

1992 REPORT

Ontario Soybean Variety Trials



**Conducted in 1989-91
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 Association, 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.

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. Varieties may differ slightly for heat unit rating from one test area to another.

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 (1989-91) 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 2-5. 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 averages 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 Tables 2 and 3 represent 3 year averages from between 2-4 locations each year. Agronomic data in Table 4 and 5 has been split on a soil type basis. Data from each area represents 3 year averages from 1-2 locations with similar soil type and heat unit ratings per year.

TEST LOCATIONS & SOIL TYPES

1991 TRIALS

<i>Location</i>	<i>Heat Unit</i>	<i>Soil Type</i>	<i>Row Width</i>	<i>Co-operator</i>
Malden	3500	Clay loam	60	Jon Parks
Woodslee	3400	Clay	60	Research Station
Tilbury	3350	Clay	60	Robert
Chatham	3300	Clay loam	60	Stan Wonnacott
Inwood	3050	Clay	60	Jack & Kevin
Ridgetown	3250	Clay loam	60	R.C.A.T.
Dutton	3100	Clay	60	Glen Walters
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	Bernard Murray
Winchester	2825	Clay loam	35	K.C.A.T.
Elora	2550	Silt loam	35	O.A.C.
Brussels	2600	Clay loam	35	Jeff Cardiff
Ottawa	2650	Sandy loam	25	Research Station

**TABLE 1. SOYBEAN VARIETY
RECOMMENDATIONS & DESCRIPTION**

<i>Variety</i>	<i>Heat</i>	<i>Hilum Colour</i>	<i>Seeds Kilogram</i>	<i>Phytophthora</i>	<i>Distributor</i>
	<i>Units Required</i>			<i>Root Rot Reaction % Plant Loss¹</i>	
Maple Ridge ²	2400	yellow	5560	19	SeCan members
Baron ²	2450	dark	5530	20	W.G. Thompson & Sons Ltd.
KG20	2500	yellow	5430	16	King Agro
Maple Belle*	2500	yellow	5620	33	SeCan members
Maple Isle	2500	yellow	5240	18	Public variety
OAC Frontier	2550	brown	5750	24	Cargill Grain Co. Ltd.
Apache ²	2600	yellow	5180	12	W.G. Thompson & Sons Ltd.
Bicentennial	2600	brown	4630	15	SeCan members
J-051	2600	gray	6330	32	Jacques Seed Co.
KG30	2600	dark	6370	20	Pride Brand Seeds
KG41*	2600	yellow	5240	9	King Agro
Maple Arrow*	2600	brown	5080	12	Public variety
Maple Glen	2600	yellow	4780	19	SeCan members
OAC Scorpio	2600	yellow	5200	38	SeCan members
PS42	2600	light buff	4810	11	Pride Brand Seeds
S00-88*	2600	brown	5050	13	Northrup King Seeds Ltd.
9061	2650	yellow	6710	25	Pioneer Hi-Bred Ltd.
OAC Libra	2650	black	5680	23	SeCan members
AC Bravor*	2700	brown	5350	17	First Line Seeds Ltd.
J-081	2700	yellow	5110	19	Jacques Seed Co.
KG60*	2700	buff	5050	8	King Agro
0877	2700	light gray	5570	12	Pioneer Hi-Bred Ltd.
Maple	2750	buff	6120	9	SeCan members
OAC Eclipse*	2750	brown	5110	11	SeCan members
KG62	2800	yellow	5530	13	King Agro
Marathon	2800	yellow	4990	15	W.G. Thompson & Sons Ltd.
PS61*	2850	yellow	5620	8	Pride Brand Seeds
OAC Dorado	2850	brown	5400	14	SeCan members
T8902	2850	yellow	5310	11	W.G. Thompson & Sons Ltd.
9111	2850	light gray	4820	10	Pioneer Hi-Bred Ltd.
A1511**	2900	buff	5780	9	Cargill Grain Co. Ltd.
A1564	2900	yellow	5480	12	Cargill Grain Co. Ltd.
Crusader	2900	yellow	5700	10	W.G. Thompson & Sons Ltd.
Haroson*	2900	buff	5700	11	SeCan members
Hodgson	2900	buff	5730	17	Public variety
PS80	2900	yellow	6130	12	Pride Brand Seeds
S09-70	2900	yellow	5840	11	Northrup King Seeds Ltd.
Secord	2900	yellow	5300	9	First Line Seeds Ltd.
S15-50*	2900	gray	6340	6	Northrup King Seeds Ltd.
Talon*	2900	buff	5250	3	W.G. Thompson & Sons Ltd.
A 1895	2950	black	5520	8	Cargill Grain Co. Ltd.
A1929**	2950	brown	5460	8	Cargill Grain Co. Ltd.
A1937	2950	buff	5920	13	Cargill Grain Co. Ltd.
Brock	2950	brown	5320	5	First Line Seeds Ltd.

**TABLE 1. SOYBEAN VARIETY
RECOMMENDATIONS & DESCRIPTION**

<i>Variety</i>	<i>Heat Units Required</i>	<i>Hilum Colour</i>	<i>Seeds Per Kilogram</i>	<i>Phytophthora Root Rot Reaction % Plant Loss¹</i>	<i>Distributor</i>
G-3135*	2950	brown	5000	16	Funk Seeds
J-144	2950	black	5320	6	Jacques Seed Co.
OAC Shire	2950	black	5480	10	SeCan members
T8508	2950	brown	5100	10	W.G. Thompson & Sons Ltd.
9161	2950	buff	5620	11	Pioneer Hi-Bred Ltd.
AP1989	3000	yellow	5460	15	Mapleseed Inc.
G-3197	3000	buff	4930	11	Funk Seeds
9202	3000	yellow	5180	10	Pioneer Hi-Bred Ltd.
OAC Talbot	3000	yellow	5130	11	Top Notch Feeds Ltd.
RCAT Alliance*	3000	black	5130	13	SeCan members
RCAT Persian*	3000	yellow	5710	11	SeCan members
S19-90*	3000	gray	5020	6	Northrup King Seeds Ltd.
S20-20*	3000	yellow	5240	7	Northrup King Seeds Ltd.
A2234**	3050	black	5020	4	Cargill Grain Co. Ltd.
Bell ³	3050	black	5100	12	SeCan members
PS83	3050	yellow	5400	14	King Agro
9272	3050	buff	5350	11	Pioneer Hi-Bred Ltd.
Elgin	3075	black	5260	11	Public variety
KG92	3075	yellow	5350	8	King Agro
J-220	3075	yellow	5520	7	Jacques Seed Co.
Jewel	3075	yellow	5950	23	W.G. Thompson & Sons Ltd.
Magic	3075	black	4670	8	W.G. Thompson & Sons Ltd.
Elgin 87**	3100	black	5350	10	SeCan members
Sals 93	3100	buff	4850	20	Sals Seeds Ltd.
Tecumseh	3100	black	6760	5	First Line Seeds Ltd.
CX174	3125	buff	4540	9	Dekalb Seeds
A2543**	3150	black	5160	6	Cargill Grain Co. Ltd.
Conrad	3150	brown	5710	4	SeCan members
G3202	3150	yellow	4670	7	Funk Seeds
J-231	3150	brown-black	4000	12	Jacques Seed Co.
9292	3175	brown	4740	11	Pioneer Hi-Bred Ltd.
Combat*	3175	yellow	6060	9	W.G. Thompson & Sons Ltd.
9302**	3175	buff	4700	5	Pioneer Hi-Bred Ltd.
RCAT Angora*	3175	yellow	5240	5	SeCan members
S-240 ² *	3175	brown-black	5590	6	Ferguson Seeds
S26-06*	3175	buff	4810	11	Northrup King Seeds Ltd.
A2630	3200	brown-black	6210	3	Cargill Grain Co. Ltd.
9273	3200	brown-black	5750	8	Pioneer Hi-Bred Ltd.
Dominator*	3250	yellow	5130	5	W.G. Thompson & Sons Co.
9303	3275	yellow	4740	7	Pioneer Hi-Bred Ltd.
A2943	3300	brown-black	5780	9	Cargill Grain Co. Ltd.
KG100	3325	black	5710	8	King Agro
T2967	3325	brown-black	5810	7	W.G. Thompson & Sons Ltd.
S31-33 ³	3350	black	5050	13	Northrup King Seeds 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 (1989-91) 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, Apache, or S-240.

³ Resistant to the major races of Soybean Cyst Nematode (SCN) in Ontario

**TABLE 2. AGRONOMIC DATA
2500-2800 HEAT UNIT AREAS**

<i>Variety</i>	<i>Heat Unit Rating</i>	<i>Yield (t/ha)</i>	<i>Yield Index (%)</i>	<i>Days from Planting to Maturity</i>	<i>Plant Height (cm)</i>	<i>Lodging 1 = standing 5=flat</i>	<i>Protein Index (%)</i>
Maple Ridge	2400	2.49	81	102	54	1.1	99
Baron	2450	2.58	83	102	60	1.5	98
KG20	2500	2.88	93	105	64	1.6	98
Maple Isle	2500	2.74	89	106	57	1.2	98
Maple Belle	2500	2.75	89	107	60	1.3	97
OAC Frontier	2550	2.87	93	110	57	1.3	97
Maple Glen	2600	3.21	104	111	64	1.3	102
Maple Arrow	2600	3.05	99	114	72	1.6	100
Apache	2600	3.09	100	115	65	1.4	104
KG30	2600	3.08	100	115	73	1.7	99
OAC Scorpio	2600	3.21	104	115	71	2.2	99
Bicentennial	2600	3.20	104	116	71	2.2	103
PS42	2600	3.46	112	116	65	1.6	101
KG41	2600	3.15	102	116	67	1.1	100
S00-88	2600	3.11	101	116	73	1.5	98
J-051	2600	2.96	96	116	63	1.4	101
AC Bravor	2700	3.39	110	119	75	2.4	101
9061	2700	3.21	104	119	64	1.5	96
OAC Libra	2700	3.25	105	119	79	2.6	98
Maple Donovan	2750	3.44	111	122	78	2.3	102
0877	2750	3.41	110	122	76	2.5	100
OAC Eclipse	2750	3.35	108	122	75	1.5	99
Average Yield (t/ha)		3.09					

TESTING AREAS: 3-year average of 12 Trials at Brussels, Elora, Ottawa and Winchester.

**TABLE 3. AGRONOMIC DATA
2700-2900 HEAT UNIT AREAS**

<i>Variety</i>	<i>Heat Unit Rating</i>	<i>Yield (t/ha)</i>	<i>Yield Index (%)</i>	<i>Days from Planting to Maturity</i>	<i>Plant Height (cm)</i>	<i>Lodging 1= standing 5=flat</i>	<i>Protein Index (%)</i>
Maple Glen	2600	2.96	94	108	70	1.4	102
Apache	2600	2.74	87	110	71	1.5	102
Bicentennial	2600	2.86	90	112	79	1.9	102
S00-88	2600	2.89	92	112	78	1.6	98
OAC Libra	2650	3.06	97	117	88	2.2	96
KG60	2700	3.20	101	117	72	1.7	101
Maple Donovan	2700	3.11	98	117	84	1.8	101
OAC Eclipse	2700	3.10	98	117	79	1.4	98
J-081	2700	3.04	96	117	86	1.3	101
0877	2700	3.07	97	118	84	1.7	102
OAC Dorado	2800	3.24	102	119	82	1.4	98
Marathon	2800	3.22	102	120	88	2.0	100
T8902	2800	3.32	105	121	89	2.0	99
KG62	2800	3.27	103	121	80	1.5	100
9111	2850	3.30	104	121	69	1.3	100
PS61	2850	3.11	98	121	84	1.5	98
Secord	2900	3.20	101	121	83	1.7	104
Haroson	2900	3.32	105	121	88	1.8	99
S09-70	2900	3.11	98	121	85	1.5	100
Crusader	2900	3.29	104	121	92	2.0	98
Hodgson	2900	3.16	100	122	89	1.8	99
A1564	2900	3.21	101	124	97	2.3	105
Talon	2900	3.29	104	124	89	2.0	100
T8508	2950	3.44	109	124	87	1.7	98
OAC Shire	2950	3.44	109	124	75	1.6	101
S15-50	2950	3.27	103	125	93	1.7	100
Average Yield (t/ha)		3.16					

TESTING AREAS: 3 year average of 11 Trials at Centralia, Woodstock, St. Pauls, and Winchester.

**TABLE 4. AGRONOMIC DATA
2900-3300 HEAT UNIT AREAS**

<i>Variety</i>	<i>Area 1</i>				<i>Area 2</i>			
	<i>Heat Unit Rating</i>	<i>Yield Index %</i>	<i>Plant Height (cm)</i>	<i>Lodging 1= 5=flat</i>	<i>Yield Index %</i>	<i>Plant Height (cm)</i>	<i>Lodging 1= 5=flat</i>	<i>Protein Index %</i>
A1511	2900	107	67	1.0	93	82	1.6	100
A1564	2900	83	74	1.3	96	94	2.1	105
Crusader	2900	88	70	1.3	96	91	2.0	98
Haroson	2900	101	73	1.1	95	86	1.6	99
Hodgson	2900	85	69	1.1	94	92	1.5	99
PS80	2900	90	73	1.1	93	95	1.9	102
S15-50	2900	98	77	1.1	93	95	1.8	100
A1895	2950	102	70	1.0	100	86	1.9	104
A1929	2950	106	70	1.0	98	86	1.4	99
A1937	2950	95	76	1.3	100	95	2.3	100
Brock	2950	104	71	1.1	105	88	1.6	96
G-3135	2950	87	60	1.0	98	86	1.8	100
J-144	2950	98	65	1.0	103	83	1.5	106
9161	2950	95	67	1.0	98	86	1.4	98
T8508	2950	99	66	1.0	100	88	1.4	98
AP 1989	3000	105	71	1.2	108	89	1.5	96
G-3197	3000	103	60	1.0	100	79	1.3	99
9202	3000	99	65	1.0	99	83	1.4	98
OAC Talbot	3000	99	68	1.0	100	86	1.9	97
RCAT Alliance	3000	101	76	1.1	96	97	1.6	104
RCAT Persian	3000	103	73	1.1	99	93	1.8	100
S19-90	3000	106	65	1.0	103	83	1.1	99
S20-20	3000	106	70	1.0	105	92	1.3	99
A2234	3050	108	69	1.1	105	90	1.3	101
Bell	3050	99	70	1.0	97	87	2.0	105
Elgin	3050	101	66	1.1	100	88	2.4	96
Jewel	3050	86	60	1.1	102	88	2.2	100
PS83	3050	98	70	1.0	103	94	1.6	103
Elgin 87	3100	111	71	1.7	101	89	2.6	100
Conrad	3150	110	72	1.3	104	91	2.2	100
RCAT Angora	3175	114	69	1.7	104	82	2.9	96
S26-06	3175	105	73	1.0	106	87	1.4	102
9273	3200	106	67	1.2	103	87	1.4	100
Average Yield (t/ha)		3.09			3.86			

AREA 1: 3-year Average of 4 Trials at Inwood (Clay), Fingal (Silt Loam) and Dutton (Clay)

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

**TABLE 5 AGRONOMIC DATA
3300-3500 HEAT UNIT AREAS**

<i>Variety</i>	<i>Area 3</i>				<i>Area 4</i>			
	<i>Heat Unit Rating</i>	<i>Yield Index %</i>	<i>Plant Height (cm)</i>	<i>Lodging</i>	<i>Yield Index %</i>	<i>Plant Height (cm)</i>	<i>Lodging</i>	<i>Protein Index %</i>
				<i>1= Standing 5=flat</i>			<i>1= Standing 5=flat</i>	
Haroson	2900	94	66	1.6	90	82	2.0	97
S15-50	2950	93	72	1.6	92	88	1.7	99
A1937	2975	100	73	1.7	96	84	2.1	101
9161	2975	92	66	1.3	99	79	1.5	99
A1895	3000	90	65	1.5	97	75	1.8	103
S19-90	3025	96	63	1.1	104	77	1.1	97
S20-20	3025	103	66	1.3	101	83	1.5	98
RCAT Persian	3025	97	69	1.5	96	87	2.1	100
9202	3050	94	65	1.2	97	77	1.6	98
Bell	3050	92	69	1.8	96	78	2.2	103
A2234	3050	102	66	1.2	103	78	1.4	99
9272	3075	101	65	1.3	100	76	1.5	100
Magic	3075	97	72	2.2	100	84	2.9	100
J-220	3075	99	64	1.5	97	77	2.0	98
Jewel	3075	101	65	1.4	95	78	2.0	99
Sals 93	3125	101	72	1.5	96	82	1.8	99
Elgin 87	3125	104	71	1.8	98	80	2.4	96
Tecumseh	3125	102	65	1.2	102	79	1.4	99
KG92	3125	104	64	1.3	95	74	2.1	94
Conrad	3150	107	72	1.8	105	83	2.0	100
J-231	3150	98	74	1.5	98	82	1.8	98
G3202	3150	101	69	1.3	107	82	1.6	101
A2543	3150	100	64	1.1	103	70	1.4	104
CX174	3175	94	72	1.5	96	86	1.7	99
Combat	3175	100	82	2.0	98	98	2.4	105
9302	3175	103	65	1.1	102	76	1.3	98
S-240	3175	103	72	1.6	100	86	1.8	106
9292	3200	101	69	1.3	100	78	1.4	100
S26-06	3200	102	71	1.3	104	79	1.3	101
9273	3200	106	65	1.1	104	79	1.4	99
RCAT Angora	3200	104	68	2.0	106	81	2.6	96
A2630	3200	102	65	1.0	103	80	1.0	100
Dominator	3250	108	79	1.6	105	98	2.0	98
9303	3275	108	72	1.2	103	84	1.8	100
A2943	3300	102	78	1.4	105	91	1.4	103
KG100	3325	99	82	1.8	104	92	2.2	104
T2967	3325	105	75	1.2	106	89	1.4	106
S31-33	3350	94	77	1.4	97	92	2.0	105
Average Yield (t/ha)		3.08			3.65			

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)