

NEW YORK STATE 2016 PROCESSING SNAP BEAN CULTIVAR TRIAL REPORT
Large Sieve Bean – 3-4 Sieve Bean – Whole Bean

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PROCEDURE AND MATERIALS

Location: NYS Agricultural Research Farm – field 22, Geneva - soil type - Honeoye silt loam

Planting Dates: Large Sieve – 5/21, 3-4 sieve beans – 6/6, Whole type – 6/23

Row Width: 30 inches, Row length: 30 ft. **In-row Spacing:** 1 5/8 inches (6-8 plants/ft.)

Conventional Tillage

Fertilizer: 350#/A of 15-5-10 with Zn and Mn

Herbicide: Dual post plant

Planter - Two Row Monosem Vacuum Planter

Plot Size: 1 row - 4 replications (Replicated entries), 1 row – two replications (Observation entries).

The objective of this trial was to compare a number of green and wax snap bean varieties for yield and other quality characteristics. This was accomplished in cooperation with the snap bean processors in New York and Ontario Canada in an attempt to find new, higher quality, and disease resistant varieties that are adapted to our climate and soil conditions. We did not have a field day this past season due to the weather difficulties.

For both replicated and observation entries, yield of ten feet per replication was obtained by pulling the plants and hand picking them. Multiple harvests were made to plot yield increase and also seed size increase. An FMC snipper and grader were used to snip and grade the harvested pods. Each replicated entry was processed (canned and frozen) for later evaluation by the processors and seedsmen. Comments from this cutting are not included in the report.

Soil moisture was limited for all plantings with natural precipitation at its lowest since 1965. The large sieve and 3-4 sieve plantings had drip tape placed next to each row and were irrigated several times. The whole bean trial was watered with a overhead gun early and then with trickle irrigation. Excessive heat especially hurt the whole bean planting and much reset was seen. See the weather insert at the end of the summary for a breakdown of temperatures and precipitation over the growing season.

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Table 1 - Processing Snap Bean Cultivar List

Large Sieve

Venture (std)	Syngenta
Huntington (std)	Syngenta
SV1098GV	Seminis
HMX 4104	HM
BA1001	Seminis
BA0999	Seminis
Pismo	Syngenta
Chesapeake (1218)	Crites
Silverado	Crites
PV888	Crites
PV857	Crites
Colter (HMX 2117)	HM
Chisolm	HM
HM5101	HM
PLS5519	PL
6159	A&C/Basin

3-4 Sieve

Caprice (std)	HM
BA 1006	Seminis
SV0579GG	Seminis
SV1136GF	Seminis
Sybaris SV1007GG)	Seminis
HMX4129	HM
Falcao (874)	Crites
Marathon (856)	Crites
Camaro (891)	Crites
Colter (HMX 2117)	HM
Cassidy	HM
Bowie	HM

3-4 Sieve Continued

Wyatt	HM
Tahoe	Br
DW630 wax	Br
PLS2219	PL
PLS4921	PL
PLS2210	PL
6094	A&C/Basin

Whole (2-3 sieve)

Masai (std)	Syngenta
SV1286GF	Seminis
Oakley	HM
HMX 4129	HM
Ontario	Crites
HS931	Br
DX170	Br.
PLS72	PL
Flanker	Vilmorin
Walker	Vilmorin

Wax

SV1003GF (wax)	Seminis
6199 wax	A&C/Basin
Gold Mine	

Romano type

Furano std	Syngenta
Velero	HM
Navaho	Crites
6222	A&C/Basin

Table 2. Yield Characteristics (large bean planting date 5/21)

cultivar	Heat Units to Harv.	Days to harv.	% 2 Sieve	% 3 Sieve	% 4 Sieve	% 5 Sieve	% 6 Sieve	% 2-4 sieve	4 sieve seed length (mm)	5 sieve seed length (mm)	Plants per foot	T/A Harvest
Venture (std)	1032	58	4	3	21	40	31	28	103	124	4.6	4.8
BA0999	1032	58	8	8	69	11	0	85	101	114	5.1	4.7
BA0999	1076	60	9	8	59	22	0	76	105	120	5.8	5.5
HMX 4104	1032	58	7	6	46	33	3	59	96	98	5.4	3.0
HMX 4104	1076	60	11	4	21	41	18	36	93	100	5.1	3.1
HMX 4104	1109	62	8	5	21	36	26	34	101	117	4.5	3.4
Chesapeake	1056	59	6	6	58	26	2	70	102	113	4.7	3.7
Chesapeake	1092	61	19	8	43	26	0	70	104	116	4.5	2.9
Chesapeake	1133	63	9	10	48	24	3	67	125	130	5.4	4.3
SV1098GV	1056	59	8	9	67	14	0	84	98	108	4.9	4.0
SV1098GV	1092	61	5	6	46	33	2	57	90	102	5.0	4.4
SV1098GV	1133	63	4	8	53	30	0	65	114	130	5.0	4.7
Pismo	1076	60	9	11	60	16	0	80	87	93	4.9	4.4
Pismo	1109	62	7	6	56	26	1	69	99	111	5.1	5.4
Huntington	1056	59	16	9	52	18	1	77	81	94	5.0	4.5
Huntington	1092	61	19	7	39	28	5	65	81	100	4.6	4.2
PV888	1076	60	7	7	71	11	0	85	95	107	4.9	4.6
PV888	1109	62	12	10	46	27	3	68	102	112	5.1	3.6
PV888	1163	64	10	12	59	15	0	81	115	132	5.2	3.7
PV857	1076	60	11	14	50	15	0	75	97	98	4.9	4.5
PV857	1109	62	12	13	41	26	1	66	101	116	4.5	4.7
Colter	1092	61	15	13	57	12	0	85	105	111	4.3	4.7
HM5101	1056	59	8	11	62	17	0	81	91	101	4.5	4.7
HM5101	1092	61	16	8	42	28	4	66	87	99	3.6	4.4
HM5101	1133	63	19	6	43	25	4	68	108	116	4.5	5.3
PLS5519	1092	61	8	10	66	11	1	84	105	123	3.5	5.1
6159	1092	61	11	9	35	34	6	55	104	122	3.3	5.0
Silverado	1076	60	8	14	49	24	4	71	81	88	5.1	4.7
Silverado	1109	62	17	10	39	27	5	66	87	107	4.8	4.6
Silverado	1163	64	8	10	54	21	1	72	99	121	5.5	4.5
Chisolm	1076	60	6	9	43	34	5	58	83	83	4.9	4.7
Chisolm	1109	62	9	8	33	36	12	50	91	96	4.9	5.1
Chisolm	1163	64	4	7	33	42	14	44	96	106	5.6	4.7
BA1001	1076	60	15	8	43	33	1	66	74	84	4.3	1.5
BA1001	1109	62	28	7	31	27	5	66	86	89	4.6	2.8
BA1001	1163	64	16	14	45	20	1	75	89	100	4.7	3.5

See page 5 for column descriptions.

Column Descriptions for Tables 2, 4, and 6.

Cultivar – Data is based on four replications for entries in the replicated study and two plots for observation entries. Harvest sample was from five feet of row.

Seed Source –Brotherton=Brotherton Seed Co.; Crites M.=Crites Moscow Growers; HM=Harris Moran; Pure Line Seeds; Rogers=Syngenta Seeds-Rogers Brand; Seminis=Seminis Vegetable Seeds-Processor Division; Vil. - Vilmorin

Days to Harvest – The number of days from planting until harvest. Multiple harvests were made.

Degree Day Units Base 50 Degrees F. – The number of heat degree day units from planting until harvest.

% Culls – Based on the USDA specifications for culls #2 grade (misshapen) and pod rot or blemishes.

Percentage 2 sieve – Pods were snipped and graded after harvest. This was the percentage of 2 sieve pods.

Percentage 3 sieve - Pods were snipped and graded after harvest. This was the percentage of 3 sieve pods.

Percentage 4 sieve - Pods were snipped and graded after harvest. This was the percentage of 4 sieve pods.

Percentage 5 sieve - Pods were snipped and graded after harvest. This was the percentage of 5 sieve pods.

Percentage 6 sieve - Pods were snipped and graded after harvest. This was the percentage of 6 sieve pods.

Percentage 2-4 sieve – This was the sum of the 2-4 sieve percentages.

Seed Size of the 2 sieve pods – One seed from ten 2 sieve pods were collectively measured in millimeters as a maturity index.

Seed Size of the 3 sieve pods – One seed from ten 3 sieve pods were collectively measured in millimeters as a maturity index.

Seed Size of the 4 sieve pods – One seed from ten 4 sieve pods were collectively measured in millimeters as a maturity index.

Seed Size of the 5 sieve pods – One seed from ten 5 sieve pods were collectively measured in millimeters as a maturity index.

Plant Population listed as plants per foot – Desired population was 6-7 plants per foot.

Yield listed as tons per acre – The yield from the harvest sample (prior to being snipped) extrapolated to a per acre basis.

Table 3. Plant and Pod Characteristics (Large Sieve Beans)

Cultivar	Plt Ht. (in.)	Plt. Width (in.)	Bush Form	Pod Color (raw) rating	Unsnipped Pod Length (in.)	Pod Shape Rating	Pod Location	Pod Straight. Rating	Habit
Venture (std)	12	19	W	MG	5.5-6.5	CR	M	3.5	2
BA0999	15	18	W	MG	4-5.5	R	M-H	3.75	2.75
HMX 4104	17	17	H	MG	4.5-5.5	R	M	3	4
Chesapeake	16	18	W	M-DG	5-5.5	R	M-H	3.75	3.75
SV1098GV	16	19	W	M-DG	4.5-5	R	M	3	3.5
Pismo	15	17	W	MG	5.5-6	R-SL CR	M-H	3.5	3.5
Huntington (std)	15.5	18	W	MG	5-5.5	R	M	3	3.5
PV888	18	19	W	DG	4.5-5	R	M-H	3.75	3.75
PV857	17	19	W	DG	4.75-5.5	R	M-H	4	3
Colter	19	17	H	DG	4.5-5	R	M-H	3.75	4
HM5101	18	16	H	M-DG	4 TO 5	R	M-H	3	4
PLS5519	17	20	W	DG	4.5-5	R	M	3.75	3.5
6159	15	15	W	M-DG	4.75-5.25	R-CR	M	3.75	3.5
Silverado	18	17	H	DG	5.5-6	R	M-H	4	3.75
Chisolm	18	18	H	DG	4.5-5	R	M-H	3	4
BA1001	16.5	20	W	M-DG	4.5-5.5	R- SL CR	M	3.5	3.75

Column Descriptions

Average plant height - The average plant height at harvest in inches.

Average plant canopy width - The average plant width at harvest in inches.

Bush Form - W- wide, H - high

Pod Color Rating - DG=dark green, MG=medium green, LG=light green. (uncooked)

Unsnipped pod length - The average length of the largest pods in inches.

Pod Shape Rating - R=round, CR=creased, O=oval

Pod Location Rating - H= pods high on the plant, M=pods located in the center of the plant canopy, L=pods touching the ground

Pod Straightness Rating - 5=very straight, 3= acceptable, 1=very curved or twisted

Plant Habit Rating - 5=very erect plant, 3= acceptable, 1=totally recumbent plant

Additional Comments - Large Sieve Beans

Venture – Early standard, good pod set, rough pods, large sieve (31% six sieve), recumbent plant.

BA0999 – Early side, plant a bit recumbent, good pod set; short, uniform, straight pods, good yield.

HMX 4104 – Good plant type, good pod set, a bit of fiber, some six sieve pods, yield a bit on the low side.

Chesapeake – Good pod set, uniform, nice pods, internal tissue still green although larger seeds, roughly 25% five sieve pods, decent yield.

SV1098GV – Decent plant, good pod set, uniform pods, about 30% five sieve, decent yield.

Pismo – Good pod set, long pods, roughly 25% five sieve, good yield.

Huntington – Good plant and good pod set, harvested on the young side, about 30% five sieve, decent yield.

PV888 – Good pod set although sieve split indicates that there was some reset, long, uniform pods, roughly 25% five sieve, yield on the low side.

PV857 – Good plant, good pod set, a hint of fiber, roughly 25 % five sieve, decent yield.

Colter – Very good plant habit, smooth, glossy pods, some reset, a bit small for a large sieve (10% five sieve pods-request to compare it to larger sieve) decent yield.

HM5101 – Very good plant habit, some reset, about 25% five sieve, good yield.

PLS5519 – On the early side, decent plant, lower plant population, more of a four sieve (only about 10% five sieve), good pod set, good yield.

6159 – On the early side possibly, some reset, lower plant population, about 35 % five sieve, good yield for plant stand.

Silverado- Good pod set, roughly 25% five sieve, long, straight pods, decent yield.

Chisolm – Decent pod set with a higher percentage of five sieve (40%), yield changed little over five days although seed size increased.

BA1001 – Did not yield although a bit young at last harvest, possibly some reset.

Snap Bean Desc. Provided by the Seed Source (Large Beans)

Venture – Syngenta, early large sieve.

BA0999 – *Seminis, 52 days to maturity, 65% 1-4 sieve, 35% 5-6 sieve, 5.5 inch pod length, deep green pod color; Breeder Comments: One of two new first earlies. Quality, color, and holding ability superior to any other early. Yield potential and performance make this line suitable for first early, back fill, or double crop use. geographic fit observed across the MW, NE, and Southeast. Excellent performance in Texas heat set trials. The sieve size split makes 0999 potentially suitable for a high recovery of cut beans.*

Snap Bean Desc. Provided by the Seed Source (Large Beans)

HMX 4104 – Harris Moran, 52 days to maturity, 65 % four sieve, 30% five sieve, good quality pod interiors, good yields, medium dark green, uniform, medium long, straight pods, HR for BCMV, Curly Top and Bacterial Brown spot; IR for Halo Blight.

Chesapeake – Crites,

SV1098GV – Seminis, 56 days to maturity, 50% 3-4 sieve and 50% 5-6 sieve, 5.5 inch pod length, deep green pod color, IR for BCMV/Pss. Breeder comments – Broad adaptation with moderate to slow seed development. Plant habit moderate to compact plant type.

Pismo – Syngenta, Huntington type with potentially a higher distribution of 4 sieves. Excellent yield potential and pod placement (1-2 “ higher than Huntington in most environments.

Huntington – Syngenta, 56 day 5 sieve Blue Lake type, smooth straight pods, very erect plant with beans off the ground, good yielder which has demonstrated tolerance to the Midwest virus complex, IR to Bacterial Brown Spot, HR to Bean Common Mosaic, picks very clean with a good percentage of the beans without stems, leaves tend to show some bronzing at maturity with no affect to yield.

PV888 – Crites,

PV 857 – Crites

Colter (HMX 2117) – Harris Moran; 55 days to maturity; 20% 3 sieve size, 60% 4 sieve size, 20% 5 sieve size; status – 2; HR for BCMV, BCTV and Ua, IR for Pss.

HM 5101 – Harris Moran, 55 days to maturity, green bush type, moderate plant habit, 5.5” medium dark green pods, pod position – middle, 10% 3 sieve, 50% 4 sieve, 40% 5 sieve, BCMV1 (US1) – HR, BCTV – IR, Pss – IR.

PLS5519 – Pure Line,

6159 – Abbott & Cobb/Basin; approximate days to maturity E-M; pod length 5.5 – 6”; pod color D; average sieve size 4-5; sieve size distribution ~50% 5 sieve.

Silverado (PV-832) – Crites, mid-early; 57 days to maturity; 4-5 sieve with ~30% 5 sieve; pods are 5.5 – 6” and are medium dark green and are sitting on an erect plant.

Chisholm – Harris Moran, 55 days, straight, smooth pods; medium dark green; slow seed development; upright plant, mid high pod position; 5.9 inch pod length; 20% three sieve, 45% four sieve and 35 % five sieve; HR for Bean Common Mosaic and Curly Top; IR for Halo Blight and Bacterial Brown Spot.

BA1001 – Seminis, 58 days to maturity, 60% 1-4 sieve, 40% 5-6 sieve, 5.6 inch pod length, medium green pod color; Breeder Comments: One of two new Aphanomyces resistant root rot lines that are built on a Tendercrop Hercules/Titan platform. Yields have been equal to or exceed Hercules and Titan under non-root rot conditions. in De Forest, WI trials. Performance in research plots at Geneva, NY under virus conditions has been excellent. Geographic fit observed across the Midwest, Northeast, and Southeast.

Table 4. Yield Characteristics (3-4 sieve trial planted 6/16)
In order of largest to smallest sieve size

Cultivar	Heat Units to Harv.	Days to harv.	% 2 sieve	% 3 sieve	% 4 sieve	% 5 sieve	% 2-4 sieve	2 sieve seed length	3 sieve seed length (mm)	4 sieve seed length (mm)	Plants per foot	T/A
Camaro	1179	61	17	19	54	9	90		69	94	6.2	5.6
	1231	63	23	24	44	7	91		74	97	7.6	4.0
	1270	65	16	22	40	18	78		75	94	7.4	4.5
Colter	1151	60	7	19	63	8	89		80	93	6.4	5.3
	1208	62	9	19	61	9	89		90	106	6.6	5.3
	1250	64	8	18	66	6	92		102	119	6.8	5.1
Caprice (std)	1231	63	18	23	53	4	94		70	101	7.2	4.6
	1270	65	11	20	61	7	92		73	101	7.6	5.2
	1323	67	8	23	60	8	91		88	109	7.6	4.7
SV1136GF	1151	60	11	21	62	5	94		65	88	5.6	5.7
	1208	62	8	18	69	3	95		70	92	5.8	5.8
	1250	64	6	17	71	5	94		82	102	8	6.0
Wyatt	1231	63	12	19	63	5	94		68	97	5.8	5.4
	1270	65	9	17	62	8	88		75	106	8	5.8
	1323	67	10	21	60	6	91		100	119	7	5.2
BA 1006	1151	60	22	35	38	2	95		78	93	5.4	3.3
	1208	62	25	17	50	2	92		94	112	6.8	3.8
	1250	64	19	29	48	5	96		108	118	6.4	3.8
Sybaris	1151	60	14	22	54	7	90		57	81	5.2	3.1
	1208	62	14	19	62	3	95		78	95	6.2	4.5
	1250	64	16	20	55	6	91		76	108	6.6	4.9
6094	1151	60	22	25	41	14	88		64	84	5.8	3.7
	1208	62	18	26	48	6	92		75	90	7	4.6
	1250	64	19	23	52	4	94		79	105	6.8	4.9
SV0579GG	1231	63	30	39	27	1	96		66	75	6.4	5.2
	1270	65	13	40	44	1	97		80	87	6	5.6
	1323	67	11	30	55	2	96		84	105	7.8	5.4

Table 4 continued:												
Cultivar	Heat Units to Harv.	Days to harv.	% 2 sieve	% 3 sieve	% 4 sieve	% 5 sieve	% 2-4 sieve	2 sieve seed length	3 sieve seed length (mm)	4 sieve seed length (mm)	Plants per foot	T/A
Tahoe	1270	65	31	32	33	3	96		84	104	6.2	4.0
	1323	67	17	31	47	3	95		91	111	5.2	4.4
	1387	69	15	30	50	2	95		99	124	5.4	4.4
Bowie	1231	63	22	29	44	3	95		69	85	5.8	4.3
	1270	65	15	26	53	3	94		68	96	6	4.6
	1323	67	10	22	62	4	94		89	96	6.4	5.0
Falcao (874)	1270	65	29	39	29	2	97		69	87	4.8	3.8
	1323	67	24	45	29	1	98		83	101	7.6	4.1
	1387	69	19	40	39	1	98		84	91	7.4	3.6
Marathon	1270	65	39	38	19	1	96		78	103	5.8	4.0
	1323	67	35	42	24	2	101		88	112	7.4	3.5
	1387	69	22	38	38	2	98		111	124	7.8	3.8
Cassidy	1231	63	47	39	11	0	97		91	96	5.6	4.7
	1270	65	38	45	16	0	99		90	104	5.6	4.8
	1323	67	29	53	17	0	99		94	110	5.8	4.8
HMX4129	1151	60	62	21	16	0	99		77	88	4.2	1.6
	1208	62	60	28	12	0	100	68	95	94	6	3.6
	1250	64	65	24	10	0	99	78	98	-	5	3.7
PLS2219	1250	64	52	30	18	1	100		69	96	8	3.1
	1294	66	39	41	18	0	98		64	104	7.6	4.4
	1354	68	28	48	21	0	97		85	104	6.6	4.4
PLS4921	1179	61	75	22	4	0	100		86	107	6.6	3.6
	1231	63	69	24	5	0	98	68	90	103	6.2	3.7
	1270	65	67	29	4	0	100	73	105		5.8	4.2
PLS2210	1270	65	43	41	15	0	99	61	85	118	5.6	4.7
	1323	67	30	46	24	0	100		99	115	5.2	4.3
	1387	69	20	46	33	0	99		105	122	7.2	4.2
DW630 wax	1231	63	90	8	0	0	98	66	87	-	4.6	3.3
	1270	65	87	11	1	0	99	80	102		4.2	4.0
	1323	67	86	11	1	0	98	90	109		4.6	4.0

See page 5 for column descriptions.

Table 5. Plant and Pod Characteristics - 3-4 sieve type

Cultivar	Plant Ht. (in.)	Plant Width (in.)	Plant Habit Rating	Pod Color (raw) Rating	Unsnipped Pod Lgth (in.)	Pod Shape Rating	Pod Location Rating	Pod Straight. Rating
Camaro	17	18	4	M	4.5-5.0	R	M-H	3.5
Colter	17	17	3.5	M-D	4.5-5.0	R	M-H	4
Caprice (std)	16	18	4	D	4.5-5.5	R	M-H	3.5
SV1136GF	16	19	3.5	D	5-5.5	R	M-H	4.5
Wyatt	17	17	4	D	5.0-6.0	R	M-H	4.5
BA 1006	14	18	3	M-D	4	R	M-H	4
Sybaris	16	18	4	D	5-5.5	R	M-H	4
6094	17	18	4	M	4.5-5.0	R	M-H	2.75
SV0579GG	17	20	3.5	D	5-5.5	R	M-H	4
Tahoe	18	18	4.5	D	4.5-5.0	R	M-H	4
Bowie	18	18	4	D	4.5-5.25	R	M-H	4
Falcao (874)	16	13	5	D	4	R	M-H	4
Marathon	16	16	4.5	D	4.75-5.25	R	M-H	4
Cassidy	19	19	4	D	4.5-5.0	R-O	M-H	4.5
HMX4129	17	17	4	D	4.5-5.0	R	M-H	4
PLS2219	17	17	4.5	M-D	4	R	M-H	4
PLS4921	16	16	4.5	D	4.5	R	M-H	4
PLS2210	18	17	4.5	D	4.5-5.0	R	M-H	3.5
DW630 wax	14	17	3	Golden wax	4.5	R	M-H	4

Column Descriptions

Average plant height - The average plant height at harvest in inches.

Average plant canopy width - The average plant width at harvest in inches.

Plant Habit Rating - 5=very erect plant, 3= acceptable, 1=totally recumbent plant

Pod Color Rating - D=dark green, M=medium green, L=light green. (uncooked)

Unsnipped pod length - The average length of the largest pods in inches.

Pod Shape Rating - R=round, CR=creased, O=oval

Pod Location Rating - H= pods high on the plant, M=pods located in the center of the plant canopy, L=pods touching the ground

Pod Straightness Rating - 5=very straight, 3= acceptable, 1=very curved or twisted

Additional Comments (3-4 sieve)

We found spider mites on the leaves of many plants probably due to higher than average temperatures and below normal rainfall. This is not common.

Camaro – Nice plant, very good plant habit, first harvest considerable more yield in all four reps compared to the second and third planting – do not understand why.

Colter – Leaf hopper or spider mite injury, mostly a four sieve, good yield (yield and sieve size did not change along three harvests although seed size increased at a consistent rate).

Caprice – Our 3-4 sieve standard, possibly some virus, variable pod set in the replications, decent yield.

SV1136GF – One of the best yielders in this planting, yield changed minimally over four days although seed size increase was consistent, mostly four sieve, pods very straight and dark green.

Wyatt – One of best entries in this planting (nice plant and pod package), lots of long, very straight, dark green pods; mostly a four sieve, good yield.

BA1006 – Much leaf hopper or spider mite injury, plant habit acceptable but a bit recumbent considering the lower pod set; a three – four sieve, short, straight pods, did not yield.

Sybaris – Leaf hopper or spider mite injury, very good plant habit, straight, dark green pods; possibly a bit of reset looking at the sieve distribution change, decent yield.

6094 – Very good plant habit, good set, mostly four sieve but about 20% two and three sieve as well, pods a bit rough looking (Bush Blue Lake type?), decent yield.

SV0579GG – Good pod set, a three – four sieve, dark green, straight pods, good yield.

Tahoe – Very good plant habit but possibly due to lighter pod set, some reset – based on days to harvest (unless it is a very late maturity), dark green, straight pods; a three – four sieve, decent yield.

Bowie – Very good plant habit, hint of fiber, dark green, straight pods; mostly a four sieve, decent yield (a bit on the young side).

Falcao – Excellent plant habit but possibly due to lower pod set, leaf hopper or spider mite injury, dark green, straight, short, uniform pods; a three – four sieve, did not yield (most likely some reset).

Marathon – Very good plant habit but possibly due to lower pod set, so so pod set, even distribution of 2-4 sieve, dark green, straight pods, lower yield.

Cassidy – Nice plant and pod package, very good plant habit, dark green, very straight pods; a two- three sieve with a few four sieve, decent yield.

HMX4129 – Very good plant habit but possibly due to lower pod set, mostly a two sieve with some three sieve pods, dark green, straight pods; a lower yield.

PLS2219 – Very good to excellent plant habit, possibly some reset, short, straight, uniform pods; a fairly even distribution of sieve sizes (2-4) with the highest a three sieve, decent yield.

Additional comments continued:

PLS4921 – Very good to excellent plant habit possibly due to lower pod set, straight, dark green, uniform pods; mostly a two – three sieve, decent yield although a bit on the mature side.

PLS2210 – Leaf hopper or spider mite injury, very good to excellent plant habit but possibly due to lower pod set, dark green pods, some reset based on the days to harvest unless a late maturity, an even distribution of sieve size, decent yield.

DW630 – Plant habit acceptable but not as good as most, small sieve (mostly two sieve) wax, nice golden yellow color, straight pods, decent yield.

Snap Bean Descriptions Provided by Seed Source (3-4 Sieve type)

Camaro – Crites,

Colter (HMX 2117) – Harris Moran; 55 days to maturity; 20% 3 sieve size, 60% 4 sieve size, 20% 5 sieve size; **status – 2**; HR for BCMV, BCTV and Ua, IR for Pss.

Caprice (HMX 0944) - Harris Moran, 56 days to maturity, straight smooth pods, high yield in virus pressure, slow seed development, 25 % 3 sieve, 60% 4 sieve pods, 15 % five sieve, upright plant habit, pod position-mid high, pod length 5.5 in., even set, straight medium dark green pods, tolerates BBS and common blight, sets well in high fertility, has shown some degree of virus tolerance. HR for Bean common mosaic, Anthracnose, Halo blight, and Common blight, IR for Bacterial brown spot.

SV1136GF – Seminis, 54 days to maturity, 80% 1-4 sieve and 20% 5 and 6 sieve, 5.3 inch pod length, deep green pod color, HR for BCMV/CI/Ae/Psp³. Breeder comments – Early maturity, cut or whole large whole bean, 3rd generation root rot resistant. Excellent pod placement on an erect compact to medium sized determinate bush.

Wyatt – Harris Moran, 54 days to maturity, excellent plant vigor, upright plant, attractive, dark green, straight pods high on the plant; 5.75 inch pod length, 30% 3 sieve, 60% 4 sieve and 10% 5 sieve, HR for BCMV 1, Curly Top, Psp, Pss and Xap.

BA1006 – Seminis, 55 days to maturity, 90% 3-4 sieve, 10% 5-6 sieve, 5.8 inch pod length, medium green pod color, HR for BCMV and IR for Pss. Breeder comments – A fresh market variety also suitable for processing that is similar to Caprice in sieve size distribution and color. Plant habit more compact and 1-2 days earlier than BA0958. Compact plant habit makes this line less prone to lodging under high fertility conditions.

Sybaris (SV1007GG) – Seminis, 56 days to maturity, 56 days to maturity, 100% 1-4 sieve, 5.6 inch pod length, deep green pod color, HR for BCMV/Ua³. Breeder comments – All the pods in this line are concentrated in the 3's and 4's. this line may have more quality than Valentino. Pod placement is excellent.

X6094 – Abbott & Cobb/Basin Seed Co., midseason maturity, 3-4 sieve, 5.3 inch pod length, dark green pod color.

SV0579GG – Seminis,

Tahoe – Brotherton, maturity is medium, color is dark, 50% 3 sieve and 50% 4 sieve, pod length is 5-6 inches, plant height is 20 inches, T for BBS and Heat, R for BCMV and Rust.

Snap bean descriptions continued:

Bowie (HMX 7118) – Harris Moran, 56 days to maturity; upright plant habit; mid to high pod location; 5.5 inch pod length; (30% 3 sieve, 60% 4 sieve, 10% 5 sieve); medium dark green pods; R for Bean common mosaic, Curly Top, Halo Blight and Bacterial brown spot; IR for Common Blight.

Falcao – Crites,

Marathon (PV856) – Crites

Cassidy (HMX6109) – Harris Moran, 55 days to maturity, very upright, 5.3 inch pod length, 20% 2 sieve, 70% 3 sieve, 10% 4 sieve, medium dark green pods, high quality, straight pods, R for Bean common mosaic virus and Curly top diseases, IR for Halo blight, bacterial brown spot and common blight diseases.

HMX4129 – Harris Moran, 58 days to maturity, whole bean type, 80 % sieve 3, good quality pod interiors, medium green color, uniform, medium long, straight pods 13.5 cm long, HR for BCMV, Curly Top, Halo Blight and Common Blight; IR for anthracnose.

PLS2219 – Pure Line,

PLS4921 – Pure Line,

PLS2210 – Pure Line,

DW 630 (wax) – Brotherton, Maturity is Mid-Season, color is D Wax, 20% 2 sieve – 60% 3 sieve – 20% 4 sieve, 17” plant height, 4.5 to 5.5 inch dark wax pods, T for BBS and Heat, R for BCMV and AN.

Table 6. Yield Characteristics (Whole bean - planting date 6/23)

Cultivar	Days to harv.	Heat Units to Harv.	% 2 sieve	% 3 sieve	% 4 sieve	% 5 sieve	2 sieve seed length (mm)	3 sieve seed length (mm)	4 sieve seed length (mm)	Plants per foot	T/A	
PLS72	61	1364	44	15	40	0		74	83	5.8	1.6	
	64	1423	29	10	31	30		70	88	6.0	1.7	
	67	1499	28	16	32	24	68	81	92	7.0	2.0	
Masai (std)	64	1423	87	13	0	0	76	85		5.3	0.6	
	68	1526	not graded								6.0	0.7
SV1286GF	63	1395	69	31	0	0	49	77		6.1	0.5	
	68	1526	not graded								6.1	1.5
Oakley	61	1364	98	2	0	0	59			6.1	0.4	
	64	1423	93	7	1	0	74	89		6.3	0.8	
	67	1499	90	10	0	0	73	90		7.9	0.9	
HMX 4129	63	1395	56	36	9	0	72	85		5.0	0.6	
	68	1526	not graded								6.3	1.5
Ontario	63	1395	79	18	3	0	68	78		5.1	0.7	
	68	1526	not graded								6.2	0.9
HS931	63	1395	76	22	2	0	63	72		7.1	1.3	
	68	1526	not graded								6.1	1.0
DX170	62	1377	100	0	0	0	65			6.3	0.5	
	64	1423	100	0	0	0	66			7.2	1.1	
	67	1499	100	0	0	0	62			6.9	1.7	
Walker	61	1364	62	36	3	0	99	83	102	5.1	1.1	
	64	1423	54	40	6	0	77	121		7.8	0.9	
	67	1499	84	12	4	0	60	118		7.6	1.2	
Flanker	61	1364	50	47	3	0	75	76		5.4	1.0	
	64	1423	40	44	16	0	73	88		6.2	1.5	
	67	1499	52	35	13	0	62	85		7.2	2.3	

Table 6. Yield Characteristics continued:

Cultivar	Days to harv.	Heat Units to Harv.	% 2 sieve	% 3 sieve	% 4 sieve	% 5 sieve	2 sieve seed length (mm)	3 sieve seed length (mm)	4 sieve seed length (mm)	Plants per foot	T/A
Wax											
SV1003GF (wax)	63	1395	50	14	28	9		77	81	6.2	1.3
	68	1526	not graded							6.4	1.4
6199 wax	60	1347	57	26	17	0	48	72	79	5.8	0.7
	62	1377	34	27	36	3	63	75		6.6	1.1
	67	1499	not graded				57	67		5.0	1.2
Gold Mine	60	1347	17	40	41	0		77	76	6.0	1.4
	62	1377	13	16	65	5	61	73		5.9	1.8
	64	1423	23	18	56	3		87	96	5.9	1.6
Romano Type											
Furano std	62	1377					66			5.2	1.7
	64	1423					72			6.8	2.5
	67	1499					71			6.2	2.6
Velero	61	1364						83		4.7	2.4
	64	1423					95			5.9	3.3
	67	1499					109			6.0	3.8
Navaho	63	1395					80			6.1	1.4
	68	1526								5.8	1.7
6222	63	1395					100			6.4	3.1
	68	1526								5.8	2.8

Column explanations on page 5

Table 7. Plant and Pod Characteristics - Whole bean type

Cultivar	Plant Ht. (in.)	Plant Width (in.)	Plant Habit Rating	Pod Color (raw) rating	Unsnipped Pod Length (in.)	Pod Shape Rating	Pod Location Rating	Pod Straight. Rating
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This trial was so poor that I thought plant evaluation would be worthless.

Column Descriptions

Average plant height - The average plant height at harvest in inches.

Average plant canopy width - The average plant width at harvest in inches.

Plant Habit Rating - 5=very erect plant, 3= acceptable, 1=totally recumbent plant
(Plant Habit was done one week after harvest.)

Pod Color Rating - DG=dark green, MG=medium green, LG=light green. (uncooked)
LY=light yellow, Y=Yellow, GY=golden yellow

Unsnipped pod length - The average length of the largest pods in inches.

Pod Shape Rating - R=round, CR=creased, O=oval

Pod Location Rating - H= pods high on the plant, M=pods located in the center of the plant canopy, L=pods touching the ground

Pod Straightness Rating - 5=very straight, 3= acceptable, 1=very curved or twisted

Additional Comments - Whole Bean

Several warm nights accompanied by less than optimum moisture resulted in much stress on this trial.
PLS72 – A short pod, larger sieve size (3-4), decent yield considering the circumstances.

Masai – Very poor set, quite variable among replications.

SV1286GF – Some three sieve pods, not a good set but better than most.

Oakley – Plant quite short, very little pod set.

HMX 4129 – Not a good set but better than some.

Ontario – Poor set.

HS931 – Considerable reset although it had some pods on it.

DX170 – A two sieve, a decent yield progression.

Walker – A two – three sieve, not a good set but looks like it could be earlier maturity.

Flanker – A two – three sieve with just a few four sieve pods, decent yield progression, handled the stress better than most.

1003GF – Wax, pods quite green when smaller.

6199 – Wax, probably a four sieve, limited pod set but better than some of the others.

Goldmine – Used as a commercial standard, better set than some, six guard rows planted two weeks later in the same field were loaded with pods with a much better plant.

DW630 – Small sieve wax, nice color, (planted in the 3-4 sieve trial so it did not experience the warmer night temperatures that hurt the whole bean planting), decent yield.

Romano type

Furano – has done well in the past, a decent set for the conditions.

Veloro – The best pod set of the four, good plant, good pods.

Navaho – Not a very good set.

6222 – Decent pod set, quite uniform set among the four replications, similar pod size as Veloro.

It was hard to judge plant habit as they were all quite short. Pod quality (lack of fiber) was similar for all.

Descriptions Provided by the Seed Source - Whole Beans

Masai – *Syngenta*; - 55 day maturity, a very small straight podded whole pack that yields well, pod smooth at prime, slightly fast seed development; excellent bush habit that can be planted in narrow rows, 3.9 inch pods, medium green pod color. Tender, flavorful pods averaging in the two to three sieve range set in the upper half of Masai's upright, small-leaf bush.

SV1286GF - *Seminis*

Oakley (*HMX 9126*) – *Harris Moran*; 55 days to maturity; 100% 2 sieve size; status – 3; HR for *BCMV*, *Psp*, *Pss* and *Ua*.

Descriptions Provided by the Seed Source continued:

HMX4129 – Harris Moran, 58 days to maturity, whole bean type, 80 % sieve 3, good quality pod interiors, medium green color, uniform, medium long, straight pods 13.5 cm long, HR for BCMV, Curly Top, Halo Blight and Common Blight; IR for anthracnose.

Ontario – Crites,

HS 931 – Brotherton, Mid-Season, 21 inch plant, 4 – 4.2” dark pods, 50% 2 sieve and 50% 3 sieve, T for BBS and Heat, R for BCMV and AN.

DX170 – Brotherton,

PLS72 – Pure Line, 4-5 sieve small whole bean (4 inch long)

SV1003GF (wax) – Seminis, 56 days to maturity; color-yellow; pod length is 5.2 inches; 1 to 3 sieve 30%, 4 to 6 sieve 60%; HR for BCMV; IR for Pss. Breeder comment: Bacterial Brown Spot resistant Wax bean. Sieve size distribution favoring the cut bean and a fancy pack.

6199 – A&C/Basin,

Goldmine std (wax) – Seminis, 56 days to maturity, 30% 1-3 sieve, 55% 4 sieve, 15% 5-6 sieve, round, 5.3 inch pods, medium seed development, highly attractive wax bean to replace Goldrush; all the advantages of Goldrush (high yield, reliability, good factory characteristics and high quality end product); intermediate resistance to Halo Blight; seed size is relatively small, reducing planting cost.

Flanker – Vilmorin, earliness – Booster +2 days; very fine green bean with high yield potential; vigorous plant with upright habit; avg. height is 45 to 50 cm; good distribution of the pods in the plant; pod presentation: straight with round section, fleshy, stringless, dark green colour; length – 11.5 cm at the very fine sieve size; northern France sieve sizes – 65% 6.5-8mm, 35% 8-9mm. HR for BCMV, Psp, and Ci. IR for Xap.

Walker – Vilmorin,

Romano

Furano std – Syngenta, Romano/Italian type Processing bean, 5.5-6” pods, very fleshy, excellent upright architecture and yield, high pod placement.

Velero (HMX4127) – Harris Moran, 56 days to maturity, good yield potential, uniform, dense medium dark pods, 16 cm, good quality pod interiors, upright plant habit,

Navaho – Crites, 55 days to maturity, 5.5-6.5 inch pods, .8 inch pod width, medium dark green, HR for BCMV and CI (Anthracnose – race Lambda)

6222 – A&C/Basin -

Table 8. 2016 Weather summary for Geneva NY.

Day	Max. Temp.	Min. Temp.	Mean Temp.	Precip.	Acc Precip.	Degree Days Base 50	acc dd units base 50
5/21/16	72	49	60.5	0	0	10.5	10.5
5/22/16	68	49	58.5	0.02	0.02	8.5	19
5/23/16	68	52	60	0	0.02	10	29
5/24/16	76	56	66	0	0.02	16	45
5/25/16	79	57	68	0	0.02	18	63
5/26/16	85	56	70.5	0	0.02	20.5	83.5
5/27/16	84	64	74	0.01	0.03	24	107.5
5/28/16	83	63	73	0	0.03	23	130.5
5/29/16	89	66	77.5	0	0.03	27.5	158
5/30/16	83	62	72.5	0.47	0.5	22.5	180.5
5/31/16	81	55	68	0	0.5	18	198.5
6/1/16	79	49	64	0	0.5	14	212.5
6/2/16	78	52	65	0	0.5	15	227.5
6/3/16	73	59	66	0.05	0.55	16	243.5
6/4/16	79	53	66	0	0.55	16	259.5
6/5/16	80	63	71.5	0.11	0.66	21.5	281
6/6/16	73	60	66.5	0.2	0.86	16.5	297.5
6/7/16	76	54	65	0.05	0.91	15	312.5
6/8/16	70	48	59	0.03	0.94	9	321.5
6/9/16	56	45	50.5	0	0.94	0.5	322
6/10/16	65	48	56.5	0	0.94	6.5	328.5
6/11/16	70	49	59.5	0	0.94	9.5	338
6/12/16	85	56	70.5	0	0.94	20.5	358.5
6/13/16	66	50	58	0	0.94	8	366.5
6/14/16	61	45	53	0	0.94	3	369.5
6/15/16	70	46	58	0	0.94	8	377.5
6/16/16	80	54	67	0.08	1.02	17	394.5
6/17/16	79	52	65.5	0	1.02	15.5	410
6/18/16	82	54	68	0	1.02	18	428
6/19/16	85	56	70.5	0	1.02	20.5	448.5
6/20/16	83	63	73	0	1.02	23	471.5
6/21/16	89	59	74	0.1	1.12	24	495.5
6/22/16	76	56	66	0	1.12	16	511.5
6/23/16	73	53	63	0	1.12	13	524.5
6/24/16	77	47	62	0	1.12	12	536.5
6/25/16	80	53	66.5	0	1.12	16.5	553
6/26/16	85	62	73.5	0	1.12	23.5	576.5
6/27/16	89	67	78	0	1.12	28	604.5
6/28/16	87	63	75	0.12	1.24	25	629.5

Day	Max. Temp.	Min. Temp.	Mean Temp.	Precip.	Acc Precip.	Degree Days Base 50	acc dd units base 50
6/29/16	80	59	69.5	0	1.24	19.5	649
6/30/16	75	53	64	0.1	1.34	14	663
7/1/16	80	53	66.5	0	1.34	16.5	679.5
7/2/16	78	55	66.5	0	1.34	16.5	696
7/3/16	76	58	67	0	1.34	17	713
7/4/16	80	53	66.5	0	1.34	16.5	729.5
7/5/16	84	64	74	0	1.34	24	753.5
7/6/16	80	62	71	0	1.34	21	774.5
7/7/16	90	70	80	0	1.34	30	804.5
7/8/16	88	65	76.5	0	1.34	26.5	831
7/9/16	87	71	79	0	1.34	29	860
7/10/16	82	51	66.5	0.05	1.39	16.5	876.5
7/11/16	75	53	64	0.05	1.44	14	890.5
7/12/16	78	57	67.5	0	1.44	17.5	908
7/13/16	89	61	75	0	1.44	25	933
7/14/16	94	71	82.5	0	1.44	32.5	965.5
7/15/16	86	69	77.5	0	1.44	27.5	993
7/16/16	86	58	72	0	1.44	22	1015
7/17/16	78	56	67	0.01	1.45	17	1032
7/18/16	83	64	73.5	0.02	1.47	23.5	1055.5
7/19/16	82	58	70	0.69	2.16	20	1075.5
7/20/16	76	56	66	0.01	2.17	16	1091.5
7/21/16	80	54	67	0	2.17	17	1108.5
7/22/16	89	59	74	0	2.17	24	1132.5
7/23/16	90	70	80	0	2.17	30	1162.5
7/24/16	86	61	73.5	0	2.17	23.5	1186
7/25/16	85	65	75	0	2.17	25	1211
7/26/16	81	66	73.5	0.68	2.85	23.5	1234.5
7/27/16	82	60	71	0	2.85	21	1255.5
7/28/16	87	63	75	0	2.85	25	1280.5
7/29/16	83	64	73.5	0	2.85	23.5	1304
7/30/16	82	59	70.5	0	2.85	20.5	1324.5
7/31/16	74	63	68.5	0	2.85	18.5	1343
8/1/16	76	62	69	0	2.85	19	1362
8/2/16	80	65	72.5	0	2.85	22.5	1384.5
8/3/16	83	64	73.5	0	2.85	23.5	1408
8/4/16	83	64	73.5	0	2.85	23.5	1431.5
8/5/16	89	67	78	0	2.85	28	1459.5
8/6/16	89	69	79	0.06	2.91	29	1488.5
8/7/16	82	64	73	0	2.91	23	1511.5

Day	Max. Temp.	Min. Temp.	Mean Temp.	Precip.	Acc Precip.	Degree Days Base 50	acc dd units base 50
8/8/16	81	58	69.5	0	2.91	19.5	1531
8/9/16	82	57	69.5	0	2.91	19.5	1550.5
8/10/16	89	60	74.5	0.27	3.18	24.5	1575
8/11/16	89	69	79	0.01	3.19	29	1604
8/12/16	90	71	80.5	0	3.19	30.5	1634.5
8/13/16	92	74	83	0	3.19	33	1667.5
8/14/16	86	64	75	0.45	3.64	25	1692.5
8/15/16	80	65	72.5	0.02	3.66	22.5	1715
8/16/16	78	66	72	0.04	3.7	22	1737
8/17/16	88	64	76	0.23	3.93	26	1763
8/18/16	80	64	72	0	3.93	22	1785
8/19/16	81	59	70	0	3.93	20	1805
8/20/16	85	62	73.5	0	3.93	23.5	1828.5
8/21/16	89	70	79.5	0.35	4.28	29.5	1858
8/22/16	76	59	67.5	1.01	5.29	17.5	1875.5
8/23/16	71	55	63	0	5.29	13	1888.5
8/24/16	80	56	68	0	5.29	18	1906.5
8/25/16	85	71	78	0	5.29	28	1934.5
8/26/16	85	68	76.5	0.2	5.49	26.5	1961
8/27/16	85	67	76	0	5.49	26	1987
8/28/16	82	65	73.5	0	5.49	23.5	2010.5
8/29/16	90	64	77	0	5.49	27	2037.5
8/30/16	78	54	66	0	5.49	16	2053.5
8/31/16	81	55	68	0	5.49	18	2071.5