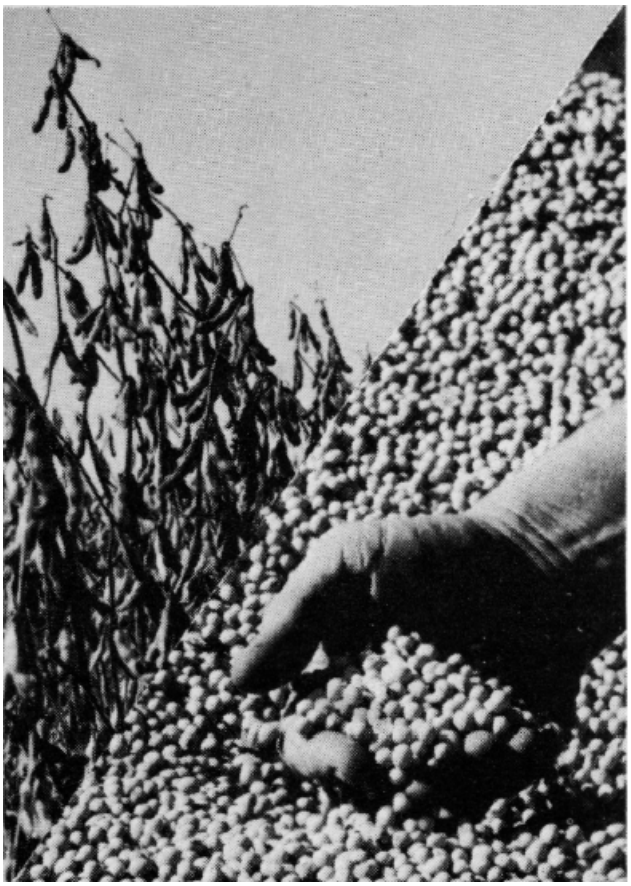
1988 REPORT

Ontario Soybean Variety Trials



Conducted in 1985-87
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 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 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 (1985-87) 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. Disease tests in the greenhouse show that 5 varieties have resistance to a number of prevalent races. These 5 varieties have the same gene for resistance.

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

1987 TRIALS

Location	Heat Unit Rating	Soil	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	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 AND DESCRIPTION

Variety	Heat Units Required	Hilum Colour	Seeds Per Kilogram	Phytophthora Root Rot Reaction % Plant Loss[1]	Distributor
Maple Ridge[2]	2400	yellow	6330	13	SeCan members
Baron[2]	2450	dark brown	5680	7	W.G. Thompson & Sons Ltd.
Maple Amber[2]	2450	brown	5950	9	Public variety
Maple Isle	2500	yellow	5490	19	Public variety
Maple Arrow	2600	brown	5560	7	Public variety
Maple Glen	2600	yellow	5240	5	SeCan members
KG30	2600	dark brown	6940	13	Pride Brand Seed
KG40	2600	yellow	6100	7	King Agro Inc.
Bicentennial	2600	brown	5080	6	SeCan members
OAC Scorpio	2600	yellow	5620	26	SeCan members
Apache[2]	2600	gray	5490	10	W.G. Thompson & Sons Ltd.
OAC Libra	2650	black	5990	9	SeCan members
J081[3]	2700	yellow	5680	19	Jacques Seed Co.
KG60*	2700	buff	5680	7	King Agro Inc.
0877	2700	light gray	5990	18	Pioneer Hi-Bred Ltd.
Maple Donovan	2750	buff	6800	11	SeCan members
Evans	2750	yellow	5850	19	Public variety
OAC Aries	2750	dark brown	6020	14	SeCan members
Marathon	2750	yellow	5380	18	W.G. Thompson & Sons Ltd.
OAC Musca	2750	tan	5710	5	SeCan members
Commander	2850	yellow	5130	10	W.G. Thompson & Sons Ltd.
Crusader	2850	yellow	6060	13	W.G. Thompson & Sons Ltd.
S09-70	2850	yellow	6130	8	Northrup King Seeds Ltd.
A0949	2900	yellow	5750	9	Maple Leaf Mills Ltd.
A1564	2900	yellow	5650	8	Maple Leaf Mills Ltd.
Galaxy	2900	buff	5590	7	W.G. Thompson & Sons Ltd.
Hodgson	2900	buff	6130	10	Public variety
OAC Pisces	2900	buff	5880	6	SeCan members
1282	2900	buff	5290	13	Pioneer Hi-Bred Ltd.
S1346	2900	yellow	5710	5	Northrup King Seeds Ltd.
S15-50*	2900	gray	6450	7	Northrup King Seeds Ltd.
KG82	2900	tan	5130	4	King Agro Inc.
A1895	2900	black	5550	9	Maple Leaf Mills Ltd.
B152*	2900	yellow	5400	4	Northrup King Seeds Ltd.
PS80	2900	yellow	6120	15	Pride Brand Seed
A1937	2950	buff	5750	6	Maple Leaf Mills Ltd.
1677	3000	yellow	6590	15	Pioneer Hi-Bred Ltd.
Hawk	3000	black	5440	8	W.G. Thompson & Sons Ltd.
A2187	3025	yellow	6000	11	Maple Leaf Mills Ltd.
B220	3075	yellow	5730	17	King Agro Inc.
Elgin	3075	black	5290	6	Public variety
Premier	3075	yellow	5950	7	Pride Brand Seed
Jewel	3100	yellow	5860	30	W.G. Thompson & Sons Ltd.
S23-03	3100	buff	5760	6	Northrup King Seeds Ltd.
UCO 112	3100	brown-black	5210	6	United Co-operatives of Ont.
G-3637	3125	black	5520	10	Funk Seeds
S24-24*	3125	yellow	5940	5	Northrup King Seeds Ltd.
Corsoy 79*	3150	yellow	6050	7	Public variety
PS90	3150	yellow	5700	10	Pride Brand Seed
9271	3150	brown	5070	8	Pioneer Hi-Bred Ltd.
Combat	3175	yellow	5850	5	W.G. Thompson & Sons Ltd.
J103	3175	yellow	5540	17	Jacques Seed Co.
J231	3175	brown-black	4690	15	Jacques Seed Co.
9292	3175	brown	5140	14	Pioneer Hi-Bred Ltd.
Birch	3300	yellow	6150	8	Ferguson Bros. Seed
A2943	3325	brown-black	6010	6	Maple Leaf Mills Ltd.
A3127	3350	black	6410	6	Maple Leaf Mills Ltd.

*Varieties with multi-race resistance to the prevalent races of the Phytophthora root rot organism.

'Three-year average (1985-87) 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.

[3]J081 was not tested in 1986. Values for 1986 were calculated from results in 1984, 1985 and 1987 using common check varieties.

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 10 trials at Brussels, Elora, Winchester and Ottawa	Maple Ridge	2400	2.57	94	108	74	1.5
	Baron	2450	2.63	97	109	79	2.5
	Maple Amber	2450	2.48	91	111	81	2.2
	Maple Isle	2500	2.52	93	112	72	1.8
	Maple Arrow	2600	2.63	97	118	86	2.6
	KG30	2600	2.71	100	118	85	2.4
	Maple Glen	2600	3.02	111	118	79	1.9
	KG40	2600	2.72	100	120	71	1.5
	Bicentennial	2600	2.78	102	120	90	3.1
	OAC Scorpio	2600	2.83	104	122	89	2.9
	Apache	2600	2.74	101	124	80	2.0
	OAC Libra	2650	2.75	101	127	94	3.3
	0877	2750	2.88	106	130	99	2.9
	Maple	2750	2.86	105	129	92	2.6
	Average		**2.72**				
3 year average of 10 trials at Centralia, Woodstock, Talbotville and Smithfield	Maple Arrow	2600	2.56	91	111	73	1.4
	Apache	2600	2.69	96	114	69	1.2
	Bicentennial	2600	2.75	98	114	77	1.8
	OAC Libra	2650	2.70	96	119	79	1.6
	0877	2700	2.93	105	120	80	1.5
	J081'	2700	2.74	98	120	83	1.1
	KG60	2700	2.92	104	121	67	1.5
	Maple	2750	2.82	101	122	82	1.5
	Evans	2750	2.77	99	123	83	1.6
	OAC Aries	2750	2.75	98	123	92	2.1
	Marathon	2750	2.83	101	123	81	1.6
	OAC Musca	2750	2.91	104	123	90	2.1
	Crusader	2850	2.73	98	124	85	1.6
	S09-70	2850	2.87	102	124	80	1.3
	Commander	2850	2.72	97	125	88	1.9
	Hodgson	2900	2.71	97	127	87	1.5
	OAC Pisces	2900	2.69	96	127	79	1.7
	1282	2900	2.92	104	128	91	1.6
	A0949	2900	2.98	106	128	88	1.6
	S1346	2900	2.86	102	129	75	1.2
	S15-50	2900	2.91	104	129	86	1.3
	A1564	2900	2.80	100	130	92	1.6
	Galaxy	2900	2.70	96	130	88	1.4
	KG82	2900	2.90	104	131	89	1.5
	Average		**2.80**				

TABLE 3. AGRONOMIC DATA 2900-3500 HEAT UNIT AREAS

Testing Areas	Variety	Heat Unit Rating	AREA 1 Yield Index %	AREA 1 Plant Height (cm)	AREA 1 Lodging 1= standing 5= flat	AREA 2 Yield Index %	AREA 2 Plant Height (cm)	AREA 2 Lodging 1= standing 5= flat
AREA 1 - 3 Year Average of 6 Trials at Inwood (Clay) and Fingal (Silt Loam)	Crusader	2850	96	80	2.2	97	81	2.1
	1282	2900	94	82	1.8	93	84	2.1
	Hodgson	2900	96	79	1.7	97	83	1.9
	A1564	2900	96	87	2.2	95	85	2.3
AREA 2 - 3 Year Average of 6 Trials at R.C.A.T. (Clay Loam) and Talbotville (Clay Loam)	S15-50	2900	102	85	1.4	99	83	1.8
	A1895	2900	102	75	1.5	99	72	1.8
	B152	2900	102	69	1.1	105	73	1.5
	S1346	2900	100	70	1.1	99	81	1.4
	A1937	2950	104	84	2.0	103	87	2.4
	1677	3000	98	77	1.8	98	78	2.1
	Hawk	3000	95	76	3.0	99	78	3.1
	Elgin	3075	106	76	1.8	105	80	2.1
	Premier	3075	100	81	1.6	98	79	2.0
	B220	3075	98	84	1.4	98	82	1.8
	Jewel	3100	106	79	1.7	105	77	1.9
	S23-03	3100	102	84	1.9	101	87	2.1
	S24-24	3125	101	89	2.5	103	88	2.5
	9271	3150	104	80	1.4	105	79	1.7
	Corsoy 79	3150	99	94	2.7	97	98	2.6
	Average		**3.59**			**3.46**		
			AREA 3			**AREA 4**		
AREA 3 - 3 year average of 4 trials at Woodslee (Clay) and Tilbury (Clay)	A1564	2900	96	79	1.9	95	101	3.0
	Hodgson	2900	100	77	1.6	94	92	2.4
	8152	2925	104	64	1.2	100	82	1.8
	S15-50	2925	97	78	1.3	101	95	2.0
AREA 4 - 3 year average of 5 trials at Malden (Clay Loam) and Chatham (Clay Loam)	PS80	2925	96	80	1.5	97	97	2.6
	A1895	2950	99	70	1.5	96	81	2.5
	A1937	2950	101	76	1.5	100	97	3.0
	Hawk	2950	98	71	2.0	90	84	3.9
	S1346	2950	95	60	1.1	101	85	1.7
	1677	3000	89	70	1.6	98	90	2.9
	A2187	3025	99	78	1.2	101	98	2.1
	B220	3075	93	73	1.1	100	97	2.1
	Elgin	3075	107	75	1.8	101	87	3.2
	Premier	3075	100	74	1.7	99	93	2.7
	Jewel	3100	101	69	1.4	107	92	2.5
	S23-03	3100	106	79	1.7	98	93	2.5
	UCO 112	3100	101	75	1.5	103	99	2.0
	G-3637	3125	96	88	1.9	96	119	3.4
	S24-24	3125	104	83	2.1	100	100	3.4
	Corsoy 79	3150	104	90	2.3	100	114	3.3
	PS90	3150	103	89	1.7	100	106	2.8
	9271	3150	106	74	1.1	104	87	2.1
	Combat	3175	101	80	2.1	99	110	3.0
	J103	3175	95	72	1.4	104	92	2.5
	J231	3175	98	74	1.4	108	97	2.3
	9292	3175	105	69	1.2	103	87	2.0
	Birch	3300	103	99	2.7	100	115	3.9
	A2943	3325	102	87	1.2	101	101	2.0
	A3127	3350	101	84	1.5	104	97	2.6
	Average		**3.70**			**4.00**		