

NEW YORK STATE 2011 PROCESSING SNAP BEAN CULTIVAR TRIAL REPORT
Large Sieve Bean – 4 Sieve Bean – Whole Bean – Romano Bean

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PROCEDURE AND MATERIALS

Location: NYS Agricultural Research Farm – field 17, Geneva - soil type - Honeoye silt loam

Planting Dates: Large Sieve – 5/25, 3-4 sieve beans – 6/7, Whole and Romano type – 6/16

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 10-5-10 with Zn and Mn

Herbicide: Treflan preplant & Dual post plant **Insecticide** – none

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. A demonstration field day was held on August 18th to view all entries planted on 6/25.

For both replicated and observation entries, yield of five 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 for the large sieve bean planting was less than optimum resulting in slightly staggered emergence. The other two plantings had good moisture and emerged very uniformly. High temperatures during harvest of the large sieve trial hastened seed size increase and resulted in many cultivars having a single harvest. High temperatures at blossom, of the 4 sieve trial, resulted in some reset which impacted maturity. Irrigation was required in late June and July. White mold was only a minor problem. Symptoms of bean virus complex were not visible to the eye. See the weather insert at the end of the summary for a breakdown of temperatures and precipitation over the growing season.

Please direct any questions to the following mailing address, phone number or email address.
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Table 1 - Processing Snap Bean Cultivar List

Large Sieve		
Venture	rep	Rogers
Express (GB5050)	rep	Pure Line
BBL 156	rep	Rogers
Hystyle	rep	Harris Moran
Huntington	rep	Rogers
HMX7115	rep	Harris Moran
Envy	rep	Harris Moran
BSC 8777	rep	Brotherton
Cosmos (BSC8397)	rep	Brotherton
Dynasty	rep	Brotherton
SB4456	rep	Rogers
SB4554	rep	Rogers
SB4577	rep	Rogers
FIVC6V1001	rep	Seminis
FIVC6V0999	rep	Seminis
FIVC6V0998	rep	Seminis
FIVC6V1002	rep	Seminis
ACX6087	ob	A&C
3-4 sieve		
Caprice (std)	rep	Harris Moran
Orient	rep	Brotherton
Matador	rep	Seminis
SB4515	rep	Rogers
SB4481	rep	Rogers
HMX 7118	rep	Harris Moran
HMX8119	rep	Harris Moran
Wyatt	rep	Harris Moran
HMX 9124	rep	Harris Moran
Frontier	rep	Harris Moran
Delos	rep	Crites
Wanaka	rep	Crites
F19	rep	Pure Line
Sahara	rep	Harris Moran
BSC890	rep	Brotherton
BSC897	rep	Brotherton
BB2175S	rep	Pure Line
GB86	rep	Pure Line
FORC6V0954	rep	Seminis
FMGC6V1006	rep	Seminis

3-4 sieve type continued		
EX15350858	rep	Seminis
EX15370958	rep	Seminis
THRC6V1015	rep	Seminis
Juliet (ACX16012)	rep	A&C
PV-801	ob	Crites
PV-803 (Buffalo)	ob	Crites
ACX 6094	ob	A&C
ACX 6095	ob	A&C
Romano type		
Poseidon	rep	Crites
Furano	rep	Rogers
Navarro	rep	HM
Bogota	rep	Seminis
Dulcina	rep	Brotherton
Roma II (std)	rep	Pure Line
Pension	rep	Brotherton
Roma 442	rep	Pure Line
Roma 5210	rep	Pure Line
Ribera	rep	Seminis
Beronia	rep	Seminis
Navaho	rep	Crites
Whole Bean		
Masai (std)	rep	Rogers
Banga	rep	Seminis
Cartagena (std)	rep	Seminis
Pike	rep	Harris Moran
HMX9126	rep	Harris Moran
HMX 8102	rep	Harris Moran
Venice	rep	Crites
Cassidy	rep	Harris Moran
Celtic	rep	Rogers
Bermuda	rep	Crites
Kendo	rep	Brotherton
SWB-11	rep	pure
F55	rep	pure
Belfiore (PV-746)	ob	Crites
Borsalino	ob	Vilmorin
Jogger	ob	Vilmorin
Puncher	ob	Vilmorin

Table 2. Yield Characteristics (large bean planting date 5/25)

Cultivar	Seed Source	Days to Harv.	heat units to harv.	cull %	% 2 sieve	% 3 sieve	% 4 sieve	% 5 sieve	%6 sieve	% 2-4 sieve	Plts per foot	4 sieve seed length (mm)	5 sieve seed length (mm)	ave T/A
Venture	Syn.	55	1064	0.4	3	4	18	45	30	25	6.4	101	117	5.7
Express	PLS	55	1064	0.7	4	3	39	48	6	46	6.1	120	129	5.5
ACX6087	A&C	56	1092	1.1	5	7	33	49	6	45	7.4	115	122	8.2
FIVC6V0999	Sem.	56	1092	0.7	3	5	39	53	0	47	7.6	125	129	6.7
FIVC6V0998	Sem.	56	1092	0.9	3	5	73	19	0	81	7.7	117	124	6.9
BSC 8777	Br.	57	1116	0.8	4	8	55	33	0	67	7.8	113	134	6.8
BBL 156	Syn.	57	1116	0.9	8	12	46	35	0	65	5.9	87	101	6.7
		58	1147	0.4	7	8	48	38	0	62	5.9	94	107	6.4
Hystyle	HM	57	1116	0.5	7	6	47	40	0	60	7.9	89	105	5.8
Huntington	Syn.	57	1116	0.6	5	5	38	52	0	48	7.6	99	115	6.2
		59	1183	1.8	4	5	34	55	2	43	7.6	120	130	4.8
SB4577	Syn.	57	1116	0.5	8	13	64	15	0	85	7.2	99	114	6.3
HMX7115	HM	58	1147	0.9	14	18	54	14	0	86	7.9	82	97	5.9
		60	1218	2.1	9	12	56	23	0	77	8.0	102	113	5.3
Envy	HM	57	1116	0.5	5	4	42	49	0	51	7.0	85	99	7.8
		58	1147	0.9	5	5	44	47	0	53	8.1	98	111	7.1
Cosmos	Br.	57	1116	0.5	4	4	31	61	0	39	7.7	97	120	7.5
		59	1183	0.0	4	4	25	48	19	33	7.2	113	124	6.0
Dynasty	Br.	58	1147	0.6	29	43	28	0	0	100	7.1	107	0	5.1
SB4456	Syn.	56	1092	0.3	4	5	55	34	2	64	8.2	96	109	7.8
SB4554	Syn.	56	1092	0.7	2	2	23	73	0	27	7.1	76	90	8.2
	Syn.	58	1147	0.7	3	2	20	74	0	26	7.8	98	120	7.3
FIVC6V1001	Sem.	57	1116	0.3	5	7	49	39	0	61	7.7	90	104	6.9
		59	1183	1.4	5	7	50	38	0	62	7.6	101	118	5.6
FIVC6V1002	Sem.	58	1147	0.5	6	8	53	33	0	67	6.9	91	105	7.2
		60	1218	1.3	5	6	45	44	0	56	6.8	99	122	6.4

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	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
Venture	15	19	2-2.5	LG	5.25	R-O	M-H	3.5
Express	16.5	19	3.5	MG	5.25	R	M-H	3.5
ACX6087	17	17.5	3.75	MG	4.75-5.5	R-CR	M-H	3.5-4
FIVC6V0999	17	20	3	MG	4.25-4.75	R-O	M-H	3.5
FIVC6V0998	17	20.5	2.9	MG	4.75-5.25	R-O	M-H	3.5-4
BSC 8777	17	19	3	M-DG	4.25-4.75	R-CR	M-H	3.5-4
BBL 156	15	19	2.5	MG	4.5-5	R	M-H	3
Hystyle	17	17.5	3.5-4	LG-MG	4.5-5.0	R	M	3
Huntington	17	17	4	MG	4.5-5.0	R	M-H	3.5
SB4577	16	19.5	3	M-DG	5-5.5	R	M-H	3.5-4
HMX7115	17.5	16	4.2	DG	4.5-5.0	R	M-H	3.5-4
Envy	17	21	3.25	M-DG	4.5-5	R	M-H	3.5
Cosmos	17	20	3	M-DG	5-5.5	R-CR	M-H	3.5-4
Dynasty	17	18	3.5	M-DG	4.5-5	R-O	M-H	4
SB4456	18	19	3.5	MG	4.25-4.75	R	M-H	3
SB4554	19	19.5	3.5	MG	4.5	R	M-H	3.5-4
FIVC6V1001	18.5	19	3.5	M-DG	5.0-5.5	R-CR	M-H	3.5
FIVC6V1002	17.5	18.5	3.5	DG	5.5-6.0	R	M-H	3-3.5

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 - 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

Additional Comments Large Sieve Beans (Temperatures high during harvest.)

Venture – Early season, older standard, plants were recumbent, large amount of five sieve pods, rough appearance, round to oval, light green pods; good yield.

Express – Early season, decent plant habit, high percentage of five sieve pods, uniform, medium green, round pods; good yield.

ACX6087 – Early season, decent plant habit, medium green, round to creased, straight pods; high percentage of five sieve pods, excellent yield.

FIVC6V0999 – Early season maturity, acceptable plant habit, shorter, round to oval, medium green pods, high percentage of large sieve pods, very good yield.

FIVC6V0998 – Early season maturity, acceptable plant habit, medium green, round to oval, straight pods, **high percentage of four sieve pods**, very good yield.

BSC8777 – Early to midseason maturity, acceptable plant habit, medium to dark green, round to creased, shorter, straight pods; roughly 30% five sieve, very good yield.

BBL156 – Old standard, early to midseason maturity, plants fairly recumbent, round, medium green pods; roughly 35% five sieve, very good yield.

Hystyle – Main season standard, good plant habit, round, light to medium green pods found in the middle canopy of the plant; good yield.

Huntington – Main season maturity, very good plant habit, medium green, round pods; high percentage of five sieve pods, very good yield.

SB4577 – Main season maturity, acceptable plant habit, 15% five sieve, nice, long, medium to dark green, round, straight pods; very good yield.

HMX 7115 – Main season maturity, very good plant habit, dark green, round, straight pods; roughly 20% five sieve pods, good yield.

Envy – Old standard, mainseason maturity, decent plant habit, medium to dark green, round pods; roughly 50% five sieve, very good to excellent yield.

Cosmos – Main season maturity, acceptable plant habit, long, straight, round to creased, medium to dark green pods; roughly 50% five sieve pods, very good yield.

Dynasty – Main season maturity, decent plant habit, uniform, straight, round to oval, medium to dark green pods; **more of a three – four sieve type**, good yield.

SB4556 – Main season maturity, decent plant habit, medium green, shorter, round pods; roughly 30% five sieve pods, excellent yield.

SB4554 – Main season maturity, decent plant habit, small raised physiological blemishes on pods, very good to excellent yield.

FIVC6V1001 – Main season maturity, decent plant habit, long, round to creased, medium to dark green pods; roughly 35% five sieve pods, very good yield.

FIVC6V1002 – Main season maturity, decent plant habit, long, round, dark green pods; roughly 35% five sieve pods, very good yield.

Snap Bean Descriptions Provided by the Seed Source

Large Beans

Venture – Syngenta, early large sieve.

Express – Pure Line, large sieve Hystyle type (50:50).

ACX6087 – Abbott and Cobb, 4-5 sieve size, midseason maturity, 5.5-6 Inch pods, BBL color and flavor.

FIVC6V0999 – 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 Midwest, Northeast, and Southeast. Excellent performance in Texas heat set trials. The sieve size split makes 0999 potentially suitable for a high recover of cut beans.

FIVC6V0998 – Seminis, 52 days to maturity, 65% 1-4 sieve, 35% 5-6 sieve, 5.5 inch pods, 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 SE. Excellent performance in Texas heat set trials.

BSC 8777 – Brotherton, mid-season, long 6-7inch pods-sieve pods, dark color, good flavor, MS to CT, T for heat, 40% 4's, 50% 5's, 10% 6's.

BBL 156 – Syngenta, 54 days (formerly BX 156), has Oregon Bluelake pod quality with slow seed development, good tolerance to split sets, Bush Blue lake plant type, 6 inch pod length, 4-5 sieve size (60 % 1-4 sieve), dark green pod color.

Hystyle - Harris Moran, early to midseason - 56 days maturity, 5.5 in. pod length, full sieve class (can go 40 - 60 % five sieve), excels in the regular season but is also an outstanding fall variety, potential for high yields, concentrated pod set, slow seed development, persistent green gene, fleshy pods, lodge free plants, suitable for machine harvest, resistance to Curly Top and BCMV (I gene), tolerance to Brown Spot, Golden Mosaic & leafhopper toxins, compare to Envy & True Blue.

Huntington – Rogers, 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. Early results from Geneva CMV trial shows limited yield reduction from CMV infection.

SB4577 – Syngenta, 5 sieve Processing bean, 5.5-6” pods, scattered pod placement, improved BBL 156-type bush architecture, Virus resistance unknown at this time.

Seed Company Descriptions continued (large bean)

HMX 7115 – Harris Moran, large sieve, 56 days to maturity, upright bush; medium to high pod position; medium dark pod; 5.9 inch pod length; (10% 3 sieve, 50% 4 sieve, 40% 5 sieve; R for Bean common mosaic, IR for Halo blight and Bacterial Brown spot; holds well.

Envy – Harris Moran, 56 days to maturity, moderate plant habit, 5.5 inch pods, 5% sieve 3, 50% sieve 4, 45% sieve 5, medium green pod color, slow seed development, consistent high yields, uniform pod color, wide harvest window, well established industry standard for high yield and processed quality, R for BCMV (US1)

Cosmos (BSC 8397) – Brotherton, Large Bean, early-midseason, very long and large mid-dark pods with very slow seed development, very good pod quality and good flavor, good standing ability, 20% 4's, 50% 5's, 30% 6's, 6-7 inch pods, R for BCMV, R for CT, T for heat.

Dynasty – Brotherton, large sieve, late season, dark green pods, 5-6 inch pods, 10%3'S, 50%4'S, 40%5'S, R for BCMV and AN, T for heat.

SB4556 – Syngenta, 4-4.5 sieve Processing bean, 5.5” pods, bush identical to Huntington (upright/erect), Virus-IR (limited testing)

SB4554 – Syngenta, 5 sieve Processing bean, 5.5” pods, very upright/erect bush architecture, larger Huntington-type bush, Virus-IR (limited testing) [DROPPED from program in 2011]

FIVC6V1001 – 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.

FIVC6V1002 – 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 6/7)

Cultivar	Seed Srce.	Days to harv.	Heat units harv	Cull %	% 2 sieve	% 3 sieve	% 4 sieve	% 5 sieve	% 2-4 sieve	Plants per foot	3 sv sd length (mm)	4 sv sd length (mm)	T/A
F19	PLS	51	1098	0	40	45	15	0	100	7.1	69	77	3.2
		53	1140	0	32	30	38	0	100	8.1	76	88	4.4
FORC6V0954	Sem.	51	1098	1	11	12	62	15	85	6.7	57	76	4.3
		53	1140	0	10	10	46	34	66	7.6	67	81	5.2
FMGC6V1006	Sem.	51	1098	0	21	40	37	2	98	7.0	66	81	3.8
		53	1140	1	15	29	54	2	98	8.0	72	88	5.1
		55	1187	1	12	29	56	3	97	7.6	82	95	5.2
ACX 6094	A&C	51	1098	1	18	21	58	3	97	7.6	66	90	3.3
		53	1140	1	10	14	67	10	90	8.3	69	97	4.3
		55	1187	1	5	16	70	9	91	8.3	87	102	4.6
Matador	Sem.	51	1098	0	24	26	49	1	99	7.1	62	72	2.9
		53	1140	1	18	21	56	4	96	7.1	65	77	3.3
Sahara	HM	52	1119	1	23	38	39	0	100	7.2	63	75	4.4
		54	1165	2	24	38	38	0	100	7.8	77	86	3.8
BSC897	Br.	52	1119	1	41	43	16	0	100	7.8	64	72	4.3
		54	1165	0	35	41	23	1	99	7.8	74	83	4.6
		56	1212	1	35	40	25	0	100	8.0	84	96	4.7
Juliet (ACX16012)	A&C	54	1165	0	55	40	5	0	100	7.0	74	80	3.2
		56	1212	0	35	51	14	0	100	7.0	84	99	4.0
Caprice (std)	HM	55	1187	0	19	30	49	2	98	7.3	67	75	4.3
		57	1241	1	9	20	66	5	95	7.5	78	85	4.7
		59	1283	0	4	11	67	17	83	7.8	75	97	5.2
Orient	Br.	53	1140	0	49	34	17	0	100	7.7	64	70	3.2
		55	1187	1	27	52	21	0	100	7.3	62	76	3.8
		57	1241	0	12	42	46	0	100	7.6	75	86	4.4
		59	1283	0	11	26	62	1	99	7.4	82	88	4.7
SB4515	Syn.	51	1098	0	15	29	52	5	95	7.4	57	74	3.7
		53	1140	1	12	21	59	9	91	8.0	69	88	5.1
		55	1187	1	12	20	56	11	89	8.0	70	95	4.4
SB4481	Syn.	51	1098	0	12	16	64	8	92	7.2	54	75	3.9
		53	1140	0	11	11	57	21	79	7.7	59	76	4.6
		55	1187	1	6	11	57	27	73	8.1	60	77	5.1
ACX 6095	A&C	55	1187	1	5	12	72	12	88	7.3	76	108	5.2
		57	1241	1	3	10	68	19	81	7.9	76	112	4.9
HMX 9124	HM	53	1140	1	34	36	26	3	97	7.1	69	77	2.9
		55	1187	1	34	42	24	0	100	7.3	80	93	3.5
		57	1241	1	19	41	39	2	98	7.1	89	96	4.0
EX15350858	Sem.	53	1140	1	19	20	54	7	93	7.4	66	83	4.7
		55	1187	1	12	28	54	6	94	7.6	75	86	4.8
		57	1241	1	8	26	60	7	93	7.6	85	100	4.8

Table 4 continued. Yield Characteristics (3-4 sieve trial planted 6/7)

Cultivar	Seed Srce.	Days to harv.	Heat units to harv	Cull %	% 2 sieve	% 3 sieve	% 4 sieve	% 5 sieve	% 2-4 sieve	Plants per foot	3 sieve seed length (mm)	4 sieve seed length (mm)	T/A
THRC6V1015	Sem.	53	1140	1	26	23	47	4	96	7.5	69	79	3.9
		55	1187	1	10	24	63	3	97	8.2	57	68	4.3
		57	1241	1	8	17	67	7	93	7.7	82	97	4.3
HMX 7118	HM	54	1165	1	26	33	41	1	99	8.1	62	81	4.2
		56	1212	0	18	31	50	1	99	8.2	72	85	4.9
		58	1265	1	15	23	58	4	96	8.1	73	96	5.5
HMX8119	HM	54	1165	0	36	28	35	1	99	6.8	68	78	3.9
		56	1212	1	18	26	54	2	98	7.1	69	90	4.0
		58	1265	1	6	14	71	9	91	7.4	77	94	4.9
Wyatt	HM	52	1119	0	16	25	59	0	100	6.5	56	69	3.8
		54	1165	1	11	24	63	2	98	6.8	66	76	3.4
		56	1212	1	17	21	59	3	97	6.1	76	90	2.8
		58	1265	1	10	16	59	14	86	5.4	82	96	2.6
Frontier (HMX 7111)	HM	52	1119	0	41	30	28	1	99	7.5	60	64	3.2
		54	1165	0	34	32	32	1	99	7.7	47	54	2.8
		56	1212	1	23	39	38	1	99	8.0	72	81	3.5
		58	1265	0	13	26	53	8	92	7.9	71	87	3.7
BSC890	Br.	52	1119	0	24	25	49	1	99	8.2	65	72	3.6
		54	1165	1	20	20	55	6	94	8.2	71	81	3.9
		56	1212	1	12	25	54	9	91	8.0	67	83	4.4
		58	1265	0	5	11	63	21	79	7.9	73	88	4.4
EX15370958	Sem.	52	1119	2	15	20	56	9	91	8.1	66	76	4.4
		54	1165	0	18	29	48	5	95	8.3	70	80	4.0
		56	1212	2	10	18	67	6	94	8.2	73	86	3.9
		58	1265	2	6	15	63	16	84	7.8	78	96	3.6
BB2175S	PLS	52	1119	2	20	29	46	6	94	7.0	53	66	3.0
		54	1165	0	12	25	54	8	92	7.2	64	74	2.9
		56	1212	1	6	16	64	14	86	7.5	63	77	3.2
		58	1265	1	4	8	59	29	71	8.0	65	78	3.9
PV-801	Crites	54	1165	3	14	28	49	9	91	7.2	67	83	3.6
		56	1212	1	8	15	65	12	88	6.1	87	88	3.1
		58	1265	1	6	7	48	39	61	7.6	88	107	3.9
Buffalo 803	Crites	54	1165	0	8	20	63	9	91	7.9	76	88	3.9
		56	1212	0	6	19	62	13	87	7.2	80	94	3.2
		58	1265	0	4	6	56	35	65	7.0	84	109	4.1
GB86	PLS	55	1187	1	7	25	65	3	97	7.6	67	84	4.4
		57	1241	0	6	14	74	6	94	7.4	74	88	4.4
		59	1283	1	4	8	68	21	79	7.6	75	96	5.5
Delos	Crites	55	1187	2	12	30	58	0	100	7.7	72	86	2.6
		57	1241	2	9	23	65	3	97	7.8	76	93	2.8
		59	1283	1	8	14	69	8	92	7.8	78	101	2.7
Wanaka	Crites	55	1187	3	35	43	21	1	99	6.9	71	79	2.0
		57	1241	2	13	36	49	2	98	7.2	72	85	2.6
		59	1283	2	10	22	58	10	90	6.9	68	80	2.7

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
F19	18	22.5	3.5	M-DG	4-4.5	R-O	M-H	3.5-4
FORC6V0954	18.5	22	3.5	M-DG	5-5.25	R	M-H	4
FMGC6V1006	17.5	20	3.5	DG	4.5-5.0	R-O	M-H	4
ACX 6094	17	14.5	4	MDG	4.75-5.5	R	M-H	4
Matador	18	19	3.5-4	DG	4.25-5	R	M-H	3.5-4
Sahara	16.5	15.5	4	DG-VDG	4.75-5.25	R	H	4
BSC897	17	17	4	M-DG	4.5-5.0	R	M	4-4.5
Juliet	18	17	4.25	DG	4.5	R	M-H	4.5
Caprice	17.5	18	4	DG	4.5-5	R	M-H	3.5
Orient	17	17	4	DG	4	R	M-H	4
SB4515	17	19	3.5-4	DG	5-5.5	R	M-H	3.5-4
SB4481	18	21.5	3.5	DG	5-5.5	R	M-H	3.5-4
ACX 6095	19	16.5	4	MDG	4.5-5	R	M-H	4-4.5
HMX 9124	18	17	4.5	DG	4.5-5.0	R	M-H	4-4.5
EX15350858	16	20	3-3.5	DG	4.5-5.25	R	M-H	3.5-4
THRC6V1015	17	19	4	DG-VDG	4.25-5	R	H	3.5-4
HMX 7118	18	18	4	DG	4-4.5	R	H	3
HMX8119	18	18	3.9	DG	4.5	R	H	3.5
Wyatt	15	16	4	DG-VDG	4-4.5	R	M-H	3.5-4
Frontier	17	17	4	DG	4.25-4.75	R	H	4-4.5
BSC890	18	19	4	VDG	4.5-5.0	R	M-H	3.5
EX15370958	19	19.5	3.5-4	DG	5-5.5	R-O	M-H	4
BB2175S	20	21	3.5-4	DG-VDG	4.75-5.25	R-O	H	3.5-4
PV-801	15.5	15.5	4	DG	4.25-4.75	R	M-H	3.5-4.0
Buffalo	16.5	16	3.5	DG	4-4.5	R	H	4
GB86	18	17.5	4.25	DG	4-4.5	R	M-H	3.5-4.0
Delos	20	18.5	4.5	DG	4-4.5	R	H	3
Wanaka	20	18.5	4.5	DG	4	R	M-H	3

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 - 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

Additional Comments (3-4 sieve)

Heat and water stress at blossom caused some reset and flower drop.

F19 – Early maturity, decent plant habit, shorter, medium to dark green, round to oval, straight pods; roughly 40% 4 sieve pods, decent yield, **according to seed size, I should have harvested one more time which may have increased yield and increased percentage of four sieve pods.**

FORC6V0954 – Early to midseason maturity, decent plant habit, medium to dark green, straight, round pods; 35% five sieve pods, good yield, **according to seed size, I should have harvested one more time which probably would may have increased yield.**

FMGC6V1006 – Midseason maturity, decent plant habit, dark green, round to oval, straight pods; roughly 55% 4 sieve pods, good yield.

ACX6094 – Midseason maturity, very good plant habit, medium to dark green, round, straight pods; 70% four sieve, decent yield.

Matador – Older midseason standard, good plant habit, dark green, round, straight pods; 50% plus 4 sieve pods, yield looks low but could have been harvested again or maybe twice more before processing maturity.

Sahara – Midseason maturity, very good plant habit, very dark green, round, straight pods found high on the plant; roughly 40% four sieve, decent yield, could have been harvested one more time which may have increased yield.

BSC897 – Midseason maturity, very good plant habit, medium to dark green, round, very straight pods found in the middle of the canopy; more three sieves than four sieves, good yield.

Juliet – Midseason maturity, very good to excellent plant habit, dark green, uniform, shorter, round, very straight pods; a two- three sieve bean in this trial, decent yield.

Caprice – Mid to mainseason maturity, very good plant habit, dark green, round pods; 70% four sieve, good yield.

Orient – Mid to main season maturity, very good plant habit, short, dark green, round, straight pods; 60% four sieve, decent yield, nice plant and pod package.

SB4515 – Mid to main season maturity, good plant habit, long, round, dark green, straight pods; 50-60% 4 sieve pods, decent yield.

SB4481 – Midseason maturity, decent plant habit, dark green, round, straight, long pods; 25-30% five sieve pods, seed size was very slow to increase although yield was going up, good yield, possibility that it could have been harvested again to be at processing maturity.

ACX6095 – Mid to main season maturity, very good plant habit, medium to dark green, round, very straight pods, 70% 4 sieve pods, decent yield, good plant and pod package.

Additional comments 3-4 sieve continued:

HMX 9124 – Mid to main season maturity, very good to excellent plant habit, dark green, round, very straight pods; a three four sieve bean, nice plant and pod package, decent yield.

EX15350858 – Mid to main season maturity, decent plant habit, dark green, round, straight pods; 55-60% four sieve pods, yield and sieve size changed very little over six days although seed size increased. Possibly this cultivar could be harvested immature without sacrificing much yield.

THRC6V1015 – Mid to main season maturity, very good plant habit, very dark green, round, straight pods found high on the plant; 65-70% four sieve, decent yield.

HMX 7118 – Main season maturity, very good plant habit, dark green, shorter, round pods found high on the plant; good to very good yield.

HMX8119 – Main season maturity, very good plant habit, dark green, shorter, round pods found high on the plant; 70% four sieve pods, decent yield.

Wyatt – Main season maturity, very good plant habit, looked like it reset pods and did not yield very well, very dark green, round, short, straight pods, consistently about 60% four sieve pods.

Frontier – Main season maturity, dark green, short, round, uniform, very straight pods found high on the plant; roughly 50% 4 sieve pods, did not yield very well, looked like it reset pods.

BSC890 – Main season maturity, very good plant habit, very dark green, round pods; roughly 20% five sieve pods, little change in yield as seed slowly increased in size, decent yield.

EX15370958 – Unable to gauge maturity, looked like it had some reset, yield and seed size changed little over 8 days, good plant habit, long, dark green, round to oval, straight pods, 50-70% four sieve pods, fair to good yield.

BB2175S – Unable to gauge maturity, looked like it had some reset, yield and seed size changed little over 8 days, good plant habit, very dark green, round to oval, straight pods found high on the plant; 20-30% five sieve pods, fair to good yield.

PV801 – Mid to main season maturity, very good plant habit, dark green, shorter, round, straight pods; made some five sieve pods, fair yield.

Buffalo – Main season maturity, decent plant habit, dark green, short, round, straight pods found high on the plant; made some five sieve pods, fair to good yield.

GB86 – Main season maturity, very good plant habit, dark green, short, round, straight pods; 20% five sieve, decent yield.

Delos – Main season maturity, hurt by the heat, very good plant habit, short, dark green round pods found high on the plant. Mostly four sieve, poor yield, many pods with aborted seeds.

Wanaka – Main season maturity, hurt by the heat, very good plant habit, short, dark green round pods. Mostly four sieve, poor yield.

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

F19 – Pure Line Seeds, high percentage of four sieve pods

FORC6V0954 – Seminis, 56 days to maturity, 80% 1-4 sieve, 20% 5-6 sieve, 5.6 inch pod length, deep green pod color; Breeder Comments: This line is similar to Labrador without the split sets. FORC6V 0954 line exhibits wide adaptation and excellent sets under many conditions. Pss reaction is similar to Matador.

FMGC6V1006 – Seminis, 55 days to maturity, 90% 1-4 sieve, 10% 5 sieve, medium green pod color, dualpurpose (processing or fresh); Breeder Comments: Sister line to the 0958. 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 or 2 days earlier than FMGC6V0958. Compact plant habit makes this line less prone lodging under high fertility conditions. Seed available for PCM4 trials in 2011.

ACX6094 – Abbott and Cobb, midseason maturity, 3-4 sieve, 5.3 inch pod length, dark green pod color.

Matador – Seminis, 58 days to maturity, 88% 1-4 sieve, 12% 5-6 sieve, 5.8 inch dark green pods, resistance to Anthracnose

Sahara – Harris Moran, 54 days to maturity, 5.5 inch (14 cm) pods, 40% 3 sieve and 60% 4 sieve, dark green pod color, straight, smooth pods, excellent upright plant habit, adapted to desert conditions, R for Bean common mosaic, Curly Top, Anthracnose, Halo Blight and Bacterial Brown Spot diseases.

BSC897 – Brotherton, mid season, dark in color, 50% 3's, 50% 4's, resistant to BCMV

Juliet – Abbott and Cobb, 56 days to maturity, 3-4 sieve, 5.25 inch pod length, medium dark green pod color.

Caprice (HMX 0944) - Harris Moran, 56 days to maturity, 25 % 3 sieve, 60% 4 sieve pods, 15 % five sieve, upright plant habit, even set, straight medium dark green pods, tolerates BBS and common blight, sets well in high fertility, has shown some degree of virus tolerance.

Orient – Brotherton, full season, primarily a 3-4 sieve, dark in color, 50% 3's, 50% 4's, 4-4.5 inch pod length, MT for BBS, R for BCMV, AN and CT, T for HT, M for heat.

SB4515 – Syngenta, High yielding 4 sieve with up to 10-20 % 5 sieve pods. Very attractive extremely straight smooth medium green pods, erect plant type, Mid season maturity, Disease resistance still being tested.

SB4481 – Syngenta, High yielding 4 sieve with 10 – 20 % 5 sieve pods. Pods generally very straight with a medium green color. Erect plant. Straight smooth pods with high quality. Good brown spot tolerance.

ACX6095 – Abbott and Cobb, midseason maturity, 3-4 sieve, 5.5 inch pod length, medium dark green pod color.

HMX 9124 – Harris Moran, 54 days to maturity, upright plant habit, 5.3 inch (13.5 cm) pod length, 30% 3 sieve and 70% 4 sieve, dark green pod color, R for Halo Blight, bean common mosaic and bacterial brown spot diseases.

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

EX15350858 – *Seminis*, 54 days to maturity, 80% 1-4 sieve, 20% 5 sieve, 5.6 inch pod length, medium green pod color; dual purpose for both processing and fresh market; NOTES: Experimental that handles stress and lower input situations very well. Yield potential similar to Valentino but a more robust plant type. Best geographic fit has been in Northeast, Mid Atlantic, Georgia, and Midwest. Pod color is deep green equal to Valentino. Seed available again in 2011 for PCM4 strip/block trials.

THRC6V1015 – *Seminis*,

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.

HMX 8119 – Harris Moran, 56 day, habit-moderate, med-dark, 15 cm, 3-30%, 4-60%, 5-10%, BCMV (US1)-R, BCTV-R, Rust Races 38, 53 & 72-IR, BBS-IR, Halo & Common-R

Wyatt (HMX 8122) – Harris Moran, 55 days to maturity; upright plant habit; high pod position; 5.75 inch pod length; (30% 3 sieve, 60% 4 sieve, 10% 5 sieve);R for Bean common mosaic, Curly Top, Halo Blight, Bacterial brown spot and Common blight.

Frontier (HMX7111) – Harris Moran, 55 days to maturity, upright plant habit, 5.1 inch (13 cm) pod length, 25% 3 sieve, 75% 4 sieve, superior disease package, high pod set for easy harvest, attractive, straight, dark green pods; adapted to wide set of growing conditions, R for bean common mosaic, Halo blight and common blight and IR for Curly Top diseases.

BSC890 – Brotherton, mid season, very dark, 50% 3's, 50% 4's, resistant to BCMV

EX15350958 – *Seminis*, 57 days to maturity, 90% 1-4 sieve, 10% 5 sieve, 5.8 inch pod length, medium green pod color; dual purpose either processing or fresh market; NOTES: A fresh market variety also suitable for processing that is similar to Caprice in sieve size distribution and color. Erect plant with straight smooth pods well off the ground. Seed available for small strip trials in 2011.

BB2175S – Pure Line Seeds, 50% 4sv: 50% 5sv.

PV801 – Crites, mid maturity, very dark pods, 3-4 sieve, similar or slightly larger than Wanaka

Buffalo – Crites, mid early maturity, very dark pods, 3-4 sieve, Caprice type bean.

GB86 – Pure Line Seeds, predominantly 4sv with a few 5 sv. Could be a large sieve as well.

Delos – Crites, mid early maturity, 3-4 sieve.

Wanaka – Crites, mid late maturity, dark color, 3+4 sieve.

Table 6. Yield Characteristics (Whole bean - planting date 6/16)

cultivar	Seed Source	Days to harv.	Heat units Harv.	% 2 sieve	% 3 sieve	% 4 sieve	2 sve sd length (mm)	3 sve sd length (mm)	Plts per foot	T/A
Masai	Syng.	62	1364	91	9	0	71	92	7.0	2.9
		64	1407	89	11	0	59	101	7.5	4.7
Banga	Sem.	57	1274	98	2	0	69	0	7.2	4.2
		59	1308	96	4	0	84	91	7.8	5.0
		61	1349	42	4	0	80	97	7.8	5.6
Cartagena	Sem.	63	1385	77	17	5	46	80	8.0	3.4
		65	1429	83	14	3	53	91	7.7	3.9
Pike	HM	62	1364	46	22	32	55	84	7.3	4.1
		64	1407	43	26	31	0	76	7.6	5.5
		67	1474	29	35	36	61	79	7.9	7.4
HMX9126	HM	62	1364	83	17	0	75	88	7.5	3.5
		64	1407	84	16	0	71	102	7.8	5.0
		67	1474	86	14	0	67	110	7.8	5.7
HMX 8102	HM	65	1429	60	25	15	59	78	6.8	5.5
		68	1490	41	33	26	65	74	7.6	7.0
		70	1519	30	42	28	67	76	7.2	7.7
Venice	Crites	65	1429	69	22	9	52	67	6.3	4.9
		68	1490	46	39	15	51	62	7.0	6.8
		70	1519	32	45	23	65	78	6.8	8.3
Cassidy	HM	64	1407	45	26	29	53	78	7.1	5.1
		67	1474	37	32	31	57	72	7.4	6.0
		68	1490	30	37	33	63	83	6.8	7.2
Celtic	Syng.	64	1407	81	14	5	53	77	7.2	3.3
		67	1474	76	24	0	58	78	6.9	4.7
		69	1502	63	31	7	62	75	6.9	6.3
Bermuda	Crites	63	1385	83	10	7	48	83	7.5	3.2
		65	1429	92	6	2	55	92	8.0	4.5
		68	1490	86	12	2	58	81	7.3	6.7
Kendo	Brother.	65	1429	95	4	0	63	81	7.3	4.7
		68	1490	95	5	1	68	102	7.9	6.0
		70	1519	93	6	2	74	109	7.7	6.9
SWB-11	Pureline	60	1330	88	11	0	66	86	6.3	3.3
		62	1364	90	10	0	72	89	7.4	4.0
		64	1407	90	9	0	71	99	6.8	5.8
F55	Pureline	60	1330	55	35	10	71	91	6.9	3.5
		62	1364	69	29	2	71	94	7.8	3.9
		64	1407	62	26	13	81	107	7.9	5.4
Belfiore	Crites	64	1407	73	17	10	57	79	7.6	4.6
		68	1490	75	18	8	62	84	7.9	6.1
		70	1519	64	27	9	75	90	8.6	7.1
Borsalino	Vilmorin	65	1429	84	8	7	58	88	6.4	4.7
		68	1490	79	15	6	63	81	6.4	6.7
		70	1519	72	21	7	73	86	7.4	7.3
Jogger	Vilmorin	65	1429	55	36	10	61	99	6.6	5.4
		67	1474	53	29	18	54	97	8.0	5.4
Puncher	Vilmorin	65	1429	40	24	36	61	76	6.4	6.5
		67	1474	40	31	29	61	75	7.7	6.2

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
Masai	19	19	4.2	M-DG	4-4.5	R-O	M-H	4.5
Banga	17	19.5	4	DG	4.75-5.25	R	M-H	4
Cartagena	18.5	19	4	DG	4.25-4.75	R	M-H	4
Pike	19.5	21	3.8	VDG	5.5-6	R	M-H	4.5
HMX9126	17.5	18.5	4	VDG	4.5-5	R	M-H	4-4.5
HMX 8102	18.0	21.5	3.5	VDG	5-5.5	R	M-H	4
Venice	20.0	22	4	DG	5.25-5.75	R	M-H	4-4.5
Cassidy	19.0	21.5	3.8	DG	5-6	R	M-H	3.5
Celtic	19.0	20	4	MG	4-4.5	R	M-H	3.5
Bermuda	19.0	22	3.5-4	M-DG	4.5-5.0	R	M-H	4
Kendo	20.0	21	4.2	M-DG	4.5-5.0	R	M-H	4-4.5
SWB-11	18.0	19	4	DG	4.5-5	R	M-H	4-4.5
F55	18.0	21	3.5-4	M-DG	4-4.5	R	M-H	4
Belfiore	18.0	20	3.8	DG	5-5.5	R	M-H	3.5-4
Borsalino	16.0	20.5	3.5-4	Y-GY	5-5.5	R-O	M-H	3.5-4
Jogger	19.0	20	4	DG	4-5	R	M-H	3.5-4
Puncher	19.5	20.5	3.5-4	DG	5-5.5	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 - DG=dark green, MG=medium green, LG=light green. (uncooked)
 ght 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

Although many of the following cultivars yielded well, all but Banga had some degree of reset that affected their maturity.

Masai – Midseason maturity, an older whole bean standard, very good plant habit, almost entirely a two sieve, short, round to oval, very straight, medium to dark green pods, good yield.

Banga – Midseason maturity, a two sieve bean, very good plant habit, the only cultivar that was not delayed by hot, dry weather; dark green, round, straight pods; good yield (I have trialed this for several years and have never had a weak crop – has always done well.)

Cartagena – Midseason maturity, a small amount of three sieve pods, very good plant habit, dark green, round, straight pods; fair to good yield.

Pike – Mid to main season maturity, very good plant habit, long, very dark green, round, straight pods; good distribution of 3 and four sieve pods, excellent yield.

HMX 9126 – Midseason maturity, very good plant habit, very straight, round, very dark green pods; small amount of three sieve pods, good yield.

HMX 8102 – Main season maturity, decent plant habit, long, very dark green, round, straight pods; good distribution of 2, 3 and 4 sieve pods, excellent yield.

Venice – Main season maturity, very good plant habit, dark green, long, round, straight pods; nice plant and pod package, good distribution of 2, 3 and 4 sieve pods, excellent yield. (This has looked very good in my trials the past three years.)

Cassidy – Mid to main season maturity, very good plant habit, long, dark green, round pods; equal distribution of 2, 3, and 4 sieve pods, excellent yield.

Celtic – Main season maturity, very good plant habit, short, medium green, round pods; roughly 70% 2 sieve and 30% 3 sieve, very good yield.

Bermuda – Main season maturity, good plant habit, medium to dark green, round, straight pods; mostly two sieve pods, very good yield.

Kendo – Main season maturity, very good plant habit, medium to dark green, round, very straight pods; mostly 2 sieve pods, very good yield.

SWB-11 – Early to midseason maturity, very good plant habit, dark green, round, very straight pods; mostly 2 sieve pods, good yield.

F55 – Early to midseason maturity, good plant habit, short, medium to dark green, round, straight pods; a two - three sieve with just a small amount of 4 sieve, good yield.

Belfiore – Main season maturity, very good plant habit, long, dark green, round, straight pods; a two - three sieve (mostly two sieve), very good to excellent yield.

Additional comments continued: whole bean

Borsalino – Wax bean, main season maturity, good plant habit, long, round to oval, straight, yellow to golden yellow pods; mostly two sieve with about 20% three sieve, very good to excellent yield.

Jogger – Midseason maturity, very good plant habit, dark green, round, straight pods; a two – three sieve with a small amount of 4 sieve, good yield. (Seed size and yield basically stayed same for four days.

Puncher – Midseason maturity, good plant habit, long, dark green, round, straight pods; roughly equal distribution of 2, 3 and 4 sieve pods, good yield. (Seed size and yield basically stayed same for four days.

Descriptions Provided by the Seed Source - Whole Beans

Masai - Rogers, - 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, 2-3 sieve size, 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.

Banga - Seminis, 55 days, whole bean type is slightly small sieve break out(2 sieve type) than Cadillac which has exhibited a lot of flexibility in harvest as a 2 or 2/3 short (10cm) pod type, Whole bean Two sieve 80% 2's. Compact plant habit, concentrated set and broad adaptation. 4 inch pods

Cartagena – Seminis, 55 days Banga type with a little taller plant, 2 sieve (80% 2 sieve)10.5 mm pod length, medium green pods, very good broad adaptation. Whole bean Two sieve type with some 3's. Compact to medium plant habit, pods medium green 4.25 to 4.5" long

Pike (HMX 6108) – Harris Moran, 55 days to maturity, 20% 2 sieve, 70% 3 sieve, 10% 4 sieve, dark green pods.

HMX 9126 – Harris Moran, 55 day, upright, dark, 12.5, 2-100%BCMV (US1)-R, Rust Races 38, 53 & 72-R, BBS-R, Halo-IR

HMX8102 – Harris Moran, 55 days to maturity, upright plant habit, 5.3 inch pod length, 40% 2 sieve, 60% 3 sieve, excellent quality dark green pods, R for Bean common mosaic, Halo blight, Curly Top, rust and bacterial brown spt and IR for common blight diseases.

Venice – Crites Moscow, A medium late variety with a very upright solid plant. The pods are very straight, 30% 2 sieve and 70% 3sieve; 12 cm long (-5.3 inch) and have nice very dark green color; HR for Psp, BCMV and Antracnose.

Descriptions provided by the Seed Source continued (whole beans)

Cassidy(HMX6109) – 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.

Celtic – Syngenta,

Bermuda (PV733) – Crites , two days later than Scylla; 20% 2 sieve and 80% 3 sieve; 5 inch pod length; medium dark green pods; HR for Psp, BCMV and Antracnose.

Kendo – Brotherton, late season, dark in color, 70% 2-3's, 30% 4's, resistant to BCMV and Anth

SWB-11 – Pure Line,

F55 – Pure Line,

Belfiore – Crites, mid early maturity, medium green 2-3 sieve, slightly larger than Kylian

Jogger – Vilmorin, semi upright plant habit; high yielding 2 sieve; good emergence vigor; straight, fleshy, stringless pods that are dark green in color; 11 cm pod length; *Pseudomonas savastanoi* p.v. *phaseolicola* = HR*, *Xanthomonas axonopodis* p.v. *phaseoli* = IR*, Anthracnose races communes = HR*, Mosaïque commune (BCMV)= HR*, good pod quality afer cooking.

Puncher (MV 5004-05) – Vilmorin, semi upright plant habit, strong vigor at emergence, good distribution of pods in the plant, dark green, fleshy, straight pods, pod length about 4.5 inches, not susceptible to string or fiber, nice pod quality after cooking, high resistance to BCMV, *Pseudomonas savastanoi* pv *phaseolicola* and common races of Anthracnose; intermediate resistance to *Xanthomonas anoxopodis* pv *phaseoli*, high yielding variety 2-3 sieve.

Wax type

Borsalino – Vilmorin, two days later than Soleil; 4.5 inch pod; 2-3 sieve; HR to BCMV, Anthracnose and Halo Blight.

Table 8. Yield Characteristics - Romano type (planting date 6/16)

cultivar	Seed Source	Days to harv.	Heat Units to Harv.	Seed Length (largest pods) (mm)	Plants per foot	T/A
Poseidon	Crites	57	1274		6.0	2.8
		59	1308	106	6.4	3.6
		61	1349	114	6.8	4.2
		63	1385	110	6.4	4.8
Furano	Syngenta	57	1274		6.1	2.4
		59	1308	82	7.1	3.8
		61	1349	86	6.3	4.7
		63	1385	96	7.2	6.1
Navarro	Harris M.	57	1274		6.7	3.4
		59	1308	80	7.9	4.0
		61	1349	85	7.8	3.8
		63	1385	110	8.1	4.4
Dulcina	Brother.	57	1274		6.9	2.9
		59	1308	99	7.5	3.1
		61	1349	102	7.2	3.9
		63	1385	117	7.6	4.7
Roma II	Pure Line	57	1274		6.4	3.2
		59	1308	106	7.2	3.9
		61	1349	116	7.3	4.2
		63	1385	127	6.9	4.5
Ribera	Seminis	57	1274		6.0	3.3
		59	1308	110	5.9	3.7
		61	1349	118	6.5	4.2
		63	1385	126	7.0	5.3
Pension	Brother.	60	1330		6.0	3.8
		62	1364	114	6.0	4.1
		64	1407	141	6.1	5.6
Bogota	Seminis	62	1364	115	7.1	3.3
		64	1407	110	7.5	4.6
		67	1474	94	7.4	6.9
Roma 442	Pure Line	63	1385	83	7.1	5.1
		65	1429	87	7.7	6.6
		68	1490	113	7.3	7.3
		70	1519	109	7.7	9.2
Roma 5210	Pure Line	65	1429	85	7.2	7.1
		68	1490	100	7.7	9.2
		70	1519	107	8.0	10.5
Beronia	Seminis	65	1429	81	6.2	4.6
		68	1490	103	6.8	7.1
		70	1519	78	7.5	8.0
Navaho	Crites	65	1429	115	6.5	6.0
		68	1490	112	6.8	7.9
		70	1519	98	6.5	9.9

A sample of 50 large pods were taken from the harvest to obtain the data for the following table.

Table 9. Romano Type Pod Characteristics

Cultivar	Plant Habit	Pod Length (in.)	Pod Thickness (mm)	Flatness rating	Unk. Blemishes	Insect Blem.	Blem. Free	Pod Color	Pod Loc.	Canopy Ht. (in)	Canopy Width (in)	Pod Width (mm)
Poseidon	3-3.5	5-5.5	8-9	3.5-4.0	14	21	15	L-MG	M-H	20	21	18-19
Furano	2.5-3	5.25-6.75	10-11	2.5-3.5	20	13	17	MG	M-H	20.5	25	18-19
Navarro	3	4.5-6	9-11	3.5-4.0	20	14	16	MG	M-H	20	24.5	18-20
Dulcina	3.6	4.25-5.5	11-13	4-4.5	24	16	10	MG	M-H	19	20	19-20
Roma II	2.5-3	5-6	7-10	3.5-4	27	3	20	L-MG	M-H	19	24	18-20
Riberia	3.5-4	4.5-5.5	7-10	2-3	27	13	10	L-MG	M-H	20	21	17-19
Pension	3	5.5-6.5	6-8	3.5-4	25	18	7	MG	M-H	17.5	21	16-18
Bogota	3.3	6-6.5	5-6	3.5	16	11	23	MG	M	19	22	15-17
Roma 442	3.3	5.25-6.0	6-8	3.5	18	7	25	MG	M-H	17.5	21	15-17
Roma 5210	3.3	6-7	8-10	3-4	24	13	13	MG	M	19	24	15-19
Beronia	3.5-4	6-6.5	7-9	4-5	19	14	17	MG-DG	M-H	22	24	17-19
Navaho	3.3	6-6.5	7-9	3-4	20	16	14	MG	M-H	19.5	23.5	17-20

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

Pod Length - The average length in inches of 10 of the largest unsnipped pods

Pod Thickness - Average measurement in millimeters of ten of the largest pods.

Flatness Rating - 5= very flat, 1=very twisted or bumpy

Unknown Blemishes - Blemishes which did not appear to be disease or insect related.

Insect Blemishes - Sting or chew marks on the pods.

Pod Color - Uncooked pod color.

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

Canopy Height - Average height in inches of the canopy at harvest.

Canopy Width - Average width in inches of the canopy at harvest.

Pod Width - The average pod width of 10 of the largest pods in millimeters.

Additional Comments Romano Type:

Poseidon – Midseason maturity, decent plant habit, light to medium green pod color, decent yield.

Furano – Midseason maturity, plant type a bit recumbent, long, medium green pods, very good yield.

Navarro – Midseason maturity, acceptable plant habit, medium green pods, decent yield.

Dulcina – Midseason maturity, good to very good plant habit, medium green pods, pods more flat than others, decent yield.

Roma II – Midseason maturity, plants a bit recumbent, light to medium green pods, decent yield.

Riberia – Midseason maturity, very good plant habit, light to medium green pods, good yield.

Pension – Early to midseason maturity, acceptable plant habit, long, medium green pods, good yield.

Bogota – Midseason maturity, decent plant habit, long, medium green pods located in the middle of the canopy, very good yield.

Roma 442 – Main season maturity, decent plant habit, medium green pods, huge yields.

Roma 5210 – Main season maturity, decent plant habit, long, medium green pods located in the middle of the canopy, huge yields.

Beronia – Main season maturity, very good plant habit, long, medium to dark green pods (darkest color of all of them), best flatness rating, excellent yields.

Navaho – Main season maturity, decent plant habit, long, medium green pods, huge yields.

Additional Quality Notes on Romano Type

(all comments made on raw pods)

8/12/2011 – Poseidon - short pods with firmer pod, Furano – good texture and a bit thicker than others, Dulcina – shorter pods than others, Roma II – straightest and flattest of them all.

8/15/2011 – Poseidon and Navarro– firmer pod than others, no fiber or quality concerns for Furnano, Dulcina, Roma II, Pension and Riberia. Riberia the best quality or fleshy of all, Pension probably the smallest of them all when looking at width, length and straightness.

8/16/2011 – Fiber concerns not noted on any of cultivars (Poseidon, Furano, Navarro, Dulcina, Roma II and Riberia), Furano – uniform, nice pods, Dulcina – nice pods, Riberia – pods a bit more curved than others.

8/18/2011 – Poseidon – quality still good, Dulcina – a bit slimy inside, Poseidon and Navarro – firmer pods, Roma II not as fleshy as earlier harvest, Roma 442 – immature, Riberia – still good quality.

8/22/2011 – Roma 5210, Roma 442 and Bogota all good quality; Beronia and Navaho have firmer pods than the first three.

8/25/2011 – Roma 442, Roma 5210, Beronia and Navaho all starting to thread a bit

Descriptions Provided by the Seed Source – Romano Type

Poseidon – Crites Seeds, 2 days later than Roma II, good yield, strong plant.

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

Navarro – Harris Moran, 54 days to maturity, moderate plant habit, 5.2 inch pod length, medium green pod color, fleshy pods, very good processed product, R for bean common mosaic virus and Halo blight diseases.

Dulcina – Brotherton, similar to Roma II in color and season, an even taller, stronger plant than Pension and probably will replace Pension.

Roma II – Pure Line, standard romano type.

Ribera – Seminis, Breeder Comments: Ribera is the earliest Romano bean in the market; approx. 3 days earlier than Ebro. Plant type is erect. Plant height is medium, About 5 - 10 cm shorter than Ebro, Beronia and Bourgondia. Pods are long and wide and fleshy. Their shape is very uniform and the pod color is medium green. Ribera has a relatively slow seed development for an early Romano variety. Yield potential (harvestable yield) has been very good for the maturity.

Pension – Brotherton, similar to Roma II in color and season, taller, sturdier plant than Roma II that will hold pods off the ground.

Bogota – Seminis, NOTES: Processing and some small scale fresh market. Primary market area Belgium & France (only Romano bush variety in our product line that is suitable for this area). Wider pods than Nassau (leading variety). HR: CI/BCMV/Psp

Roma 442 – Pure Line Seeds,

Roma 5210 – Pure Line Seeds,

Beronia – Seminis, dark green pod color, Breeder Comments: Medium-late maturity, medium upright plant, low fiber, slow seed development. Less susceptible to scarring and blotching of pods. More pods/plant compared to Ebro and Tapia. HR: CI/BCMV/Psp

Navaho – Crites Seeds, Roma II maturity, wider pods than Poseidon, strong sturdy plant.

Table 10. 2011 Weather summary for Geneva NY.

Day	Max. Temp.	Min. Temp.	Mean Temp.	Precip.	Acc Precip.	Degree Days Base 50	acc dd units base 50
5/25/11	76	51	63.5	0.01	0.01	13.5	13.5
5/26/11	71	52	61.5	0.18	0.19	11.5	25
5/27/11	85	60	72.5	0.08	0.27	22.5	47.5
5/28/11	72	53	62.5	0.72	0.99	12.5	60
5/29/11	78	59	68.5	0	0.99	18.5	78.5
5/30/11	86	65	75.5	0.23	1.22	25.5	104
5/31/11	82	63	72.5	0	1.22	22.5	126.5
6/1/11	91	69	80	0	1.22	30	156.5
6/2/11	86	53	69.5	0	1.22	19.5	176
6/3/11	65	48	56.5	0	1.22	6.5	182.5
6/4/11	69	52	60.5	0	1.22	10.5	193
6/5/11	66	55	60.5	0.11	1.33	10.5	203.5
6/6/11	76	53	64.5	0	1.33	14.5	218
6/7/11	81	58	69.5	0	1.33	19.5	237.5
6/8/11	84	63	73.5	0	1.33	23.5	261
6/9/11	92	69	80.5	0.05	1.38	30.5	291.5
6/10/11	88	58	73	0	1.38	23	314.5
6/11/11	70	58	64	0.47	1.85	14	328.5
6/12/11	76	61	68.5	0.2	2.05	18.5	347
6/13/11	68	55	61.5	0.19	2.24	11.5	358.5
6/14/11	69	53	61	0.03	2.27	11	369.5
6/15/11	62	48	55	0.04	2.31	5	374.5
6/16/11	81	53	67	0	2.31	17	391.5
6/17/11	82	60	71	0.05	2.36	21	412.5
6/18/11	76	60	68	0.02	2.38	18	430.5
6/19/11	80	57	68.5	0	2.38	18.5	449
6/20/11	72	50	61	0	2.38	11	460
6/21/11	79	58	68.5	0	2.38	18.5	478.5
6/22/11	84	59	71.5	0.38	2.76	21.5	500
6/23/11	80	65	72.5	0.26	3.02	22.5	522.5
6/24/11	83	66	74.5	0.06	3.08	24.5	547
6/25/11	79	62	70.5	0.1	3.18	20.5	567.5
6/26/11	71	58	64.5	0.01	3.19	14.5	582
6/27/11	70	58	64	0.03	3.22	14	596
6/28/11	79	64	71.5	0	3.22	21.5	617.5
6/29/11	83	62	72.5	0.34	3.56	22.5	640
6/30/11	69	58	63.5	0	3.56	13.5	653.5
7/1/11	76	57	66.5	0	3.56	16.5	670
7/2/11	79	55	67	0	3.56	17	687
7/3/11	86	64	75	0	3.56	25	712
7/4/11	86	65	75.5	0	3.56	25.5	737.5
7/5/11	83	62	72.5	0	3.56	22.5	760
7/6/11	84	65	74.5	0	3.56	24.5	784.5
7/7/11	87	63	75	0	3.56	25	809.5
7/8/11	79	60	69.5	0	3.56	19.5	829
7/9/11	81	61	71	0	3.56	21	850

7/10/11	78	58	68	0	3.56	18	868
7/11/11	87	65	76	0	3.56	26	894
7/12/11	91	72	81.5	0	3.56	31.5	925.5
7/13/11	88	66	77		3.56	27	952.5
7/14/11	78	56	67	0	3.56	17	969.5
7/15/11	79	53	66		3.56	16	985.5
7/16/11	83	56	69.5		3.56	19.5	1005
7/17/11	89	64	76.5		3.56	26.5	1031.5
7/18/11	91	74	82.5		3.56	32.5	1064
7/19/11	88	68	78	0.23	3.79	28	1092
7/20/11	84	64	74		3.79	24	1116
7/21/11	92	70	81		3.79	31	1147
7/22/11	99	74	86.5		3.79	36.5	1183.5
7/23/11	95	73	84		3.79	34	1217.5
7/24/11	92	70	81	0.09	3.88	31	1248.5
7/25/11	84	62	73		3.88	23	1271.5
7/26/11	82	63	72.5	0.03	3.91	22.5	1294
7/27/11	81	62	71.5	0.24	4.15	21.5	1315.5
7/28/11	81	61	71		4.15	21	1336.5
7/29/11	76	67	71.5		4.15	21.5	1358
7/30/11	84	66	75	0.13	4.28	25	1383
7/31/11	84	60	72		4.28	22	1405
8/1/11	83	67	75		4.28	25	1430
8/2/11	89	68	78.5		4.28	28.5	1458.5
8/3/11	85	64	74.5		4.28	24.5	1483
8/4/11	72	64	68	0.59	4.87	18	1501
8/5/11	80	59	69.5	0.02	4.89	19.5	1520.5
8/6/11	85	66	75.5		4.89	25.5	1546
8/7/11	74	67	70.5	0.1	4.99	20.5	1566.5
8/8/11	83	67	75	0.2	5.19	25	1591.5
8/9/11	79	62	70.5	0.46	5.65	20.5	1612
8/10/11	74	62	68	0.94	6.59	18	1630
8/11/11	79	57	68	0.17	6.76	18	1648
8/12/11	73	56	64.5		6.76	14.5	1662.5
8/13/11	80	59	69.5		6.76	19.5	1682
8/14/11	82	63	72.5	0.08	6.84	22.5	1704.5
8/15/11	74	63	68.5	0.16	7	18.5	1723
8/16/11	69	61	65	2.55	9.55	15	1738
8/17/11	80	62	71		9.55	21	1759
8/18/11	83	61	72		9.55	22	1781
8/19/11	83	62	72.5	0.03	9.58	22.5	1803.5
8/20/11	81	60	70.5	0.03	9.61	20.5	1824
8/21/11	84	65	74.5	0.38	9.99	24.5	1848.5
8/22/11	74	57	65.5	0.32	10.31	15.5	1864
8/23/11	70	54	62	0.08	10.39	12	1876
8/24/11	77	57	67		10.39	17	1893
8/25/11	80	60	70	0.71	11.1	20	1913
8/26/11	79	62	70.5		11.1	20.5	1933.5
8/27/11	74	58	66	0.02	11.12	16	1949.5