

# **1994 REPORT**

## **Ontario Soybean Variety Trials**



**Conducted in 1991-93  
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. In certain years, however, discolouration of the hilum can occur and as a result the soybeans may not be acceptable for export markets.

### 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 (1991-93) 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 1993 TRIALS

<i>Location</i>	<i>Heat Unit Ratin</i>	<i>Soil Type</i>	<i>Row Width -cm-</i>	<i>Co-operator</i>
Malden	3500	Clay loam	60	Jerome Deslippe
Woodslee	3400	Clay	60	Research Station
Tilbury	3350	Clay	60	Robert
Chatham	3300	Clay loam	60	Stan Wonnacott
Inwood	3050	Clay	60	Ray Lloyd
Ridgetown	3250	Clay loam	60	R.C.A.T.
Dutton	3100	Silt loam	60	Don Skipper
Talbotville	2900	Clay loam	35	Tom Oegema
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	40	Research Station

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

<i>Variety</i>	<i>Heat Unit Rating</i>	<i>Hilum Colour</i>	<i>Seeds Per Kilogram</i>	<i>Phytophthora Root Rot % Plant Loss<sup>1</sup></i>	<i>Distributor</i>
OAC Eramosa	2400	brown	5800	14	SeCan Members
Maple Ridge <sup>2</sup>	2425	yellow	6200	22	SeCan Members
KG20	2450	yellow	5800	14	Pride Brand Seeds
Corona	4750	brown	6200	7	Hyland Seeds
OAC Frontier	2500	brown	6200	18	Cargill Grain Co. Ltd.
AC Harmony	2525	brown	6800	26	SeCan Members
Maple Belle*	2525	yellow	6000	33	SeCan Members
Maple Glen	2550	light brown	5200	18	SeCan Members
S00-66	2550	brown	5100	13	Northrup King Seeds Ltd.
KG30	2575	dark brown	7000	28	Pride Brand Seeds
KG41*	2600	yellow	5500	6	Pride Brand Seeds
Maple Arrow*	2600	brown	5500	8	Public Variety
PS42	2600	light gray	5200	9	Pride Brand Seeds
Apache <sup>2</sup>	2625	yellow	5500	13	Hyland Seeds
Bicentennial	2625	brown	5000	18	SeCan Members
OAC Scorpio	2625	yellow	5500	28	SeCan Members
S00-88*	2625	brown	5300	8	Northrup King Seeds Ltd.
OAC Bayfield	2650	brown	5300	14	SeCan Members
OA Brussels	2650	brown	5100	14	SeCan Members
Sundance	2650	light brown	5400	14	Hyland Seeds
AC Bravor*	2675	brown	5600	9	First Line Seeds Ltd.
Galt	2675	black	5900	14	First Line Seeds Ltd.
KG60*	2675	buff	5400	5	Pride Brand Seeds
OAC Libra	2675	black	6000	15	SeCan Members
OAC Trent	2675	yellow	5200	8	Hyland Seeds
9062*	2675	yellow	7000	20	Pioneer Hi-Bred Ltd.
Maple Donovan*	2700	buff	6800	14	SeCan Members
9071*	2700	yellow	6500	22	Pioneer Hi-Bred Ltd.
OAC Eclipse*	2725	brown	5400	9	SeCan Members
J-083	2750	yellow	5900	20	Mycogen Canada
Crusader	2775	yellow	5800	14	Hyland Seeds
Marathon	2775	yellow	5200	13	Hyland Seeds
OAC Dorado	2800	brown	5300	11	SeCan Members
Haroson*	2825	buff	5900	12	SeCan Members
KG62	2825	yellow	5600	10	Pride Brand Seeds
Secord	2825	yellow	5600	8	First Line Seeds Ltd.
S09-70	2825	yellow	6000	4	Northrup King Seeds Ltd.
T8902	2825	yellow	5400	10	Hyland Seeds
A1123**	2850	buff	6100	3	Cargill Grain Co. Ltd.
A1511**	2850	buff	6100	3	Cargill Grain Co. Ltd.
9111	2850	light gray	5000	16	Pioneer Hi-Bred Ltd.
AP1347	2875	yellow	6200	10	Mapleseed Inc.
OAC Shire	2875	black	5700	5	SeCan Members
Talon*	2875	buff	5800	13	Hyland Seeds
A1395**	2900	buff	6300	3	Cargill Grain Co. Ltd.
A1662**	2900	black	5100	3	Cargill Grain Co. Ltd.
Noble	2900	buff	5600	2	Hyland Seeds
S15-50*	2900	gray	6500	4	Northrup King Seeds Ltd.
T8508	2925	brown	5300	8	Hyland Seeds
A1929**	2950	brown	6200	4	Cargill Grain Co. Ltd.
Brock	2950	brown	5500	3	First Line Seeds Ltd.
J-144	2950	black	5500	5	Mycogen Canada
9161	2950	buff	6000	5	Pioneer Hi-Bred Ltd.

**TABLE 1(Continued). SOYBEAN VARIETY  
RECOMMENDATIONS & DESCRIPTION**

<i>Variety</i>	<i>Heat Unit Rating</i>	<i>Hilum Colour</i>	<i>Seeds Per Kilogram</i>	<i>Phytophthora Root Rot % Plant Loss<sup>1</sup></i>	<i>Distributor</i>
AP1989*	3000	yellow	5800	18	Mapleseed Inc.
AYR	3000	black	4700	8	Advantage Seed Grow&Proc
DB1926*	3000	brown	4800	10	Inwood Seed & Grain
G-3197	3000	buff	5300	8	Ciba Seeds
OAC Sparta	3000	black	5300	13	SeCan Members
OAC Talbot	3000	yellow	5500	8	Top Notch Feeds Ltd.
RCAT Persian*	3000	yellow	5500	8	SeCan Members
S19-90*	3000	gray	4900	4	Northrup King Seeds Ltd.
S20-20*	3000	yellow	5200	2	Northrup King Seeds Ltd.
9202	3000	yellow	5100	10	Pioneer Hi-Bred Ltd.
A2234**	3050	black	5200	1	Cargill Grain Co. Ltd.
Bell <sup>3</sup>	3050	black	5000	3	SeCan Members
J-212	3050	brown	6100	6	Mycogen Canada
PS83	3050	yellow	5600	23	Pride Brand Seeds
J-220	3075	yellow	5600	3	Mycogen Canada
KG92	3075	yellow	5300	8	Pride Brand Seeds
CX210	3100	black	6200	7	Dekalb Canada Inc.
Elgin 87**	3100	black	5280	7	SeCan Members
Sals 93	3100	buff	5000	23	Sals Seeds Ltd.
Tecumseh	3100	black	6800	4	First Line Seeds Ltd.
9231	3125	black	6000	2	Pioneer Hi-Bred Ltd.
A2427 <sup>3</sup>	3150	brown-black	6400	11	Cargill Grain Co. Ltd.
A2506**	3150	black	5500	1	Cargill Grain Co. Ltd.
Conrad	3150	brown	5600	4	SeCan Members
G-3202	3150	brown-black	5100	6	Ciba Seeds
KG93	3150	yellow	5700	9	Pride Brand Seeds
S25-07 <sup>3</sup>	3150	buff	6000	4	Northrup King Seeds Ltd.
9203	3150	yellow	6100	5	Pioneer Hi-Bred Ltd.
A2242**	3175	gray	6400	1	Cargill Grain Co. Ltd.
Buckhorn	3175	brown	6100	5	Hyland Seeds
LaSalle*	3175	buff	5000	9	First Line Seeds Ltd.
RCAT Angora*	3175	yellow	5600	5	SeCan Members
RCAT Tabby*	3175	yellow	5600	7	SeCan Members
S26-06*	3175	buff	4800	8	Northrup King Seeds Ltd.
S-240* <sup>2</sup>	3175	brown-black	5900	2	Ferguson Seeds
9302*	3175	brown	4700	3	Pioneer Hi-Bred Ltd.
A2615**	3200	brown-black	5400	2	Cargill Grain Co. Ltd.
CX267	3200	light gray	6400	5	Dekalb Canada Inc.
DB1953	3200	yellow	5400	13	Inwood Seed & Grain
RCAT Calico	3200	yellow	5200	10	SeCan Members
RCAT Columbus	3200	black	5200	10	Ferguson Seeds
9273	3200	brown-black	5800	7	Pioneer Hi-Bred Ltd.
Dominator*	3250	yellow	5200	5	Hyland Seeds
9303	3275	yellow	5000	10	Pioneer Hi-Bred Ltd.
Resnik**	3325	black	5700	3	Ferguson Seeds
T2967	3325	brown-black	5500	6	Hyland Seeds

\* 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

<sup>1</sup> Three-year average 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.

<sup>2</sup> Metribuzin herbicide should not be used on these varieties.

<sup>3</sup> 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 Index (t/ha)</i>	<i>Yield Index (%)</i>	<i>Days from Planting to Maturity</i>	<i>Plant Height (cm)</i>	<i>Lodging 1 = 5=flat</i>	<i>Protein Index (%)</i>
OAC Eramosa	2400	2.52	87	106	66	1.5	101
Maple Ridge	2425	2.45	85	108	61	1.1	101
KG20	2450	2.71	94	110	69	1.3	103
Corona	2475	2.78	96	111	74	1.7	99
OAC Frontier	2500	2.68	93	112	61	1.2	99
Maple Belle	2525	2.62	91	113	65	1.3	100
AC Harmony	2525	2.70	93	113	68	1.2	95
S00-66	2550	3.04	105	114	72	1.2	99
Maple Glen	2550	2.95	102	115	70	1.2	102
KG30	2575	2.80	97	116	76	1.5	101
PS42	2600	3.13	108	118	69	1.4	103
Maple Arrow	2600	2.78	96	118	76	1.4	99
KG41	2600	2.98	103	118	72	1.1	97
Apache	2625	2.79	97	119	72	1.3	104
Bicentennial	2625	2.99	103	119	73	1.6	103
S00-88	2625	2.91	101	119	78	1.4	99
OAC Scorpio	2625	2.90	100	120	75	1.8	101
Sundance	2650	2.89	100	121	74	1.5	104
OAC Brussels	2650	3.24	112	121	65	1.2	99
OAC Libra	2675	3.02	104	122	84	1.9	99
AC Bravor	2675	3.07	106	122	81	1.8	100
Galt	2675	2.95	102	122	85	1.9	97
Maple Donovan	2700	2.96	102	123	81	1.6	100
9071	2700	3.23	112	124	76	1.4	98
OAC Eclipse	2725	3.14	109	125	81	1.4	99
<b>Average Yield (t/ha)</b>		<b>2.89</b>					

*TESTING AREAS: 3-year average of 11 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 I = 5=flat</i>	<i>Protein Index (%)</i>
Maple Glen	2550	2.93	94	113	73	1.3	101
Bicentennial	2625	2.91	93	116	79	1.5	100
S00-88	2625	2.85	91	116	83	1.3	97
OAC Bayfield	2650	3.30	106	118	81	1.5	99
OAC Libra	2675	3.02	97	119	90	2.0	98
OAC Trent	2675	3.13	100	119	73	1.5	102
KG60	2675	3.14	101	119	75	1.5	102
9062	2675	2.84	91	120	76	1.2	102
Maple Donovan	2700	2.98	96	121	87	1.7	99
9071	2700	3.21	103	121	82	1.4	96
OAC Eclipse	2725	3.07	98	122	86	1.4	95
J-083	2750	3.18	102	123	88	1.4	100
Marathon	2775	3.31	106	124	92	1.9	102
Crusader	2775	3.11	100	124	95	1.8	100
OAC Dorado	2800	3.22	103	125	88	1.2	99
Haroson	2825	3.12	100	126	93	1.7	99
T8902	2825	3.22	103	126	96	2.1	100
S09-70	2825	3.05	98	126	90	1.5	99
Secord	2825	3.14	101	126	87	1.5	103
KG62	2825	3.15	101	126	85	1.4	102
9111	2850	2.98	96	127	73	1.2	103
A1123	2850	3.13	100	127	82	1.4	101
AP1347	2875	3.31	106	128	102	2.0	99
Talon	2975	3.11	100	128	95	1.9	99
OAC Shire	2875	3.35	107	128	77	1.7	102
Noble	2900	3.18	102	129	94	1.9	100
T8508	2925	3.25	104	130	89	1.7	100
<b>Average Yield (t/ha)</b>		<b>3.12</b>					

*TESTING AREAS: 3-year average of 12 Trials at Exeter, St. Pauls,  
Winchester and Woodstock.*

**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>
Crusader	2775	91	70	1.2	93	92	1.9	97
Haroson	2825	98	67	1.0	93	86	2.0	98
A1511	2850	96	63	1.0	94	78	1.7	102
OAC Shire	2875	99	57	1.0	101	71	1.8	100
A1395	2900	96	57	1.1	101	76	2.0	100
A1662	2900	107	68	1.0	99	88	1.7	104
T8508	2925	96	66	1.1	99	86	1.7	98
A1929	2950	102	66	1.0	99	83	1.7	101
Brock	2950	103	62	1.1	101	84	1.7	99
J-144	2950	88	61	1.0	103	81	1.8	104
9161	2950	101	66	1.0	99	87	1.8	99
AP1989	3000	103	70	1.1	102	88	1.8	96
AYR	3000	100	68	1.1	106	91	2.1	102
DB1926	3000	102	67	1.0	107	87	1.9	98
G-3197	3000	93	58	1.1	97	79	1.7	97
OAC Sparta	3000	98	70	1.0	97	88	2.5	98
OAC Talbot	3000	95	62	1.1	99	84	1.9	97
RCAT Persian	3000	96	69	1.0	93	93	1.8	99
S19-90	3000	105	61	1.1	103	80	1.4	104
S20-20	3000	108	67	1.0	103	90	1.4	100
9202	3000	96	64	1.1	97	82	1.5	101
A2234	3050	102	67	1.0	103	84	1.6	102
Bell	3050	100	65	1.0	100	86	2.5	102
J-212	3050	104	67	1.1	105	90	2.2	101
PS83	3050	100	71	1.3	104	96	1.8	99
Elgin 87	3100	107	65	1.1	98	84	2.4	101
9231	3125	101	66	1.0	97	83	1.5	104
Conrad	3150	101	72	1.0	103	88	2.2	100
KG93	3150	93	66	1.1	99	89	1.7	102
9203	3150	95	62	1.1	100	83	2.2	98
LaSalle	3175	103	69	1.1	101	93	2.1	100
RCAT Angora	3175	112	66	1.1	99	84	2.7	100
RCAT Tabby	3175	105	68	1.1	100	90	1.9	100
S26-06	3175	102	69	1.0	101	86	1.6	102
DB1953	3200	99	73	1.1	100	98	2.6	99
9273	3200	108	67	1.0	102	86	1.8	99
<b>Average Yield (t/ha)</b>		<b>3.01</b>			<b>3.53</b>			

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

*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 1=5=flat</i>	<i>Yield Index %</i>	<i>Plant Height (cm)</i>	<i>Lodging 1=5=flat</i>	<i>Protein Index %</i>
Haroson	2850	91	64	1.3	89	82	1.6	99
S15-50	2900	92	74	1.2	90	89	1.4	99
9161	2950	95	63	1.0	96	81	1.2	101
RCAT Persian	3000	94	70	1.3	95	92	1.7	100
S19-90	3000	92	61	1.1	104	78	1.1	103
S20-20	3000	105	66	1.0	94	82	1.1	101
9202	3000	95	64	1.0	100	79	1.1	100
A2234	3050	99	63	1.0	99	78	1.3	102
Bell	3050	92	63	1.3	97	79	1.6	105
J-220	3075	96	65	1.1	98	79	1.3	101
KG92	3075	100	63	1.2	94	79	1.7	100
CX210	3100	99	78	1.1	102	93	1.3	98
Elgin 87	3100	102	67	1.3	96	79	1.8	103
Sals 93	3100	104	73	1.1	99	85	1.4	100
Tecumseh	3100	103	70	1.0	103	82	1.2	101
A2427	3150	95	72	1.1	100	86	1.2	103
A2506	3150	98	63	1.0	105	80	1.2	103
Conrad	3150	104	72	1.2	102	85	1.6	101
G-3202	3150	103	67	1.0	104	81	1.2	105
S25-07	3150	95	86	1.5	94	101	1.4	100
A2242	3175	108	62	1.0	105	77	1.2	101
Buckhorn	3175	102	76	1.7	98	94	2.3	99
RCAT Angora	3175	106	68	1.3	101	79	1.9	98
RCAT Tabby	3175	101	70	1.1	99	85	1.4	102
S26-06	3175	99	68	1.0	99	81	1.3	102
S-240	3175	96	73	1.2	100	90	1.4	102
9302	3175	103	67	1.0	101	78	1.0	101
A2615	3200	103	65	1.0	107	77	1.1	104
0(267	3200	102	78	1.1	106	95	1.4	101
RCAT Calico	3200	104	67	1.0	101	84	1.1	105
RCAT Columbus	3200	102	72	1.1	107	88	1.3	103
9273	3200	110	68	1.0	103	82	1.2	99
Dominator	3250	105	79	1.2	103	100	1.5	101
9303	3275	108	72	1.1	101	89	1.2	101
Resnik	3325	97	75	1.2	101	90	1.4	103
T2967	3325	102	74	1.1	106	89	1.1	105
<b>Average Yield (t/ha)</b>		<b>3.26</b>			<b>3.58</b>			

*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)*