

1989 REPORT

Ontario Soybean Variety Trials



**Conducted in 1986-88
by the
Ontario Oil & Protein
Seed Crop Committee**

ONTARIO OIL AND 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 Soya-Bean Growers Marketing Board, and the Oilseed Crushers. Tests are conducted each year by the following cooperating 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 equal to or less than the heat units available on your farm (see map).

HILUM COLOUR

Each soybean seed has a hilum which is the point where it was attached to the pod. Varieties differ in hilum color 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 (1986-88) 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.

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.

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 AND SOIL TYPES 1988 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.
Winchester	2825	Clay loam	35	K.C.A.T.
Smithfield	2850	Sandy loam	25	Ag. Canada, Smithfield
Elora	2550	Silt loam	35	O.A.C.
Brussels	2600	Clay loam	35	Jeff Cardiff
Ottawa	2650	Sandy loam	25	Research Station

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TABLE 1. SOYBEAN VARIETY RECOMMENDATIONS AND DESCRIPTION

Variety	Heat Units Required	Hilum Colour	Seeds Per Kilogram	Phytophthora		Distributor
				Root Rot Reaction	% Plant Loss ¹	
Maple Ridge ²	2400	yellow	6370	8		SeCan members
Baron ²	2450	dark brown	5590	6		W.G. Thompson & Sons Ltd.
Maple Amber ²	2450	brown	6100	13		Public variety
Maple Isle	2500	yellow	5560	15		Public variety
Apache ²	2600	gray	5780	9		W.G. Thompson & Sons Ltd.
Bicentennial	2600	brown	5100	5		SeCan members
KG30	2600	dark brown	7250	19		Pride Brand Seeds
KG40	2600	yellow	6450	7		King Agro
Maple Arrow*	2600	brown	5680	9		Public variety
Maple Glen	2600	yellow	5240	21		SeCan members
OAC Scorpio	2600	yellow	5750	35		SeCan members
9061	2650	yellow	7410	31		Pioneer Hi-Bred Ltd.
OAC Libra	2650	black	6620	7		SeCan members
0877	2700	light gray	6170	20		Pioneer Hi-Bred Ltd.
J081	2700	yellow	5780	21		Jacques Seed Co.
KG60*	2700	buff	5790	5		King Agro
Evans	2750	yellow	6370	20		Public variety
Maple Donovan*	2750	buff	7140	13		SeCan members
Marathon	2750	yellow	5360	14		W.G. Thompson & Sons Ltd.
OAC Aries	2750	dark brown	6150	18		SeCan members
OAC Musca	2750	tan	5860	11		SeCan members
PS61	2750	yellow	5800	7		Pride Brand Seeds
Commander*	2850	yellow	5100	12		W.G. Thompson & Sons Ltd.
Crusader	2850	yellow	6190	22		W.G. Thompson & Sons Ltd.
OAC Dorado'	2850	brown	5990	20		SeCan members
PS72	2850	yellow	6610	14		Pride Brand Seeds
S09-70	2850	yellow	6500	9		Northrup King Seeds Ltd.
1282	2900	buff	5300	15		Pioneer Hi-Bred Ltd.
A0949	2900	yellow	5800	12		Cargill Grain Co. Ltd.
A1564	2900	yellow	5700	16		Cargill Grain Co. Ltd.
A1895	2900	black	6060	8		Cargill Grain Co. Ltd.
B152*	2900	yellow	5780	9		Northrup King Seeds Ltd.
Galaxy	2900	buff	5650	7		W.G. Thompson & Sons Ltd.
Haroson*	2900	buff	6220	7		SeCan members
Hodgson	2900	buff	5980	17		Public variety
KG82	2900	tan	5500	7		King Agro
PS80	2900	yellow	6500	12		Pride Brand Seeds
S1346	2900	yellow	5750	10		Northrup King Seeds Ltd.
515-50*	2900	gray	6940	4		Northrup King Seeds Ltd.
T8508 ⁴	2900	brown	5440	5		W.G. Thompson & Sons Ltd.
A1937	2950	buff	6100	11		Cargill Grain Co. Ltd.
1677	3000	yellow	7000	29		Pioneer Hi-Bred Ltd.
A2234	3000	black	5830	3		Cargill Grain Co. Ltd.
RCAT Alliance* ³	3000	black	5780	7		SeCan members
Hawk	3000	black	6130	10		W.G. Thompson & Sons Ltd.
A2187	3025	yellow	6490	10		Cargill Grain Co. Ltd.
9202	3050	yellow	5560	6		Pioneer Hi-Bred Ltd.
CX226	3050	buff	6200	12		Dekalb Seeds
B220	3075	yellow	6460	23		King Agro
Elqin	3075	black	6090	14		Public variety
KG92	3075	yellow	5770	8		King Agro
Premier	3075	yellow	6480	9		Pride Brand Seeds
CX174	3100	buff	5580	19		Dekalb Seeds
Elqin 87* ³	3100	black	6000	6		SeCan members
Jewel	3100	yellow	6310	33		W.G. Thompson & Sons Ltd.
UCO 112	3100	brown-black	5600	8		United Co-operatives of Ont.
S24-24*	3150	yellow	6640	11		Northrup King Seeds Ltd.
9271	3150	brown	5520	13		Pioneer Hi-Bred Ltd.
Corsoy 79*	3150	yellow	6540	10		Public variety
PS90	3150	yellow	6320	15		Pride Brand Seeds
9292	3175	brown	5580	12		Pioneer Hi-Bred Ltd.
A2630	3175	brown-black	7170	7		Cargill Grain Co. Ltd.
Combat	3175	yellow	6300	6		W.G. Thompson & Sons Ltd.
J103	3175	yellow	5930	27		Jacques Seed Co.
J231	3175	brown-black	4980	20		Jacques Seed Co.
S26-06 ⁴	3175	buff	5380	9		Northrup King Seeds Ltd.
KG100	3225	black	6600	14		King Agro
Birch	3300	yellow	6560	14		Ferguson Seed Co.
A2943	3325	brown-black	6260	12		Cargill Grain Co. Ltd.
A3127	3350	black	6960	9		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.

¹Three-year average (1986-88) in a field heavily infested with Phytophthora. Not all races of Phytophthora root rot are found at this site. Thus

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

³Seed supplies of these varieties will be limited in 1989.

⁴Subject to registration by Agriculture Canada.

TABLE 2. AGRONOMIC DATA 2400-2900 HEAT UNIT AREAS

Testing Areas	Variety	Heat Unit Rating	Yield (t/ha)	Yield Index (%)	Days from Planting to Maturity	Plant Height (cm)	Lodging 1 = standing 5 = flat
3 year Average of 9 Trials at Brussels, Elora, Winchester and Ottawa	Maple Ridge	2400	2.79	96	107	82	1.7
	Baron	2450	2.81	96	107	88	2.6
	Maple Amber	2450	2.63	90	110	90	2.4
	Maple Isle	2500	2.71	93	111	81	1.8
	Maple Arrow	2600	2.81	96	117	96	2.7
	KG30	2600	2.91	100	117	97	2.5
	Maple Glen	2600	3.19	110	118	89	1.9
	KG40	2600	2.90	100	119	83	1.8
	Bicentennial	2600	2.91	100	119	99	3.0
	Apache	2600	2.96	101	121	91	2.1
	OAC Scorpio	2600	3.02	104	122	100	2.8
	OAC Libra	2650	2.95	101	124	105	3.5
	9061	2650	3.07	105	123	94	2.2
	Maple Donovan	2750	3.02	104	125	100	2.7
	Evans	2750	2.86	98	127	110	3.3
0877	2750	2.99	103	127	113	3.3	
Average Yield (t/ha)			2.91				
3 year Average of 9 Trials at Centralia, Woodstock, Talbotville and Smithfield	Maple Arrow	2600	2.55	91	110	74	1.6
	Apache	2600	2.72	97	110	70	1.3
	Bicentennial	2600	2.81	100	112	77	1.6
	OAC Libra	2650	2.83	101	116	79	1.8
	0877	2700	2.88	103	116	82	1.8
	J081	2700	2.77	99	116	80	1.4
	Maple Donovan	2750	2.87	103	118	81	1.6
	KG60	2700	2.89	103	119	70	1.7
	Evans	2750	2.77	99	120	86	1.8
	OAC Aries	2750	2.71	97	121	93	2.4
	Marathon	2750	2.78	99	121	84	1.9
	OAC Musca	2750	2.75	98	121	90	2.3
	PS61	2750	2.88	103	123	82	1.3
	OAC Dorado	2850	2.99	107	123	82	1.4
	Crusader	2850	2.81	100	121	86	1.7
	S09-70	2850	2.76	99	122	82	1.6
	Commander	2850	2.79	100	122	90	2.1
	Haroson	2900	2.87	103	123	86	1.8
	Hodgson	2900	2.91	104	124	90	1.7
	A0949	2900	2.81	100	124	90	1.8
	PS72	2900	2.67	95	124	78	1.7
	1282	2900	2.94	105	125	95	1.9
	S15-50	2900	2.86	102	126	88	1.5
S1346	2900	2.88	103	127	76	1.4	
A1564	2900	2.78	99	127	94	1.8	
Galaxy	2900	2.70	96	127	91	1.7	
KG82	2900	2.84	101	128	90	1.6	
Average Yield (t/ha)			2.80				

Heat Unit Ratings are approximations only. Values for a particular variety may differ slightly from one test area to the next.

TABLE 3. AGRONOMIC DATA - 2900-3500 HEAT UNIT AREAS

Testing Areas	Variety	----- AREA 1 -----				----- AREA 2 -----		
		Heat Unit Rating	Yield Index %	Plant Height (cm)	Lodging 1 = standing 5=flat	Yield Index %	Plant Height (cm)	Lodging 1 = standing 5=flat
Area 1 -	Crusader	2850	95	78	2.0	98	88	2.0
3-year	1282	2900	93	82	1.8	95	96	2.2
Average of 6	Haroson	2900	99	78	1.7	100	85	1.9
Trials at	Hodgson	2900	95	80	1.8	97	89	1.7
Inwood	A1564	2900	98	87	2.0	97	96	2.1
(Clay) and	PS 80	2900	98	88	1.6	96	96	2.0
Fingal (Silt	S15-50	2900	101	85	1.4	99	91	1.7
Loam)	8152	2900	100	68	1.1	101	80	1.5
	S1346	2900	99	71	1.1	105	86	1.6
Area 2 -	T85084	2900	107	76	1.3	106	88	1.6
3-year	A1895	2900	101	75	1.6	98	78	1.9
Average of 6	A1937	2950	101	86	2.0	102	95	2.1
Trials at	RCAT Alliance	3000	103	91	1.1	100	95	1.4
R.C.A.T.	1677	3000	96	76	1.8	97	86	2.0
(Clay Loam)	Hawk	3000	94	76	2.8	94	84	2.8
and	9202	3050	106	76	1.1	108	84	1.7
Talbotville	Premier	3075	99	81	1.9	94	85	1.9
(Clay Loam)	Elgin	3075	105	79	2.0	103	86	2.0
	Elgin 87	3075	104	81	2.6	102	84	2.3
	B220	3075	99	87	1.5	97	91	1.9
	CX174	3100	102	83	1.5	99	90	1.9
	Jewel	3100	105	79	1.9	108	88	2.0
	S24-24	3125	101	88	2.6	103	94	2.3
	9271	3150	106	79	1.3	104	84	1.5
	Corsoy 79	3150	99	92	2.5	96	106	2.4
Average Yield (t/ha)			3.60			3.70		
		----- AREA 3 -----				----- AREA 4 -----		
Area 3 -	Hodgson	2900	101	72	1.4	101	96	3.0
3-year	Haroson	2900	100	72	1.3	98	98	2.6
Average of 4	B152	2925	87	58	1.1	100	90	1.8
Trials at	S15-50	2950	97	75	1.1	101	106	2.3
Woodslee	A1895	2950	98	65	1.1	95	86	2.6
(Clay) and	A1937	2950	100	74	1.2	106	105	2.9
Tilbury(Clay)	Hawk	2950	96	66	1.3	90	92	4.2
	S1346	2950	84	53	1.0	101	93	1.7
	1677	2950	88	64	1.1	94	96	3.0
Area 4 -	A2234	3000	107	67	1.0	98	94	2.0
3-year	9202	3000	100	62	1.0	107	94	2.3
Average of 5	A2187	3025	93	71	1.1	100	108	2.4
Trials at	000112	3025	100	71	1.2	101	108	2.4
Malden	CX226	3050	100	65	1.2	96	91	2.9
(Clay Loam)	Premier	3050	100	70	1.3	97	105	3.1
and	8220	3075	87	66	1.1	99	110	2.3
Chatham	Elgin	3075	102	71	1.3	100	93	3.2
(Clay Loam)	Jewel	3075	103	63	1.2	106	104	2.9
	KG92	3075	105	65	1.1	102	97	2.6
	CX174	3100	107	70	1.2	97	98	2.8
	Elgin 87	3100	107	73	1.5	99	96	3.3
	PS90	3100	92	77	1.3	97	116	3.0
	S24-24	3100	106	78	1.5	99	107	3.5
	9271	3100	104	65	1.1	100	92	2.1
	J231	3125	98	70	1.3	104	103	2.4
	Corsoy 79	3150	104	82	2.0	98	122	3.4
	Combat	3150	104	81	1.5	99	120	3.2
	J103	3150	96	68	1.3	101	101	2.9
	A2630	3175	108	72	1.0	102	96	1.8
	S26-06 ⁴	3175	108	71	1.0	108	94	2.4
	9292	3175	109	68	1.2	104	94	2.2
	KG100	3225	103	79	1.1	102	105	2.8
	Birch	3300	104	90	2.0	96	123	3.9
	A2943	3350	105	81	1.1	105	113	2.5
	A3127	3350	101	79	1.4	101	102	2.8
Average Yield (t/ha)			3.28			3.91		