

2013-2015 Organic Soybean Variety/Fertility Evaluations

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The soybean plots were located at Alberry Plains (Cheil Middelkamp) and at Freetown (Mark Bernard). Each plot of soybeans was divided between a treatment of potassium sulfate (200 lbs/acre) and a non fertilized treatment. The potassium sulfate was applied before seeding out the soybean varieties. Soil samples were collected and analyzed at the PEI Provincial Soil Laboratory for the variety evaluation sites and for each grower selected field.

Soybean producers were selected across Prince Edward Island to monitor soybean varieties growth and final yields.

The data sheets which accompany this report provides the final results for the three years 2013 to 2015.

Producer tours were carried out at Alberry Plains (2013-2015) and Freetown (2013 and 2014) locations and presentations were given each year to discuss the varieties and the treatments with and without potassium sulfate.

Soybean Variety Evaluation Plots:

The small plots had soybean varieties planted which were provided by Cardigan Feed Service (Saska, Narita, Marula, Taurus, Plantina, Quenatto), Atlantic Co-op (Etna, Dares, Oria, Jari), McCain Fertilizer (S09-L6, S07D2, S03W4, S07-M8, S18-R6), and Atlantic Soy (Savanna). Soybean seed was also acquired from John McLaughlin (Vision) and Peter O'Brien (Champion, Laurent). Other varieties included Venus, Proteina (Agr. Canada) and PRO25.

Three of the varieties had very poor germination and failed to germinate properly for evaluation. The three varieties were Laurent, Champion and Vision.

Alberry Plains

At Chiel Middelkamp's farm, Alberry Plains, each plot was 150 feet long (55 feet of each plot area had 200 lbs/acre of potassium sulfate applied prior to planting. Final yield samples were taken from each plot with and without the potassium sulfate. The yield samples were threshed, weighed and sampled for laboratory testing to determine dry matter, protein and oil for each treatment. Because of poor germination the varieties Vision, Laurent and Champion were lost at the trial site.

The data sheets attached to the report shows the results for each of the varieties. Plants per acre shows the number of plants that emerged. Yield was given in metric tonnes per acre based on 13% moisture. The pods and bean counts are the number per plant. The protein and oil values were based on 100% dry matter.

To determine field fertility, soil samples were taken in the spring. The attached charts provide the organic matter, water pH and levels of P205, K20, Calcium, and Magnesium levels.

Freetown

At Mark Bernard's farm, Freetown, each plot was 120 feet long (60 feet of each plot area had 200 lbs/acre of potassium sulfate applied prior to planting. Soil samples were collected and analyzed at the PEI Provincial Soil Laboratory for the variety evaluation.

The data tables show the varieties that were seeded into the demonstration area. Final yield samples were taken from each plot with and without the potassium sulfate. The yield samples were threshed, weighed and sampled for laboratory testing to determine dry matter, protein and oil for each treatment.

The data sheets attached to the reports shows the results for each of the varieties. Plants per acre shows the number of plants that emerged. Yield was given in metric tonnes per acre based on 13% moisture. The pods and bean counts are the number per plant. The protein and oil values were based on 100% dry matter.

The weed infestation was high at the Freetown plots each year which caused the yields to be lower than those found at the Alberry Plains plots.

To determine field fertility, soil samples were taken in the spring. The attached charts provide the organic matter, water pH and levels of P205, K20, Calcium, and Magnesium levels.

Variety Field Evaluations:

Producer fields monitored and data collected across the Island included:

Kevin MacAullay	William Beatie	John McLaughlin	Drew Jeffery
Peter O'Brien	Fred Dollar	Matt Ramsey	

The data sheets attached to the report shows the results for each of the fields. Plants per acre shows the number of plants that emerged. Yield was given in metric tonnes per acre based on 13% moisture. The pods and bean counts are the number per plant. The protein and oil values were based on 100% dry matter.

To determine field fertility, soil samples were taken in the spring. The attached charts provide the organic matter, water pH and levels of P205, K20, Calcium, and Magnesium levels.

Results:

The yields are in metric tonnes per acre at 13% moisture. The protein and oil are based on 100% dry matter.

P.E.I. Potassium Sulfate Soybean Variety Trials - Alberry Plains 2013

Fertility	Field	Variety	Plants/AC	Pods/Plant	Beans/Plant	Soil Ht	Plant Ht	Protein	Oil	T/acre
K2O	ALBERRY	Etna	129,555	36	100	2.0	34	37.59	24.19	0.621
K2O	ALBERRY	Jari	251,012	23	65	3.7	35	46.80	18.51	0.803
K2O	ALBERRY	Dares	275,304	16	44	4.3	39	44.66	20.73	0.899
K2O	ALBERRY	S07D2	218,623	20	47	3.5	39	45.65	18.43	0.799
K2O	ALBERRY	S09L6	161,943	24	102	2.8	35	45.60	19.23	0.697
K2O	ALBERRY	Naritia	194,332	17	58	2.7	33	43.64	20.91	0.813
K2O	ALBERRY	Saska	198,381	22	70	1.9	32	41.14	21.52	0.717
K2O	ALBERRY	Plantina	178,138	15	34	4.1	41	48.49	21.06	0.862
K2O	ALBERRY	Oria	NA	NA	NA	NA	NA	NA	NA	NA
K2O	ALBERRY	Taurus	165,992	16	64	2.4	39	44.53	18.81	0.808
K2O	ALBERRY	Laurent	178,138	22	49	3.6	35	41.59	21.73	0.479
AVERAGE			195,142	21	63	3.1	36	43.97	20.51	0.750

Fertility	Field	Variety	Plants/AC	Pods/Plant	Beans/Plant	Soil Ht	Plant Ht	Protein	Oil	T/acre
NO K2O	ALBERRY	Etna	133,603	27	82	2.2	34	40.19	24.16	0.598
NO K2O	ALBERRY	Jari	238,866	16	44	4.2	34	49.07	17.83	0.840
NO K2O	ALBERRY	Dares	242,915	15	43	3.6	37	45.29	21.80	0.757
NO K2O	ALBERRY	S07D2	194,332	15	41	3.3	36	46.50	17.51	0.751
NO K2O	ALBERRY	S09L6	157,895	16	64	2.0	32	46.76	19.24	0.698
NO K2O	ALBERRY	Naritia	202,429	17	52	3.4	33	44.02	20.32	0.700
NO K2O	ALBERRY	Saska	210,526	19	49	2.8	32	41.02	21.43	0.855
NO K2O	ALBERRY	Plantina	206,478	13	36	4.2	39	48.28	22.44	0.905
NO K2O	ALBERRY	Oria	NA	NA	NA	NA	NA	NA	NA	NA
NO K2O	ALBERRY	Taurus	194,332	17	55	3.2	40	46.56	19.78	0.729
NO K2O	ALBERRY	Laurent	202,429	19	56	3.9	34	49.21	18.07	0.848
AVERAGE			198,381	17	52	3.3	35	45.69	20.26	0.768

P.E.I. Potassium Sulfate Soybean Variety Trials - Freetown 2013

Fertility	Field	Variety	Plant/AC	Pods/Plant	Beans/Plant	Soil Ht	Plant Ht	Protein	Oil	T/acre
K2O	FREETOWN	Etna	202,429	23	103	3.2	34	41.00	24.63	0.795
K2O	FREETOWN	Jari	186,235	18	68	3.9	32	45.76	19.80	0.953
K2O	FREETOWN	Dares	222,672	16	33	3.7	35	41.17	24.37	1.198
K2O	FREETOWN	S07D2	251,012	15	44	3.6	34	37.14	20.48	0.760
K2O	FREETOWN	S09L6	206,478	19	46	3.8	30	44.02	21.99	0.494
K2O	FREETOWN	Naritia	214,575	18	66	3.5	30	40.74	23.00	1.088
K2O	FREETOWN	Saska	182,186	18	48	3.4	31	42.69	24.53	1.247
K2O	FREETOWN	Plantina	198,381	18	38	3.8	34	43.49	21.93	0.840
K2O	FREETOWN	Oria	129,555	18	53	3.4	31	46.77	20.40	0.709
K2O	FREETOWN	Taurus	218,623	16	66	3.7	33	44.43	22.60	1.246
K2O	FREETOWN	Laurent	178,138	15	54	3.5	27	50.13	18.52	0.612
AVERAGE			199,117	18	56	3.6	32	43.39	22.02	0.904

Fertility	Field	Variety	Plant/AC	Pods/Plant	Beans/Plant	Soil Ht	Plant Ht	Protein	Oil	T/acre
NO K2O	FREETOWN	Etna	157,895	18	56	3.4	26	44.22	24.16	1.056
NO K2O	FREETOWN	Jari	210,526	18	41	3.3	28	45.84	22.09	0.920
NO K2O	FREETOWN	Dares	206,478	16	52	4.3	33	41.47	22.98	1.149
NO K2O	FREETOWN	S07D2	246,964	15	32	3.4	28	41.12	21.33	0.888
NO K2O	FREETOWN	S09L6	202,429	17	38	3.7	27	44.43	22.60	0.999
NO K2O	FREETOWN	Naritia	202,429	15	45	3.5	27	40.40	22.24	0.946
NO K2O	FREETOWN	Saska	182,186	15	43	2.9	27	43.29	23.38	1.135
NO K2O	FREETOWN	Plantina	230,769	17	42	4.0	33	46.68	22.57	0.918
NO K2O	FREETOWN	Oria	113,360	19	46	3.6	33	46.64	20.27	0.989
NO K2O	FREETOWN	Taurus	238,866	14	51	3.9	34	45.25	22.28	1.072
NO K2O	FREETOWN	Laurent	182,186	16	31	3.4	26	42.50	21.51	0.675
AVERAGE			197,644	16	43	3.6	29	43.80	22.31	0.977

P.E.I. Soybean Variety Field Evaluations 2013

Grower	Location/Treat	Variety	Plant/Ac	Pods/Plant	Beans/Plant	Soil Ht	Plant Ht	Protein	Oil	T/acre
Ciel Meddlekamp	Fish	S07D2	NA	NA	74	NA	NA	41.55	20.24	0.794
Ciel Meddlekamp	Check	S07D2	NA	NA	42	NA	NA	43.03	20.07	0.887
Ciel Meddlekamp	Chicken	S07D2	NA	NA	56	NA	NA	44.53	18.81	0.957
Ciel Meddlekamp	K2O -3711	S07D2	NA	NA	100	NA	NA	46.15	18.26	0.970
Ciel Meddlekamp	NO K2O - 3711	S07D2	NA	NA	84	NA	NA	46.59	18.78	0.828
Wil Beatie	Pet Cem	S07D2	194,332	14	23	1.8	27	44.56	18.29	0.732
Wil Beatie	St. Mary	S07D2	267,206	14	36	4.0	35	45.42	16.64	0.696
Wil Beatie	Bell Riv-1	Taurus	234,818	15	41	3.7	38	52.59	17.98	0.689
Wil Beatie	Angus	Taurus	259,109	12	28	3.1	29	41.48	21.34	0.593
Wil Beatie	Angus	S07D2	275,304	12	38	2.9	27	43.52	18.15	0.609
Wil Beatie	St. Mary	Savana	263,158	20	46	3.1	40	40.80	22.03	0.634
Wil Beatie	Bell Riv-2	Taurus	263,158	16	54	3.9	39	48.82	18.17	0.994
Mark Bernard	Barn	Barn	NA	45	NA	2.4	32	44.25	20.45	1.000
Kevin MacCaully	Shore	S07D2	311,741	17	49	3.7	34	44.38	19.11	1.119
Kevin MacCaully	Left	S07D2	295,547	19	43	3.7	35	44.00	19.00	1.228
Kevin MacCaully	Right	S07D2	340,081	18	48	3.8	36	45.87	18.95	1.174
Kevin MacCaully	Warehouse	S07D2	348,178	18	56	3.6	35	46.34	18.14	1.059
Drew Jeffery	home	Jari	331,984	15	55	4.2	35	46.76	18.60	0.998
Drew Jeffery	48 rd	S07D2	246,964	15	77	3.3	33	45.09	18.60	0.628
David Mol	Barn	Taurus	182,186	29	35	3.6	34	45.42	20.35	0.843
David Mol	Rt 2	Taurus	149,798	16	32	4.8	29	41.85	21.76	0.157
AVERAGE			264,238	18	51	3.5	34	44.90	19.22	0.837

P.E.I. Potassium Sulfate Soybean Variety Trials - Alberrry Plains 2014

Fertility	Field	Variety	Plants/AC	Pods/Plant	Beans/Plant	Soil Ht	Plant Ht	Protein	Oil	T/acre
K20	ALBERRY	SO7M8	145,749	20	47	2.1	25	36.25	21.22	1.000
K20	ALBERRY	SO7D2	141,700	19	44	3.5	25	33.62	22.15	0.878
K20	ALBERRY	NARITA	161,943	11	28	3.2	20	34.75	22.78	0.711
K20	ALBERRY	SASKA	141,700	11	28	2.5	17	34.55	23.01	0.878
K20	ALBERRY	TAURUS	129,555	9	22	2.9	20	37.37	22.19	0.803
K20	ALBERRY	LAURENT	125,506	13	32	3.0	23	37.72	21.36	0.875
K20	ALBERRY	PLANTINA	178,138	14	30	3.6	24	39.10	22.48	0.724
K20	ALBERRY	CHAMPION	165,992	16	42	3.9	26	43.26	20.11	1.352
K20	ALBERRY	ETNA	76,923	21	49	1.4	23	33.72	23.60	0.595
K20	ALBERRY	SAVANNA	141,700	21	58	2.0	26	34.91	23.17	1.143
K20	ALBERRY	JARI	145,749	19	42	3.0	25	39.42	20.63	1.144
K20	ALBERRY	SO3W4	113,360	12	26	3.1	24	36.41	21.93	1.037
K20	ALBERRY	ORIA	121,457	15	35	2.8	19	38.28	23.28	0.572
K20	ALBERRY	QUENNATTO	291,498	13	32	2.0	20	35.83	21.24	0.835
K20	ALBERRY	VENUS	137,652	19	45	2.7	25	37.07	22.02	1.205
K20	ALBERRY	VISION	287,449	8	26	3.7	25	38.90	21.16	1.250
AVERAGE			156,630	15	37	2.8	23	36.95	22.02	0.938

P.E.I. Potassium Sulfate Soybean Variety Trials - Alberry Plains 2014

Fertility	Field	Variety	Plants/AC	Pods/Plant	Beans/Plant	Soil Ht	Plant Ht	Protein	Oil	T/acre
NK20	ALBERRY	SO7D2	149,798	23	54	2.9	27	40.30	19.89	0.730
NK20	ALBERRY	NARITA	157,895	13	33	2.9	24	40.21	22.47	0.998
NK20	ALBERRY	SASKA	194,332	19	47	2.8	20	37.14	22.16	1.464
NK20	ALBERRY	SO7M8	178,138	18	40	2.7	26	42.00	18.78	1.394
NK20	ALBERRY	SO3W4	174,089	14	36	2.5	24	40.97	20.82	1.115
NK20	ALBERRY	QUENNATTO	287,449	16	34	2.6	23	37.12	21.36	1.075
NK20	ALBERRY	TAURUS	186,235	10	24	3.1	27	40.95	20.96	0.625
NK20	ALBERRY	JARI	194,332	14	33	3.1	24	40.62	19.21	1.032
NK20	ALBERRY	VENUS	178,138	11	24	2.2	24	42.76	21.05	0.908
NK20	ALBERRY	ETNA	76,923	20	48	2.1	20	38.91	21.78	0.731
NK20	ALBERRY	PLANTINA	170,040	14	31	2.6	26	42.51	20.40	0.898
NK20	ALBERRY	LAURENT	153,846	15	39	2.6	25	45.10	18.61	1.066
NK20	ALBERRY	CHAMPION	165,992	20	55	2.7	24	36.95	21.85	1.313
NK20	ALBERRY	ORIA	137,652	17	43	2.5	22	41.40	19.52	0.527
NK20	ALBERRY	SAVANNA	113,360	17	45	2.8	25	41.46	21.05	1.569
NK20	ALBERRY	VISION	364,372	10	24	4.0	26	42.54	19.96	1.142
AVERAGE			180,162	16	38	2.8	24	40.68	20.62	1.037

Potassium Sulfate (0-0-50) applied at 200 lbs/acre

Soil Water PH averaged 5.8

Soil Organic Matter Averaged 2.4%

Magnesium 45.6 ppm

Calcium 695 ppm low

Yield: 13% Moisture

P.E.I. Potassium Sulfate Soybean Variety Trials - Freetown 2014

Fertility	Field	Variety	Plants/AC	Pods/Plant	Beans/Plant	Soil Ht	Plant Ht	Protein	Oil	T/acre
K20	FREETOWN	PLANTINA	149,798	18	41	3.3	31	45.60	19.64	0.958
K20	FREETOWN	VISION	182,186	17	41	2.8	23	45.16	18.84	0.886
K20	FREETOWN	SAVANNA	190,283	18	50	3.1	30	46.19	18.10	1.147
K20	FREETOWN	JARI	141,700	15	37	3.5	31	47.43	17.17	1.035
K20	FREETOWN	VENUS	198,381	19	46	3.4	28	45.22	19.05	1.717
K20	FREETOWN	SO7D2	186,235	19	49	3.0	27	44.60	17.65	1.269
K20	FREETOWN	NARITA	186,235	26	66	3.6	26	44.76	18.52	0.725
K20	FREETOWN	ORIA	145,749	20	47	2.9	26	46.65	17.38	1.098
K20	FREETOWN	LAURENT	194,332	22	58	2.9	31	46.02	16.77	1.268
K20	FREETOWN	S03W4	125,506	18	46	2.9	26	42.02	19.87	0.857
K20	FREETOWN	SO7M8	210,526	17	39	3.0	25	43.01	21.15	0.929
K20	FREETOWN	CHAMPION	198,381	23	61	3.1	31	46.79	17.78	1.721
K20	FREETOWN	ETNA	202,429	20	43	3.5	23	42.33	21.85	1.215
K20	FREETOWN	TAURUS	206,478	22	53	3.3	31	45.94	18.30	1.323
K20	FREETOWN	SASKA	218,623	25	63	2.8	27	41.58	19.43	1.568
K20	FREETOWN	QUENNATTO	238,866	26	56	2.8	24	40.45	18.67	1.134
AVERAGE			185,982	20	50	3.1	27	44.61	18.76	1.178

P.E.I. Potassium Sulfate Soybean Variety Trials - Freetown 2014

Fertility	Field	Variety	Plants/AC	Pods/Plant	Beans/Plant	Soil Ht	Plant Ht	Protein	Oil	T/acre
NK20	FREETOWN	QUENNATTO	222,672	29	62	2.5	23	39.42	16.78	1.508
NK20	FREETOWN	ORIA	93,117	20	55	3.6	30	48.28	19.30	0.921
NK20	FREETOWN	TAURUS	222,672	17	42	3.6	35	46.41	16.49	1.483
NK20	FREETOWN	JARI	165,992	18	43	3.5	33	49.36	15.91	1.432
NK20	FREETOWN	NARITA	174,089	29	73	1.7	26	46.97	18.53	0.847
NK20	FREETOWN	SO7D2	129,555	23	59	2.4	29	47.30	16.73	1.349
NK20	FREETOWN	CHAMPION	190,283	20	54	3.4	31	46.20	18.18	1.571
NK20	FREETOWN	VISION	157,895	12	30	3.4	23	44.32	18.73	1.337
NK20	FREETOWN	SAVANNA	165,992	22	61	3.5	30	44.65	19.33	1.082
NK20	FREETOWN	LAURENT	121,457	23	59	3.5	30	46.79	16.97	1.328
NK20	FREETOWN	ETNA	198,381	16	37	3.2	25	43.52	20.85	1.158
NK20	FREETOWN	SO7M8	202,429	17	38	3.3	27	43.63	18.13	1.684
NK20	FREETOWN	VENUS	145,749	19	49	3.3	29	46.66	17.12	1.425
NK20	FREETOWN	PLANTINA	222,672	17	37	4.3	29	47.08	17.93	1.183
NK20	FREETOWN	S03W4	72,874	25	64	2.4	24	45.65	19.74	0.814
NK20	FREETOWN	SASKA	214,575	24	59	2.7	28	41.80	18.62	1.122
AVERAGE			168,775	21	51	3.1	28	45.50	18.08	1.265

Potassium Sulfate (0-0-50) applied at 200 lbs/acre

Soil Water PH 6.5

Soil Organic Matter Averaged 2.7%

Magnisum 58 ppm medium

Calcium 1349 ppm medium

P.E.I. Soybean Variety Field Evaluations 2014

Fertility	Field	Variety	Plants/AC	Pods/Plant	Beans/Plant	Soil Ht	Plant Ht	Protein	Oil	T/acre
DJ	CENTRAL	AURIGA	400,810	15	38	4.1	34	40.50	18.00	1.229
DJ	CENTRAL	VENUS	133,603	18	41	4.4	25	46.05	18.07	1.049
DJ	CENTRAL	ETNA	449,393	17	41	3.2	29	41.79	19.44	1.677
DJ	CENTRAL	AURIGA	214,575	7	13	4.6	24	43.92	18.96	0.452
DJ	CENTRAL	VENUS	384,615	17	30	4.2	24	46.80	17.72	1.054
FD	FISH	VENUS	202,429	10	27	3.7	35	42.13	19.41	1.075
FD	NOFISH	VENUS	226,721	10	27	3.1	34	45.68	18.22	0.993
FD	CENTRAL	VENUS	234,818	24	55	2.8	34	44.98	19.35	1.035
FD	CENTRAL	VENUS	222,672	26	66	2.5	20	45.50	18.81	0.944
JM	CENTRAL/N	SAVANNA	246,964	16	46	3.3	31	43.20	19.77	1.450
JM	CENTRAL/N	SAVANNA	344,130	17	45	2.9	28	41.59	20.96	1.527
JM	CENTRAL/N	VISION	271,255	4	7	4.3	19	38.40	20.33	0.663
KM	EAST/N	SAVANNA	261,134	25	63	2.5	26	38.74	20.19	1.556
KM	EAST/N	SO7D2	299,595	21	56	3.5	34	43.89	17.80	1.385
KM	EAST/N	SAVANNA	281,377	18	47	2.4	30	40.45	20.69	1.764
KM	EAST/N	SO7D2	267,206	17	40	2.3	28	34.57	20.57	0.857
KM	EAST/N	SAVANNA	251,012	13	34	2.3	19	34.67	23.37	0.888
KM	EAST/N	SAVANNA	291,498	23	59	2.6	32	43.41	19.24	1.771
KM	EAST/N	SAVANNA	234,818	18	44	2.5	24	32.75	21.76	1.524
KM	EAST/N	SO7D2	164,777	15	39	2.7	33	43.10	18.83	1.396

P.E.I. Soybean Variety Field Evaluations 2014

Fertility	Field	Variety	Plants/AC	Pods/Plant	Beans/Plant	Soil Ht	Plant Ht	Protein	Oil	T/acre
POB	WEST	CHAMPION	226,721	18	48	2.6	26	42.78	18.98	1.473
POB	WEST	CHAMPION	301,619	21	53	2.7	24	43.75	19.24	1.263
WB	EAST/S	PRO25	271,255	14	31	2.7	22	44.16	26.76	1.810
WB	EAST/S	VENUS	214,575	8	18	2.2	21	41.44	20.20	1.208
WB	EAST/S	VENUS	222,672	10	23	1.9	20	40.89	20.56	1.161
WB	EAST/S	PRO25	210,526	8	18	3.4	27	42.36	20.15	1.206
WB	EAST/S	PRO25	172,065	14	32	3.5	25	42.67	19.59	1.147
WB	EAST/S	PRO25	240,891	14	34	1.9	25	44.40	18.72	1.845
AVERAGE			258,704	16	38	3.0	26	41.95	19.85	1.264

P.E.I. Potassium Sulfate Soybean Variety Trials - Alberry Plains 2015

Fertility	Field	Variety	Plant/AC	Pods/Plant	Beans/Plant	Soil Ht	Plant Ht	Protein	Oil	T/acre
K20	Alberry	Marula	107,562	16	34	1.8	28.2	45.91	21.12	1.068
K20	Alberry	Narita	112,809	30	76	2.3	27.8	41.97	19.77	2.255
K20	Alberry	Oria	83,951	51	100	1.3	24.4	45.39	17.82	1.518
K20	Alberry	Plantina	131,173	57	129	1.3	28.0	44.76	19.41	1.292
K20	Alberry	Quenatto	181,019	34	101	1.2	26.4	39.22	19.04	1.981
K20	Alberry	S03-W4	118,056	34	70	1.4	29.2	41.79	19.60	1.519
K20	Alberry	S07-D2	86,574	41	108	1.4	27.6	43.76	17.27	1.441
K20	Alberry	S07-M8	154,784	37	75	0.7	21.8	41.16	19.99	1.675
K20	Alberry	Savanna	94,445	32	82	1.6	26.4	41.69	20.83	1.633
K20	Alberry	Taurus	146,914	32	70	1.8	27.0	43.46	19.25	1.286
AVERAGE			121,729	37	85	1.5	27	42.91	19.41	1.567

Fertility	Field	Variety	Plant/AC	Pods/Plant	Beans/Plant	Soil Ht	Plant Ht	Protein	Oil	T/acre
NK20	Alberry	Marula	125,926	28	74	1.5	30.2	42.60	18.99	1.439
NK20	Alberry	Narita	118,056	27	63	1.8	32.4	42.26	19.84	1.985
NK20	Alberry	Oria	94,445	42	84	1.0	24.0	43.69	18.34	1.463
NK20	Alberry	Plantina	141,667	25	59	1.3	30.0	44.07	20.26	1.381
NK20	Alberry	Quenatto	215,124	35	81	1.1	25.6	39.01	19.60	1.780
NK20	Alberry	S03-W4	112,809	47	94	0.0	0.0	41.02	20.37	1.499
NK20	Alberry	S07-D2	136,420	34	86	0.8	27.8	44.06	18.84	1.398
NK20	Alberry	S07-M8	141,667	41	82	1.5	23.8	39.93	20.77	1.553
NK20	Alberry	Savanna	144,291	34	92	1.7	29.2	40.54	20.49	1.627
NK20	Alberry	Taurus	128,550	26	40	2.6	30.6	44.46	20.93	0.979
AVERAGE			135,895	34	75	1.3	25	42.16	19.84	1.510

P.E.I. Potassium Sulfate Soybean Variety Trials - Alberry Plains 2015

Potassium Sulfate (0-0-50) applied at 200 lbs/acre

Soil Water PH averaged 6.1

Soil Organic Matter Averaged 2.0%

Magnesium 53 ppm medium

Calcium 923 ppm medium

P2O5 586 ppm High

K2O 129 ppm High

P.E.I. Potassium Sulfate Soybean Variety Trials - Freetown 2015

Fertility	Field	Variety	Plant/AC	Pods/Plant	Beans/Plant	Soil Ht	Plant Ht	Protein	Oil	T/acre
K20	Freetown	Marula	138,169	13	30	2.7	21.2	40.44	21.43	0.848
K20	Freetown	Narita	113,683	34	89	1.5	26.6	38.94	22.02	0.920
K20	Freetown	Oria	64,712	19	49	1.5	22.2	40.82	19.09	0.714
K20	Freetown	Plantina	124,177	20	56	1.5	26.6	44.45	20.86	0.663
K20	Freetown	Quenatto	136,420	10	29	2.4	20.0	36.56	21.20	0.889
K20	Freetown	S03-W4	85,700	16	43	1.6	18.4	39.08	23.74	0.492
K20	Freetown	S07-D2	99,692	12	34	2.8	23.4	41.73	19.74	0.611
K20	Freetown	S07-M8	83,951	14	35	1.5	18.4	40.39	21.78	0.608
K20	Freetown	S18-R6	110,185	13	33	2.3	17.0	38.73	22.62	0.643
K20	Freetown	Savanna	82,202	8	23	2.0	18.4	36.59	24.16	0.383
K20	Freetown	Taurus	76,955	13	29	1.6	22.0	42.92	21.59	0.552
AVERAGE			101,441	16	41	1.9	21	40.06	21.66	0.666
Fertility	Field	Variety	Plant/AC	Pods/Plant	Beans/Plant	Soil Ht	Plant Ht	Protein	Oil	T/acre
NK20	Freetown	Marula	167,902	16	48	3.0	25.4	46.87	19.99	0.827
NK20	Freetown	Narita	99,692	19	50	1.2	22.0	45.10	20.97	0.815
NK20	Freetown	Oria	89,198	21	56	2.8	22.4	53.56	20.76	0.376
NK20	Freetown	Plantina	106,688	15	40	2.9	23.0	48.67	20.90	0.629
NK20	Freetown	Quenatto	136,420	16	47	2.0	20.4	40.54	19.84	1.103
NK20	Freetown	S03-W4	106,688	11	23	2.6	21.0	46.61	21.78	0.537
NK20	Freetown	S07-D2	110,185	9	24	1.4	22.2	45.98	20.08	0.686
NK20	Freetown	S07-M8	113,683	12	34	1.8	18.6	47.82	20.95	0.495
NK20	Freetown	S18-R6	124,177	12	30	2.1	20.8	48.44	22.13	0.322
NK20	Freetown	Svanna	78,704	10	28	2.3	17.0	43.44	19.26	0.832
NK20	Freetown	Taurus	115,432	22	45	2.3	27.2	48.29	19.61	0.649
AVERAGE			113,524	15	39	2.2	22	46.85	20.57	0.661

P.E.I. Potassium Sulfate Soybean Variety Trials - Freetown 2015

Potassium Sulfate (0-0-50) applied at 200 lbs/acre

Soil Water PH averaged 6.0

Soil Organic Matter Averaged 3.1%

Magnesium 88 ppm medium

Calcium 864 ppm medium

P2O5 244 ppm High

K2O 98 ppm medium

Yield: 13% Moisture

Protein/Oil: 100% DM

P.E.I. Soybean Variety Field Evaluations 2015

Grower	Location	Variety	Plant/Ac	Pods/Plant	Beans/Plant	Soil Ht	Plant Ht	Protein	Oil	T/acre
Chiel	Alberry	Tundra	123,303	27	51	0.9	26.40	43.48	19.10	1.347
Drew	Alexandra	Jari	351,544	18	47	0.9	26.40	46.86	17.23	1.475
Drew	Alexandra	Tundra	371,220	10	28	2.0	21.80	39.42	18.99	1.447
Fred	Rustico	Jari	351,544	17	39	4.6	35.80	48.49	16.45	1.846
Jim	Cherry Hill	Savanna	241,359	8	20	1.8	22.20	38.31	21.58	0.869
Jim	Scotchford	Vision	300,824	10	19	3.3	22.20	40.40	20.01	1.031
Kevin	Strathcona	Jari	195,885	19	54	2.2	23.40	46.62	20.83	0.912
Kevin	Souris	Jari	216,873	16	48	2.2	20.80	44.24	22.74	0.774
Kevin	Souris	Savanna	215,124	14	42	2.5	23.20	50.79	21.66	0.310
Matt	Malpeque	Jari	169,651	15	16	1.8	19.60	41.39	19.96	0.940
Peter	Elmsdale	Champion	264,970	8	21	1.6	12.20	36.89	24.94	0.632
Peter	Elmsdale	Laurent	152,161	16	39	1.4	22.00	41.67	19.69	1.720
Will	Flat River	PRO25	220,371	11	28	3.4	30.20	43.68	19.21	1.543
Will	Caladonia	S07-D2	236,112	9	26	3.5	25.40	31.80	24.35	0.876
Will	Caladonia	Savanna	236,112	30	68	3.1	34.40	42.23	22.14	0.972
AVERAGE			243,137	15	36	2.3	24	42.42	20.59	1.113

Yield: 13% Moisture

Protein/Oil: 100% DM

P.E.I. Soybean Variety Field Evaluations 2015

Soil Results								
Grower	Location	Variety	OM %	pH	P205	K20	Ca	Mg
Chiel	Alberry	Tundra	2.0	6.1	586 ppm	129 ppm	923 ppm	53 ppm
Drew	Alexandra	Jari	2.7	7.3	226 ppm	46 ppm	2790 ppm	93 ppm
Drew	Alexandra	Tundra	2.6	6.4	60 ppm	75 ppm	1079 ppm	220 ppm
Fred	Rustico	Jari	3.9	6.5	128 ppm	52 ppm	1277 ppm	118 ppm
Jim	Cherry Hill	Savanna	2.6	6.2	56 ppm	90 ppm	883 ppm	84 ppm
Jim	Scotchford	Vision	2.7	4.9	231 ppm	55 ppm	360 ppm	65 ppm
Kevin	Strathcona	Jari	1.6	6.3	369 ppm	91 ppm	934 ppm	102 ppm
Kevin	Souris	Jari	2.2	5.0	304 ppm	90 ppm	622 ppm	42 ppm
Kevin	Souris	Savanna	2.7	5.0	355 ppm	119 ppm	571 ppm	48 ppm
Matt	Malpeque	Jari	2.8	5.6	271 ppm	222 ppm	728 ppm	92 ppm
Peter	Elmsdale	Champion	2.5	5.8	199 ppm	84 ppm	925 ppm	127 ppm
Peter	Elmsdale	Laurent	2.1	5.7	296 ppm	86 ppm	678 ppm	105 ppm
Will	Flat River	PRO25	3.0	5.8	173 ppm	53 ppm	917 ppm	48 ppm
Will	Caladonia	S07-D2	2.9	5.3	125 ppm	85 ppm	470 ppm	45 ppm
Will	Caladonia	Savanna	2.3	5.0	190 ppm	125 ppm	443 ppm	55 ppm

The following statistical data was provided by Dr. Aaron Mills of Agriculture Canada, Charlottetown.

Figure 1: Scatter plot matrix showing the relationship between plant population vs. yield at 12” and 18” spacing. There is a general trend of increasing yield with increasing plant population. Row spacing at 12” appears to result in the highest consistent yield overall with a plant population between 150000-175000 plants per acre. Row spacing at 18” appeared to have higher plant populations. Even though there is a general trend towards increasing yield with increasing plant populations, there is also a risk of increased disease pressure at higher populations.

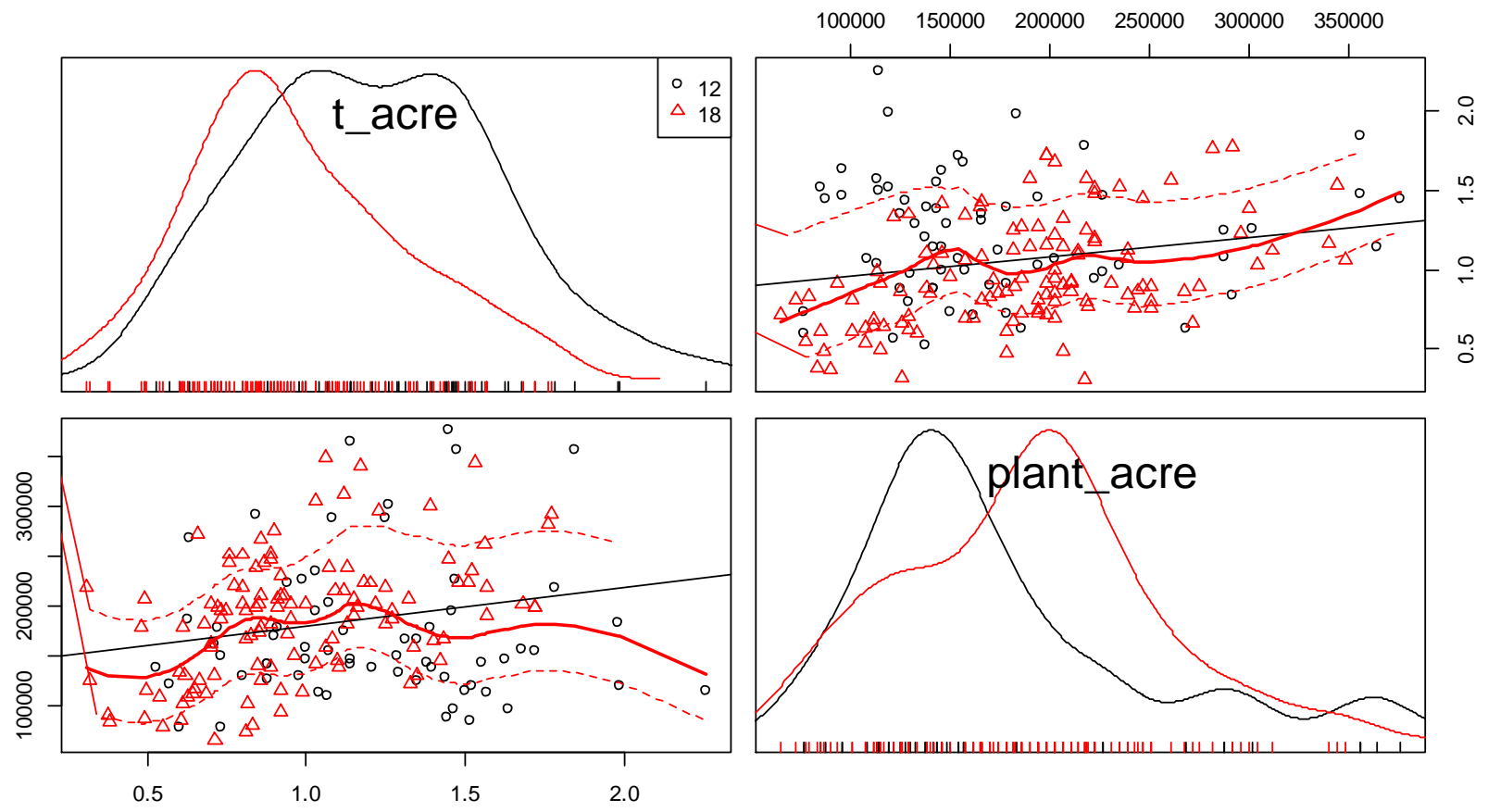


Table 1: Probability levels of measured factors without using plant population as a covariate.

Source	plant_ac	t_ac	pod_plant	beans_plant	soil_ht	plant_ht	protein	oil	dm	prot_13	oil_13
year	.	.	.	.	.	.	.	.	.	.	.
year x grower	.	.	.	.	.	.	.	.	.	.	.
year x grower x variety	.	.	.	.	.	.	.	.	.	.	.
Fertility	ns	ns	ns	ns	ns	ns	<0.001	0.021	ns	<0.001	0.013

Table 2: Probability levels of measured factors using plant population as a covariate.

Source	t_ac	pod_plant	beans_plant	soil_ht	plant_ht	protein	oil	dm	prot_13	oil_13
Year	.	.	.	.	.	.	.	.	.	.
Covariate	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns
year x grower	.	.	.	.	.	.	.	.	.	.
Covariate	0.017	0.002	0.005	ns	ns	ns	ns	ns	ns	ns
year x grower x variety	.	.	.	.	.	.	.	.	.	.
Fertility	ns	ns	ns	ns	ns	<0.001	0.026	ns	<0.001	0.016
Covariate	<0.001	0.025	0.010	0.015	ns	ns	ns	ns	ns	ns

These two tables show the effect of plant population on all of the measured variables (**Tables 1 and 2**). When we do not take into account the effects of plant population, there are no observed effects of fertility on anything except the soybean quality. This is also the case when we do take into account the effect of plant population. However the effect of the covariate on yield, # pods per plant, # of beans per plant, soil height is significant indicating that plant population has more of an effect on those variables than fertility, grower, year or variety. Overall, there was a significant reduction in soybean quality (lower protein) resulting from the fertility treatment (**Table 3**)

Table 3: Mean values between fertility treatments. There was very little difference in mean values whether plant population was included as a covariate or not.

Name	prot_13	oil_13
K2O	40.09	19.88
No K2O	42.15	19.35
Grand Mean	41.12	19.61
SEM	0.3021	0.1539
F pr		
Fert	<0.001	0.016

Discussion:

The project looked at the soybean varieties available to organic soybean producers for the purpose of food grade product upon harvest. The results over the three year period showed that varieties were capable of meeting the 40% protein or better for acceptable edible soybeans.

Potassium was applied to each variety to determine if any response would be seen in yield. Based on the results potassium seemed to have very little effect on yield in the fields and plot trials. Actually the fertility (added potassium) resulted in a lower protein of the soybeans.

The greatest impact was the visual weed density in the crops. The crops with the lower yields was visually very weedy and resulted in heavy nutrient competition with the soybean crops.

The yields that were taken from the fields showed yields equal to and in some cases exceeded what was noticed from commercial soybean production. The fields showing the high yields were in rowed cultivated after a tine weeder was used. The in row cultivation had weed control as good as or better than commercial production of soybeans with herbicides.

There was a general yield trend which increased with plant population increase. The standard row spacing of the soybeans crops was 12 and 18 inches. There was an increase in yield with an increase in plant population when all varieties were compared. The 18 inch spacing did have higher population counts. The 12 inch rows gave the highest yields over the 18 inch spacing at population levels of 150000 to 175000 plants per acre.

The increased plant population tends to limit the air movement within the crop which can result in a risk of more disease. The soybean crops were well rotated and did not see soybeans for at least two or more years in the study.

Fertility (potassium) did show significant reduction on the soybean quality (protein and oil).

Plant population did have an effect on plant height, pod numbers, bean numbers and pod height above the ground.

The results of the varieties should be used as guides when selecting soybean varieties for production. The later maturing varieties will tend to yield slightly higher but when harvested the moisture is high and may affect quality for a food grade soybean.

Recommendations:

- 1) Evaluation of weed control practices on specific weeds to ensure proper timing for the control of weeds with minimum tillage operations.
- 2) Evaluate seeding rates for specific varieties to ensure optimum yield. The study provided a good starting seeding rate at the 150000 to 175000. Most commercial growers are seeding at 195000 seeding rates.
- 3) Evaluate disease control with the seeding rates to demonstrate the optimum rate of seeding to minimize the risk of disease.
- 4) Evaluate the depth of seeding and soil temperatures at time of seeding to see the impact on plant population.
- 5) Evaluate the use of grain seeders, great plains seeders and corn planters for the production of soybeans. The current findings with non organic production implies corn planters are superior over the other planting systems for soybeans.
- 6) Further studies on soybean quality (protein and oil) need to be conducted with the use of the major nutrients in soybean production such as potassium, sulfur, calcium, magnesium and phosphorus.
- 7) Continued evaluation on soybean varieties should be continued with large field evaluations supplementing small plot variety evaluations.