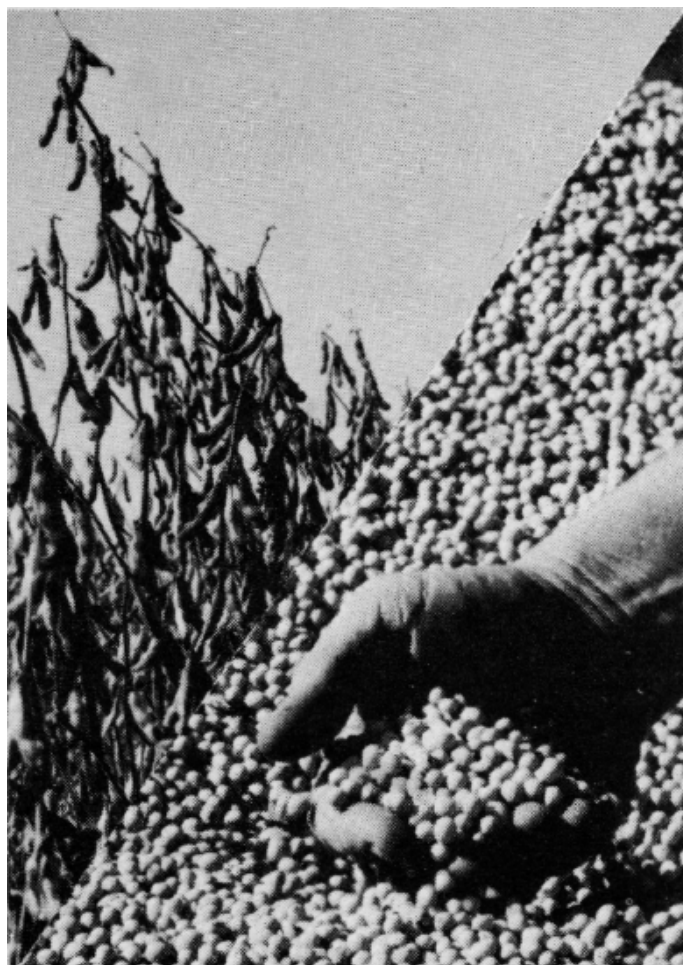


1986 REPORT

Ontario Soybean Variety Trials



**Conducted in 1983-85
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.

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 (1983-85) 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 6 varieties have resistance to a number of prevalent races. These 6 varieties have the same gene for resistance.

POWDERY MILDEW

Disease tests in the greenhouse showed that some varieties are completely resistant to powdery mildew leaf disease. Other varieties are susceptible but these may differ in the degree of susceptibility in the field.

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. Yield results are three-year averages from 2 to 4 locations each year.

TEST LOCATIONS AND SOIL TYPES

1985 TRIALS

| Location | Heat | Soil Type | Row | Co-operator |
|------------|--------|------------|-------|-----------------------|
| | Unit | | Width | |
| | Rating | | -cm- | |
| 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 |
| St. Thomas | 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. |
| 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 Root Rot Reaction % Plant Loss ¹ | Powdery Mildew R = Resistant S = Susceptible | Distributor |
|--------------------------|---------------------|--------------|--------------------|--|--|--------------------------|
| Maple Ridge ² | 2400 | yellow | 6450 | 21 | S | SeCan |
| Baron ² | 2450 | dark brown | 5530 | 11 | S | W.G. Thompson & Sons |
| Maple Amber ² | 2450 | brown | 5530 | 11 | S | Public Variety |
| Maple Isle | 2500 | yellow | 5240 | 32 | S | SeCan |
| Maple Arrow | 2600 | brown | 5290 | 20 | R | Public Variety |
| KG 30 | 2600 | dark brown | 6210 | 26 | S | King Agro Inc. |
| Bicentennial | 2600 | brown | 4500 | 7 | R | SeCan |
| Apache ² | 2600 | gray | 5260 | 24 | S | W.G. Thompson & Sons |
| OAC Libra | 2650 | black | 5850 | 16 | S | SeCan |
| Evans | 2700 | yellow | 5880 | 28 | R | Public Variety |
| KG 60 | 2700 | gray | 5100 | 18 | S | King Agro Inc. |
| 0877 | 2750 | lt. gray | 5560 | 29 | S | Pioneer Hi-Bred Ltd. |
| Ace ² | 2800 | yellow | 4070 | 19 | S | W.G. Thompson & Sons |
| J82 | 2800 | dark brown | 6540 | 34 | S | Jacques Seed Co. |
| Crusader | 2850 | yellow | 6320 | 23 | S | W.G. Thompson & Sons |
| Hodgson | 2900 | buff | 5850 | 14 | S | Public Variety |
| 1282 | 2900 | buff | 5150 | 26 | S | Pioneer Hi-Bred Ltd. |
| OAC Pisces | 2900 | buff | 5750 | 7 | R | SeCan |
| A1564 | 2900 | yellow | 5810 | 15 | S | Maple Leaf Mills Ltd. |
| AP10 | 2900 | yellow | 6020 | 28 | S | King Agro Inc. |
| B152* | 2900 | yellow | 5950 | 2 | R | Northrup King Seeds Ltd. |
| KG 80 | 2900 | yellow | 5950 | 16 | S | King Agro Inc. |
| S1346 | 2900 | yellow | 5560 | 9 | R | Northrup King Seeds Ltd. |
| KG 71 | 2900 | buff | 6130 | 15 | S | King Agro Inc. |
| S15-50* | 2900 | yellow | 6750 | 5 | S | Northrup King Seeds Ltd. |
| S1460 | 2900 | buff | 6240 | 3 | S | Northrup King Seeds Ltd. |
| A1937 | 2950 | buff | 6100 | 11 | R | Maple Leaf Mills Ltd. |
| A1895 | 2950 | black | 5730 | 3 | S | Maple Leaf Mills Ltd. |
| Hawk | 3000 | black | 5710 | 4 | R | W.G. Thompson & Sons |
| 1677 | 3000 | yellow | 6760 | 24 | S | Pioneer Hi-Bred Ltd. |
| B203* | 3050 | yellow | 6370 | 5 | S | Northrup King Seeds Ltd. |
| Coles | 3050 | yellow | 5320 | 18 | S | Public Variety |
| A2575 | 3100 | buff | 5750 | 17 | S | Maple Leaf Mills Ltd. |
| B220 | 3100 | yellow | 5990 | 29 | S | King Agro Inc. |
| Elgin | 3100 | black | 5560 | 10 | R | Public Variety |
| Jewel | 3100 | yellow | 5990 | 34 | S | W.G. Thompson & Sons |
| Premier | 3100 | yellow | 6140 | 8 | S | King Agro Inc. |
| S23-03 | 3100 | buff | 5880 | 6 | R | Northrup King Seeds Ltd. |
| S24-24* | 3100 | yellow | 6210 | 2 | S | Northrup King Seeds Ltd. |
| Corsoy 79* | 3150 | yellow | 6330 | 6 | S | Public Variety |
| Harcor | 3150 | yellow | 6060 | 26 | S | Public Variety |
| Merlin* | 3150 | yellow | 6170 | 8 | S | W.G. Thompson & Sons |
| J103 | 3200 | yellow | 5750 | 20 | R | Jacques Seed Co. |
| A2943 | 3250 | brown-black | 6170 | 7 | S | Maple Leaf Mills Ltd. |
| A3127 | 3300 | black | 6580 | 8 | R | Maple Leaf Mills Ltd. |

*Varieties with resistance to the prevalent races of Phytophthora root rot.

¹Three-year average (1983-85) 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.

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

TABLE 2. AGRONOMIC DATA

| 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, Inkerman and Ottawa | Maple Ridge | 2400 | 2.2 | 85 | 103 | 57 | 1.0 |
| | Baron | 2450 | 2.3 | 88 | 105 | 63 | 1.2 |
| | Maple Amber | 2450 | 2.3 | 88 | 106 | 66 | 1.2 |
| | Maple Isle | 2500 | 2.4 | 92 | 109 | 56 | 1.1 |
| | Maple Arrow | 2600 | 2.6 | 100 | 113 | 71 | 1.2 |
| | KG 30 | 2600 | 2.7 | 104 | 113 | 69 | 1.1 |
| | Bicentennial | 2600 | 2.7 | 104 | 115 | 73 | 1.8 |
| | Apache | 2600 | 2.7 | 104 | 116 | 65 | 1.1 |
| | OAC Libra | 2650 | 2.9 | 112 | 120 | 78 | 1.7 |
| | Evans | 2700 | 2.8 | 108 | 124 | 77 | 1.6 |
| Average Yield | | | 2.6 | | | | |
| 3 year average of 8 trials at Centralia, Woodstock and London | Maple Arrow | 2600 | 2.7 | 93 | 108 | 74 | 1.4 |
| | Bicentennial | 2600 | 2.9 | 100 | 109 | 77 | 2.1 |
| | Apache | 2600 | 2.7 | 93 | 111 | 70 | 1.3 |
| | OAC Libra | 2650 | 2.9 | 100 | 113 | 81 | 1.7 |
| | Evans | 2700 | 2.8 | 97 | 115 | 81 | 1.6 |
| | KG 60 | 2700 | 3.2 | 110 | 116 | 65 | 1.4 |
| | 0877 | 2750 | 3.0 | 103 | 117 | 81 | 1.5 |
| | Ace | 2800 | 2.9 | 100 | 118 | 72 | 1.4 |
| | J82 | 2800 | 2.8 | 97 | 118 | 88 | 1.6 |
| | Crusader | 2850 | 2.9 | 100 | 119 | 87 | 1.7 |
| | Hodgson | 2900 | 2.9 | 100 | 121 | 86 | 1.5 |
| | 1282 | 2900 | 3.0 | 103 | 121 | 85 | 1.7 |
| | OAC Pisces | 2900 | 2.9 | 100 | 121 | 78 | 1.7 |
| | S 1346 | 2900 | 3.0 | 103 | 123 | 74 | 1.5 |
| | A 1564 | 2900 | 2.9 | 100 | 124 | 93 | 2.0 |
| Average Yield | | | 2.9 | | | | |
| 3 year average of 8 trials at Fingal, London, Ridgetown, and Inwood | 1282 | 2850 | 3.0 | 94 | 121 | 83 | 2.1 |
| | Crusader | 2850 | 3.2 | 100 | 120 | 86 | 2.4 |
| | Hodgson | 2900 | 3.2 | 100 | 122 | 84 | 1.7 |
| | S15-50 | 2900 | 3.2 | 100 | 122 | 91 | 1.7 |
| | AP10 | 2900 | 3.1 | 97 | 123 | 84 | 2.3 |
| | KG71 | 2900 | 3.1 | 97 | 122 | 74 | 1.6 |
| | A1564 | 2900 | 3.1 | 97 | 124 | 93 | 2.6 |
| | B152 | 2900 | 3.4 | 106 | 124 | 76 | 1.7 |
| | S1346 | 2900 | 3.2 | 100 | 123 | 75 | 1.4 |
| | S1460 | 2900 | 3.2 | 100 | 124 | 78 | 1.6 |
| | A1937 | 2950 | 3.3 | 103 | 125 | 86 | 2.2 |
| | A1895 | 2950 | 3.3 | 103 | 125 | 84 | 1.9 |
| | Hawk | 3000 | 3.4 | 106 | 128 | 79 | 2.9 |
| | 1677 | 3000 | 3.2 | 100 | 126 | 84 | 1.9 |
| | B203 | 3000 | 3.1 | 97 | 128 | 83 | 1.9 |
| | Coles | 3050 | 3.1 | 97 | 130 | 104 | 3.3 |
| | A2575 | 3100 | 3.3 | 103 | 132 | 94 | 1.8 |
| | Premier | 3100 | 3.2 | 100 | 131 | 88 | 2.3 |
| | Average Yield | | | 3.2 | | | |

(Continued on next page)

TABLE 2. AGRONOMIC DATA (Continued)

| 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 | A1564 | 2900 | 3.2 | 97 | 113 | 82 | 1.7 |
| of 11 trials at | AP10 | 2900 | 2.9 | 88 | 113 | 72 | 1.7 |
| Chatham, | B152 | 2900 | 3.3 | 100 | 113 | 65 | 1.2 |
| Tilbury, | Hodgson | 2900 | 3.2 | 97 | 113 | 77 | 1.6 |
| Woodslee, | KG 80 | 2900 | 3.0 | 91 | 113 | 83 | 2.1 |
| and Malden | S1346 | 2900 | 3.2 | 97 | 114 | 68 | 1.1 |
| | A1937 | 3000 | 3.4 | 103 | 116 | 80 | 1.5 |
| | Hawk | 3000 | 3.2 | 97 | 116 | 74 | 2.0 |
| | 1677 | 3000 | 3.1 | 94 | 116 | 74 | 1.8 |
| | B203 | 3050 | 3.2 | 97 | 118 | 76 | 1.6 |
| | Coles | 3050 | 3.1 | 94 | 119 | 89 | 2.2 |
| | A2575 | 3100 | 3.3 | 100 | 120 | 82 | 1.3 |
| | B220 | 3100 | 3.3 | 100 | 121 | 98 | 1.4 |
| | Elgin | 3100 | 3.5 | 106 | 121 | 75 | 1.8 |
| | Jewel | 3100 | 3.5 | 106 | 122 | 73 | 1.6 |
| | Premier | 3100 | 3.2 | 97 | 120 | 78 | 1.6 |
| | S23-03 | 3100 | 3.5 | 106 | 122 | 83 | 1.7 |
| | S24-24 | 3100 | 3.4 | 103 | 122 | 87 | 2.0 |
| | Corsoy 79 | 3150 | 3.3 | 100 | 123 | 90 | 2.0 |
| | Harcor | 3150 | 3.3 | 100 | 123 | 90 | 2.2 |
| | Merlin | 3150 | 3.3 | 100 | 123 | 87 | 2.0 |
| | J103 | 3200 | 3.3 | 100 | 125 | 79 | 1.6 |
| | A2943 | 3250 | 3.5 | 106 | 130 | 87 | 1.3 |
| | A3127 | 3300 | 3.6 | 109 | 132 | 84 | 1.5 |
| | Average Yield | | 3.3 | | | | |