22	63.8	78.8	48.7	0.00	6.92	24	1740	150	0.84
7/11/22	71.7	88.3	55.0	0.00	6.92	32	1772	151	0.83
7/12/22	76.1	85.6	66.6	0.03	6.95	35	1807	152	0.83
7/13/22	70.3	78.1	62.6	0.05	7.00	30	1837	153	0.83
7/14/22	67.7	76.8	58.6	0.00	7.00	27	1864	154	0.83

Explanation for Headings in Table 7:

Mean Temp. – The daily mean temperature (°F).

Max Temp. – The daily maximum temperature (°F).

Min. Temp. – The daily minimum temperature (°F)

Daily Precip. – The daily amount of precipitation in inches.

Accum. Precip. – Accumulated precipitation from the plant date all the way to the last day of harvest (inches).

GDD Base 40°F – Growing degree days base 40°F.

Acc. GDD Base 40°F – Accumulation of growing degree days, base 40°F, starting from plant date and ending at the final harvest date for the trial.

Tend. Units – Tenderometer units are derived from our Model TG4EI Integrating Texturegage machine.

Correction factor for Yield – Yield was taken, and depending on what the TU reading was, the yield is then multiplied by the correction factor for an adjusted yield based on an ideal harvest of 110 tenderometer units.

Descriptions Provided by the Seed Source

Premium *– Brotherton, nomal leaf, 1150 heat units.*

FP2269 *– Gallatin Valley, afila leaf, 1190 heat units. 9 to 10 nodes to flower. 3.8 sieve index.*

Spring *– Seminis, normal leaf, 1200 heat units, 9 to 10 nodes to flower. 4.5 sieve index.*

Eldorado *– Pure Line, normal leaf, 1200 heat units, 10 nodes to flower. 4.5 sieve index. Spring replacement. Fusarium wilt race 1, PM; IR: DM.*

GVS171 *– Gallatin Valley, normal leaf, 1220 heat units, 10 nodes to flower. 3.8 sieve index.*

SV6485QH *– Seminis, determinate normal leaf, 1250 heat units. 3.3 sieve index. HR: Fop1, PEMV/BYMV/ IR:Pv.*

EXP455 *– Brotherton, afila leaf, 1280 heat units, 9 to 10 nodes to flower. 3.2 sieve index. Tomahawk+ 1/2d, stands well, pod on top, bold premium pod. FW1 & 2:R.*

M-14 *– Pure Line, normal leaf, 1310 heat units, 9 to 10 nodes to flower. 4 sieve index. Reliable normal leaf, second early. FW r1; IR: Aschocyta, Root Rot Complex.*

Portage *– Crites, afila leaf, 1325 heat units, 10 nodes to flower.*

SV0969QH *– Seminis, normal leaf, 1376 Heat Units, 11 nodes to flower. 3.1 sieve index. Sweet savor gene. HR BYMV/Ep/Fop:1,2 IR Pv.*

EXP773 *– Brotherton, normal leaf, 1360 heat units, 13 nodes to flower. 3.4 sieve index. Tonic Season+1d, 3s, less root rot than Tonic, good yielder as second early . FW1 & 2:R.*

Nitro *– Seminis, normal leaf, 1370 heat units, 2 sieve size, HR: BYMV/FOP*

GVS 518 *– Gallatin Valley, afila leaf, 1380 heat units, 12 to 13 nodes to flower. 3.8 sieve index.*

Idalgo – Syngenta, afila leaf, 730 European heat units, 12 nodes to flower. HR: Pv and Fop 1. IR: Ep and PEMV. Vigirous early variety, with good disease package, and high yield potential.

BSC489 – Brotherton, afila leaf, 1383 heat units, 12 to 13 nodes to flower. 1.9 sieve index. Nitro/Digit season, determinate, good uniform early pod, light pea color, stands well, yield good. FW1 & 2:R, DM:T.

DGL0027 – Pure Line, afila leaf, 1430 heat units, 12 nodes to flower. 3.5 sieve index. Second early with high downy mildew tolerance. FW r1; IR: Aschocyta, Root Rot Complex.

GVS828 – Gallatin Valley, afila leaf, 1450 heat units, 14 to 15 nodes to flower. S.8 sieve index.

CS-492AF – Crites, afila leaf, 1450 heat units, 12 to 13 nodes to flower. 3.5 sieve index. Mid-early afila, with a good disease resistance package. Ep, PEMV, Fop1, Fop2.

DA 1470 – Seminis, determinate afila leaf, 1470 heat units, 12 to 15 nodes to flower. Sweet savor gene.

CS-494DAF – Crites, afila leaf, 1470 heat units, 14 nodes to flower. 3.2 sieve index. Mid-season determinate afila with a good disease package & intermediate root rot resistance. Pv, Ep, PEMV, Fop1, Fop2.

Saltingo – Pure Line, afila leaf, 1470 heat units, 11 nodes to flower. 3.5 sieve index. Second early to mid, with high downy mildew tolerance. FWr1, PM; IR: DM, PEMV.

Boogie– Brotherton, afila leaf, 1470 heat units.

SV1231QF – Seminis, aflia leaf, 1480 heat units, 15 nodes to flower. 3.2 sieve index. Sweet savor gene. HR PEMV/Ep/Fop:1,2 IR PV.

SV0371QF – Seminis, 1480 heat units. 3.1 sieve index. HR BYMV/PEMV/Ep.

PLS586 – Pure Line, afila leaf, 1490 heat units, 12 to 13 nodes to flower. 4 sieve index. Strong root, large sieve. FWr1, PM; IR: FWr2.

PLS576 – Pure Line, afila leaf, 1500 heat units, 12 to 13 nodes to flower. 4 sieve index. Strong root, long pod. FWr1, PM; IR: FWr2, Root Rot Complex.

CS-500F – Crites, normal leaf, 1500 heat units, 14 nodes to flower. 3.4 sieve index. Mid-season leafy pea, with a good disease resistance package. Pv, Ep, PEMV, Fop1, Fop2.

Rihanna – Pure Line, 1500 heat units.

SV0823QG – Seminis, afila leaf, 1525 heat units, 17 nodes to flower. 3.3 sieve index. HR PEMV/Ep/Fop:1,2 IR PV.

Jerome (712) – Brotherton, afila leaf, 1530 heat units.

PLS602 – Pure Line, afila leaf, 1530 heat units, 15 to 16 nodes to flower. 3.2 sieve index. Healthy plant, smaller sieve size. FWr1, PM; IR: FWr2, Root Rot Complex.

Ricco – Gallatin Valley, afila leaf, 1530 heat units, 15 to 16 nodes to first flower.

FP2278 – Gallatin Valley, afila leaf, 1500 heat units, 15 nodes to flower. 3.6 sieve index.

BSC482 – Brotherton, afila leaf, 1545 heat units.

BSC737 – Brotherton, afila leaf, 1560 heat units, 15 to 17 nodes to flower. 3.6 sieve index. Fantasy Season+1d, longer Fantasy pod (, stands well, lodging tolerant, tall robust plant structure, yield very good. FW1 & 2:R,PM:R.

CS-441AF – Crites, afila leaf, 1575 heat units, 15 nodes to flower. 3.5 sieve index. Late-season afila, with high yield potential. Ep, PEMV, Fop2.

BSC599 – Brotherton, afila leaf, 1600 heat units, 15 nodes to flower. 3.8 seive index. Concept Season, longer Fantasy pod, stands well, good resistance. FW1,2,5:T, DM:T.

Festivert – Syngenta.

SV6844QG – Seminis, faciated afila, 1600 heat units, 17 nodes to flower. 3.6 sieve index. Sweet savor gene. HR BYMV/PEMV/Ep/Fop:1,2 IR Pv.

PLS196 – Pure Line, afila leaf, 1610 heat units, 16 nodes to flower. 4 sieve index. Consistently healthy, full season. FWr1, PM; IR: FWr2.

EXP649 – Brotherton, afila leaf, 1650 heat units, 14 to 15 nodes to flower. 3.6 sieve index. Concept Season+1d, Feisty/Boogie pod, stands well, good looking pod, yield very good. FW1 & 2, PEMV:R

SV5685QG – Seminis, normal leaf, 1750 heat units, 14 nodes to flower. 3.4 sieve index. HR BYMV/PEMV/Ep/Fop:1.

- 2022 Annual Cutting -

A vegetable "cutting", was held on November 1st, where frozen peas, snap beans, and sweet corn were put on display for processors and seed companies to evaluate. Large and 3-4 sieve snap beans were canned and also put on display. Our vegetable cutting is the final step of our program's evaluation. We evaluate the horticultural characteristics in the field and in raw products, but our vegetable cutting takes us all the way to quality evaluation on the plate.