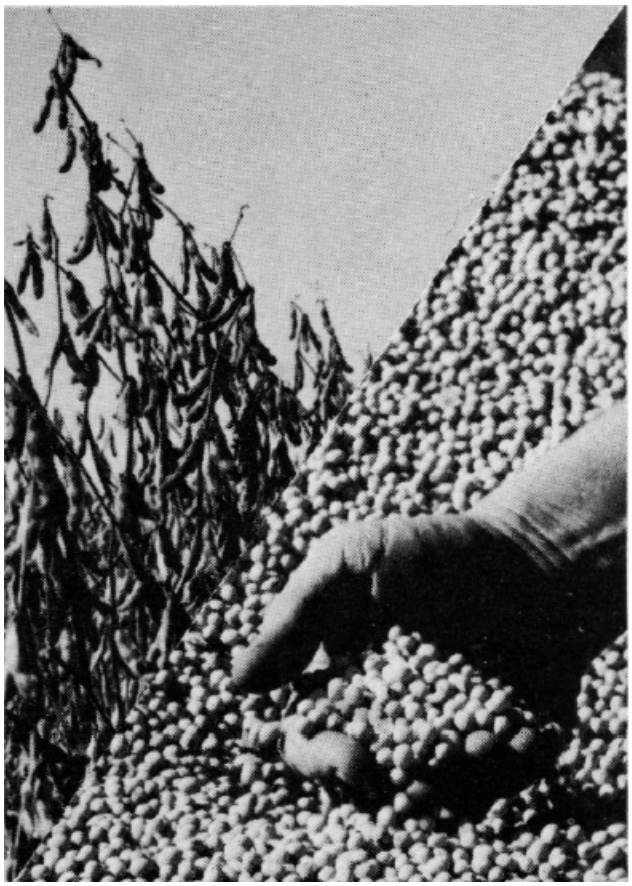
1990 REPORT

Ontario Soybean Variety Trials



Conducted in 1987-89
by the
Ontario Oil & Protein
Seed Crop Committee

ONTARIO OIL & PROTEIN SEED CROP COMMITTEE

This organization is made up of representatives of OMAF, Agriculture Canada, the University of Guelph, the Ontario Seed Growers Association, the Canadian Seed Trade Associaiton, the Ontario Soybean Growers Marketing Board and the Oilseed Crushers. Tests are conducted each year by the following co-operating agencies.

Research Station, Harrow; Ridgetown College of Agricultural Technology; Centralia College of Agricultural Technology; University of Guelph; Kemptville College of Agricultural Technology; Research Station, Ottawa; Research Station, Smithfield.

INTERPRETATION OF RESULTS

HEAT UNIT RATING

Using the same heat unit system as for corn, each variety is given a heat unit rating based on the relative maturity of that variety. In choosing a variety you should select those varieties approximately equal to or less than the heat units available on your farm.

HILUM COLOUR

Each soybean seed has a hilum which is the point where it was attached to the pod. Varieties differ in hilum colour and can be either yellow, gray, buff, brown or black. Yellow hilum soybeans are generally the only type accepted for the export market.

SEEDS PER KILOGRAM

This is an estimate of the relative number of seeds of a particular variety in a kilogram of seed. Since seed size can vary from year to year and from seed lot to seed lot these figures should be used as a rough guide only.

PHYTOPHTHORA ROOT ROT

The % Plant Loss is a three-year average (1987-89) obtained in a field heavily infested with Phytophthora. Some races of Phytophthora root rot are not found at this site. Thus the relative ranking of varieties for tolerance may differ in fields that have other races present.

YIELD INDEX

Varieties can only be compared within each test area. Yield index of a variety indicates its performance as a percentage of the average yield of all recommended varieties grown in a test area. Small index differences are not significant.

DAYS FROM PLANTING TO MATURITY

Maturity is affected by planting date and the area where a variety is being grown. Varieties are rated as being mature when 95% of the pods on the plants are ripe. Normally, 3-10 additional drying days are needed before the crop is dry enough for combining.

PLANT HEIGHT

An indicator of the amount of plant growth, it is measured at maturity as the length of the stem from the base of the plant to its tip.

LODGING

A visual estimate at maturity of the standability of the crop. A value of 1 is equivalent to a crop standing completely upright while a 5 represents a crop entirely flat. Within a test area, varieties with lower values are less prone to lodging.

PROTEIN INDEX

This index measures the relative seed protein content among the varieties listed in Table 2 and 3. Those varieties with a protein index above 100% have above average seed protein content on a dry matter basis, whereas, those varieties with a protein index less than 100% have below average seed protein content. A 5% difference in protein index is approximately equal to a 2% difference in actual dry matter protein content. If a variety had a protein index of 100% and had an actual protein content of 40.0%, then a variety with a protein index of 105% would have an actual protein content of 42% and a variety with a protein index of 95% would have an actual protein content of 38%. All reported protein index values are avarages of two years of data from all locations within a testing area.

TESTING METHODS

In each trial, varieties were replicated in a suitable experimental design and received equal fertility, weed control and management. All trials were planted and harvested by machine.

Prior to harvest, plant height and lodging scores were obtained. The grain harvested from each plot was weighed and the yield of soybeans was calculated in tonnes/hectare at 14% moisture. Agronomic data in Table 2 represents 3 year averages from between 2-4 locations each year. Agronomic data in Table 3 has been split on a soil type basis with data from each area representing 3 year averages from between 1-2 locations with similar soil type and heat unit ratings per year.

TEST LOCATIONS & SOIL TYPES 1989 TRIALS

Location	*Heat Unit Rating*	*Soil Type*	*Row Width -cm-*	*Co-operator*
Malden	3500	Clay loam	60	Jon Parks
Woodslee	3400	Clay	60	Research Station
Tilbury	3350	Clay	60	Robert Farquharson
Chatham	3300	Clay loam	60	Stan Wonnacott
Inwood	3050	Clay	60	Jack & Kevin Marriott
Ridgetown	3250	Clay loam	60	R.C.A.T.
Fingal	3000	Silt loam	60	Julius Virag
Talbotville	2900	Clay loam	35	Jim Brokenshire
Centralia	2800	Clay loam	35	C.C.A.T.
Woodstock	2700	Clay loam	35	O.A.C.
St. Pauls	2750	Clay loam	35	Nick Wouters
Winchester	2825	Clay loam	35	K.C.A.T.
Smithfield	2850	Sandy	25	Ag. Canada, Smithfield
Elora	2550	Silt loam	35	O.A.C.
Brussels	2600	Clay loam	35	Jeff Cardiff
Ottawa	2650	Sandy	25	Research Station

TABLE 1. SOYBEAN VARIETY RECOMMENDATIONS & DESCRIPTION

Variety	*Heat Units Required*	*Hilum Colour*	*Seeds Per Kilogram*	*Phytophthora Root Rot Reaction % Plant Loss*[1]	*Distributor*
Maple Ridge[2]	2400	yellow	6430	8	SeCan members
Baron[2]	2450	dark brown	5640	11	W.G. Thompson & Sons Ltd.
Maple Belle	2500	yellow	5590	21	SeCan members
Maple Isle	2500	yellow	5610	21	Public variety
Apache[2]	2600	gray	5580	9	W.G. Thompson & Sons Ltd.
Bicentennial	2600	brown	5230	8	SeCan members
KG30	2600	dark brown	7320	18	Pride Brand Seeds
KG40*	2600	yellow	6510	12	King Agro
Maple Arrow*	2600	brown	5700	11	Public variety
Maple Glen	2600	yellow	5360	23	SeCan members
J-051	2600	gray	6330	37	Jacques Seed Co.
KG41	2600	yellow	5380	5	King Agro
S00-88	2600	brown	5210	10	Northrup King Seeds Ltd.
OAC Scorpio	2600	yellow	5740	42	SeCan members
9061	2650	yellow	7480	28	Pioneer Hi-Bred Ltd.
OAC Libra	2650	black	6270	11	SeCan members
0877	2700	light gray	6050	21	Pioneer Hi-Bred Ltd.
J-081	2700	yellow	5820	23	Jacques Seed Co.
KG60*	2700	buff	5600	7	King Agro
Evans	2750	yellow	6070	26	Public variety
Maple Donovan*	2750	buff	6650	13	SeCan members
Marathon	2750	yellow	5420	15	W.G. Thompson & Sons Ltd.
OAC Aries	2750	dark brown	5600	24	SeCan members
OAC Musca	2750	tan	5590	9	SeCan members
PS61*	2750	yellow	5890	9	Pride Brand Seeds
KG62	2800	yellow	6070	9	King Agro
Commander*	2850	yellow	5020	17	W.G. Thompson & Sons Ltd.
Crusader	2850	yellow	6160	19	W.G. Thompson & Sons Ltd.
OAC Dorado	2850	brown	5720	25	Se Can members
PS72	2850	yellow	6680	13	Pride Brand Seeds
S09-70	2850	yellow	6220	13	Northrup King Seeds Ltd.
1282	2900	buff	5130	20	Pioneer Hi-Bred Ltd.
A0949*	2900	yellow	6100	15	Cargill Grain Co. Ltd.
A1511	2900	buff	6100	8	Cargill Grain Co. Ltd.
A1564	2900	yellow	5780	22	Cargill Grain Co. Ltd.
B152*	2900	yellow	5900	8	Northrup King Seeds Ltd.
Galaxy	2900	buff	5360	11	W.G. Thompson & Sons Ltd.
Haroson*	2900	buff	6310	8	SeCan members
Hodgson	2900	buff	6130	18	Public variety
KG82	2900	tan	4820	10	King Agro
PS80	2900	yellow	6560	10	Pride Brand Seeds
S1346	2900	yellow	5900	9	Northrup King Seeds Ltd.
S15-50*	2900	gray	6860	5	Northrup King Seeds Ltd.

TABLE 1. SOYBEAN VARIETY RECOMMENDATIONS & DESCRIPTION

Variety	*Heat Units Required*	*Hilum Colour*	*Seeds Per Kilogram*	*Phytophthora Root Rot Reaction % Plant Loss*[1]	*Distributor*
T8508	2900	brown	5490	8	W.G. Thompson & Sons Ltd.
9161	2950	buff	6500	7	Pioneer Hi-Bred Ltd.
A1895	2950	black	6130	10	Cargill Grain Co. Ltd.
A1937	2950	buff	6110	13	Cargill Grain Co. Ltd.
1677	3000	yellow	7060	32	Pioneer Hi-Bred Ltd.
A2234**	3000	black	5910	2	Cargill Grain Co. Ltd.
RCAT	3000	black	5830	12	SeCan members
A2187	3025	yellow	6480	10	Cargill Grain Co. Ltd.
9202	3050	yellow	5720	7	Pioneer Hi-Bred Ltd.
G-3197	3050	buff	5500	7	Funk Seeds
S19-90	3050	gray	5460	7	Northrup King Seeds Ltd.
RCAT Persian	3050	yellow	5960	9	SeCan members
CX226	3050	buff	5970	9	Dekalb Seeds
9272	3075	buff	6250	12	Pioneer Hi-Bred Ltd.
B220	3075	yellow	6520	24	King Agro
Elgin	3075	black	6060	16	Public variety
KG92	3075	yellow	5870	9	King Agro
Premier	3075	yellow	6490	10	Pride Brand Seeds
Sals 93	3075	buff	5670	35	Sals Seeds Ltd.
CX14	3100	buff	5590	16	Dekalb Seeds
Elgin 87**	3100	black	5910	8	SeCan members
Jewel	3100	yellow	6370	32	W.G. Thompson & Sons Ltd.
9271	3150	brown	5430	13	Pioneer Hi-Bred Ltd.
Corsoy 79*	3150	yellow	6600	10	Public variety
PS90	3150	yellow	6310	17	Pride Brand Seeds
9292	3175	brown	5550	11	Pioneer Hi-Bred Ltd.
A2630	3175	brown-black	7210	6	Cargill Grain Co. Ltd.
Combat	3175	yellow	6190	8	W.G. Thompson & Sons Ltd.
J-103	3175	yellow	5900	27	Jacques Seed Co.
J-231	3175	brown-black	5040	16	Jacques Seed Co.
S26-06*	3175	buff	5240	9	Northrup King Seeds Ltd.
KG 100	3225	black	6320	14	King Agro
Birch	3300	yellow	6420	15	Ferguson Seed Co.
A2943	3325	brown-black	6030	11	Cargill Grain Co. Ltd.
A3127	3350	black	6860	10	Cargill Grain Co. Ltd.

* Varieties with resistance to most races of the Phytophthora root rot organism in Ontario.

** Varieties with resistance to all races of the Phytophthora root rot organism in Ontario

[1] Three-year average (1987-89) in a field heavily infested with Phytophthora. Not all races of Phytophthora root rot are found at this site. Thus the relative ranking of varieties for plant loss may differ in fields that have other races present.

[2] Metribuzin herbicide should not be used on Maple Ridge, Baron, Maple Amber or Apache.

TABLE 2. AGRONOMIC DATA
2400-2900 HEAT UNIT AREAS

Variety	*Heat Unit Rating*	*Yield (t/ha)*	*Yield Index (%)*	*Days from Planting to Maturity*	*Plant Height (cm)*	*Lodging 1 = standing 5=flat*	*Protein Index (%)*
Maple Ridge	2400	2.76	88	103	69	1.5	100
Baron	2450	2.80	90	103	74	2.4	101
Maple Isle	2500	2.88	92	107	69	1.5	99
Maple Belle	2500	2.84	91	108	74	1.7	99
Maple Arrow	2600	3.06	98	114	85	2.5	101
KG30	2600	3.09	99	114	86	2.4	100
KG40	2600	3.03	97	115	72	1.7	101
Maple Glen	2600	3.28	105	112	75	1.5	102
KG41	2600	3.29	105	114	79	1.2	100
Bicentennial	2600	3.19	102	115	86	2.8	103
S00-88	2600	3.17	102	115	87	2.1	99
J-051	2600	3.16	101	116	78	1.8	100
Apache	2600	3.11	100	115	76	1.6	102
OAC Scorpio	2600	3.30	106	116	84	2.5	100
OAC Libra	2650	3.31	106	117	91	3.2	98
9061	2650	3.33	107	118	80	1.9	97
Maple Donovan	2750	3.39	109	121	89	2.7	100
OAC Eclipse	2750	3.29	105	121	89	2.4	98
Average Yield (t/ha)		**3.14**					

TESTING AREAS: 3-year average of 11 Trials at Brussels, Elora, Ottawa and Winchester.

TABLE 2. AGRONOMIC DATA
2400-2900 HEAT UNIT AREAS

Variety	*Heat Unit Rating*	*Yield (t/ha)*	*Yield Index (%)*	*Days from Planting to Maturity*	*Plant Height (cm)*	*Lodging 1 = standing 5=flat*	*Protein Index (%)*
Apache	2600	2.55	92	107	64	1.2	106
Bicentennial	2600	2.65	96	109	71	1.3	106
OAC Libra	2650	2.74	99	113	75	1.5	100
0877	2700	2.71	98	114	77	1.6	101
J-081	2700	2.76	100	115	77	1.3	101
KG60	2700	2.75	99	116	65	1.4	103
Maple Donovan	2750	2.88	104	115	78	1.5	104
Evans	2750	2.61	94	117	79	1.6	100
OAC Aries	2750	2.76	100	118	86	2.0	99
Marathon	2750	2.73	98	119	79	1.7	101
OAC Musca	2750	2.78	100	118	85	1.9	97
PS61	2750	2.79	101	119	73	1.2	97
KG62	2800	2.82	102	117	70	1.3	99
OAC Dorado	2850	2.90	105	119	74	1.3	96
Crusader	2850	2.91	105	119	82	1.3	96
S09-70	2850	2.65	96	120	75	1.4	100
Commander	2850	2.68	97	121	84	1.8	100
Haroson	2900	2.95	107	120	83	1.5	99
Hodgson	2900	2.93	106	122	83	1.6	99
A0949	2900	2.66	96	122	80	1.5	101
PS72	2900	2.77	100	124	79	1.7	101
1282	2900	2.92	106	123	90	1.7	102
S15-50	2900	2.92	105	123	83	1.3	95
A1564	2900	2.77	100	123	88	1.6	103
Galaxy	2900	2.78	100	125	88	1.6	101
KG82	2900	2.82	102	127	83	1.5	98
Average Yield (t/ha)		**2.78**					

TESTING AREAS: 3 year average of 8 Trials at Centralia, Woodstock, St. Pauls and Smithfield.

TABLE 3. AGRONOMIC DATA
2900-3500 HEAT UNIT AREAS

		Area 1			*Area 2*			
Variety	*Heat Unit Rating*	*Yield Index %*	*Plant Height (cm)*	*Lodging 1= standing 5=flat*	*Yield Index %*	*Plant Height (cm)*	*Lodging 1= standing 5=flat*	*Protein Index %*
Crusader	2850	93	79	1.7	96	91	2.2	99
Haroson	2900	96	77	1.4	98	88	1.8	101
Hodgson	2900	92	80	1.7	95	91	1.8	102
A1564	2900	94	86	1.8	95	98	2.2	105
PS80	2900	96	85	1.5	92	99	2.0	100
T8508	2900	104	75	1.3	104	90	1.6	98
515-50	2900	99	85	1.2	98	95	1.8	98
B152	2900	98	67	1.1	98	84	1.4	95
S1346	2900	95	69	1.1	95	86	1.5	96
A1511	2900	105	80	1.4	100	89	1.8	102
9161	2950	103	76	1.2	102	89	1.5	99
A1895	2950	100	73	1.4	100	82	2.0	105
A1937	2950	99	85	1.6	101	97	2.1	103
1677	3000	95	77	1.5	97	88	2.1	97
RCAT Alliance	3000	100	87	1.1	100	98	1.4	103
RCAT Persian	3050	101	80	1.4	101	97	1.9	101
G-3197	3050	104	69	1.0	101	82	1.5	98
S19-90	3050	107	75	1.0	106	88	1.4	95
9202	3050	102	74	1.0	105	86	1.6	97
Premier	3075	99	81	1.8	95	89	2.1	101
Elgin	3075	106	77	1.7	103	89	2.1	96
Elgin 87	3100	106	80	2.3	104	88	2.3	96
B220	3100	97	84	1.2	97	95	1.8	103
CX174	3100	102	80	1.3	97	94	1.9	102
Jewel	3100	102	78	1.8	108	92	2.2	102
9271	3150	104	78	1.2	103	88	1.5	97
Corsoy 79	3150	96	95	2.5	96	110	2.8	104
S26-06	3200	107	80	1.0	111	90	1.6	101
Average Yield (t/ha)		**3.56**			**3.95**			

AREA 1: 3-year Average of 6 Trials at Inwood (Clay) and Fingal (Silt Loam)

AREA 2: 3-year Average of 6 Trials at R.C.A.T. (Clay Loam) and Talbotville (Clay Loam)

TABLE 3. AGRONOMIC DATA
2900-3500 HEAT UNIT AREAS

		Area 3			*Area 4*			
Variety	*Heat Unit Rating*	*Yield Index %*	*Plant Height (cm)*	*Lodging 1= standing 5=flat*	*Yield Index %*	*Plant Height (cm)*	*Lodging 1= standing 5=flat*	*Protein Index %*
Haroson	2900	96	72	1.5	94	96	2.9	100
Hodgson	2900	94	72	1.4	95	98	2.4	100
B152	2900	79	58	1.0	98	89	1.7	96
S15-50	2900	97	77	1.3	99	106	2.2	98
A1895	2950	93	64	1.2	96	86	2.4	104
9161	2950	95	64	1.1	101	91	2.0	103
S1346	2950	79	56	1.0	98	92	1.7	95
A1937	2950	98	76	1.4	103	104	2.8	103
S19-90	3025	93	66	1.0	108	95	1.4	98
A2234	3025	105	67	1.1	98	94	1.9	102
9202	3025	95	64	1.0	103	92	2.2	98
A2187	3050	90	72	1.2	97	105	2.2	102
RCAT Persian	3050	102	72	1.4	100	106	2.9	102
Premier	3050	100	71	1.4	95	100	2.8	103
CX226	3075	98	67	1.2	94	91	2.6	99
Elgin	3075	106	73	1.5	101	94	2.9	96
SALS93	3075	101	73	1.2	98	95	2.6	97
9272	3075	104	69	1.2	104	94	2.5	101
Corsoy 79	3100	97	84	2.5	97	120	3.5	102
CX174	3100	107	73	1.3	97	99	2.5	101
Jewel	3100	109	66	1.3	103	102	2.8	100
KG92	3100	104	67	1.1	102	95	2.6	97
PS90	3100	89	79	1.6	98	116	2.9	96
Elgin 87	3125	107	75	1.7	99	97	3.2	96
J-231	3125	98	73	1.5	101	102	2.3	102
9271	3125	105	67	1.1	100	93	1.9	97
J-103	3150	95	70	1.3	96	98	2.7	96
Combat	3175	107	83	1.8	98	120	3.3	102
S26-06	3175	108	73	1.0	106	93	2.0	101
9292	3175	110	72	1.2	104	94	2.0	100
A2630	3200	110	73	1.0	103	96	1.6	103
A2943	3275	107	77	1.2	104	105	2.0	104
KG 100	3275	104	82	1.5	102	106	2.9	104
Birch	3300	103	91	2.4	96	122	3.9	99
A3127	3350	103	79	1.5	102	102	2.7	103
Average Yield (t/ha)		**3.28**			**3.93**			

AREA 3: 3-year Average of 4 Trials at Woodslee (Clay) and Tilbury (Clay)

AREA 4: 3-year Average of 6 Trials at Malden (Clay Loam) and Chatham (Clay Loam)