RESULTS OF THE COOPERATIVE UNIFORM SOYBEAN TESTS

PART I. NORTH CENTRAL STATES

****
1958
****

Compiled by:
J. L. Cartter, R. L. Bernard, D. W. Chamberlain
Ruth E. Lawrence and Carolyn J. Younger

From Data Supplied by:
J. C. Anderson, New Jersey
K. L. Athow, Indiana
R. L. Bernard, Illinois
R. E. Bothun, North Dakota
H. M. Brown, Michigan
D. R. Browning, Illinois
D. W. Chamberlain, Illinois
F. I. Collins, Illinois
D. Diehl, Idaho
F. Dimmock, Ontario
J. M. Dunleavy, Iowa
C. J. Franzke, South Dakota
H. Gross, Manitoba
L. B. Hertz, Kansas
E. N. Hoffman, Oregon
H. W. Indyk, Delaware
J. D. Ives, Kansas
G. E. Jones, Ontario
S. M. King, Michigan
O. A. Krober, Illinois
J. W. Lambert, Minnesota
E. M. MacKey, Manitoba
E. L. Mader, Kansas
V. H. Peterson, Kansas
A. H. Probst, Indiana
E. D. Putt, Manitoba
C. O. Rydberg, Wisconsin
P. E. Smith, Ohio
W. W. Snow, Ontario
B. R. Stefansson, Manitoba
J. H. Torrie, Wisconsin
C. R. Weber, Iowa
J. H. Williams, Nebraska
L. F. Williams, Missouri

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INTRODUCTION

The U.S. Regional Soybean Laboratory was organized in 1936 under the Bankhead-Jones Act, as a cooperative project by the U.S. Department of Agriculture and the twelve Agricultural Experiment Stations of the North Central Region. In 1942, the work of the Soybean Laboratory was expanded to include cooperation with twelve Agricultural Experiment Stations of the Southern Region also. The research program of the Laboratory has been directed toward the development of improved varieties and strains of soybeans for industrial use, and the obtaining of fundamental information necessary to the efficient breeding of strains to meet specific needs.

The Uniform Soybean Tests were initiated on a limited basis in 1938 but the work was rapidly expanded until ten groups were established to measure the yield and range of adaptation of the better strains developed through the breeding program. The last group to be established was designated Group 00, and is composed of strains adapted to the northern parts of North Dakota and Minnesota and to adjacent areas in Canada. This latest test was designed to develop improved, very early varieties for the northern fringe of the present area of soybean production. Groups 00 through IV include strains of proper maturity for the North Central States. The summary of performance of the first five groups is included in Part I of this report. Information on the last four groups adapted to the southern part of the United States is contained in Part II, which is issued separately.

Uniform Test, Group 00, contains strains that will bloom and mature under the longer days encountered during the summer in northern North Dakota and Minnesota. Groups 0 through IV, respectively, include strains adapted to locations farther south in the North Central States and to other areas of similar latitude. In general, each group is arranged to include strains differing in maturity by about ten days. Maturity is expressed as so many days earlier or later than some well-known check or reference variety in the group.

Daily rainfall and maximum and minimum temperature graphs, together with a brief statement of growing conditions during the 1958 season, are included for most of the nursery locations as an aid to interpretation of the agronomic and chemical data. Also, this year a table has been added for each group giving reaction of the strains to all the diseases for which ratings are available.

The mean yield of each of the Uniform Test Groups was nearly the same in 1958 as in 1957, the one exception being Group IV, where the 1958 average was five bushels higher than in 1957. The mean protein content of the beans was similar in the two seasons but oil content in 1958 was 1.4% lower for Group 0, probably reflecting the cooler fall temperatures this season. The comparable 1958 means for Group I and II were lower in 1958 by only .3%. The mean oil content of the strains in Group 00 was only 18.2%, reflecting in part the lower late summer temperatures normally encountered in the northern part of the United States and in southern Canada.
COOPERATING AGENCIES AND PERSONNEL
FOR THE
NORTH CENTRAL STATES

Oilseed and Industrial Crops Research Branch, Beltsville, Maryland

L. M. Pultz, Chief of Branch
H. W. Johnson, Head of Soybean Section

Laboratory Headquarters, Urbana, Illinois

J. L. Cartter, Director
Helen Y. Lybarger, Clerk-Stenographer Carolyn J. Younger, Clerk (Steno.)

Breeding and Genetics

R. L. Bernard, Research Agronomist
Ruth E. Lawrence, Statistical Assistant
Elizabeth M. Berreis, Laboratory Helper
Charles R. Cremeens, Agricultural Aid

C. R. Mumaw, Research Agronomist
D. E. Rosenbery, Agricultural Aid
Marie J. Demlow, Clerk

Plant Physiology

R. W. Howell, Plant Physiologist
A. J. Maggio, Agricultural Aid

D. J. Stein, Physical Science Aid

Chemical Analysis

F. I. Collins, Oil Chemist
Elizabeth A. Aydelotte, Physical Science Aid

O. A. Krober, Protein Chemist
S. J. Gibbons, Physical Science Aid
V. E. Sedgwick, Physical Science Aid

Plant Pathology

D. W. Chamberlain, Plant Pathologist

Lafayette, Indiana

A. H. Probst, Research Agronomist
K. L. Athrow, Plant Pathologist

Ames, Iowa

C. R. Weber, Research Agronomist
J. M. Dunleavy, Plant Pathologist

Beltsville, Maryland

W. D. Hanson, Research Geneticist

Columbia, Missouri

L. F. Williams, Research Agronomist

1Part time.
Collaborators in the North Central States

Illinois Agricultural Experiment Station
Agronomy Department: H. H. Hadley
Food Technology Department: R. T. Milner

Iowa Agricultural Experiment Station
Agronomy Department: I. J. Johnson

Kansas Agricultural Experiment Station
Agronomy Department: E. L. Mader

Michigan Agricultural Experiment Station
Farm Crops Department: H. M. Brown

Minnesota Agricultural Experiment Station
Agronomy and Plant Genetics Department: J. W. Lambert

Missouri Agricultural Experiment Station
Field Crops Department: E. L. Pinnell

Nebraska Agricultural Experiment Station
Agronomy Department: J. H. Williams

North Dakota Agricultural Experiment Station
Agronomy Department: R. E. Bothun

Ohio Agricultural Experiment Station
Agronomy Department: P. E. Smith

Purdue Agricultural Experiment Station
Agronomy Department: H. H. Kramer

South Dakota Agricultural Experiment Station
Agronomy Department: C. J. Franzke

Wisconsin Agricultural Experiment Station
Agronomy Department: J. H. Torrie
LOCATION OF COOPERATIVE NURSERIES, 1958

<table>
<thead>
<tr>
<th>Location</th>
<th>Cooperator</th>
<th>Uniform Tests Groups</th>
<th>Prelim. Groups</th>
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<tr>
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<tr>
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<td>Bluffton, Ind.</td>
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<td>Carl Rydberg, Spooner Br. E.S.</td>
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<td>00 0 I II III IV</td>
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<td>Fargo, N. D.</td>
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<td>x</td>
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<td>La Moure, N. D.</td>
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<td>Rossholt, S. D.</td>
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<td>Brookings, S. D.</td>
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<td>Concord, Nebr.</td>
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<td>x x</td>
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<td>Powhattan, Kans.</td>
<td>L. B. Hertz, Cornbelt Exp. Field</td>
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<td>Manhattan, Kans.</td>
<td>E. L. Mader, Kans. Agr. E.S.</td>
<td>x x x x</td>
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<td>Mound Valley, Kans.</td>
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<td>Bonners Ferry, Idaho</td>
<td>Don Diehl, Cooperator</td>
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<td>Ontario, Oregon</td>
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METHODS

All Uniform and Preliminary Tests are planted in replicated single rod-row plots, using either a lattice or a randomized block design with four replications for the Uniform Tests and two or four replications for the Preliminary Tests. Row widths used at the different test locations vary from 21 to 42 inches, depending upon the width in common use or the equipment available for handling the crop. Usually 18 to 20 feet of row is planted and only 16 or 16½ feet harvested. Seeds have been planted on the basis of 200 viable seeds per row. The following data were taken for each plot.

Yield is measured after the seeds have been dried to a uniform moisture content and is reported in bushels per acre.

Maturity is taken as the date when approximately 95% of the pods are ripe and most of the leaves have dropped. Green stems are not to be considered in determining maturity but should be noted separately. Maturity is expressed as days earlier (-) or later (+) than the average of a standard reference variety. Reference varieties used for the Uniform Tests are as follows: Group 00, Acme; Group 0, Mandarin (Ottawa); Group I, Chippewa; Group II, Hawkeye, Group III, Shelby, and Group IV, Wabash.

Lodging notes are taken at maturity and recorded on a scale of 1 to 5 according to the following degrees of lodging:

1. Almost all plants erect
2. Either all plants leaning slightly or a few plants down
3. Either all plants leaning moderately, or 25% to 50% of the plants down
4. Either all plants leaning considerably, or 50% to 80% of the plants down
5. Almost all plants down

Height is reported as the average length in inches of plants from the ground to the tip of the stem at time of maturity.

Seed quality is rated from 1 to 5 according to the following scale:

1. Very good
2. Good
3. Fair
4. Poor
5. Very poor

The factors considered in estimating seed quality are: seed development, wrinkling, damage, and objectionable color for the variety.

Seed weight is recorded as weight (in grams) per 100 seeds.

Chemical composition of the seed is determined on samples submitted to the Laboratory headquarters in Urbana. Percentages of oil and protein are determined on a composite sample of all replications for each strain and are expressed on a moisture-free basis.

Calculating Summary Means. In cases where the lodging and seed quality notes are all 1 at a location, indicating no expression of strain differences, these locations are not included in the mean for these traits. Where the C. V. of yield is greater than 20% at a location, this location is not included in the strain means.
Disease reactions are listed according to the Soybean Disease Classification Standards, March, 1955, unless otherwise specified. The disease reaction is listed 1-5, followed by a capital letter to identify the state where the test was made (L = Illinois, C = Indiana, etc.); small letter "a" or "n" after the code letter signifies artificial or natural infection. When the reaction is given by letter instead of numbers, R signifies resistant, S stands for susceptible, and I for intermediate. Seg. indicates that a strain is segregating for disease reaction.

Strain Designation. In order to simplify strain designations and indicate state of origin for entries in the Uniform Tests, the following code letters to precede strain numbers have been agreed upon in meetings of experiment station agronomists collaborating with the U. S. Regional Soybean Laboratory.

<table>
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<tr>
<th>Code Letter</th>
<th>State</th>
<th>Code Letter</th>
<th>State</th>
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<tbody>
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<td>UD</td>
<td>Delaware</td>
<td>Au</td>
<td>Alabama</td>
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<tr>
<td>L</td>
<td>Illinois</td>
<td>R</td>
<td>Arkansas</td>
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<td>C</td>
<td>Indiana</td>
<td>B</td>
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<td>D</td>
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<td>Ontario, Canada</td>
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It is suggested that states cooperating in these Uniform Tests use these letters to designate their strains.
This test was initiated in 1958 in response to the need for regional testing of strains earlier than Group 0 in the newly developing northern areas of soybean production. Widespread interest in this test is indicated by the fact that in its first year it was grown at 17 locations in eight states and provinces. These data are presented in Tables 1 to 5. While yield levels were quite low at many locations, high enough yields for economic return were obtained at several locations in the area of this test.

The latest strain, Flambeau, was the highest in average yield but was poor in lodging resistance and oil content. The remaining four strains yielded about the same. The earliest strain, Acme, performed very well and was second in over-all yield rank. The two Manitoba selections were similar to Acme in over-all performance.
Table 1. Summary of agronomic and chemical data for the strains in the Uniform Test, Group 00, 1958.

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<th>Strain</th>
<th>Yield Bu./A.</th>
<th>Maturity¹</th>
<th>Lodging</th>
<th>Height Inches</th>
<th>Seed Quality</th>
<th>Seed Weight</th>
<th>Percentage of Protein</th>
<th>Percentage of Oil</th>
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<tr>
<td>Flambeau</td>
<td>24.3</td>
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<td>Acme</td>
<td>20.9</td>
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<td>2.1</td>
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<td>15.9</td>
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<td>Manitoba 55-2</td>
<td>20.7</td>
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<td>2.1</td>
<td>16.4</td>
<td>39.7</td>
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<td>Crest</td>
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<td>16.4</td>
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¹Days earlier (-) or later (+) than Acme. Acme required 116 days to mature.

Table 2. Summary of disease reaction data for the strains in the Uniform Test, Group 00, 1958.

<table>
<thead>
<tr>
<th>Strain</th>
<th>Bacterial Blight</th>
<th>Bacterial Pustule</th>
<th>Brown Stem</th>
<th>Brown Spot Rot</th>
<th>Brown Stem</th>
<th>Brown Frogeye</th>
<th>Brown Stem Canker</th>
<th>Phytophthora Rot</th>
<th>Cyst Nematode</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flambeau</td>
<td>3La,3Aa</td>
<td>3La,4Aa</td>
<td>3Ca</td>
<td>4Ln</td>
<td>4La</td>
<td>4Ca</td>
<td>3Ca</td>
<td>SCa</td>
<td>4Nn</td>
</tr>
<tr>
<td>Acme</td>
<td>4La,4Aa</td>
<td>4La,4Aa</td>
<td>4Ca</td>
<td>3Ln</td>
<td>4La</td>
<td>4Ca</td>
<td>3Ca</td>
<td>Seg.Ca</td>
<td>Seg.Ca</td>
</tr>
<tr>
<td>Manitoba 55-2</td>
<td>4La,4Aa</td>
<td>3Aa</td>
<td>4Ca</td>
<td>3Ln</td>
<td>4La</td>
<td>4Ca</td>
<td>3Ca</td>
<td>RCa</td>
<td>RCa</td>
</tr>
<tr>
<td>Manitoba 56-1</td>
<td>4La,4Aa</td>
<td>4Aa</td>
<td>3Ca</td>
<td>3Ln</td>
<td>4La</td>
<td>4Ca</td>
<td>3Ca</td>
<td>RCa</td>
<td>RCa</td>
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<td>3La,4Aa</td>
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<td>3Ca</td>
<td>RCa</td>
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Table 3. Summary of yield in bushels per acre and yield rank for the strains in the Uniform Test, Group 00, 1958.

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<td></td>
<td>6.1</td>
</tr>
<tr>
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<td>30.6</td>
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<td></td>
<td></td>
<td>7.3</td>
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</table>

| Mean       | 21.2              | 32.1                   |
|           |                   | 21.1                   |
|           |                   | 25.7                   |
|           |                   | 13.3                   |
|           |                   | 17.0                   |
|           |                   | 8.4                    |
|           |                   | 12.4                   |
|           |                   | 7.3                    |

| Coef. of Var. (%) | 7.6 | 7.3 | 6.5 | -- | 7.5 | 19.2 | 18.3 | 20.2 |
| Bu. Nec. for Sig. (5%) | 3.3 | 2.3 | --  | N.S. | 1.8 | N.S. | N.S. | N.S. |
| Row Spacing (In.) | 30  | 30  | 24  | 36  | 36  | 36   | 36   | 36   |

<table>
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<td>1</td>
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<td>1</td>
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<td>5</td>
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[^1]: Chatham, Bark River, and Daggett, Michigan, Bonners Ferry, Idaho, and Ontario, Oregon not included in the mean.
Table 3. (Continued)

<table>
<thead>
<tr>
<th>Strain</th>
<th>Daggett</th>
<th>Spooner</th>
<th>Crooks</th>
<th>St. Paul</th>
<th>Park River</th>
<th>Minot</th>
<th>Laramore</th>
<th>Bonners Ferry</th>
<th>Ontario</th>
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<td>11.4</td>
<td>24.7</td>
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<td>40.1</td>
<td>24.7</td>
<td>19.5</td>
<td>17.0</td>
<td>7.5</td>
<td>35.2</td>
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<tr>
<td>Acme</td>
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<td>15.4</td>
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<td>15.5</td>
<td>15.0</td>
<td>6.1</td>
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<td>19.7</td>
<td>16.1</td>
<td>14.6</td>
<td>8.7</td>
<td>31.6</td>
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<td>28.0</td>
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<td>18.4</td>
<td>15.4</td>
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<td>16.1</td>
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<td>7.8</td>
<td>38.1</td>
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<tr>
<td>Coef. of Var. (%)</td>
<td>21.7</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>7.8</td>
<td>6.8</td>
<td>7.1</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>Bu. Nec. for Sig. (5%)</td>
<td>N.S.</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>2.5</td>
<td>1.7</td>
<td>1.6</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>Row Spacing (In.)</td>
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<td>24</td>
<td>40</td>
<td>36</td>
<td>24</td>
<td>40</td>
<td>28</td>
<td>36</td>
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Yield Rank

<table>
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<th>Strain</th>
<th>Flambeau</th>
<th>Acme</th>
<th>Manitoba 55-2</th>
<th>Manitoba 56-1</th>
<th>Crest</th>
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<tbody>
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<td>Yield Rank</td>
<td>2</td>
<td>4</td>
<td>3</td>
<td>1</td>
<td>5</td>
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Table 4. Summary of maturity data, days earlier (-) or later (+) than Acme, and lodging for the strains in the Uniform Test, Group 00, 1958.

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<td>+15</td>
<td>+6</td>
<td>+8</td>
<td>+5</td>
<td>+8</td>
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</tr>
<tr>
<td>Acme</td>
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<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
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</tr>
<tr>
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<td>+4</td>
<td>+6</td>
<td>-1</td>
<td>+4</td>
<td>+3</td>
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</tr>
<tr>
<td>Manitoba 56-1</td>
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<td>+2</td>
<td>+7</td>
<td>+1</td>
<td>+4</td>
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<tr>
<td>Crest</td>
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<td>--</td>
<td>+6</td>
<td>+7</td>
<td>+9</td>
<td>+5</td>
<td>+5</td>
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</tr>
</tbody>
</table>

Date planted:
- Flambeau: 5-22
- Acme: 9-15
- Manitoba 55-2: 5-20
- Manitoba 56-1: 5-23
- Crest: 5-24

Days to mature:
- Flambeau: 116
- Acme: 122
- Manitoba 55-2: 122
- Manitoba 56-1: 119
- Crest: 131

Mean of 6 Tests:
- Flambeau: 3.1
- Acme: 2.1
- Manitoba 55-2: 2.3
- Manitoba 56-1: 2.2
- Crest: 2.1

Lodging:
- Flambeau: 5.0
- Acme: 4.0
- Manitoba 55-2: 3.0
- Manitoba 56-1: 3.0
- Crest: 4.0

Mean:
- 2.4

1Portage la Prairie, Brandon, and Morden, Manitoba, Bark River and Daggett, Michigan, and Ontario, Oregon not included in the mean.
2Brandon, Manitoba, Chatham, Vulcan, Bark River, and Daggett, Michigan, Park River, Minot, and Larimore, North Dakota, and Bonners Ferry, Idaho not included in the mean.
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Table 5. Summary of height data and percentage of oil for the strains in the Uniform Test, Group 00, 1958.

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<table>
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$^1$Chatham, Bark River, and Daggett, Michigan not included in the mean.
$^2$Bark River and Daggett, Michigan, Bonners Ferry, Idaho, and Ontario, Oregon not included in the mean.
Table 5. (Continued)

<table>
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<th>Manitoba 56-1</th>
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<th>Mean</th>
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Percentage of Oil

<table>
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<th>Manitoba 56-1</th>
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<th>Mean</th>
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<td>Laramore</td>
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<td>Minn.</td>
<td>River</td>
<td>Minot</td>
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<td>N.D.</td>
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<td>16.7</td>
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<tr>
<td>Acme</td>
<td>19.7</td>
<td>18.3</td>
<td>19.9</td>
<td>19.3</td>
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<td>19.6</td>
<td>18.9</td>
<td>18.4</td>
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<td>20.5</td>
<td>19.3</td>
<td>19.5</td>
<td>18.2</td>
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<tr>
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<td>19.9</td>
<td>18.9</td>
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<td>18.4</td>
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<td>17.7</td>
<td>20.0</td>
<td>19.1</td>
<td>18.6</td>
<td>18.1</td>
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</table>
**UNIFORM TEST, GROUP 0, 1958**

<table>
<thead>
<tr>
<th>Strain</th>
<th>Source or Originating Agency</th>
<th>Origin</th>
</tr>
</thead>
<tbody>
<tr>
<td>Capital</td>
<td>Central Exp. Farm, Ottawa</td>
<td>Sel. from Strain 171 x A.K. (Harrow)</td>
</tr>
<tr>
<td>Flambeau</td>
<td>Wis. Agr. Exp. Station</td>
<td>Sel. from Introduction from Russia</td>
</tr>
<tr>
<td>Grant</td>
<td>Wis. A.E.S. &amp; U.S.R.S.L.</td>
<td>Sel. from Lincoln x Seneca</td>
</tr>
<tr>
<td>Mandarin (Ottawa)</td>
<td>Central Exp. Farm, Ottawa</td>
<td>Sel. from Mandarin</td>
</tr>
<tr>
<td>Norchief</td>
<td>Wis. A.E.S. &amp; U.S.R.S.L.</td>
<td>Sel. from Hawkeye x Flambeau</td>
</tr>
<tr>
<td>M316</td>
<td>Minn. A.E.S. &amp; U.S.R.S.L.</td>
<td>Sel. from Hawkeye x Capital</td>
</tr>
<tr>
<td>0-55-2065</td>
<td>Central Exp. Farm, Ottawa</td>
<td>Sel. from Blackhawk x Capital</td>
</tr>
</tbody>
</table>

This test was grown at 18 locations in 1958, and the data are presented in Tables 6 through 12. Yields at most locations in Wisconsin, Minnesota, and the Dakotas were below average due to drought, while yields were above average farther east.

Four of the check varieties, Capital, Grant, Mandarin (Ottawa), and Norchief, have been in this test for at least nine years, and the 9-year summary of these data is given in Tables 11 and 12. Flambeau was dropped from Uniform Tests in 1957 but was reinstated in the Group 0 Test as a tie-in variety with the newly established Group 00 Test.

Two strains, M316 and 0-55-2065, were entered in this test from the 1957 Preliminary Test, Group 0. 0-55-2065, while it did not yield as well as Grant, was 2.6 days earlier, much better in lodging resistance, and higher in oil content. M316 was also high in oil content but was otherwise no better than Mandarin (Ottawa) in average performance.
Table 5. Summary of agronomic and chemical data for the strains in the Uniform Test, Group 0, 1953.

<table>
<thead>
<tr>
<th>Strain</th>
<th>No. of Tests</th>
<th>Yield Bu./A.</th>
<th>Maturity1</th>
<th>Lodging</th>
<th>Height Inches</th>
<th>Seed Quality</th>
<th>Seed Weight</th>
<th>Percentage of Protein</th>
<th>Percentage of Oil</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grant</td>
<td>13</td>
<td>32.7</td>
<td>0</td>
<td>2.9</td>
<td>30</td>
<td>2.1</td>
<td>15.8</td>
<td>40.1</td>
<td>19.0</td>
</tr>
<tr>
<td>G-55-2055</td>
<td>7</td>
<td>29.7</td>
<td>-2.6</td>
<td>1.8</td>
<td>30</td>
<td>1.9</td>
<td>13.4</td>
<td>39.6</td>
<td>19.5</td>
</tr>
<tr>
<td>Mandarin (Ottawa)</td>
<td>10</td>
<td>29.7</td>
<td>0</td>
<td>2.0</td>
<td>27</td>
<td>1.9</td>
<td>18.6</td>
<td>42.0</td>
<td>18.5</td>
</tr>
<tr>
<td>M316</td>
<td>12</td>
<td>29.4</td>
<td>-0.7</td>
<td>2.2</td>
<td>31</td>
<td>2.2</td>
<td>13.8</td>
<td>39.9</td>
<td>19.6</td>
</tr>
<tr>
<td>Capital</td>
<td>13</td>
<td>29.2</td>
<td>+0.9</td>
<td>2.7</td>
<td>30</td>
<td>2.3</td>
<td>12.2</td>
<td>40.1</td>
<td>18.8</td>
</tr>
<tr>
<td>Norchief</td>
<td>13</td>
<td>28.6</td>
<td>-4.1</td>
<td>2.3</td>
<td>28</td>
<td>2.4</td>
<td>15.7</td>
<td>40.8</td>
<td>19.1</td>
</tr>
<tr>
<td>Flambeau</td>
<td>13</td>
<td>27.3</td>
<td>-8.7</td>
<td>2.8</td>
<td>28</td>
<td>2.2</td>
<td>15.8</td>
<td>41.8</td>
<td>18.3</td>
</tr>
<tr>
<td>Mean</td>
<td></td>
<td>29.5</td>
<td>-2.2</td>
<td>2.4</td>
<td>29</td>
<td>2.1</td>
<td>15.0</td>
<td>40.6</td>
<td>19.0</td>
</tr>
</tbody>
</table>

1Days earlier (-) or later (+) than Mandarin (Ottawa). Mandarin (Ottawa) required 120 days to mature.

Table 7. Summary of disease reaction data for the strains in the Uniform Test, Group 0, 1958.

<table>
<thead>
<tr>
<th>Strain</th>
<th>Bacterial Blight</th>
<th>Bacterial Pustule</th>
<th>Brown Stem Blight</th>
<th>Brown Spot</th>
<th>Brown Rot</th>
<th>Progressive Stem Canker1</th>
<th>Phytophthora Canker</th>
<th>Cyst Nematode</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grant</td>
<td>4La,5Aa</td>
<td>4La,5Aa</td>
<td>4Ca</td>
<td>4Ln</td>
<td>SCa</td>
<td>4Cn</td>
<td>SCa,5Hn</td>
<td>4Nn</td>
</tr>
<tr>
<td>G-55-2065</td>
<td>4La,4Aa</td>
<td>5La,4Aa</td>
<td>4Ca</td>
<td>4Ln</td>
<td>RCa</td>
<td>RCa,3Hn</td>
<td>SCa,3Hn</td>
<td>4Nn</td>
</tr>
<tr>
<td>Mandarin (Ottawa)</td>
<td>4La,5Aa</td>
<td>2La,5Aa</td>
<td>4Ca</td>
<td>5Ln</td>
<td>SCa</td>
<td>26Cn</td>
<td>SCa,5Hn</td>
<td>4Nn</td>
</tr>
<tr>
<td>M316</td>
<td>4La,4Aa</td>
<td>4La,4Aa</td>
<td>3Ca</td>
<td>4Ln</td>
<td>RCa</td>
<td>SCa,3Hn</td>
<td>SCa,3Hn</td>
<td>4Nn</td>
</tr>
<tr>
<td>Capital</td>
<td>4La,5Aa</td>
<td>4La,5Aa</td>
<td>2Ca</td>
<td>4Ln</td>
<td>RCa</td>
<td>5An</td>
<td>SCa,5Hn</td>
<td>4Nn</td>
</tr>
<tr>
<td>Norchief</td>
<td>4La,4Aa</td>
<td>3La,5Aa</td>
<td>3Ca</td>
<td>5Ln</td>
<td>SCa</td>
<td>26Cn</td>
<td>SCa,5Hn</td>
<td>4Nn</td>
</tr>
<tr>
<td>Flambeau</td>
<td>3La</td>
<td>3La,4Aa</td>
<td>3Ca</td>
<td>3Ln</td>
<td>SCa</td>
<td>5An</td>
<td>SCa</td>
<td>4Nn</td>
</tr>
<tr>
<td>Lincoln (Check)</td>
<td>5La,5Aa</td>
<td>4La,4Aa</td>
<td>2Ca</td>
<td>4Ln</td>
<td>RCa</td>
<td>5An</td>
<td>SCa,5Hn</td>
<td>4Nn</td>
</tr>
</tbody>
</table>

1Stem canker readings from Indiana (C) are percentages of diseased plants based on the number of infected Hawkeye as 100%. Readings from Iowa (A) follow the regular 1-5 ratings of the Soybean Disease Classification Standards, 1955 (RSLM 179).
Table 8. Summary of yield in bushels per acre and yield rank for the strains in the Uniform Test, Group 0, 1958.

<table>
<thead>
<tr>
<th>Strain</th>
<th>Mean of 13 Tests</th>
<th>Ottawa</th>
<th>Guelph</th>
<th>Ridgeway</th>
<th>Guelph</th>
<th>Bath</th>
<th>Lansing</th>
<th>Ida</th>
<th>Lafayette</th>
<th>Worthington</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grant</td>
<td>32.7</td>
<td>39.4</td>
<td>46.7</td>
<td>41.0</td>
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<td>42.0</td>
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<td>23.7</td>
<td>25.3</td>
<td>--------------</td>
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<tr>
<td>0-55-2065</td>
<td>29.7</td>
<td>40.4</td>
<td>43.6</td>
<td>30.4</td>
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<tr>
<td>Mandarin (Ottawa)</td>
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<td>36.8</td>
<td>36.4</td>
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<td>37.2</td>
<td>46.3</td>
<td>24.8</td>
<td>29.3</td>
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<tr>
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<td>37.3</td>
<td>46.5</td>
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<td>12.1</td>
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<tr>
<td>Norchief</td>
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<td>36.1</td>
<td>40.2</td>
<td>34.7</td>
<td>17.0</td>
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<td>19.5</td>
<td>22.3</td>
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<tr>
<td>Flambeau</td>
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<td>41.6</td>
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<td>15.5</td>
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<td>31.2</td>
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<tr>
<td>Mean</td>
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<td>42.2</td>
<td>33.7</td>
<td>15.3</td>
<td>35.7</td>
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<tr>
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<tr>
<td>Bu. Nec. for Sig. (5%)</td>
<td>N.S.</td>
<td>--</td>
<td>4.6</td>
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<td>8.4</td>
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<td>Row Spacing (In.)</td>
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Yield Rank

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<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grant</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>6</td>
<td>1</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>0-55-2065</td>
<td>1</td>
<td>3</td>
<td>6</td>
<td>4</td>
<td>3</td>
<td>3</td>
<td>7</td>
<td>5</td>
<td></td>
</tr>
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<td>Mandarin (Ottawa)</td>
<td>5</td>
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<td>1</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>1</td>
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</tr>
<tr>
<td>M316</td>
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<td>2</td>
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<td>7</td>
<td>6</td>
<td>4</td>
<td>3</td>
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</tr>
<tr>
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<td>7</td>
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<td>4</td>
<td>5</td>
<td>4</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Norchief</td>
<td>7</td>
<td>5</td>
<td>3</td>
<td>2</td>
<td>7</td>
<td>6</td>
<td>6</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td>Flambeau</td>
<td>6</td>
<td>4</td>
<td>5</td>
<td>3</td>
<td>5</td>
<td>7</td>
<td>5</td>
<td>6</td>
<td></td>
</tr>
</tbody>
</table>

1 Bath, Michigan, Lafayette and Worthington, Indiana, Rosholt, South Dakota, and Ontario, Oregon not included in the mean.
Table 8. (Continued)

<table>
<thead>
<tr>
<th>Strain</th>
<th>Spoon-Du-er</th>
<th>Crooks-rand</th>
<th>St. Morris</th>
<th>Paul</th>
<th>Fargo</th>
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<th>Dwight</th>
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Yield Rank

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Table 9. Summary of maturity data, days earlier (-) or later (+) than Mandarin (Ottawa), and lodging for the strains in the Uniform Test, Group 0, 1958.

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<th>Ottawa Guelph</th>
<th>Ridge-town Guelph</th>
<th>East Lansing Bath</th>
<th>Ida Lafayette Ida</th>
<th>Lafayette Worthington Ind.</th>
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</thead>
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<td>-4</td>
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</tbody>
</table>

| Date planted    | 5-24             | 5-15          | 5-21              | 5-26              | 5-22              | 5-15                      | 5-27                      | 7-1  | 7-2 |
| Mandarin (Ott.) matured | 9-21           | --            | 10-8              | 9-18              | --                | 9-13                      | --            | 10-1 | 9-27 |
| Days to mature  | 120              | --            | 140               | 115               | Frost 121         | --                        | 92            | 87   |

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<tr>
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<tr>
<td>Flambeau</td>
<td>2.8</td>
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</table>

| Mean              | 2.4     | 3.0     | 2.9     | 1.4     | 3.7     | 1.4     | 3.1     | 1.4   | 1.0 |

*Guelph, Ontario, Lafayette and Worthington, Indiana, La Moure, North Dakota, and Ontario, Oregon not included in the mean.

1Guelph, Ontario, Lafayette and Worthington, Indiana, La Moure, North Dakota, and Ontario, Oregon not included in the mean.
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Table 10. Summary of height data and percentage of oil for the strains in the Uniform Test, Group 0, 1958.

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\(^1\)Bath, Michigan, Lafayette and Worthington, Indiana, and Rosholt, South Dakota not included in the mean.

\(^2\)Bath, Michigan, Lafayette and Worthington, Indiana, Rosholt, South Dakota, and Ontario, Oregon not included in the mean.
Table 10. (Continued)

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Percentage of Oil

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<td>21.7</td>
<td>18.8</td>
<td>19.4</td>
<td><strong>21.1</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Strain</th>
<th>No. of Tests</th>
<th>Yield Bu./A.</th>
<th>Maturity</th>
<th>Lodging</th>
<th>Height Inches</th>
<th>Seed Quality</th>
<th>Seed Weight</th>
<th>Percentage of Protein</th>
<th>Percentage of Oil</th>
</tr>
</thead>
<tbody>
<tr>
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<td>31</td>
<td>1.9</td>
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<tr>
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<td>103</td>
<td>28.8</td>
<td>-4.1</td>
<td>1.9</td>
<td>29</td>
<td>2.1</td>
<td>16.5</td>
<td>40.9</td>
<td>20.0</td>
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<tr>
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<td>106</td>
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<td>2.2</td>
<td>30</td>
<td>2.0</td>
<td>16.2</td>
<td>40.9</td>
<td>19.8</td>
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</table>

1 Days earlier (-) or later (+) than Mandarin (Ottawa). Mandarin (Ottawa) required 117 days to mature.


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<td>34.2</td>
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</tr>
<tr>
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<td>30.5</td>
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Yield Rank

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<th>Rank</th>
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</tr>
<tr>
<td>Capital</td>
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</tr>
<tr>
<td>Mandarin (Ottawa)</td>
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</tr>
<tr>
<td>Norchief</td>
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</table>


Table 12. (Continued)

<table>
<thead>
<tr>
<th>Strain</th>
<th>Durand (Wis.)</th>
<th>Crookston (Minn.)</th>
<th>Morris (Minn.)</th>
<th>St. Paul (Minn.)</th>
<th>Fargo (N.D.)</th>
<th>Rosholt (S.D.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grant</td>
<td>25.6</td>
<td>33.6</td>
<td>32.7</td>
<td>40.9</td>
<td>27.2</td>
<td>19.9</td>
</tr>
<tr>
<td>Capital</td>
<td>23.6</td>
<td>33.1</td>
<td>32.8</td>
<td>40.3</td>
<td>25.1</td>
<td>18.0</td>
</tr>
<tr>
<td>Mandarin (Ottawa)</td>
<td>25.0</td>
<td>32.3</td>
<td>30.1</td>
<td>35.7</td>
<td>24.6</td>
<td>17.2</td>
</tr>
<tr>
<td>Norchief</td>
<td>24.0</td>
<td>32.4</td>
<td>29.7</td>
<td>34.2</td>
<td>26.9</td>
<td>16.2</td>
</tr>
<tr>
<td>Mean</td>
<td>24.6</td>
<td>32.9</td>
<td>31.3</td>
<td>37.8</td>
<td>26.0</td>
<td>17.8</td>
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<table>
<thead>
<tr>
<th>Yield Rank</th>
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</thead>
<tbody>
<tr>
<td>Grant</td>
</tr>
<tr>
<td>Capital</td>
</tr>
<tr>
<td>Mandarin (Ottawa)</td>
</tr>
<tr>
<td>Norchief</td>
</tr>
</tbody>
</table>
This test was grown at 17 locations in 1958, and the data are presented in Tables 13 through 19. The general yield level in 1958 was very close to the long-time average. Yields were average or above at most locations but were depressed by drought at Durand and Madison, Wisconsin, Kanawha, Iowa, and Brookings, South Dakota.

The test consists of three check varieties and six experimental strains. The check varieties, Blackhawk, Chippewa, and Mandarin (Ottawa), have been in the test for ten years or more, and the 10-year means are presented in Tables 18 and 19.

W9-1982-32 was in this test in 1957 also and in the Preliminary Test, Group I, in 1956. It is an early-maturing selection from the strain W9-1982, which was in Uniform Test, Group I, in 1952 and Group II in 1953. It has topped this test in yield in both 1957 and 1958, and has been similar to Blackhawk in maturity although it was somewhat earlier this year.

M319 was entered from the 1957 Preliminary Test, Group I. It outyielded Chippewa by an average of almost one bushel but was almost 3 days later.

The strain A6K-1428-C4 is a reselection from A6K-1428, which was in the Preliminary Test, Group I, in 1948 and 1949. It outyielded the check varieties by a small margin and had a high oil content but was unusually poor in seed quality.

The remaining three strains, M304, M328, and M336, were in regional tests for the first time in 1958. None of them outyielded Chippewa or Blackhawk, but all had excellent lodging scores and M328 had the highest oil content in the test.
Table 13. Summary of agronomic and chemical data for the strains in the Uniform Test, Group I, 1958.

<table>
<thead>
<tr>
<th>Strain</th>
<th>No. of Tests</th>
<th>Yield Bu./A.</th>
<th>Maturity*</th>
<th>Lodging</th>
<th>Height Inches</th>
<th>Seed Quality</th>
<th>Seed Weight</th>
<th>Percentage of Protein</th>
<th>Percentage of Oil</th>
</tr>
</thead>
<tbody>
<tr>
<td>W9-1982-32</td>
<td>17</td>
<td>31.8</td>
<td>+4.3</td>
<td>1.8</td>
<td>35</td>
<td>1.7</td>
<td>17.8</td>
<td>41.4</td>
<td>20.3</td>
</tr>
<tr>
<td>M319</td>
<td>16</td>
<td>31.4</td>
<td>+2.8</td>
<td>1.5</td>
<td>30</td>
<td>1.6</td>
<td>16.8</td>
<td>41.3</td>
<td>20.7</td>
</tr>
<tr>
<td>A6K-1428-C4</td>
<td>15</td>
<td>31.1</td>
<td>+5.5</td>
<td>2.1</td>
<td>32</td>
<td>2.3</td>
<td>17.5</td>
<td>41.5</td>
<td>20.9</td>
</tr>
<tr>
<td>Chippewa</td>
<td>17</td>
<td>30.6</td>
<td>0</td>
<td>1.5</td>
<td>31</td>
<td>1.6</td>
<td>14.8</td>
<td>42.4</td>
<td>20.1</td>
</tr>
<tr>
<td>Blackhawk</td>
<td>17</td>
<td>29.5</td>
<td>+7.5</td>
<td>1.7</td>
<td>32</td>
<td>1.7</td>
<td>16.3</td>
<td>41.6</td>
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<tr>
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<td>15</td>
<td>29.0</td>
<td>+3.5</td>
<td>1.3</td>
<td>28</td>
<td>1.8</td>
<td>17.7</td>
<td>40.8</td>
<td>21.2</td>
</tr>
<tr>
<td>M304</td>
<td>17</td>
<td>28.5</td>
<td>+0.3</td>
<td>1.5</td>
<td>25</td>
<td>1.9</td>
<td>16.6</td>
<td>41.6</td>
<td>20.2</td>
</tr>
<tr>
<td>M336</td>
<td>17</td>
<td>28.1</td>
<td>+2.2</td>
<td>1.4</td>
<td>32</td>
<td>1.6</td>
<td>15.4</td>
<td>41.5</td>
<td>20.3</td>
</tr>
<tr>
<td>Mandarin (Ottawa)</td>
<td>17</td>
<td>27.9</td>
<td>-1.6</td>
<td>1.5</td>
<td>27</td>
<td>1.8</td>
<td>19.4</td>
<td>43.4</td>
<td>19.4</td>
</tr>
<tr>
<td><strong>Mean</strong></td>
<td><strong>17</strong></td>
<td><strong>29.8</strong></td>
<td><strong>+2.7</strong></td>
<td><strong>1.6</strong></td>
<td><strong>30</strong></td>
<td><strong>1.8</strong></td>
<td><strong>16.9</strong></td>
<td><strong>41.7</strong></td>
<td><strong>20.4</strong></td>
</tr>
</tbody>
</table>

*DAYS earlier (-) or later (+) than Chippewa. Chippewa required 117 days to mature.

Table 14. Summary of disease reaction data for the strains in the Uniform Test, Group I, 1958.

<table>
<thead>
<tr>
<th>Strain</th>
<th>Bacterial Blight</th>
<th>Bacterial Pustule</th>
<th>Brown Spot</th>
<th>Brown Stem Rot</th>
<th>Frog-eye Stem Canker*</th>
<th>Phytophthora Rot</th>
<th>Cyst Nematode</th>
</tr>
</thead>
<tbody>
<tr>
<td>W9-1982-32</td>
<td>4La,4Aa</td>
<td>4La,5Aa</td>
<td>5Ca</td>
<td>5Ln</td>
<td>SCA</td>
<td>SCA,5Hn</td>
<td></td>
</tr>
<tr>
<td>M319</td>
<td>4La,4Aa</td>
<td>4La,4Aa</td>
<td>3Ca</td>
<td>4Ln</td>
<td>RCA</td>
<td>SCA,3Hn</td>
<td></td>
</tr>
<tr>
<td>A6K-1428-C4</td>
<td>4La,4Aa</td>
<td>4La,4Aa</td>
<td>2Ca</td>
<td>4Ln</td>
<td>RCA</td>
<td>SCA</td>
<td></td>
</tr>
<tr>
<td>Chippewa</td>
<td>4La,5Aa</td>
<td>4La,5Aa</td>
<td>5Ca</td>
<td>5Ln</td>
<td>SCA</td>
<td>SCA,3Hn</td>
<td>4Nn</td>
</tr>
<tr>
<td>Blackhawk</td>
<td>4La,5Aa</td>
<td>4La,5An</td>
<td>3Ca</td>
<td>5Ln</td>
<td>SCA</td>
<td>44Cn,3An RCA,2Hn</td>
<td>4Nn</td>
</tr>
<tr>
<td>M328</td>
<td>4La,4Aa</td>
<td>4La,4Aa</td>
<td>4Ca</td>
<td>4Ln</td>
<td>RCA</td>
<td>SCA</td>
<td></td>
</tr>
<tr>
<td>M304</td>
<td>3La,3Aa</td>
<td>3La,4Aa</td>
<td>3Ca</td>
<td>4Ln</td>
<td>SCA</td>
<td>SCA</td>
<td></td>
</tr>
<tr>
<td>M336</td>
<td>4La,4Aa</td>
<td>4La,4Aa</td>
<td>4Ca</td>
<td>5Ln</td>
<td>SCA</td>
<td>SCA</td>
<td></td>
</tr>
<tr>
<td>Mandarin (Ottawa)</td>
<td>4La,5Aa</td>
<td>4La,5Aa</td>
<td>4Ca</td>
<td>5Ln</td>
<td>SCA</td>
<td>SCA,3Hn</td>
<td>4Nn</td>
</tr>
<tr>
<td>Lincoln (Check)</td>
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<td>4La,4Aa</td>
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<td></td>
<td></td>
<td>SCA</td>
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</tbody>
</table>

*Stem canker readings from Indiana (C) are percentages of diseased plants based on the number of infected Hawkeye as 100%. Readings from Iowa (A) follow the regular 1-5 ratings of the Soybean Disease Classification Standards, 1955 (RSLM 179).
Table 15. Summary of yield in bushels per acre and yield rank for the strains in the Uniform Test, Group I, 1958.

<table>
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<td>33.4</td>
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<td>43.8</td>
<td>34.7</td>
<td>41.2</td>
<td>30.6</td>
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<tr>
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<td>36.0</td>
<td>35.1</td>
<td>40.4</td>
<td>43.5</td>
<td>40.0</td>
<td>40.6</td>
<td>30.6</td>
<td>25.3</td>
</tr>
<tr>
<td>A6K-1428-C4</td>
<td>31.1</td>
<td>39.2</td>
<td>30.2</td>
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<td>40.9</td>
<td>33.8</td>
<td>39.8</td>
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<td>28.9</td>
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<td>Chippewa</td>
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<td>31.4</td>
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<td>38.4</td>
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</tr>
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<td>37.6</td>
<td>36.1</td>
<td>33.6</td>
<td>37.6</td>
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<td>32.4</td>
<td>34.3</td>
<td>39.3</td>
<td>33.6</td>
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<td>27.7</td>
<td>24.9</td>
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<td>28.4</td>
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<td>35.9</td>
<td>34.5</td>
<td>38.0</td>
<td>26.4</td>
<td>26.0</td>
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</table>

| Mean Mean 36.4 | Coef. of Var. (%) 4.1 8.0 8.6 14.1 9.8 8.8 10.1 5.2 | Bu. Nec. for Sig. (5%) 3.1 3.6 5.0 N.S. 5.7 5.8 4.2 2.0 | Row Spacing (In.) 24 36 28 28 36 28 38 40 |

<table>
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<tr>
<th>Yield Rank</th>
<th>W9-1982-32</th>
<th>M319</th>
<th>M328</th>
<th>A6K-1428-C4</th>
<th>Chippewa</th>
<th>Blackhawk</th>
<th>M304</th>
<th>M336</th>
<th>Mandarin (Ottawa)</th>
</tr>
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<td>1</td>
<td>1</td>
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<td>2</td>
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<td>1</td>
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<td>4</td>
<td>2</td>
<td>1</td>
<td>4</td>
<td>2</td>
<td>5</td>
<td></td>
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<tr>
<td>A6K-1428-C4</td>
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<td>6</td>
<td>6</td>
<td>4</td>
<td>5</td>
<td>5</td>
<td>1</td>
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<td>5</td>
<td>3</td>
<td>7</td>
<td>2</td>
<td>1</td>
<td>9</td>
<td>3</td>
<td></td>
</tr>
<tr>
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<td>7</td>
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<td>5</td>
<td>3</td>
<td>8</td>
<td>9</td>
<td>5</td>
<td>9</td>
<td></td>
</tr>
<tr>
<td>M328</td>
<td>3</td>
<td>8</td>
<td>2</td>
<td>5</td>
<td>9</td>
<td>3</td>
<td>4</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>M304</td>
<td>5</td>
<td>9</td>
<td>8</td>
<td>8</td>
<td>6</td>
<td>8</td>
<td>7</td>
<td>7</td>
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<tr>
<td>M336</td>
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<td>4</td>
<td>9</td>
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<td>6</td>
<td>7</td>
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<tr>
<td>Mandarin (Ottawa)</td>
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<td>7</td>
<td>7</td>
<td>9</td>
<td>4</td>
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Table 15. (Continued)

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<tbody>
<tr>
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<td>32.1</td>
<td>15.7</td>
<td>21.9</td>
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<td>35.1</td>
<td>35.9</td>
<td>21.5</td>
<td>25.6</td>
<td>13.1</td>
</tr>
<tr>
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<td>30.3</td>
<td>18.4</td>
<td>24.9</td>
<td>14.2</td>
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</table>

| Mean                    | 26.5             | 16.2         | 18.6         | 37.8          | 34.9           | 33.4          | 22.1        | 25.8          | 14.8           |

| Coef. of Var. (%)       | 5.0              | 7.0          | 11.1         | 5.5           | --             | --            | 5.7         | 4.0           | --             |
| Bu. Nec. for Sig. (5%)  | 1.9              | 1.6          | 3.0          | 3.1           | --             | --            | 1.8         | 1.5           | --             |
| Row Spacing (In.)       | 38               | 36           | 36           | 40            | 40             | 40            | 42          | 40            | 42             |

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<tr>
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<td>5 8 1 6 6 6 5 9 4</td>
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<td>8 5 9 4 8 2 3 7 5</td>
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<tr>
<td>M304</td>
<td>9 1 8 7 4 6 1 2 1</td>
</tr>
<tr>
<td>M336</td>
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<td>4 2 7 9 9 9 9 8 7</td>
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Table 16. Summary of maturity data, days earlier (-) or later (+) than Chippewa, and lodging for the strains in the Uniform Test, Group I, 1958.

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<td>7.5 +5 +17 +6 +13 +3</td>
<td>1.7 2.0 1.2 1.2 1.2 2.0 3.0 1.0</td>
</tr>
<tr>
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<td>1.3 1.0 1.0 1.0 1.0 1.0 2.0 1.0</td>
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<td>0.3 0 0 -3 +1 +2</td>
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</tbody>
</table>

Mean of 15 Tests: 1.6 1.4 1.3 1.3 1.0 1.2 2.6 1.3 1.1

1Madison, Wisconsin and Brookings, South Dakota not included in the mean.
Table 15. (Continued)

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<td>-1</td>
<td>-1</td>
<td>+2</td>
<td>+3</td>
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<td>+3</td>
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<td>-2</td>
<td>-5</td>
<td>-1</td>
<td>-4</td>
<td>-3</td>
<td>-5</td>
</tr>
</tbody>
</table>

| Date planted  | 7-2             | 5-19         | 5-15          | 5-16           | 5-23         | 5-20        | 5-20         | 5-15           | 5-15           |
| Days to mature | 85              | 119          | 120           | 119            | 130          | 125         | 121          | 117            | 130            |

| Lodging       |                 |              |               |                |              |             |              |                |                |
| W9-1982-32    | 1.0             | 1.5          | 1.0           | 1.9            | 3.7          | 2.0         | 1.4          | 1.8            | 1.0            |
| M319          | 1.0             | 1.1          | 1.0           | 1.6            | 4.2          | 1.7         | 1.2          | 1.1            | 1.0            |
| A6K-1428-C4   | 2.0             | 1.9          | 1.0           | 2.5            | 4.7          | 2.0         | 1.4          | 1.2            | 1.0            |
| Chippewa      | 1.3             | 1.1          | 1.0           | 1.9            | 3.0          | 2.1         | 1.2          | 1.2            | 1.0            |
| Blackhawk     | 1.0             | 1.4          | 1.0           | 2.3            | 4.5          | 2.0         | 1.2          | 1.2            | 1.0            |
| M328          | 1.0             | 1.1          | 1.0           | 1.3            | 3.0          | 1.5         | 1.1          | 1.0            | 1.0            |
| M304          | 1.0             | 1.8          | 1.0           | 1.6            | 4.2          | 2.4         | 1.2          | 1.2            | 1.0            |
| M336          | 1.0             | 1.0          | 1.0           | 1.7            | 3.2          | 1.6         | 1.2          | 1.1            | 1.0            |
| Mandarin (Ottawa) | 1.0           | 1.3          | 1.0           | 2.6            | 3.2          | 1.7         | 1.2          | 1.0            | 1.0            |
| Mean          | 1.1             | 1.4          | 1.0           | 1.9            | 3.7          | 1.9         | 1.2          | 1.2            | 1.0            |
Table 17. Summary of height data and percentage of oil for the strains in the Uniform Test, Group I, 1958.

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Table 18. Ten-year summary of agronomic and chemical data for the strains in the Uniform Test, Group I, 1949-1958.

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<th>Seed Quality</th>
<th>Seed Weight</th>
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<td>1.8</td>
<td>16.6</td>
<td>41.6</td>
<td>20.2</td>
<td></td>
</tr>
</tbody>
</table>

1Days earlier (-) or later (+) than Chippewa. Chippewa required 113 days to mature.

Table 19. Ten-year summary of yield in bushels per acre and yield rank for the strains in the Uniform Test, Group I, 1949-1958.

<table>
<thead>
<tr>
<th>Strain</th>
<th>Mean of 150 Tests</th>
<th>Ridge-town Ont.</th>
<th>Hoytville Ohio1</th>
<th>Wooster Ohio</th>
<th>Columbus Ohio</th>
<th>Ida Mich.2</th>
<th>Walkerton Ind.</th>
<th>Durand Wis.3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chippewa</td>
<td>31.2</td>
<td>35.6</td>
<td>31.0</td>
<td>31.9</td>
<td>32.0</td>
<td>34.4</td>
<td>35.1</td>
<td>25.5</td>
</tr>
<tr>
<td>Blackhawk</td>
<td>30.3</td>
<td>33.9</td>
<td>32.2</td>
<td>31.3</td>
<td>31.3</td>
<td>34.0</td>
<td>34.7</td>
<td>26.0</td>
</tr>
<tr>
<td>Mandarin (Ottawa)</td>
<td>27.5</td>
<td>32.1</td>
<td>27.2</td>
<td>26.3</td>
<td>26.9</td>
<td>32.0</td>
<td>33.3</td>
<td>23.6</td>
</tr>
<tr>
<td>Mean</td>
<td>29.7</td>
<td>33.9</td>
<td>30.1</td>
<td>29.8</td>
<td>30.1</td>
<td>33.5</td>
<td>34.4</td>
<td>24.4</td>
</tr>
</tbody>
</table>

Yield Rank

<table>
<thead>
<tr>
<th>Strain</th>
<th>1</th>
<th>2</th>
<th>1</th>
<th>1</th>
<th>1</th>
<th>1</th>
<th>1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chippewa</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Blackhawk</td>
<td>2</td>
<td>1</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Mandarin (Ottawa)</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>3</td>
</tr>
</tbody>
</table>

1Holgate, 1949-1950.
2Deerfield, 1950-1953; Ottawa Lake, 1954 and 1956
3Eau Claire, 1949-1950; Fall City, 1951-1953.
4Compton, 1949-1950.
Table 19. (Continued)

<table>
<thead>
<tr>
<th>Strain</th>
<th>Shabbona Madison</th>
<th>St. Paul Ill.</th>
<th>Waseca Minn.</th>
<th>Cresco Iowa</th>
<th>Kana-wha Iowa</th>
<th>Brookings S.D.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chippewa</td>
<td>33.7 34.4</td>
<td>40.2</td>
<td>36.5</td>
<td>24.2</td>
<td>32.6</td>
<td>20.7</td>
</tr>
<tr>
<td>Blackhawk</td>
<td>35.4 32.9</td>
<td>32.0</td>
<td>34.3</td>
<td>24.0</td>
<td>32.3</td>
<td>20.9</td>
</tr>
<tr>
<td>Mandarin (Ottawa)</td>
<td>28.8 28.8</td>
<td>34.1</td>
<td>30.8</td>
<td>19.4</td>
<td>27.0</td>
<td>19.6</td>
</tr>
<tr>
<td>Mean</td>
<td>32.6 32.0</td>
<td>35.4</td>
<td>33.9</td>
<td>22.5</td>
<td>30.6</td>
<td>20.4</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Yield Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chippewa</td>
</tr>
<tr>
<td>Blackhawk</td>
</tr>
<tr>
<td>Mandarin (Ottawa)</td>
</tr>
</tbody>
</table>
UNIFORM TEST, GROUP II, 1958

<table>
<thead>
<tr>
<th>Strain</th>
<th>Source or Originating Agency</th>
<th>Origin</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adams</td>
<td>Iowa A.E.S. &amp; U.S.R.S.L.</td>
<td>Sel. from Illini x Dunfield</td>
</tr>
<tr>
<td>Blackhawk</td>
<td>Iowa A.E.S. &amp; U.S.R.S.L.</td>
<td>Sel. from Mukden x Richland</td>
</tr>
<tr>
<td>Ford (A0-8618-2)</td>
<td>Iowa A.E.S. &amp; U.S.R.S.L.</td>
<td>Sel. from Lincoln x (Lincoln x Richland)</td>
</tr>
<tr>
<td>Harosoy</td>
<td>Harrow E.S., Harrow, Ont.</td>
<td>Sel. from Mandarin x (Mandarin x A.K.)</td>
</tr>
<tr>
<td>Hawkeye</td>
<td>Iowa A.E.S. &amp; U.S.R.S.L.</td>
<td>Sel. from Mukden x Richland</td>
</tr>
<tr>
<td>Lindarin</td>
<td>Purdue A.E.S. &amp; U.S.R.S.L.</td>
<td>Sel. from Mandarin (Ottawa) x Lincoln</td>
</tr>
<tr>
<td>Lindarin (C1117)</td>
<td>Purdue A.E.S. &amp; U.S.R.S.L.</td>
<td>Sel. from Mandarin (Ottawa) x Lincoln</td>
</tr>
<tr>
<td>A2-4008</td>
<td>Iowa A.E.S. &amp; U.S.R.S.L.</td>
<td>Sel. from Adams x Blackhawk</td>
</tr>
<tr>
<td>A4K-1408</td>
<td>Iowa A.E.S. &amp; U.S.R.S.L.</td>
<td>Sel. from Adams x Capital</td>
</tr>
<tr>
<td>AX29-267-1-1-2</td>
<td>Iowa A.E.S. &amp; U.S.R.S.L.</td>
<td>Sel. from Adams x Hawkeye</td>
</tr>
<tr>
<td>C1128</td>
<td>Purdue A.E.S. &amp; U.S.R.S.L.</td>
<td>Sel. from Wabash x A4-107-12</td>
</tr>
<tr>
<td>C1160</td>
<td>Purdue A.E.S. &amp; U.S.R.S.L.</td>
<td>Sel. from Perry x Mandarin (Ottawa)</td>
</tr>
<tr>
<td>H20771-9</td>
<td>Ohio A.E.S. &amp; U.S.R.S.L.</td>
<td>Sel. from Monroe x Lincoln</td>
</tr>
<tr>
<td>H21793-7</td>
<td>Ohio A.E.S. &amp; U.S.R.S.L.</td>
<td>Sel. from Richland x H2</td>
</tr>
<tr>
<td>L54-1055</td>
<td>Ill. A.E.S. &amp; U.S.R.S.L.</td>
<td>Sel. from Blackhawk x Capital</td>
</tr>
</tbody>
</table>

Identification of Parent Strains

- A4-107-12: Sel. from A45-251 (Mukden x Richland), Hawkeye line
- H2: Sel. from Dunfield x Illini

This test was grown at 26 locations in 1958, and the data are presented in Tables 20 through 28. The general yield level of this test was very similar to the long-time average, yields being up or down moderately at most locations, but severe drought dropped yields well below normal at Madison, Wisconsin and Menno, South Dakota. General strain means for all traits in 1958 were strikingly similar to those in 1957.

The five check varieties and C1128 have been in this test at least five years, and the 5-year means are presented in Tables 27 and 28. C1128 has performed very well, outyielding, at least to some extent, all the varieties except Ford, the tie-in variety from Group III. It also had the highest oil content and equalled Hawkeye in lodging resistance. Compared to Adams, which it closely resembles in maturity, it has a higher average yield, better lodging resistance, possibly higher oil content, and does not retain green stems at maturity as does Adams under certain conditions.

Ford was named in November and will be released to growers in 1959. A history of its development is presented in the report with the Uniform Test, Group III, summaries.

Lindarin was named this past summer and will be released to growers in 1959. It has been in the test since 1956 and the two-year means are presented in Tables 25 and 26. A history of its development is presented below.
Four additional strains have been in test for two years (and were also in Preliminary Test, Group I or II, in 1956). A2-4008 has performed similarly to Hawkeye and is slightly earlier but has had unusually poor seed quality. AX29-267-1-1-2 had a rather low average yield but is outstanding in oil content. The two H-strains are Phytophthora rot resistant but have been quite low in yield and also do not excel in oil content.

The remaining three strains were advanced to this test from the 1957 Preliminary Test, Group II. L54-1055 is resistant to Phytophthora rot and compares very favorably in yield to the resistant H-strains. It is poor in oil content and lodging resistance. C1160 yielded very well and is a day earlier than Hawkeye and equally good in lodging score. A4K-1406 is similar to Harosoy in maturity but was not superior to it in any respect.

**LINDARIN**

Lindarin is a pure line selection from the cross Mandarin (Ottawa) x Lincoln made in 1945 by A. H. Probst. Early generation selection and testing was at Purdue.

Lindarin has gray pubescence, purple flowers and yellow seeds with a buff hilum. The leaves have a marked waviness on the outer edges. The plants pod sparsely near the base, which helps to reduce combining loss.

Lindarin is about a day earlier than Harosoy and is adapted to the northern half of Indiana and Illinois.

The development of Lindarin is as follows:

1945 - Cross CX98, Mandarin (Ottawa) x Lincoln, was made by A. H. Probst at Purdue University, Lafayette, Indiana.


1952 - F₇. Selections CX98-334-3-1, -2, -3, -4, and -5 grown in 8-foot plant rows on muck soil at Walkerton, Indiana. CX98-334-3-1 saved and assigned C1117 designation.
1953 - \( F_8 \). C1117 tested in Indiana Preliminary Test II at Walkerton, Bluffton, and Lafayette.

1954 - \( F_9 \). C1117 grown in Uniform Preliminary Test, Group I. Considered somewhat late for this test.

1955 - \( F_{10} \). C1117 grown in Uniform Preliminary Test, Group II. Fifty plants from seed of \( F_7 \) plant-row grown in 1952 were produced in the greenhouse.

1956 - \( F_{11} \). C1117 grown in Uniform Test, Group II. Fifty \( F_8 \) plant-rows were grown, threshed individually, and seed examined. Seed of 44 rows was composited to give 61 pounds breeder's seed.

1957 - \( F_{12} \). C1117 grown in Uniform Test, Group II. 95 3/4 bushels of breeder's seed \( (F_9) \) of C1117 was produced on the Agronomy Farm at Lafayette, Indiana. One bushel breeder's seed placed in cold storage to perpetuate breeder's seed and to produce foundation seed in future years.

1958 - \( F_{10} \). (Breeder's seed). C1117 (named Lindarin in 1958) grown in Uniform Test, Group II. The Agricultural Alumni Seed Improvement Association planted 106 acres and produced 1,859 bushels of recleaned foundation seed. Illinois purchased 50 bushels of foundation seed for 1959 production and it will be released to growers in 1960. The remaining 1,809 bushels will be allotted to Indiana certified soybean seed growers for 1959 production except allotments that might be requested from other experiment stations.

South Dakota and Wisconsin obtained 5 and 2 bushels for breeder's seed, respectively, for 1958 production. Wisconsin produced 53 bushels of seed but has decided not to release Lindarin.
Table 20. Summary of agronomic and chemical data for the strains in the Uniform Test, Group II, 1958.

<table>
<thead>
<tr>
<th>Strain</th>
<th>Yield Bu./A.</th>
<th>Maturity¹</th>
<th>Lodging</th>
<th>Height Inches</th>
<th>Seed Quality</th>
<th>Seed Weight</th>
<th>Percentage of Protein</th>
<th>Percentage of Oil</th>
</tr>
</thead>
<tbody>
<tr>
<td>C1128</td>
<td>38.6</td>
<td>+4.2</td>
<td>2.2</td>
<td>41</td>
<td>1.6</td>
<td>17.4</td>
<td>40.1</td>
<td>21.5</td>
</tr>
<tr>
<td>L54-1055</td>
<td>38.3</td>
<td>+0.8</td>
<td>2.4</td>
<td>40</td>
<td>1.7</td>
<td>14.5</td>
<td>41.3</td>
<td>19.9</td>
</tr>
<tr>
<td>C1160</td>
<td>38.2</td>
<td>-1.0</td>
<td>2.1</td>
<td>37</td>
<td>1.8</td>
<td>18.1</td>
<td>41.2</td>
<td>20.9</td>
</tr>
<tr>
<td>Ford</td>
<td>38.1</td>
<td>+4.0</td>
<td>2.4</td>
<td>39</td>
<td>1.8</td>
<td>16.7</td>
<td>41.2</td>
<td>20.5</td>
</tr>
<tr>
<td>Harosoy</td>
<td>37.4</td>
<td>-2.9</td>
<td>2.4</td>
<td>39</td>
<td>1.7</td>
<td>17.8</td>
<td>41.1</td>
<td>20.8</td>
</tr>
<tr>
<td>A2-4008</td>
<td>37.3</td>
<td>-1.0</td>
<td>2.1</td>
<td>36</td>
<td>2.3</td>
<td>17.9</td>
<td>40.9</td>
<td>21.0</td>
</tr>
<tr>
<td>Adams</td>
<td>36.9</td>
<td>+1.9</td>
<td>2.4</td>
<td>40</td>
<td>1.4</td>
<td>15.0</td>
<td>40.2</td>
<td>20.9</td>
</tr>
<tr>
<td>Lindarin</td>
<td>36.3</td>
<td>-3.7</td>
<td>1.8</td>
<td>35</td>
<td>1.5</td>
<td>15.8</td>
<td>41.2</td>
<td>21.0</td>
</tr>
<tr>
<td>Hawkeye</td>
<td>35.8</td>
<td>0</td>
<td>2.0</td>
<td>38</td>
<td>1.7</td>
<td>17.9</td>
<td>41.4</td>
<td>20.8</td>
</tr>
<tr>
<td>A4K-1406</td>
<td>35.7</td>
<td>-3.5</td>
<td>2.5</td>
<td>40</td>
<td>1.9</td>
<td>13.5</td>
<td>40.2</td>
<td>20.9</td>
</tr>
<tr>
<td>AX29-267-1-1-2</td>
<td>34.8</td>
<td>-3.2</td>
<td>2.1</td>
<td>38</td>
<td>1.8</td>
<td>15.9</td>
<td>40.4</td>
<td>21.7</td>
</tr>
<tr>
<td>H21793-7</td>
<td>34.3</td>
<td>-0.9</td>
<td>2.1</td>
<td>41</td>
<td>1.7</td>
<td>17.2</td>
<td>42.5</td>
<td>20.0</td>
</tr>
<tr>
<td>H20771-9</td>
<td>33.9</td>
<td>+0.2</td>
<td>2.3</td>
<td>40</td>
<td>1.6</td>
<td>13.8</td>
<td>42.3</td>
<td>20.7</td>
</tr>
<tr>
<td>Blackhawk</td>
<td>32.8</td>
<td>-3.4</td>
<td>1.8</td>
<td>35</td>
<td>1.9</td>
<td>16.4</td>
<td>41.6</td>
<td>20.5</td>
</tr>
<tr>
<td>Mean</td>
<td>36.3</td>
<td>-0.5</td>
<td>2.2</td>
<td>39</td>
<td>1.7</td>
<td>16.3</td>
<td>41.1</td>
<td>20.8</td>
</tr>
</tbody>
</table>

¹Days earlier (-) or later (+) than Hawkeye. Hawkeye required 123 days to mature.
Table 21. Summary of disease reaction data for the strains in the Uniform Test, Group II, 1958.

<table>
<thead>
<tr>
<th>Strain</th>
<th>Bacterial Blight</th>
<th>Bacterial Pustule</th>
<th>Brown Spot</th>
<th>Stem Rot</th>
<th>Frog-eye</th>
<th>Stem Canker(^1)</th>
<th>Phytophthora Rot</th>
<th>Cyst Nematode</th>
</tr>
</thead>
<tbody>
<tr>
<td>C1128</td>
<td>4La,5Aa</td>
<td>4La,5Aa</td>
<td>3Ca</td>
<td>5Ln</td>
<td>RCA</td>
<td>5Cn,3An</td>
<td>SCA,4Hn</td>
<td>4Nn</td>
</tr>
<tr>
<td>L54-1055</td>
<td>4La,5Aa</td>
<td>5La,5Aa</td>
<td>4Ca</td>
<td>5Ln</td>
<td>SCA</td>
<td>RCa,3Hn</td>
<td>SCA,3Hn</td>
<td>3Nn</td>
</tr>
<tr>
<td>C1150</td>
<td>4La,5Aa</td>
<td>4La,4Aa</td>
<td>3Ca</td>
<td>5Ln</td>
<td>SCA</td>
<td>RCA,3Hn</td>
<td>SCA,3Hn</td>
<td>4Nn</td>
</tr>
<tr>
<td>Ford</td>
<td>3La,5Aa</td>
<td>4La,5Aa</td>
<td>4Ca</td>
<td>5Ln</td>
<td>RCA</td>
<td>3An</td>
<td>SCA,4Hn</td>
<td>3Nn</td>
</tr>
<tr>
<td>Harosoy</td>
<td>4La,5Aa</td>
<td>4La,4Aa</td>
<td>3Ca</td>
<td>5Ln</td>
<td>RCA</td>
<td>3An</td>
<td>SCA,4Hn</td>
<td>4Nn</td>
</tr>
<tr>
<td>A2-4008</td>
<td>4La,5Aa</td>
<td>4La,5Aa</td>
<td>4Ca</td>
<td>5Ln</td>
<td>RCA</td>
<td>3An</td>
<td>RCa,2Hn</td>
<td>3Nn</td>
</tr>
<tr>
<td>Adams</td>
<td>4La,5Aa</td>
<td>4La,5Aa</td>
<td>4Ca</td>
<td>5Ln</td>
<td>RCA</td>
<td>11Cn,3An</td>
<td>SCA</td>
<td>3Nn</td>
</tr>
<tr>
<td>Lindarin</td>
<td>4La,5Aa</td>
<td>3La,5Aa</td>
<td>3Ca</td>
<td>5Ln</td>
<td>RCA</td>
<td>3An</td>
<td>SCA</td>
<td>4Nn</td>
</tr>
<tr>
<td>Hawkeye</td>
<td>4La,5Aa</td>
<td>4La,5Aa</td>
<td>5Ca</td>
<td>5Ln</td>
<td>SCA</td>
<td>100Cn,4An</td>
<td>SCA</td>
<td>4Nn</td>
</tr>
<tr>
<td>A4K-1405</td>
<td>4La,4Aa</td>
<td>4La,4Aa</td>
<td>3Ca</td>
<td>5Ln</td>
<td>RCA</td>
<td>SCa</td>
<td>SCA,3Hn</td>
<td></td>
</tr>
<tr>
<td>AX29-267-1-1-2</td>
<td>4La,5Aa</td>
<td>4La,4Aa</td>
<td>4Ca</td>
<td>5Ln</td>
<td>RCA</td>
<td>3An</td>
<td>SCa,3Hn</td>
<td></td>
</tr>
<tr>
<td>H21793-7</td>
<td>4La,4Aa</td>
<td>3La,4Aa</td>
<td>4Ca</td>
<td>5Ln</td>
<td>SCA</td>
<td>RCa</td>
<td></td>
<td></td>
</tr>
<tr>
<td>H20771-9</td>
<td>4La,4Aa</td>
<td>4La,4Aa</td>
<td>5Ca</td>
<td>5Ln</td>
<td>RCA</td>
<td>RCa</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Blackhawk</td>
<td>4La,5Aa</td>
<td>4La,5Aa</td>
<td>3Ca</td>
<td>5Ln,3An</td>
<td>SCA</td>
<td>44Cn,3An</td>
<td>RCa</td>
<td>4Nn</td>
</tr>
<tr>
<td>Lincoln (Check)</td>
<td>4La,5Aa</td>
<td>4La,5Aa</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

\(^1\)Stem canker readings from Indiana (C) are percentages of diseased plants based on the number of infected Hawkeye as 100%. Readings from Iowa (A) follow the regular 1-5 ratings of the Soybean Disease Classification Standards, 1955 (RSLM 179).
Table 22. Summary of yield in bushels per acre and yield rank for the strains in the Uniform Test, Group II, 1958.

<table>
<thead>
<tr>
<th>Strain</th>
<th>Mean Ridge-New-Hoyt-Woos-lum-</th>
<th>Mean Lafayette</th>
<th>Worth-</th>
<th>Co-Walk-Lafayette</th>
<th>Walk-Bluff-Indiana</th>
<th>Green-ing-Madian-</th>
<th>Tests(\text{Ont.} Dom, Ohio Ohio Ohio Mich, Ind. Ind. 5-14 7-1 Ind. Ind. Wis.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cl128</td>
<td>38.6 40.0 44.7 35.1 46.8 50.1 47.1 33.0 40.0 47.8 32.8 38.1 37.0 22.1</td>
<td>38.9 37.1 39.4 35.6 48.3 50.6 43.2 36.3</td>
<td>39.6 49.3 29.3 40.9 35.0 22.4</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
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1 Lafayette, Indiana planted July 1 not included in the mean.
2 Waseca, Minnesota planted May 20.
3 Lafayette, Indiana planted July 1, Kirksville, Missouri, and Menno, South Dakota not included in the mean.
Table 23. (Continued)

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<th>Kansa-pen-cil</th>
<th>Inde-pence</th>
<th>Kirks-Men-Con-</th>
<th>Lin-hat-</th>
<th>Pow-er-</th>
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1Lafayette, Indiana planted July 1 and Menno, South Dakota not included in the mean.
Table 24. (Continued)

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<th>Independence</th>
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1Days earlier (-) or later (+) than Hawkeye. Hawkeye required 120 days to mature.

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Table 27. Five-year summary of agronomic and chemical data for the strains in the Uniform Test, Group II, 1954-1958.

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1 Days earlier (-) or later (+) than Hawkeye. Hawkeye required 121 days to mature.


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1 Ottawa Lake, 1954 and 1956.
3 Viborg, 1954.
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Mean 38.6 39.8 39.7 33.1 35.6 31.9 29.1 31.0 28.3 21.0 34.3

Yield Rank

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S.D.³

- 55 -
Identification of Parent Strains

C1079  Sel. from C985 (Lincoln x Ogden)

This test was grown at 11 locations and the data are presented in Tables 29 through 32. Preliminary Tests were grown separately from the Uniform Tests this year.

The test consisted of four check varieties, ten experimental strains, and two vegetable varieties, Kim and Kanrich, which were included to test their regional adaptation.

The three selections from CX252, Harosoy x C1079, are outstanding in the test. They were between Hawkeye and Harosoy in maturity, ranked highest in yield in the test, and equalled or excelled the checks in most other traits, being especially good in lodging resistance, and, in the case of two of them, in oil content. CX252-34-3 was the best of the three, considering all traits.

S6-5004, a day later than Hawkeye, was also excellent in lodging resistance and yield.

The remaining strains did not excel the checks in yield. H20833-7 is of interest because of its Phytophthora rot resistance. It matured along with Hawkeye and was slightly higher in average yield but lower than Harosoy. Its lodging susceptibility was also intermediate between Harosoy and Hawkeye, and in other traits it appears to be quite satisfactory.
Table 29. Summary of agronomic and chemical data for the strains in the Uniform Preliminary Test, Group II, 1958.

<table>
<thead>
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<th>Strain</th>
<th>Yield Bu./A.</th>
<th>Yield Rank</th>
<th>Maturity</th>
<th>Lodging</th>
<th>Height Inches</th>
<th>Seed Quality</th>
<th>Seed Weight</th>
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<td>18.3</td>
<td>41.4</td>
<td>20.5</td>
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1 Days earlier (-) or later (+) than Hawkeye. Hawkeye required 127 days to mature.
Table 30. Summary of disease reaction data for the strains in the Uniform Preliminary Test, Group II, 1958.

<table>
<thead>
<tr>
<th>Strain</th>
<th>Bacterial Blight</th>
<th>Bacterial Pustule</th>
<th>Brown Stem Rot</th>
<th>Brown Spot</th>
<th>Phytophthora Rot</th>
<th>Cyst Nematode</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blackhawk</td>
<td>4La,5Aa</td>
<td>4La,5Aa</td>
<td>3Ca</td>
<td>5Ln</td>
<td>44Cn,3An</td>
<td>RCa,2Hn</td>
</tr>
<tr>
<td>Ford</td>
<td>3La,5Aa</td>
<td>4La,5Aa</td>
<td>4Ca</td>
<td>5Ln</td>
<td>RCA</td>
<td>3An</td>
</tr>
<tr>
<td>Harosoy</td>
<td>4La,5Aa</td>
<td>4La,5Aa</td>
<td>3Ca</td>
<td>5Ln</td>
<td>RCA</td>
<td>RCA</td>
</tr>
<tr>
<td>Hawkeye</td>
<td>4La,5Aa</td>
<td>4La,4Aa</td>
<td>5Ca</td>
<td>5Ln</td>
<td>RCA</td>
<td>RCA</td>
</tr>
<tr>
<td>Kanrich</td>
<td>5La,3Aa</td>
<td>5La,3Aa</td>
<td>4Ca</td>
<td>5Ln</td>
<td>RCA</td>
<td>RCA</td>
</tr>
<tr>
<td>Kim</td>
<td>3La,4Aa</td>
<td>4La,3Aa</td>
<td>3Ca</td>
<td>5Ln</td>
<td>RCA</td>
<td>RCA</td>
</tr>
<tr>
<td>A6-7818</td>
<td>4La,4Aa</td>
<td>4La,3Aa</td>
<td>3Ca</td>
<td>5Ln</td>
<td>RCA</td>
<td>RCA</td>
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<td>4La,4Aa</td>
<td>3Ca</td>
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<td>RCA</td>
<td>RCA</td>
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<td>3La,4Aa</td>
<td>4Ca</td>
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<td>RCA</td>
</tr>
<tr>
<td>CX252-26-4</td>
<td>4La,4Aa</td>
<td>3La,4Aa</td>
<td>3Ca</td>
<td>5Ln</td>
<td>RCA</td>
<td>RCA</td>
</tr>
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<td>CX252-34-3</td>
<td>3La,3Aa</td>
<td>3La,4Aa</td>
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<td>5Ln</td>
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<td>RCA</td>
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</tr>
<tr>
<td>W1-2118</td>
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<td>3La,4Aa</td>
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<td>RCA</td>
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</table>

1Stem canker readings from Indiana (C) are percentages of diseased plants based on the number of infected Hawkeye as 100%. Readings from Iowa (A) follow the regular 1-5 ratings of the Soybean Disease Classification Standards, 1955 (RSLM 179).
Table 31. Summary of yield in bushels per acre and yield rank for the strains in the Uniform Preliminary Test, Group II, 1958.

<table>
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<tr>
<th>Strain</th>
<th>Mean of 11 Tests</th>
<th>Mean Yield Rank</th>
<th>Ridge-town Ont.</th>
<th>Hoyt-town Ohio</th>
<th>Wooster Ohio</th>
<th>Columbus Ohio</th>
<th>Walkerton Ind.</th>
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<td>36.5</td>
<td>34.9</td>
<td>51.5</td>
<td>34.0</td>
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<tr>
<td>Harosoy</td>
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<td>6</td>
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<td>34.3</td>
<td>38.2</td>
<td>43.7</td>
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<td>30.8</td>
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Yield Rank

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<td>Kanrich</td>
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1Madison, Wisconsin and Menno, South Dakota not included in the mean.
2Four replications.
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<th>Ur­ ban­ a</th>
<th>Ka­ na­ wha</th>
<th>Ames</th>
<th>Kirks­ ville</th>
<th>Concord</th>
<th>Nebr.</th>
<th>Menno</th>
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<tr>
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<td>45.0</td>
<td>24.9</td>
<td>47.0</td>
<td>27.6</td>
<td>47.5</td>
<td>31.2</td>
<td>38.3</td>
<td>38.3</td>
<td>3.5</td>
<td></td>
</tr>
<tr>
<td>U2-28</td>
<td>35.8</td>
<td>25.1</td>
<td>48.1</td>
<td>27.4</td>
<td>49.9</td>
<td>33.5</td>
<td>31.4</td>
<td>31.4</td>
<td>4.2</td>
<td></td>
</tr>
<tr>
<td>W1-2118</td>
<td>36.8</td>
<td>20.8</td>
<td>42.9</td>
<td>26.0</td>
<td>33.3</td>
<td>33.0</td>
<td>41.8</td>
<td>41.8</td>
<td>7.2</td>
<td></td>
</tr>
<tr>
<td>W3-1069</td>
<td>39.7</td>
<td>23.1</td>
<td>45.5</td>
<td>27.4</td>
<td>39.4</td>
<td>34.2</td>
<td>38.3</td>
<td>38.3</td>
<td>7.7</td>
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</table>

| Mean         | 40.9        | 22.7    | 47.1      | 25.6      | 42.2       | 32.7 | 37.4        | 37.4    | 7.9   |
| Coef. of Var. (%) | 7.1  | 10.5    | 8.6       | 6.3       | 7.2       | --    | 10.2        | --      | --    |
| Bu. Nec. for Sig. (5%) | N.S. | --      | N.S.      | 3.4       | 6.5       | --    | N.S.        | --      | --    |
| Row Spacing (In.) | 40    | 36      | 40        | 40        | 40        | 40    | 42          |         |       |

<table>
<thead>
<tr>
<th>Yield Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blackhawk</td>
</tr>
<tr>
<td>Ford</td>
</tr>
<tr>
<td>Harosoy</td>
</tr>
<tr>
<td>Hawkeye</td>
</tr>
<tr>
<td>Kanrich</td>
</tr>
<tr>
<td>Kim</td>
</tr>
<tr>
<td>A6-7818</td>
</tr>
<tr>
<td>AX58-C41-1</td>
</tr>
<tr>
<td>CK252-3-1</td>
</tr>
<tr>
<td>CK252-26-4</td>
</tr>
<tr>
<td>CK252-34-3</td>
</tr>
<tr>
<td>HZ20833-7</td>
</tr>
<tr>
<td>S6-5004</td>
</tr>
<tr>
<td>U2-28</td>
</tr>
<tr>
<td>W1-2118</td>
</tr>
<tr>
<td>W3-1069</td>
</tr>
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</table>
Table 32. Summary of maturity data, days earlier (-) or later (+) than Hawkeye, for the strains in the Uniform Preliminary Test, Group II, 1958.

<table>
<thead>
<tr>
<th>Strain</th>
<th>Mean of 11 Tests</th>
<th>Ridge-town Ont.</th>
<th>Hoyt-ville Ohio</th>
<th>Wooster Ohio</th>
<th>Columbus Ohio</th>
<th>Walkerton Ind.</th>
</tr>
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<tbody>
<tr>
<td>Blackhawk</td>
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<td>+3</td>
<td>-15</td>
<td>-9</td>
<td>-6</td>
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<tr>
<td>Ford</td>
<td>+4.2</td>
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<td>+4</td>
<td>0</td>
<td>+8</td>
<td>+3</td>
</tr>
<tr>
<td>Harosoy</td>
<td>-4.1</td>
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<td>-5</td>
<td>-14</td>
<td>-5</td>
<td>-2</td>
</tr>
<tr>
<td>Hawkeye</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Kanrich</td>
<td>+5.7</td>
<td>+6</td>
<td>+5</td>
<td>+4</td>
<td>+11</td>
<td>+6</td>
</tr>
<tr>
<td>Kim</td>
<td>+4.9</td>
<td>+8</td>
<td>+3</td>
<td>+3</td>
<td>+5</td>
<td>+6</td>
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<td>A6-7818</td>
<td>+3.3</td>
<td>+1</td>
<td>0</td>
<td>+1</td>
<td>-1</td>
<td>+4</td>
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<tr>
<td>AX58-C41-1</td>
<td>+4.9</td>
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<td>CX252-26-4</td>
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<tr>
<td>S5-5004</td>
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<td>0</td>
<td>0</td>
</tr>
<tr>
<td>U2-28</td>
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<td>+2</td>
<td>+4</td>
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<td>+1</td>
</tr>
<tr>
<td>W1-2118</td>
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<td>-7</td>
<td>-11</td>
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<td>-4</td>
</tr>
<tr>
<td>W3-1069</td>
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<td>-3</td>
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<td>-10</td>
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<thead>
<tr>
<th>Date planted2</th>
<th>5-20</th>
<th>5-26</th>
<th>5-20</th>
<th>5-14</th>
<th>5-16</th>
<th>5-27</th>
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</thead>
<tbody>
<tr>
<td>Days to mature</td>
<td>127</td>
<td>131</td>
<td>131</td>
<td>139</td>
<td>134</td>
<td>128</td>
</tr>
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</table>

1Madison, Wisconsin not included in the mean.
2Menno, South Dakota planted May 19.
Table 32. (Continued)

<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
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<tbody>
<tr>
<td>Blackhawk</td>
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<td>-4</td>
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<td>-3</td>
<td>-2</td>
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<tr>
<td>Ford</td>
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<td>+6</td>
<td>+4</td>
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<td>+2</td>
</tr>
<tr>
<td>Harosoy</td>
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<td>-3</td>
<td>-1</td>
<td>-2</td>
<td>-5</td>
<td>-1</td>
<td>-2</td>
</tr>
<tr>
<td>Hawkeye</td>
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<td>0</td>
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<td>Kanrich</td>
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<td>+7</td>
<td>+6</td>
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<td>+6</td>
<td>+2</td>
</tr>
<tr>
<td>Kim</td>
<td>+5</td>
<td>+19</td>
<td>+6</td>
<td>+8</td>
<td>+4</td>
<td>+1</td>
<td>+5</td>
</tr>
<tr>
<td>A6-7818</td>
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<td>0</td>
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<td>+1</td>
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<td>S6-5004</td>
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<td>+4</td>
<td>0</td>
<td>+3</td>
<td>+1</td>
</tr>
<tr>
<td>U2-28</td>
<td>+7</td>
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<td>+6</td>
<td>+5</td>
<td>+4</td>
<td>+5</td>
<td>+5</td>
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<td>W1-2118</td>
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<td>+1</td>
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<td>W3-1069</td>
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<td>+2</td>
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<td>-2</td>
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<tr>
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<th>5-15</th>
<th>5-13</th>
<th>5-15</th>
<th>5-14</th>
<th>5-25</th>
<th>6-3</th>
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<tbody>
<tr>
<td>Hawkeye matured</td>
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<td>9-27</td>
<td>9-15</td>
<td>9-20</td>
<td>9-24</td>
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<tr>
<td>Days to mature</td>
<td>126</td>
<td>135</td>
<td>125</td>
<td>128</td>
<td>133</td>
<td>110</td>
<td>118</td>
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</table>
**UNIFORM TEST, GROUP III, 1958**

<table>
<thead>
<tr>
<th>Strain</th>
<th>Source or Originating Agency</th>
<th>Origin</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clark</td>
<td>Ill. A.E.S. &amp; U.S.R.S.L.</td>
<td>Sel. from Lincoln x (Lincoln x Richland)</td>
</tr>
<tr>
<td>Ford (AO-8618-2)</td>
<td>Iowa A.E.S. &amp; U.S.R.S.L.</td>
<td>Sel. from Lincoln x (Lincoln x Richland)</td>
</tr>
<tr>
<td>Lincoln</td>
<td>Ill. A.E.S. &amp; U.S.R.S.L.</td>
<td>Sel. from Mandarin x Manchu</td>
</tr>
<tr>
<td>Shelby (L9-5139)</td>
<td>Ill. A.E.S. &amp; U.S.R.S.L.</td>
<td>Sel. from Lincoln x (Lincoln x Richland)</td>
</tr>
<tr>
<td>A3-6319</td>
<td>Iowa A.E.S. &amp; U.S.R.S.L.</td>
<td>Sel. from Adams x (Adams x Hawkeye)</td>
</tr>
<tr>
<td>C1128</td>
<td>Purdue A.E.S. &amp; U.S.R.S.L.</td>
<td>Sel. from Wabash x A4-107-12</td>
</tr>
<tr>
<td>S2-5179</td>
<td>Mo. A.E.S. &amp; U.S.R.S.L.</td>
<td>Sel. from Lincoln x (Lincoln x Richland)</td>
</tr>
<tr>
<td>S6-1018</td>
<td>Mo. A.E.S. &amp; U.S.R.S.L.</td>
<td>Sel. from '54-1207</td>
</tr>
</tbody>
</table>

**Identification of Parent Strains**

- S4-1207: A4-107-12 x (L9-4091 x L6-2132-1)
- A6-107-12: Sel. from A45-251 (Mukden x Richland), Hawkeye line
- L6-2132: Sel. from Lincoln x (Lincoln x Richland), progenitor of Clark
- L9-4091: Pustule resistant selection from (Lincoln x (Lincoln x Richland)) x (Lincoln x CNS)

This test was grown at 23 locations in 1958, and the data are presented in Tables 33 through 39. The general yield level was high this year, being about 20% higher than the mean of the six previous years. Yields at most locations were 3 to 18 bushels higher than the long-time mean and were lower at only two locations, Worthington, Indiana, and Laddonia, Missouri.

The four check varieties have been in test for seven years, and their 7-year means are presented in Tables 38 and 39. Two of these, Ford and Shelby, were named and released in 1958 and the history of their development is given below.

There are four strains in the test this year. One of them, C1128, has been in the Group II test for several years. Its maturity places it more properly in Group III, and so it was included in this test in 1958 for the first time. Its maturity was unusually late this year since in the past it has been similar to Adams and almost 3 days earlier than Shelby, while this year its average maturity was similar to Ford. Yield-wise, it did not perform so well in this test, but it has excellent oil content and lodging resistance.

Strain S6-1018 is a reselection from S4-1207, which was in this test in 1957. It is similar to Shelby in maturity, is equal to it or slightly better in all other traits measured, and in addition is resistant to bacterial pustule.

S2-5179, a sib of Shelby, was very similar to it in all traits and was a little higher in yield in this test as well as in the Preliminary Test in 1957.

The fourth strain, A3-6319, was also entered from the 1957 Preliminary Test. It was intermediate between Shelby and Clark in both maturity and yield.
Ford was named in 1958 and will be released for production in Iowa, Nebraska, and South Dakota in 1959. Ford, formerly strain A0-8618-2, is a BC1Sg line from the cross Lincoln x (Lincoln x Richland). It matures a day or two earlier than Lincoln and is similar to it in general appearance. It has consistently outyielded Lincoln in its area of adaptation and yields relatively better north of the area where Shelby is best adapted. It has white flowers, tawny pubescence, dark brown pods, and shiny yellow seeds with black hilums. Ford is resistant to frogeye leaf spot.

The following is a detailed outline of the origin and development of Ford.

1941 - Cross AX3015 made between Lincoln and Richland at Ames, Iowa.
1941-42 winter - AX3015 sent to L. F. Williams and backcross, LX938, Lincoln x (Lincoln x Richland) made in greenhouse at Urbana, Illinois.
1942 - BC1 grown at Urbana, Illinois, and portion of seed sent to Iowa.
1943 - BC1S1. 610 plant rows grown at Kanawha, Iowa. Each of 610 plant rows bulked and brought to Ames.
1944 - BC1S2. 610 bulked rows grown at Ames, Iowa. Selected 450 plants.
1945 - BC1S3. 450 plant rows grown at Ames, Iowa. Selected 360 plants.
1946 - BC1S4. Plant rows grown at Ames, Iowa. 98 best rows bulked and selected 290 plants.
1947 - BC1S5. 290 plant rows grown at Ames, Iowa. 48 best rows bulked.
1949 - BC1S7. 27 lines tested in 4 replications each at Ames and Ottumwa, Iowa. A7-6402 second highest yield. Selected 5 plants from each line.
1950 - BC1S8. 10 lines tested in 6 replications each at Ames and Ottumwa, Iowa. A7-6402 highest yield. 50 plant rows grown at Ames. 2 plant rows bulked from each line.
1951 - BC1S9. 7 lines plus daughter strains tested in 6 replications each at Ames and Ottumwa, Iowa. A0-8618 highest yield. A7-6402 tested in Uniform Test, Group III.
1952 - BC1S10. 5 lines plus 31 unrelated strains tested in 3 replications each at Ames and Ottumwa, Iowa. A0-8618 second highest yield. A7-6402 and A0-8618 in Uniform Tests, Group II and III.
1953 - BC1S11. A0-8618 tested with 25 additional strains in 4 replications each at Ames and Ottumwa, Iowa. Third highest yield. A0-8618 tested in Uniform Tests, Group II and III.
1954 - $BC_1 S_{12}$. AO-8618 tested with 31 additional strains in 4 replications each at Ames and Ottumwa. Fifth highest yield. AO-8618 tested in Uniform Tests, Group II and III. Selected 200 single plants of purple and white flowered strains.

1955 - $BC_1 S_{13}$. AO-8618 tested with AO-8618-1 (purple flower) and AO-8618-2 (white flower) plus 27 additional strains in 4 replications each at Ames and Ottumwa, Iowa. AO-8618 tested in Uniform Tests, Group II and III. From 100 plant rows about 2 bushels of AO-8618-2 pedigreed seed produced.

1955 - $BC_1 S_{14}$. AO-8618 tested with AO-8618-1 and AO-8618-2 in Uniform Tests, Group II and III. AO-8618-2 increased to 30 bushels. 10 bushels sent to each Nebraska and South Dakota in fall.

1957 - $BC_1 S_{14}$. AO-8618-2 tested in Uniform and Preliminary Tests, Group II and III. Increased to 300 bushels in Iowa. Approximately same in Nebraska and South Dakota.

1958 - AO-8618-2 named Ford. Second increase by the three states of Iowa, Nebraska, and South Dakota amounted to 7,000 bushels. Tested in Uniform and Preliminary Tests, Group II and III.

**SHELBY**

Shelby was named in 1958 and released for production in Illinois, Indiana, and Missouri in 1959. Shelby, formerly strain L9-5139, is a $BC_1 S_7$ line from the cross Lincoln x (Lincoln x Richland). It matures at the same time as Lincoln and is similar to it in many respects. It has consistently outyielded Lincoln in its area of adaptation and frequently resists lodging somewhat better. Its seeds are slightly larger and frequently higher in quality than those of Lincoln. It is similar to Lincoln in plant appearance but the stems appear coarser and flower color is purple instead of white. Its pubescence is tawny in color, the seeds are yellow with black hilums, and the pods are dark brown. The seed coat has a dull luster like Clark in contrast to the shiny luster of Lincoln and Ford. Shelby is resistant to frogeye leaf spot.

The following is a brief outline of the history of the development of Shelby.

1941 - AX3015, Lincoln (L6-685) x Richland cross made by M. G. Weiss at Ames, Iowa.

1941-42 winter - LX938, Lincoln x (F1 of Lincoln x Richland) backcross, made by L. F. Williams in the greenhouse at Urbana, Illinois.

1942 - $BC_1$. 700 plants grown at Urbana, Illinois.

1943 - $BC_1 S_1$. 700 plant progeny rows grown at Urbana and plant selections (including plant number 482-2) made from them.

1944 - $BC_1 S_2$. 2,000 plant progeny rows grown at Urbana, Illinois. Best looking rows harvested (including L4-1458 from plant 482-2).

1946 - BC₁S₄. Performance test of 1,200 plant progenies (including strain L6-2132 grown from plant L4-1458-3) in 2-replicated, 8-foot rows at Urbana and in 1 8-foot row at Stonington, Illinois.

1947 - BC₁S₅. Performance test of 70 lines at Urbana and Stonington, Illinois, with four replications at each location.

1948 - BC₁S₆. L6-2132, along with four other lines from this cross, entered in Preliminary Test, Group III, grown at five locations in Illinois, Indiana, Iowa, and Missouri. Ten plants isolated and designated L6-2132-1 to -10.

1949 - BC₁S₇. L6-2132 entered in Uniform Test, Group III. Ten plant progeny rows grown at Urbana, Illinois, including L9-5139 from L6-2132-3 (and also L9-5138 from L6-2132-2).

1950 - BC₁S₈. L6-2132 grown in Uniform Test, Group III. Ten reselected lines (including L9-5139 and L9-5138) grown in performance test at Urbana, Illinois with 4 replications. L9-5139 was appreciably earlier than other selections but lower in yield. (L9-5138 was highest in yield and was later released as Clark.)

1951 - BC₁S₉. L9-5139 tested at seven locations in Illinois as an extra strain in Uniform Test, Group III. Averaged 4 bushels higher than Lincoln.

1952 to 1958 - L9-5139 tested in Uniform Test, Group III, and averaged 2.7 bushels higher than Lincoln and over a bushel higher than Ford.

From 1954 to 1957, strain L9-5139 was entered in the Group II test also, and averaged 1.6 bushels higher than Lincoln in yield and almost a bushel higher than Harosoy, the top-yielding check variety in this test, but slightly less than Ford.

1956 - Decision made to release L9-5139. 230 pounds of breeder's seeds produced at Lafayette, Indiana, and Urbana, Illinois, from about 200 plant progeny rows.

1957 - Foundation seeds produced on nine acres in Illinois, Indiana, and Missouri.

1958 - Foundation seeds produced on 737 acres in the three states (Illinois, 16,000 bushels; Indiana, 3,000 bushels; Missouri, 5,000 bushels). Named Shelby after counties in its area of adaptation in the three states and publicity released in August, 1958.
Table 33. Summary of agronomic and chemical data for the strains in the Uniform Test, Group III, 1958.

<table>
<thead>
<tr>
<th>Strain</th>
<th>Yield Bu./A.</th>
<th>Maturity(^1)</th>
<th>Lodging</th>
<th>Height Inches</th>
<th>Seed Quality</th>
<th>Seed Weight</th>
<th>Percentage of Protein</th>
<th>Percentage of Oil</th>
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<td>20</td>
<td>19</td>
<td>21</td>
<td>18</td>
<td>21</td>
<td>21</td>
<td>21</td>
</tr>
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<td>Clark</td>
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<td>2.3</td>
<td>42</td>
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<td>16.6</td>
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<td>A3-6319</td>
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<td>2.3</td>
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<td>17.9</td>
<td>39.6</td>
<td>21.5</td>
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\(^1\)Days earlier (-) or later (+) than Shelby. Shelby required 122 days to mature.

Table 34. Summary of disease reaction data for the strains in the Uniform Test, Group III, 1958.

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<th>Bacterial Pustule</th>
<th>Brown Stem Rot</th>
<th>Brown Spot</th>
<th>Frog-eye</th>
<th>Stem Canker(^1)</th>
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\(^1\)Stem canker readings from Indiana (C) are percentages of diseased plants based on the number of infected Hawkeye as 100%. Readings from Iowa (A) follow the regular 1-5 ratings of the Soybean Disease Classification Standards, 1955 (RSLM 179).
Table 35. Summary of yield in bushels per acre and yield rank for the strains in the Uniform Test, Group III, 1958.

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<sup>1</sup>Glassboro, New Jersey, Columbus, Ohio, Lafayette, Indiana planted July 1, and Carbondale, Illinois not included in the means.
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Table 36. Summary of maturity data, days earlier (-) or later (+) than Shelby, and lodging for the strains in the Uniform Test, Group III, 1958.

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<th>George-town</th>
<th>Hoyt-ville</th>
<th>Bluff-ton</th>
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<th>Green-ting</th>
<th>Worth-ton</th>
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¹Glassboro, New Jersey, Columbus, Ohio, and Lafayette, Indiana planted July 1 not included in the mean.
²Laddonia, Missouri planted June 6.
³Glassboro, New Jersey, Columbus, Ohio, Lafayette, Indiana planted July 1, and Kirksville, Missouri not included in the mean.
Table 36. (Continued)

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Date pltd.\(^2\)  5-22  5-13  5-14  5-22  5-14  5-22  5-14  5-14  5-13  5-25  5-8  5-29  6-4  5-24  
Days to mat.  115  132  123  114  115  103  138  136  115  126  125  115  126  

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Table 37. Summary of height data and percentage of oil for the strains in the Uniform Test, Group III, 1958.

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<th>Newark Del.</th>
<th>Hoytville Ohio</th>
<th>Columbus Ohio</th>
<th>Bluffton Ohio</th>
<th>Lafayette Indiana Planted 5-14 7-1</th>
<th>Greenfield Ind.</th>
<th>Worthington Ind.</th>
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*Columbus, Ohio and Lafayette, Indiana planted July 1 not included in the mean.
^Glassboro, New Jersey, Columbus, Ohio, and Lafayette, Indiana planted July 1 not included in the mean.
Table 37. (Continued)

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<th>Kirksville</th>
<th>Ladora</th>
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<th>Lincoln</th>
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<td>34</td>
</tr>
<tr>
<td>Ford</td>
<td>44</td>
<td>46</td>
<td>42</td>
<td>46</td>
<td>34</td>
<td>42</td>
<td>45</td>
<td>38</td>
<td>33</td>
<td>47</td>
<td>44</td>
<td>32</td>
</tr>
<tr>
<td>C1128</td>
<td>45</td>
<td>49</td>
<td>44</td>
<td>50</td>
<td>33</td>
<td>44</td>
<td>46</td>
<td>40</td>
<td>33</td>
<td>44</td>
<td>49</td>
<td>35</td>
</tr>
<tr>
<td>Lincoln</td>
<td>45</td>
<td>46</td>
<td>42</td>
<td>49</td>
<td>36</td>
<td>42</td>
<td>44</td>
<td>39</td>
<td>33</td>
<td>41</td>
<td>46</td>
<td>34</td>
</tr>
<tr>
<td>Mean</td>
<td>45</td>
<td>47</td>
<td>43</td>
<td>49</td>
<td>35</td>
<td>43</td>
<td>46</td>
<td>40</td>
<td>35</td>
<td>44</td>
<td>46</td>
<td>33</td>
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Percentage of Oil

<table>
<thead>
<tr>
<th>Strain</th>
<th>Clark</th>
<th>A3-6319</th>
<th>S6-1018</th>
<th>S2-5179</th>
<th>Shelby</th>
<th>Ford</th>
<th>C1128</th>
<th>Lincoln</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clark</td>
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<td>21.3</td>
<td>21.3</td>
<td>22.0</td>
<td>22.0</td>
<td>21.0</td>
<td>20.8</td>
<td>20.7</td>
<td>22.0</td>
</tr>
<tr>
<td>A3-6319</td>
<td>21.3</td>
<td>22.1</td>
<td>21.4</td>
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<td>21.7</td>
<td>20.2</td>
<td>20.8</td>
<td>21.2</td>
<td>22.3</td>
</tr>
<tr>
<td>S6-1018</td>
<td>20.9</td>
<td>21.3</td>
<td>21.2</td>
<td>22.4</td>
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<td>20.6</td>
<td>20.4</td>
<td>20.4</td>
<td>22.1</td>
</tr>
<tr>
<td>S2-5179</td>
<td>21.4</td>
<td>21.4</td>
<td>21.2</td>
<td>22.3</td>
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<td>21.2</td>
<td>20.4</td>
<td>20.8</td>
<td>22.1</td>
</tr>
<tr>
<td>Shelby</td>
<td>21.3</td>
<td>21.3</td>
<td>21.4</td>
<td>22.2</td>
<td>21.7</td>
<td>21.4</td>
<td>21.5</td>
<td>20.9</td>
<td>22.1</td>
</tr>
<tr>
<td>Ford</td>
<td>20.9</td>
<td>21.9</td>
<td>20.8</td>
<td>21.8</td>
<td>22.0</td>
<td>20.9</td>
<td>21.2</td>
<td>20.2</td>
<td>22.0</td>
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<tr>
<td>C1128</td>
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<td>22.4</td>
<td>22.7</td>
<td>23.3</td>
<td>22.5</td>
<td>21.5</td>
<td>22.0</td>
<td>21.4</td>
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</tr>
<tr>
<td>Lincoln</td>
<td>22.0</td>
<td>21.5</td>
<td>21.7</td>
<td>22.8</td>
<td>21.6</td>
<td>21.6</td>
<td>21.1</td>
<td>20.7</td>
<td>22.3</td>
</tr>
<tr>
<td>Mean</td>
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<td>21.7</td>
<td>21.5</td>
<td>22.4</td>
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<td>21.1</td>
<td>21.0</td>
<td>20.9</td>
<td>22.2</td>
</tr>
</tbody>
</table>
Table 38. Seven-year summary of agronomic and chemical data for the strains in the Uniform Test, Group III, 1952-1958.

<table>
<thead>
<tr>
<th>Strain</th>
<th>Yield Bu./A.</th>
<th>Maturity</th>
<th>Lodging</th>
<th>Height</th>
<th>Seed Quality</th>
<th>Seed Weight</th>
<th>Percentage of Protein</th>
<th>Percentage of Oil</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. of Tests</td>
<td>140</td>
<td>118</td>
<td>125</td>
<td>135</td>
<td>124</td>
<td>139</td>
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</tr>
<tr>
<td>Clark</td>
<td>38.1</td>
<td>+5.8</td>
<td>1.9</td>
<td>40</td>
<td>1.7</td>
<td>16.0</td>
<td>40.7</td>
<td>21.4</td>
</tr>
<tr>
<td>Shelby</td>
<td>35.5</td>
<td>0</td>
<td>2.1</td>
<td>40</td>
<td>1.9</td>
<td>15.4</td>
<td>40.7</td>
<td>21.4</td>
</tr>
<tr>
<td>Ford</td>
<td>33.9</td>
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<td>2.1</td>
<td>39</td>
<td>2.2</td>
<td>16.0</td>
<td>41.1</td>
<td>21.1</td>
</tr>
<tr>
<td>Lincoln</td>
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<td>+0.1</td>
<td>2.2</td>
<td>39</td>
<td>2.2</td>
<td>14.3</td>
<td>40.7</td>
<td>21.4</td>
</tr>
<tr>
<td>Mean</td>
<td>35.1</td>
<td>2.1</td>
<td>40</td>
<td>2.0</td>
<td>15.4</td>
<td>40.8</td>
<td>21.3</td>
<td></td>
</tr>
</tbody>
</table>

*Days earlier (-) or later (+) than Shelby. Shelby required 121 days to mature.

Table 39. Seven-year summary of yield in bushels per acre and yield rank for the strains in the Uniform Test, Group III, 1952-1958.

<table>
<thead>
<tr>
<th>Strain</th>
<th>Yield Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clark</td>
<td>1 1 1 1 1 1 1 1 2 1</td>
</tr>
<tr>
<td>Shelby</td>
<td>2 2 3 2 3 2 2 3 2</td>
</tr>
<tr>
<td>Ford</td>
<td>4 3 2 4 2 3 3 1 3</td>
</tr>
<tr>
<td>Lincoln</td>
<td>3 4 3 3 4 4 4 4 4</td>
</tr>
</tbody>
</table>
Table 39. (Continued)

<table>
<thead>
<tr>
<th>Strain</th>
<th>Edgewood</th>
<th>Eldorado</th>
<th>Ottumwa</th>
<th>Kirksville</th>
<th>Laddonia</th>
<th>Columbia</th>
<th>Lincoln</th>
<th>Powhattan</th>
<th>Manhattan</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Yield Rank</th>
<th>Clark</th>
<th>Shelby</th>
<th>Ford</th>
<th>Lincoln</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2</td>
<td>1</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td></td>
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<td>1</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>1</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Yield Rank</th>
<th>Clark</th>
<th>Shelby</th>
<th>Ford</th>
<th>Lincoln</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2</td>
<td>1</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td></td>
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<td>4</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>3</td>
</tr>
</tbody>
</table>
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UNIFORM PRELIMINARY TEST, GROUP III, 1958

<table>
<thead>
<tr>
<th>Strain</th>
<th>Source or Originating Agency</th>
<th>Origin</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clark</td>
<td>III. A.E.S. &amp; U.S.R.S.L.</td>
<td>Sel. from Lincoln x (Lincoln x Richland)</td>
</tr>
<tr>
<td>Ford (A0-8618-2)</td>
<td>Iowa A.E.S. &amp; U.S.R.S.L.</td>
<td>Sel. from Lincoln x (Lincoln x Richland)</td>
</tr>
<tr>
<td>Shelby (L9-5139)</td>
<td>III. A.E.S. &amp; U.S.R.S.L.</td>
<td>Sel. from Lincoln x (Lincoln x Richland)</td>
</tr>
<tr>
<td>A6-6522</td>
<td>Iowa A.E.S. &amp; U.S.R.S.L.</td>
<td>Sel. from Capital x Clark</td>
</tr>
<tr>
<td>A6-7823</td>
<td>Iowa A.E.S. &amp; U.S.R.S.L.</td>
<td>Sel. from Adams x Clark</td>
</tr>
<tr>
<td>CX252-7-4</td>
<td>Purdue A.E.S. &amp; U.S.R.S.L.</td>
<td>Sel. from Harosoy x C1079</td>
</tr>
<tr>
<td>H24157-4</td>
<td>Ohio A.E.S. &amp; U.S.R.S.L.</td>
<td>Sel. from Monroe x Lincoln</td>
</tr>
<tr>
<td>H24157-5</td>
<td>Ohio A.E.S. &amp; U.S.R.S.L.</td>
<td>Sel. from Monroe x Lincoln</td>
</tr>
<tr>
<td>S4-1207 Dull</td>
<td>Mo. A.E.S. &amp; U.S.R.S.L.</td>
<td>Sel. from A4-107-12 x (L9-4091 x L6-2132-1)</td>
</tr>
<tr>
<td>S4-1207 Shiny</td>
<td>Mo. A.E.S. &amp; U.S.R.S.L.</td>
<td>Sel. from A4-107-12 x (L9-4091 x L6-2132-1)</td>
</tr>
<tr>
<td>U2-42</td>
<td>Nebr. A.E.S. &amp; U.S.R.S.L.</td>
<td>Sel. from Hawkeye x H6150</td>
</tr>
</tbody>
</table>

Identification of Parent Strains

A4-107-12 Sel. from A45-251 (Mukden x Richland), Hawkeye line
C1079  Sel. from C985 (Lincoln x Ogden)
H6150  Sel. from Lincoln x (Lincoln x Richland)
L6-2132 Sel. from Lincoln x (Lincoln x Richland), progenitor of Clark
L9-4091 Pustule resistant selection from (Lincoln x (Lincoln x Richland)) x (Lincoln x CNS)

Eight strains were entered in this test in addition to the three check varieties. Four of these eight had been previously in regional testing. S4-1207 Dull and S4-1207 Shiny are bulk isolates based on seed coat luster from S4-1207, which was in Uniform Test, Group III, in 1958. The two H-strains are reselections from H24157, which was in the 1956 Preliminary Test, Group II.

The two S4-1207 strains were quite similar. The "dull" strain had a slightly higher yield, but this is probably not statistically significant. Their performance compared favorably with that of Shelby.

The two H24157 lines, which are resistant to Phytophthora rot, differed in maturity and yield. Both were lower in yield than the check strains for their respective maturities and also were quite low in oil content.

Of the remaining four lines, none surpassed the yield of check strains of similar maturity. CX252-7-4 was outstanding in lodging resistance but also stood out as being low in oil content. The other three strains were similar to the check varieties in all other traits measured.
Table 40. Summary of agronomic and chemical data for the strains in the Uniform Preliminary Test, Group III, 1958.

<table>
<thead>
<tr>
<th>Strain</th>
<th>Yield Bu./A.</th>
<th>Yield Rank</th>
<th>Maturity</th>
<th>Lodging</th>
<th>Height Inches</th>
<th>Seed Quality</th>
<th>Seed Weight</th>
<th>Percentage of Oil</th>
<th>Percentage of Protein</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. of Tests</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>6</td>
<td>9</td>
<td>7</td>
<td>7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Clark</td>
<td>48.2</td>
<td>1</td>
<td>+7.1</td>
<td>2.4</td>
<td>43</td>
<td>1.5</td>
<td>17.0</td>
<td>40.0</td>
<td>21.5</td>
</tr>
<tr>
<td>Ford</td>
<td>39.9</td>
<td>9</td>
<td>-0.3</td>
<td>2.4</td>
<td>42</td>
<td>1.4</td>
<td>16.9</td>
<td>40.6</td>
<td>21.5</td>
</tr>
<tr>
<td>Shelby</td>
<td>43.4</td>
<td>4</td>
<td>0</td>
<td>2.3</td>
<td>44</td>
<td>1.4</td>
<td>16.5</td>
<td>40.3</td>
<td>21.7</td>
</tr>
<tr>
<td>A6-6522</td>
<td>39.0</td>
<td>10</td>
<td>+0.8</td>
<td>2.3</td>
<td>41</td>
<td>2.0</td>
<td>16.0</td>
<td>41.3</td>
<td>21.5</td>
</tr>
<tr>
<td>A6-7823</td>
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<td>+4.3</td>
<td>2.3</td>
<td>44</td>
<td>1.4</td>
<td>17.4</td>
<td>41.2</td>
<td>21.6</td>
</tr>
<tr>
<td>CX252-7-4</td>
<td>42.4</td>
<td>7</td>
<td>-1.4</td>
<td>1.9</td>
<td>43</td>
<td>1.9</td>
<td>16.1</td>
<td>43.3</td>
<td>20.6</td>
</tr>
<tr>
<td>H24157-4</td>
<td>42.6</td>
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<tr>
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<td>+2.8</td>
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<td>43</td>
<td>1.5</td>
<td>15.4</td>
<td>42.2</td>
<td>20.5</td>
</tr>
<tr>
<td>S4-1207 Dull</td>
<td>43.7</td>
<td>3</td>
<td>+1.5</td>
<td>2.2</td>
<td>42</td>
<td>1.7</td>
<td>15.8</td>
<td>40.4</td>
<td>21.4</td>
</tr>
<tr>
<td>S4-1207 Shiny</td>
<td>42.5</td>
<td>5</td>
<td>+1.0</td>
<td>2.4</td>
<td>42</td>
<td>1.6</td>
<td>15.3</td>
<td>40.1</td>
<td>21.3</td>
</tr>
<tr>
<td>U2-42</td>
<td>41.1</td>
<td>8</td>
<td>+2.6</td>
<td>2.4</td>
<td>42</td>
<td>2.1</td>
<td>17.0</td>
<td>40.0</td>
<td>21.7</td>
</tr>
<tr>
<td>Mean</td>
<td>42.3</td>
<td>+2.1</td>
<td>2.4</td>
<td>43</td>
<td>1.6</td>
<td>16.2</td>
<td>41.0</td>
<td>21.2</td>
<td></td>
</tr>
</tbody>
</table>

^1Days earlier (-) or later (+) than Shelby. Shelby required 131 days to mature.

Table 41. Summary of disease reaction data for the strains in the Uniform Preliminary Test, Group III, 1958.

<table>
<thead>
<tr>
<th>Strain</th>
<th>Bacterial Blight</th>
<th>Bacterial Pustule</th>
<th>Brown Spot</th>
<th>Brown Stem Rot</th>
<th>Frog Eye</th>
<th>Stem Canker</th>
<th>Phytophthora Rot</th>
<th>Cyst Nematode</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clark</td>
<td>4La,5Aa</td>
<td>4la,5Aa</td>
<td>4Ca</td>
<td>5Ln</td>
<td>RCa</td>
<td>67Cn,2An</td>
<td>Sca,3Hn</td>
<td>4Nn</td>
</tr>
<tr>
<td>Ford</td>
<td>3La,5Aa</td>
<td>4La,5Aa</td>
<td>4Ca</td>
<td>5Ln</td>
<td>RCa</td>
<td>3An</td>
<td>Sca</td>
<td>3Nn</td>
</tr>
<tr>
<td>Shelby</td>
<td>4La,4Aa</td>
<td>4La,5Aa</td>
<td>5Ca</td>
<td>5Ln</td>
<td>RCa</td>
<td>78Cn,2An</td>
<td>Sca,4Hn</td>
<td>Sca</td>
</tr>
<tr>
<td>A6-6522</td>
<td>4La</td>
<td>2La</td>
<td>4Ca</td>
<td>5Ln</td>
<td>RCa</td>
<td>Sca</td>
<td>Sca</td>
<td>Sca</td>
</tr>
<tr>
<td>A6-7823</td>
<td>4La</td>
<td>3La</td>
<td>5Ca</td>
<td>5Ln</td>
<td>RCa</td>
<td>Sca</td>
<td>Sca</td>
<td>Sca</td>
</tr>
<tr>
<td>CX252-7-4</td>
<td>4La</td>
<td>2La</td>
<td>5Ca</td>
<td>5Ln</td>
<td>RCa</td>
<td>Sca</td>
<td>Sca</td>
<td>Sca</td>
</tr>
<tr>
<td>H24157-4</td>
<td>4La</td>
<td>4La</td>
<td>3Ca</td>
<td>5Ln</td>
<td>RCa</td>
<td>Sca</td>
<td>Sca</td>
<td>Sca</td>
</tr>
<tr>
<td>H24157-5</td>
<td>4La</td>
<td>4La</td>
<td>3Ca</td>
<td>5Ln</td>
<td>RCa</td>
<td>Sca</td>
<td>Sca</td>
<td>Sca</td>
</tr>
<tr>
<td>S4-1207 Dull</td>
<td>3La</td>
<td>2La</td>
<td>3Ca</td>
<td>5Ln</td>
<td>RCa</td>
<td>Sca</td>
<td>Sca</td>
<td>Sca</td>
</tr>
<tr>
<td>S4-1207 Shiny</td>
<td>3La</td>
<td>2La</td>
<td>4Ca</td>
<td>5Ln</td>
<td>RCa</td>
<td>Sca</td>
<td>Sca</td>
<td>Sca</td>
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<tr>
<td>U2-42</td>
<td>3La</td>
<td>3La</td>
<td>3Ca</td>
<td>5Ln</td>
<td>RCa</td>
<td>Sca</td>
<td>Sca</td>
<td>Sca</td>
</tr>
</tbody>
</table>

^1Stem canker readings from Indiana (C) are percentages of diseased plants based on the number of infected Hawkeye as 100%. Readings from Iowa (A) follow the regular 1-5 ratings of the Soybean Disease Classification Standards, 1955 (RSLM 179).
Table 42. Summary of yield in bushels per acre and yield rank for the strains in the Uniform Preliminary Test, Group III, 1958.

<table>
<thead>
<tr>
<th>Strain</th>
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<th>Lum-</th>
<th>Lafay-</th>
<th>Urb-</th>
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<td>39.0</td>
<td>47.2</td>
<td>42.0</td>
<td>32.8</td>
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</table>

| Mean         | 42.3            | 27.6       | 57.6 | 45.7 | 47.1 | 41.0 | 43.9 | 41.3 | 39.3 | 40.2       |

| C.V.(%)      | 11.7            | 9.7        | 5.5  | 7.2  | 4.7  | 5.0  | 5.1  | --   | 9.3  | 4.1        |
| B.N.F.S.(%)  | 5.1             | N.S.       | 5.9  | N.S. | 4.3  | 4.9  | 4.7  | --   | N.S. | 4.6        |
| Row Sp.(In.) | 36              | 28         | 40   | 40   | 38   | 40   | 38   | 40   |      |            |

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<td>5</td>
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1 Four replications.
Table 43. Summary of maturity data, days earlier (-) or later (+) than Shelby, for the strains in the Uniform Preliminary Test, Group III, 1958.

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<th>Lafay-</th>
<th>Hoyt-Colum-</th>
<th>Hoyt-Colum-</th>
<th>Hoyt-Colum-</th>
<th>Hoyt-Colum-</th>
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<td>5-24</td>
<td>9-26</td>
<td>125</td>
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</table>
### Strain | Source or Originating Agency | Origin
---|---|---
Clark | Ill. A.E.S. & U.S.R.S.L. | Sel. from Lincoln x (Lincoln x Richland)
Scott (S2-7158) | Mo. A.E.S. & U.S.R.S.L. | Sel. from D49-2525 x L6-5679
Wabash | Purdue A.E.S. & U.S.R.S.L. | Sel. from Dunfield x Mansoy
C1068 | Purdue A.E.S. & U.S.R.S.L. | Sel. from C985
C1069 | Purdue A.E.S. & U.S.R.S.L. | Sel. from C985
D53-354 | Delta Br. E.S. & U.S.R.S.L. | Sel. from D49-2525 x L6-5679
S4-2090 | Mo. A.E.S. & U.S.R.S.L. | Sel. from L9-4091 x L6-2132

**Identification of Parent Strains**

- **C985** LX1061-9, selection from Lincoln x Ogden
- **D49-2525** Pustule resistant selection from S-100 x CNS, sib of Lee
- **L6-2132** BC1S5 line from Lincoln x (Lincoln x Richland), progenitor of Clark
- **L6-5679** Sel. from Lincoln x Richland
- **L9-4091** Pustule resistant selection from Lincoln x (Lincoln x Richland)) x (Lincoln x CNS)

This test was grown at 16 locations in 1958 and the data are presented in Tables 44 through 52. Yield levels were up 3 to 20 bushels over the five-year mean at all locations except Worthington, Indiana and Jefferson City, Missouri, where yields were low, probably due to the very late planting dates.

Two strains in addition to the Clark and Wabash checks have been in this test for five years, and these data are summarized in Tables 51 and 52. C1068 and C1069 are sister lines selected from C985, which was in Uniform Tests from 1950 to 1956. They have usually yielded somewhat more than Clark, especially at southern locations, but are 9 and 11 days later. Comparing the two lines, C1068 has had slightly higher over-all yield and was more lodging resistant and earlier. At some of the more southerly locations, the later C1069 has had the higher yields. Both were excellent in oil content.

The newly released Scott and one additional strain, D53-354, are included in the two-year summaries in Tables 49 and 50. Scott was comparable to C1068 and C1069 in maturity but has been consistently lower in yield at these test locations and was somewhat deficient in oil content. D53-354 has done well as an early strain in the Delta and similar areas of the South but has been quite poor in yield and oil content in the area of this test.

One new strain, S4-2090, was entered in this test in 1958 from the 1957 Preliminary Test. It is of especial interest because of its bacterial pustule resistance. It appears similar to Clark in most traits but was appreciably lower in yield in both 1957 and 1958.
Scott is an $F_4$ line from the cross D49-2525 x L6-5679. D49-2525 is a sister line of Lee (D49-2524), which in turn is from the cross S-100 x CNS. L6-5679 is from Lincoln x Richland and is similar to Perry in maturity. L6-5679 was tested in Group IV for several years and yielded very well, especially in more southern tests. The cross was made to secure material of Group IV and V maturity with the resistance to bacterial pustule of Lee. Scott is similar to L6-5679 in plant type, maturity, pubescence color, and hilum color, and is resistant to bacterial pustule. Scott is reported to be heterogeneous for frogeye resistance and in one test was reported to be very susceptible to Sclerotium blight. Scott is very susceptible to root knot nematodes.

The following is a history and description of Scott (S2-7158).

1948 - Cross D49-2525 x L6-5679 made by E. E. Hartwig at Stoneville, Mississippi.

1949 - $F_1$. Grown at Stoneville, Mississippi.

1950 - $F_2$. Grown at Stoneville, Mississippi.

1951 - $F_3$. 100 grams of seed planted at Sikeston, Missouri. Plants were mainly of two types—early, gray pubescent types like L6-5679, and late tawny determinate types. Seventeen plants of the early type were selected.

1952 - $F_4$. Plant rows were grown at Sikeston, Missouri and seven harvested for testing.

1953 - $F_5$. Four replications grown at Sikeston, Missouri. S2-7158 was highest in yield out of forty strains, 3.4 bushels above C985 and S-100.

1954 - $F_6$. Tested at two locations in Southeast Missouri. S2-7158 averaged 3 bushels above S-100 and 11 bushels above Dorman. Also entered in Uniform Preliminary Test, Group V, but no satisfactory data.

1955 - $F_7$. Four locations in Southeast Missouri averaged same yield as Perry, 4 bushels above S-100, and 7 bushels above Dorman. Entered in Uniform Preliminary Test, Group V, S2-7158 averaged 1 bushel below Dorman.

1956 - $F_8$. Four locations in Southeast Missouri. S2-7158 averaged 1 bushel above Perry and Clark and 5 bushels above Dorman. In Uniform Test, Group V, S2-7158 averaged .3 bushel below Dorman. 200 plant rows grown in isolated block at Columbia for increase. 190 harvested and composited.


1958 - $F_{10}$. Two locations in Southeast Missouri. S2-7158 averaged 1.3 bushels above Clark and 5.7 bushels above Dorman. Also grown in Uniform Test, Groups IV and IVS. 740 acres grown in Missouri.
Table 44. Summary of agronomic and chemical data for the strains in the Uniform Test, Group IV, 1958.

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<th>Strain</th>
<th>No. of Tests</th>
<th>Yield Bu./A.</th>
<th>Maturity</th>
<th>Lodging</th>
<th>Height Inches</th>
<th>Seed Quality</th>
<th>Seed Weight</th>
<th>Percentage of Protein</th>
<th>Percentage of Oil</th>
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<td>40.0</td>
<td>22.4</td>
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<td>47</td>
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<td>22.5</td>
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<td>46</td>
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<td>21.0</td>
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<td>-1.8</td>
<td>2.3</td>
<td>43</td>
<td>1.8</td>
<td>15.7</td>
<td>41.2</td>
<td>21.9</td>
</tr>
<tr>
<td>S4-2090</td>
<td>14</td>
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<td>-0.8</td>
<td>2.5</td>
<td>44</td>
<td>1.9</td>
<td>14.7</td>
<td>40.8</td>
<td>21.3</td>
</tr>
<tr>
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<td>40.8</td>
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1Days earlier (-) or later (+) than Wabash. Wabash required 120 days to mature.

Table 45. Summary of disease reaction data for the strains in the Uniform Test, Group IV, 1958.

<table>
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<th>Bacterial Blight</th>
<th>Bacterial Pustule</th>
<th>Brown Spot</th>
<th>Brown Stem Rot</th>
<th>Frog-eye Stem</th>
<th>Canker1</th>
<th>Phytophthora Rot</th>
<th>Cyst Nematode</th>
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<td>3La,5Aa</td>
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<td>SCa,5Hn</td>
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<td>4Ca</td>
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<td>4La,5Aa</td>
<td>4Ca</td>
<td>5Ln</td>
<td>RCa</td>
<td>57Cn,2An</td>
<td>SCa,3Hn</td>
<td>4Nn</td>
</tr>
<tr>
<td>S4-2090</td>
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<td>2La,4Aa</td>
<td>3Ca</td>
<td>5Ln</td>
<td>RCa</td>
<td></td>
<td>SCa,4Hn</td>
<td>4Nn</td>
</tr>
<tr>
<td>D53-354</td>
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<td>2La,4Aa</td>
<td>4Ca</td>
<td>5Ln</td>
<td>SCa</td>
<td></td>
<td>SCa</td>
<td>4Nn</td>
</tr>
<tr>
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<td>5La,5Aa</td>
<td>4Ca</td>
<td>5Ln</td>
<td>RCa</td>
<td>47Cn</td>
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1Stem canker readings from Indiana (C) are percentages of diseased plants based on the number of infected Hawkeye as 100%. Readings from Iowa (A) follow the regular 1-5 ratings of the Soybean Disease Classification Standards, 1955 (RS179).
Table 46. Summary of yield in bushels per acre and yield rank for the strains in the Uniform Test, Group IV, 1958.

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Yield Rank

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<td>5</td>
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<td>7</td>
<td>5</td>
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¹Powhatan, Kansas not included in the mean.
Table 46. (Continued)

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<td>28.9</td>
<td>43.6</td>
<td>26.0</td>
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</table>

| Coef. of Var. (%) | 8.3 | 11.3 | -- | -- | -- | 30.4 | 12.7 | 8.7 | -- |
| Bu. Nec. for Sig. (5%) | 5.2 | N.S. | -- | -- | -- | N.S. | N.S. | N.S. | -- |
| Row Spacing (In.) | 36  | 38   | 40 | 38 | 40 | 40   | 40   | -- | 40 |

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<tr>
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<td>D53-354</td>
</tr>
<tr>
<td>Wabash</td>
</tr>
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Table 47. Summary of maturity data, days earlier (-) or later (+) than Wabash, and lodging for the strains in the Uniform Test, Group IV, 1958.

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<td>+6</td>
<td>+14</td>
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<td>- 4</td>
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<td>- 3</td>
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<tr>
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<td>+3</td>
<td>+10</td>
<td>+1</td>
<td>+ 5</td>
<td>+ 7</td>
<td>+ 5</td>
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<table>
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<th>5-26</th>
<th>7-2</th>
<th>5-22</th>
<th>5-22</th>
<th>5-14</th>
<th>6-7</th>
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<td>Days to mature</td>
<td>120</td>
<td>134</td>
<td>127</td>
<td>102</td>
<td>123</td>
<td>124</td>
<td>124</td>
<td>108</td>
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<table>
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<th>Mean of 11 Tests(^3)</th>
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<td>2.7</td>
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<td>Scott</td>
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</tr>
<tr>
<td>Clark</td>
<td>2.3</td>
</tr>
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<td>S4-2090</td>
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<td>2.4</td>
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<tr>
<td>Wabash</td>
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</table>

| Mean                   | 2.4     | 2.4   | 2.5  | 2.3 | 2.1  | 2.4  | 2.9  | 1.6 |

\(^1\) Manhattan and Mound Valley, Kansas not included in the mean.
\(^2\) Laddonia, Missouri planted June 17 and Jefferson City, Missouri planted June 20.
\(^3\) Mound Valley and Columbus, Kansas not included in the mean.
Table 47. (Continued)

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| Date planted | 5-26 | 5-27 | 5-8 | 6-5 | 5-24 | 6-12 | 6-10 |
| Wabash matured | 9-15 | 9-17 | 9-27 | 10-7 | 10-5 | 9-20 | 9-24 |

| Days to mature | 112 | 113 | 142 | 124 | 134 | 100 | 106 |

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<td>D53-354</td>
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| Mean    | 2.2  | 3.0  | 2.7  | 2.5  | 1.0 | 1.0 |
Table 48. Summary of height data and percentage of oil for the strains in the Uniform Test, Group IV, 1958.

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<th>Percentage of Oil</th>
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## Percentage of Oil

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<th>Scott</th>
<th>Clark</th>
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Table 49. Two-year summary of agronomic and chemical data for the strains in the Uniform Test, Group XV, 1957-1958.

<table>
<thead>
<tr>
<th>Strain</th>
<th>Yield Bu./A.</th>
<th>Maturity¹</th>
<th>Lodging</th>
<th>Height Inches</th>
<th>Seed Quality</th>
<th>Seed Weight</th>
<th>Percentage of Protein</th>
<th>Percentage of Oil</th>
</tr>
</thead>
<tbody>
<tr>
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<td>42.3</td>
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<td>40</td>
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<td>18.1</td>
<td>40.7</td>
<td>22.1</td>
</tr>
<tr>
<td>C1069</td>
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<td>44</td>
<td>1.9</td>
<td>17.7</td>
<td>40.4</td>
<td>22.1</td>
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<td>Scott</td>
<td>38.0</td>
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<td>42</td>
<td>1.8</td>
<td>14.9</td>
<td>38.7</td>
<td>21.0</td>
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<td>2.0</td>
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<td>16.3</td>
<td>42.2</td>
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<td>1.8</td>
<td>13.0</td>
<td>41.0</td>
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</table>

Mean 37.9 2.2 42 1.9 15.8 40.4 21.6

¹Days earlier (-) or later (+) than Wabash. Wabash required 123 days to mature.

Table 50. Two-year summary of yield in bushels per acre and yield rank for the strains in the Uniform Test, Group IV, 1957-1958.

<table>
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<th></th>
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Mean 37.9 43.4 47.5 55.0 45.8 29.1 38.1 24.0 22.7

<table>
<thead>
<tr>
<th>Yield Rank</th>
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<td>5</td>
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Table 51. Five-year summary of agronomic and chemical data for the strains in the Uniform Test, Group IV, 1954-1958.

<table>
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<th>Strain</th>
<th>No. of Tests</th>
<th>Yield Bu./A.</th>
<th>Maturity</th>
<th>Lodging</th>
<th>Height Inches</th>
<th>Seed Quality</th>
<th>Seed Weight</th>
<th>Percentage of Protein</th>
<th>Percentage of Oil</th>
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<td>+10.0</td>
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<td>2.2</td>
<td>16.4</td>
<td>40.5</td>
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</table>

1Days earlier (-) or later (+) than Wabash. Wabash required 123 days to mature.

Table 52. Five-year summary of yield in bushels per acre and yield rank for the strains in the Uniform Test, Group IV, 1954-1958.

<table>
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Yield Rank

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Table 52. (Continued)

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</tr>
<tr>
<td>Clark</td>
<td>3 1 1 2 1 3 1</td>
</tr>
<tr>
<td>Wabash</td>
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### Identification of Parent Strains

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<tr>
<th>Strain</th>
<th>Source or Originating Agency</th>
<th>Origin</th>
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<tr>
<td>C985</td>
<td>LX1061-9, selection from Lincoln x Ogden</td>
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<tr>
<td>C1079</td>
<td>Sel. from C985 (Lincoln x Ogden)</td>
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</tr>
<tr>
<td>D49-2525</td>
<td>Pustule resistant selection from S-100 x CNS, sib of Lee</td>
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</tr>
<tr>
<td>L6-5679</td>
<td>Sel. from Lincoln x Richland</td>
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</tr>
<tr>
<td>N48-1248</td>
<td>Pustule resistant selection from Roanoke x N45-745 (selection from Ogden x CNS)</td>
<td></td>
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</tbody>
</table>

### This test consists of 13 strains plus three checks, Clark, Wabash, and C1069, and was grown at eight locations. All 13 strains were new in regional testing. In contrast to the past several years, the Preliminary Tests were all grown separately from the Uniform Tests this year.

The two CX-strains, which have a sib of C1069 as one parent, yielded rather high in the test, but the later one was outyielded by C1069 and the earlier one was outyielded by Clark.

The three S5-strains are pustule resistant and similar to C1069 in maturity. None of them has approached C1069 in yield.

The two S6-strains are from the Lincoln x (Lincoln x Richland) cross and performed similarly to Clark in most traits. S6-5092 was definitely lower in yield, but S6-5162 was almost a bushel higher.
All six UD-strains have resistance to the root-knot nematode from the F. C. 33243 parent. All were similar in maturity and satisfactory in seed composition. Some were poor in lodging and others in seed quality. Perhaps the best all-round strain is the highest yielding one, UD297-6, which ranked third in yield in the test and had fair lodging resistance and seed quality.

Table 53. Summary of agronomic and chemical data for the strains in the Uniform Preliminary Test, Group IV, 1958.

<table>
<thead>
<tr>
<th>Strain</th>
<th>Yield</th>
<th>Yield</th>
<th>Maturity</th>
<th>Lodging</th>
<th>Height</th>
<th>Seed Quality</th>
<th>Seed Weight</th>
<th>Percent-</th>
<th>Percent-</th>
</tr>
</thead>
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<tr>
<td></td>
<td>Bu./A.</td>
<td>Rank</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>of Protein</td>
<td>of Oil</td>
</tr>
<tr>
<td>No. of Tests</td>
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<td></td>
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<td>-1.3</td>
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<td>45</td>
<td>1.9</td>
<td>17.2</td>
<td>41.7</td>
<td>21.7</td>
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<tr>
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<td>0</td>
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<td>1.6</td>
<td>15.3</td>
<td>41.4</td>
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<td>17.5</td>
<td>40.3</td>
<td>22.6</td>
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<tr>
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<td>16.2</td>
<td>41.4</td>
<td>21.6</td>
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<td>49</td>
<td>2.3</td>
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1Days earlier (-) or later (+) than Wabash. Wabash required 125 days to mature.
Table 54. Summary of disease reaction data for the strains in the Uniform Preliminary Test, Group IV, 1958.

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<th>Strain</th>
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<th>Bacterial Pustule</th>
<th>Brown Spot</th>
<th>Brown Stem Rot</th>
<th>Frog-eye</th>
<th>Stem Canker&lt;sup&gt;1&lt;/sup&gt;</th>
<th>Phytophthora Rot</th>
<th>Cyst Nematode</th>
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<td>5Ln</td>
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<td>67Cn,2An</td>
<td>SCa,3Hn</td>
<td>4Nn</td>
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<td>5La,5Aa</td>
<td>4Ca</td>
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<td>RCa</td>
<td>47Cn</td>
<td>SCa,4Hn</td>
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<sup>1</sup>Sem canker readings from Indiana (C) are percentages of diseased plants based on the number of infected Hawkeye as 100%. Readings from Iowa (A) follow the regular 1-5 ratings of the Soybean Disease Classification Standards, 1955 (RSLM 179).
Table 55. Summary of yield in bushels per acre and yield rank for the strains in the Uniform Preliminary Test, Group IV, 1958.

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Yield Rank

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1 Three replications.
### Table 56. Summary of maturity data, days earlier (-) or later (+) than Wabash, for the strains in the Uniform Preliminary Test, Group IV, 1958.

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**Date planted**: 5-24 5-24 5-26 5-22 5-14 6-7 5-1 5-24 6-10


**Days to mature**: 125 134 125 123 125 112 140 135 106
Weather conditions prevailing in the Midwest through most of the growing season were characterized by above-average rainfall and below-average temperatures, with the exception of Minnesota and parts of Iowa. As a consequence, bacterial blight was prevalent throughout the region in 1958. Surveys in several states revealed the following percentages of blight-infected soybean fields, on the basis of total fields inspected: Minnesota, 93%; Illinois, 81%; Iowa, 64%; and Indiana, 57%. In northern Missouri, bacterial blight was more prevalent in 1958 than in any year previously reported for the area, appearing in 72% of the fields. Brown spot ranked second in regional prevalence, followed by downy mildew.

In the individual states, the diseases ranked as follows in relative prevalence, with the percentages of infected fields recorded parenthetically. Brown spot was the most prevalent disease in Indiana (97%), and in Illinois (93%); it ranked third in Minnesota. Bacterial blight was the dominant disease in Iowa (64%), and in Missouri (72%), ranking second in Minnesota (93%) and in Indiana (57%), and third in Illinois (81%). Bacterial pustule occupied second place in Illinois (83%), and third in Indiana (52%) and Missouri (58%). Downy mildew ranked third in prevalence in Iowa (48%), and fourth in Illinois (57%), in Indiana (41%), and in Missouri (33%).

Among the leafspot diseases, wildfire was a negligible factor in the Midwest. It was unusually prevalent, however, in Missouri (67%) and in Illinois (15%).

Root rots were listed among the first four diseases in only two states. Rhizoctonia root rot was the most prevalent disease in Minnesota; root rot caused by Fusarium or Rhizoctonia was found in 36% of the fields in Iowa. Phytophthora rot occurred in Illinois, Indiana, and Missouri; in spite of generally moist soil conditions, Phytophthora caused surprisingly little damage in the Midwest. In Illinois, Indiana, and Missouri, flooding and water damage accounted for more losses than did Phytophthora.

Stem canker was found in 51% of the fields in Iowa but was not prevalent in the other states.

Brown stem rot occurred in 13% of the fields in Illinois, 12% in Iowa, 10% in Indiana, and to a lesser extent elsewhere. In Central Illinois, the incidence of the disease, as usual, was considerably higher (50%). Following a trend of the past three or four years, the disease appeared late and severe browning was not apparent until September.

Bud blight was confined to trace amounts. Only a very light incidence was recorded for locations where severe infection was reported in 1956.

Information relative to the disease reaction of Uniform and Preliminary Test strains are recorded with the agronomic and chemical data for each maturity group. Disease
reaction data for miscellaneous strains and for the old variety germplasm collection, along with the regional disease tests and the reference list of resistant strains, are appended to this report.

**GLOSSARY FOR SOYBEAN DISEASE REACTION**

The following list of abbreviations for soybean diseases has been agreed upon by the pathologists. It is recommended that these be used whenever abbreviations are necessary to conserve space.

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Name of Disease</th>
<th>Causal Organism</th>
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<tr>
<td>BB</td>
<td>Bacterial Blight</td>
<td>Pseudomonas glycinea</td>
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<tr>
<td>BP</td>
<td>Bacterial Pustule</td>
<td><em>Xanthomonas phaseoli</em> var. <em>sojensis</em></td>
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<tr>
<td>BS</td>
<td>Brown Spot</td>
<td><em>Septoria glycines</em></td>
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<tr>
<td>BSR</td>
<td>Brown Stem Rot</td>
<td><em>Cephalosporium gregatum</em></td>
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<tr>
<td>CN</td>
<td>Cyst Nematode</td>
<td><em>Heterodera glycines</em></td>
</tr>
<tr>
<td>DM</td>
<td>Downy Mildew</td>
<td><em>Peronospora manshurica</em></td>
</tr>
<tr>
<td>FE</td>
<td>Frogeye</td>
<td><em>Cercospora sojina</em></td>
</tr>
<tr>
<td>PR</td>
<td>Phytophthora Rot</td>
<td><em>Phytophthora sojae</em></td>
</tr>
<tr>
<td>PS</td>
<td>Purple Stain</td>
<td><em>Cercospora kikuchii</em></td>
</tr>
<tr>
<td>PSB</td>
<td>Pod and Stem Blight</td>
<td><em>Diaporthe phaseolorum</em> var. <em>sojae</em></td>
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<tr>
<td>RK (followed by the initial of the specific nematode)</td>
<td>Root Knot Nematode</td>
<td><em>Meloidogyne sps.</em></td>
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<tr>
<td>RR</td>
<td>Rhizoctonia Root Rot</td>
<td><em>Rhizoctonia solani</em></td>
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<td>SB</td>
<td>Sclerotial Blight</td>
<td><em>Sclerotium rolfsii</em></td>
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<td>SC</td>
<td>Stem Canker</td>
<td><em>Diaporthe phaseolorum</em> var. <em>caulivora</em></td>
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<td>SMV</td>
<td>Soybean Mosaic</td>
<td><em>Soja virus 1</em></td>
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<td>BBV</td>
<td>Bud Blight</td>
<td><em>Tobacco Ringspot Virus</em></td>
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<tr>
<td>TS</td>
<td>Target Spot</td>
<td><em>Corynespora cassiicola</em></td>
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<td>WF</td>
<td>Wildfire</td>
<td><em>Pseudomonas tabaci</em></td>
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<td>YMV</td>
<td>Yellow Mosaic</td>
<td><em>Phaseolus virus 2</em></td>
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Disease reactions are listed according to the Soybean Disease Classification Standards, March, 1955, unless otherwise specified.

The disease reaction is listed 1-5, followed by a capital letter to identify the state where the test was made (*L*=Illinois, *C*=Indiana, etc.); small letter "a" or "n" after the code letter signifies artificial or natural infection.

When the reaction is given by letter instead of numbers, R signifies resistant, S stands for susceptible, and I for intermediate. *Seg.* indicates that a strain is segregating for disease reaction.

The Indiana (C) reactions to stem canker indicate the percentage of diseased plants, referenced to the number of infected Hawkeye as 100%. The Iowa readings follow the 1-5 designations.
Regional Disease Reaction Test, 1958.

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<th>Identity</th>
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<th>Brown Spot</th>
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Resume of conditions under which the tests were made.

Illinois and Indiana: Rainfall frequent and above normal, temperature below normal. Bacterial blight, pustule, and brown spot prevalent.

Iowa: Rainfall above normal for most of the growing season, temperature below normal. Bacterial blight prevalent, pustule not prevalent.

Missouri: Rainfall above normal, temperature below normal.

Arkansas: Rainfall above normal, temperature below normal.

Minnesota: Below average rainfall, the fourth driest year on record. Bacterial blight prevalent but light, pustule absent.

Mississippi: Rainfall above normal, temperature below normal. Bacterial pustule prevalent and heavy to the extent of masking bacterial blight. No brown spot infection.
Disease Reaction Data for the Old Variety Germplasm Collection, 1958.

<table>
<thead>
<tr>
<th>Variety</th>
<th>Bacterial Blight</th>
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<th>Brown Stem Rot</th>
<th>Brown Spot</th>
<th>Frog-eye</th>
<th>Stem Canthor Rot</th>
<th>Cyst Nematode</th>
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### Disease Reaction Data for the Old Variety Germplasm Collection (Continued)

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Disease Reaction Data for Miscellaneous Strains.

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Reference List of Soybean Varieties Resistant to One or More Diseases.

| Variety | Maturation Group | Bacterial Brown Pus- Frog- Stem Can- Brown Phyto- Sphe- | Pur- Soybean |
|---------|-----------------|-------------------------|--------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| capi- | rity | tial | Group  | Blight | Brown  | Frog- | eye |tener | Rot | thora  | loma  | bean  |
| Capital | 0 | 3 | 5 | 4 | S | 5 | 4 | 5Hn | R | 4 |
| Flambeau | 0 | 2 | 3 | 2-3 | S | 5 | 4 | 5Hn | R | 4 |
| Blackhawk | I | 5 | 5 | 3-4 | S | 44Cn | 5 | RHn | R | 4 |
| Monroe | I | 5 | 5 | 4 | S | 10Cn | 4 | RHn | R | 4 |
| Adams | II | 5 | 5 | 3 | R | 3 | 5 | SHn | R | 4 |
| Harly | II | 4 | 5 | | | | | RHn,RCa | R | 4 |
| Harsoy | II | 5 | 5 | 5 | R | R | 5 | SHn | R | 4 |
| Hawkeye | II | 5 | 5 | 4 | S | 100Cn | 5 | SHn | R | 4 |
| Jogun | II | 5 | 4 | | 2 | 5 | SCa | R | 4 |
| Kanro | II | 4 | 5 | | | 4 | SCa | R | 4 |
| Mukden | III | 3 | 5 | 3 | S | 5 | 4 | RHn | R | 4 |
| H3665 | II | 2 | 4 | 2 | S | 5 | 5 | 3Hn,SCa | R | 4 |
| L8-7289 | II | 2 | 4 | 3 | S | 37Cn | 5 | 3Hn,SCa | R | 4 |
| Illini | III | 5 | 4 | 4 | R | 40Cn | 5 | RHn | R | 4 |
| Ilsoy | III | 4 | 4 | | | | | SCa | R | 4 |
| Lincoln | III | 5 | 5 | 4 | R | 20Cn | 5 | SHn | R | 4 |
| L9-4091 | III | 3 | 2 | 4 | R | 17Cn | 5 | 3Hn | R | 4 |
| L9-4197 | III | 3 | 2 | 5 | S | 5 | 4 | 1Hn,R-SCa | R | 4 |
| Clark | IV | 5 | 5 | 3 | R | 67Cn | 5 | SHn | R | 4 |
| Patoka | IV | 5 | 4 | 3 | S | 0 | 5 | SCa | R | 4 |
| Wabash | IV | 5 | 5 | 3 | R | 47Cn | 5 | SHn | R | 4 |
| L9-4196 | IV | 3 | 1 | 3 | S | 0 | 4 | 3Hn,SCa | R | 4 |
| Peking | IV | 4 | 4 | | | | | SCa | R | 4 |
| A.K. (Kansas) | V | 4 | 4 | 3 | S | 1 | 4 | RHn,RCa | R | 4 |
| Dorman | V | 4 | 3.5 | 3 | R | 4 | 4 | 2Hn,RCa | R | 4 |
| Arksoy | VI | 5 | 4 | 3 | R | 3 | 4 | RHn | R | 5 |
| Lee | VI | 4 | 1 | 3 | R | 3 | 4 | R | R | 5Sn |
| Ogden | VI | 4 | 3 | 4 | I or R | 3 | 5 | 3Hn | R | 2 |
| CNS | VII | 5 | 1 | 3 | RCa | | | RHn | R | 4 |
| Jackson | VII | 4 | 3 | | | | | 2Hn | R | 5 |
| Roanoke | VIII | 4 | 3 | 3 | R | 2 | 4 | 3Hn | R | 2.5 |

NOTE--Dorman and Lee appear to be more resistant than other varieties to the killing attributed to pod and stem blight.

1Most of the germplasm collection has been tested for reaction to the cyst nematode. Ilsoy and Peking are resistant varieties. See Reference List of P. I.'s for five resistant P. I.'s. Reactions of most of the germplasm collection are on file at Urbana, Illinois. Unless otherwise noted, cyst nematode reactions originated from North Carolina.
Reference List of Plant Introductions Resistant to One or More Diseases.

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<th>Phytophthora</th>
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1Unless otherwise noted, cyst nematode reactions originated from North Carolina.
2Selection 84946-2-Ll from this P. I. showed 31% disease-free plants while Lincoln control rows had 100% infection at Cresco and Ames, Iowa, and 38% disease-free plants at Urbana, Illinois.
3This P. I. has been misnumbered sometime in the past. In the listing of the Plant Inventory of the Division of Plant Exploration and Introduction, some other species has this number. This soybean introduction has consequently been maintained at Urbana as P. I. 90180 in order to identify it. Its original P. I. No. is unknown.

Soybean Introductions Resistant to Meloidogyne incognita var. acrita (tested in Delaware).

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1Based on number of plants showing galls.
2Based on number of egg masses.
WEATHER CONDITIONS AND GENERAL GROWTH RESPONSES AT MOST OF THE
NURSERY LOCATIONS DURING THE 1958 SEASON

The following general notes compiled from information supplied by the cooperators
may be helpful in interpreting performance of the nurseries at individual locations.

Temperature and rainfall at most of the nursery locations for the 1958 season are
presented in graphs at the end of this section of the report. The daily maximum and
minimum temperatures and rainfall are taken from "Climatological Data" published by
the Weather Bureau.

Ottawa, Ontario, Canada. The past season was unusually cool and dry during May and
June. June was the coldest in 60 years and averaged about 60°F. below normal. As a
result, after emergence the growth of soybeans was very slow for four to five weeks,
then with warmer weather and more moisture it became very rapid. Heavy rains during
July beat the plants down and all soybeans became badly lodged and remained that way
until harvest. Maturity was very uneven and no reliable data could be obtained.
Yields were average to a little above average. The fall season was quite good.

Portage la Prairie, Manitoba, Canada. Because of cold weather maturity was very
slow. After several frosts the plots were harvested on October 20, but even then
not all seed was hard. It is interesting to note that the Acme variety appears to
be more suited to this area and that Manitoba 56-1 stands high in the test. Crest,
a high pod variety, appears to be late for this area.

Winnipeg, Manitoba, Canada. Extremely dry weather prevailed in May and June. Emer­
genue was slow and the area occupied by the Group 00 test was irrigated (approximate­
ly 1") on June 10 to obtain a more uniform stand. Temperatures were below normal in
June and July. Heavy rainfall (5.65") occurred in July but excessive moisture did
not damage the test because drainage was adequate. These conditions probably ac­
count for the unusually late maturity of the strains in the test and for the wide
differences in the maturity index. The high rank for the seed yields of Acme was
very unusual.

Brandon, Manitoba, Canada. Soybean production in 1958 was below average for several
reasons. In the spring, moisture was limited and germination was erratic; some
varieties completed their germination over a period of ten days or more. This was
one of the driest seasons on record and the precipitation which did occur came on
fifty-four of the 123 days but only on fifteen of these days was over 0.1 inch re­
corded.

Morden, Manitoba, Canada. The April to September precipitation was the lowest in
40 years of recording and only four rains over one-half inch occurred during the
season. Mean monthly temperature variations from the 40-year average were as fol­
lows: April, +3.6; May, +2.2; June, -3.4; July, -3.3; August, -1.3; and September,
+1.4. Thus, extreme drought compensated in part by below average June and July tem­
peratures, was the main feature of the weather. The low monthly mean temperatures
of 59.2°F. for June and 65.6°F. for July, while desirable for cereals, were not
conducive to rapid soybean growth.

Glassboro, New Jersey. The growing season of 1958 was ideal and was reflected in
record yield of corn and soybeans. Rainfall was well distributed and alternated
with sunny days of normal temperatures. The farm's main crop is poultry and the
nitrogen level quite high. This, and lots of moisture, no doubt accounted for much of the lodging. All varieties were mature before the first killing frost which came October 6.

Newark and Georgetown, Delaware. Very favorable growing conditions prevailed throughout the entire season at both locations. Rainfall was adequate and well distributed. Abnormal rainfall conditions prevailed in August with an excess of four inches at Newark and eight inches at Georgetown. Temperatures, in general, were slightly below normal with the exception of July. The favorable climatic conditions were conducive to excessive vegetative growth which resulted in early-season lodging. Yield and seed quality, in general, were good.

Hoytville, Wooster, and Columbus, Ohio. Rainfall and temperature for May through August at all three locations were very similar; there was excessive soil moisture and below normal temperatures during the entire growing season. General response appeared to be increased plant height accompanied by heavy lodging and delayed maturity. Increased incidence of certain diseases such as brown spot, mildew, and stem canker was also apparent.

Bath, Michigan. On the muck plots near Bath, the season was generally cool and an early frost stopped the late varieties. *Sclerotinia sclerotiorum* became evident in the threshed samples.

East Lansing, Michigan. The cool wet May blended into an ideal summer, dry at times, but still good growing weather. Then after the first frost the weather was excellent into November. This allowed late planted plots of soybeans to mature and produce good seed.

Ida, Michigan. There was a good growing season and after the first frost, the weather was such that soybeans, in general, matured and produced a good crop.

Walkerton, Indiana. Drouth conditions prevailed prior to and at planting on May 27. Heavy rains followed planting and continued through the growing season. A 4.27 inch rain with wind on August 7 contributed to considerable lodging. Temperature was below normal in June, July, and August with only four summer days with a temperature of 90° F. or above. There was slight bacterial blight, moderate pustule, and moderately heavy mildew infection. Growth was good, but yields were below average.

Bluffton, Indiana. This plot was planted May 17 with good moisture. Precipitation was very excessive for the growing season. The plots were flooded and damaged some in mid-June. There was slight to moderate manganese deficiency. When observed July 29, Harosoy appeared to be less affected by manganese deficiency than most other varieties. Temperatures averaged 3.2° F. below normal for the growing season. Only five summer days had temperatures of 90° F. or above. There was only a light infection of bacterial blight, brown spot, and mildew. There was a trace of Phytophthora root rot in a small area. Growth was short and yields were below average.

Lafayette, Indiana. Yield trials were planted May 14 which is somewhat early. Moisture through the growing season was about eight to ten inches above normal. Temperature was below normal and there were only two days with temperatures of 90° F. or above. There was moderate to heavy infection of bacterial blight, bacterial pustule, and brown spot. Mildew was light. Brown stem rot was abundant, particularly in late maturing varieties. Growth and yields were very good. Late planted
varieties yielded exceptionally well. Uniform Groups 0, I, II and III planted July 1 averaged 22, 26, 30, and 31 bushels per acre, respectively.

Greenfield, Indiana. This plot was planted May 20 with good moisture. Precipitation was about eight inches above normal for the summer and appeared to be somewhat damaging in some areas of the plot. Weeds became fairly abundant by mid-summer but were removed. Temperature was below normal and there were only three days with 90°F. or above. There was moderate to heavy infection of bacterial blight, brown spot, and mildew. There was a light infection of bacterial pustule and some brown stem rot. Growth was good and yields about average for this location.

Worthington, Indiana. This plot was planted May 21 and destroyed by flooding following mid-June. Uniform Groups 0 through IV were planted July 2 which is considered rather late in Indiana, but there was very good growth and very good yields in all tests with average yields of 25, 27, 33, 34, and 37 bushels per acre, respectively. Precipitation averaged 7.46 inches above normal for May through September. Temperatures averaged 3° below normal for July, August, and September with only 14 days with 90°F. or above. Diseases were negligible except for a moderate infection of brown stem rot.

Evansville, Indiana. This plot was planted under ideal conditions on May 22. Precipitation was above normal for the May to September period. Temperature averaged 1.1°F. below normal for the summer with 30 days with 90°F. or above. There was a trace of manganese deficiency through most of the plot. There was a moderate infection of brown spot and considerable brown stem rot with much internal browning but no pronounced leaf symptoms. Growth and yields were above average.

Spooner, Wisconsin. This nursery was planted May 23 in ample soil moisture with near normal temperatures. Temperatures and rainfall in June were somewhat below normal but the beans were too small to have been seriously affected. Temperatures in July were 3.8 degrees below normal but rainfall was 2.9 inches above normal. Distribution of rainfall was very good except for a 10-day period from July 15 through July 24. However, the beans were somewhat retarded in growth and there was some sterilization of flowers. Due to the location it was not possible to irrigate the soybean nursery this year. August began with relatively high temperatures, ranging from 84 to 91 degrees the first twelve days. The .87 inch of rainfall August 5 was not sufficient to carry the beans through a dry period which lasted until August 23, so considerable damage was done to growth and yields. Total precipitation was 1.57 inches below normal for the month. Rainfall and temperatures were normal for September and the later varieties had ample opportunity to mature since no freezing temperatures occurred during the month.

Durand, Wisconsin. This nursery was planted May 19. Emergence and final stand were good in all plots. Yields were reduced by dry weather. Group 0 varieties suffered slightly more from dry weather than did those of Group I maturity. All varieties matured prior to fall frost.

Madison, Wisconsin. This nursery was planted May 15. Emergence was good and stands normal. During each of the growing months, moisture was from one to two inches below normal. Yields were about 50% of normal due to extreme drought and below normal temperatures. Temperatures were below normal during all months except August when the departure from the long-time average was zero. All varieties matured prior to killing frost. Disease incidence was minor.
Shabbona, Illinois. This location is in northern Illinois on a fertile, permeable black prairie soil. The tests were planted May 16 in a well-prepared moist seedbed. Good stands occurred but plant growth was shorter than normal. Summer temperatures were rather cool, and, although no drought occurred, rainfall was never abundant. A killing frost occurred a few days before maturity of C128, Ford, Lincoln, and Shelby.

Dwight, Illinois. This location is 50 miles south of Shabbona and on a similar soil type. Planting was on May 21 in dry, cloddy soil. Favorable moisture conditions following planting brought plants up to a good stand. Growth was rapid and the heavy rains in late July and early August caused severe general lodging. Rainfall was abundant until shortly before maturity when a mild shortage occurred. Despite this and the excessive and early lodging, yields were rather good.

Urbana, Illinois. This location is 65 miles south of Dwight and on a similar soil type. Planting was on May 13 in a moist, friable seedbed. Plant growth was good but not excessive and only moderate lodging occurred. Very heavy infection of bacterial blight occurred sporadically in the plots early in the season. Yields were at a very high level for this location.

Girard, Illinois. This location is 35 miles south and 80 miles west of Urbana and is similar in soil type but has a moderately developed clay subsoil. Seeding was on May 14 in a moist, friable seedbed and excellent stands were obtained. Growth was rapid, and moderate to severe lodging occurred in August. Moderate to heavy bacterial blight infection occurred along with moderate bacterial pustule and sporadically severe patches of wildfire. Moisture was adequate to abundant throughout the season and yields were at a satisfactory level.

Edgewood, Illinois. This location is 80 miles south of Urbana on a gray silt loam over an impermeable claypan. The tests were seeded on May 22 in a moist, friable seedbed but stands were only fair. Rainfall was abundant to excessive through most of the season and plants in some areas in the test were stunted apparently from excessive soil moisture. Moderate to heavy bacterial blight and moderate bacterial pustule occurred. Growth was fair and there were some areas where heavy lodging occurred. Despite this, the general yield level was quite good.

Eldorado, Illinois. This location is 70 miles south of Edgewood and on a productive, heavy bottomland soil. The tests were seeded on May 14 in a very moist seedbed. Drying and crusting occurred and only fair stands were obtained with much delayed emergence. Plant growth was excellent with the Group III and IV strains exceeding four feet in height. Lodging was moderate and occurred late, and diseases were very light. Moisture was adequate throughout the season except in late August, and the yield level was excellent.

Ullin, Illinois. This location is near the southern tip of the state on terrace soil. Planting was on May 26 in a moist seedbed that had been prepared five days previously. As a result, only fair stands occurred in many plots. Rainfall was adequate throughout the season. Growth was good with little lodging, and yields were quite good. Moderate downy mildew and bacterial pustule occurred with some sporadic wildfire.

Miller City, Illinois. This location is 25 miles south of Ullin on river bottom soil. Planting was on May 27 in a dry and somewhat cloddy seedbed. Fair but
satisfactory stands were obtained. Rainfall was adequate and at times excessive. Moderate infections of bacterial pustule and wildfire occurred. Plant growth was excellent but early severe lodging occurred which depressed yields to some extent.

Crookston, Morris, St. Paul, and Waseca, Minnesota. Good stands were obtained in the nursery trials at all of these locations. Lower than normal temperatures prevailed over much of the summer. Killing frost, however, did not come until the very last of September, even at Crookston. Moisture was somewhat limited at Waseca and Morris, resulting in lower average yields than in the previous two or three years. Yields were good at St. Paul and Crookston where summer rains were more timely. Favorable harvesting conditions through October and early November permitted timely harvest and resulted in good seed quality.

Cresco, Iowa. This nursery is located in northeast Iowa on Carrington Plastic Till Phase soil which is tight, cold, wet, slowly drained, and low in productivity. The nursery was planted on May 20 on corn land. During May through September the temperature averaged normal with precipitation 4.1 inches below normal. Growth, yield, and lodging were nearly normal for this location. A killing frost occurred on October 1 after all strains were mature. This nursery was considered fair for making strain comparisons.

Sutherland, Iowa. This nursery represents the northwest section of Iowa with Primghar silt loam soil, medium high in productivity, and generally slightly undulating in topography. The nursery was planted May 28 on popcorn land. Precipitation was below normal for every month from May through September. Temperatures from May through September averaged near normal with June and July departing four to five degrees below normal. Killing frost on October 1 came after maturity. Growth response, yield, and lodging were reduced because of drought. This nursery was considered fair for making strain comparisons.

Kanawha, Iowa. This nursery is located in north central Iowa on level, productive Webster silty clay loam. Planting was completed on May 15 on land previously in corn. Moderately heavy bacterial blight and bean yellow mosaic occurred in July. During the growing season, temperatures averaged 1.2° F. below normal with June and July, each, five degrees below normal. Precipitation was deficient in every month, May through September. These conditions caused short growth and less than normal yields and lodging. A killing frost on October 1 came after maturity. This nursery was considered fair to good for making strain comparisons.

Independence Iowa. This nursery was planted on May 20 in northeast central Iowa on well-drained Carrington silt loam, medium in productivity. Stands were excellent and plots were kept weed-free. Temperatures averaged 1.9° F. below normal with deficits of five degrees in June and July. Precipitation was below normal for all months except July, totalling 4.6 inches below normal for May through September. Growth, yield, and general response were considered fair for this location. Frost occurred October 1, later than normal. This nursery was considered only fair for making strain comparisons.

Ames, Iowa. This nursery is centrally located on level, productive Webster silt loam. Planting was completed on May 14. Temperatures were generally 1.7 degrees below normal and precipitation above normal with the greatest departure from normal (6.5 inches) occurring in July. Growth, yield, and general response were good. Frost occurred on October 1 before the normal date. Strain comparisons are believed to be good.
Ottumwa, Iowa. This nursery was planted May 13 in southeastern Iowa on flat, very productive Haig silt loam. Temperatures averaged 2.2 degrees below normal, with June and July each, five degrees below normal. Precipitation was 2.7 inches above normal for May through September, with the greatest departure of 6.5 inches occurring in July. Growth, yield, and response were good to very good. Killing frost occurred on November 5, much later than normal. Strain comparisons are believed to be good to very good.

Kirksville, Missouri. The plantings at Kirksville were made in a field with a lower productivity level than in former years. Phosphorus and potassium were fairly high but nitrogen evidently was low, as nodulation almost doubled yields whereas in the field formerly used, nodulation has given no response. Yields were not as high as in former years although moisture was adequate. Growth was short with practically no lodging. Some varieties, especially S6-1018 and Lindarin, showed considerable premature drying from undetermined causes.

Laddonia, Missouri. Wet weather delayed planting at Laddonia and prevented adequate cultivation. Weeds were heavy and were removed late, probably resulting in some reduction in yield and affecting the accuracy of the test. Very little leaf spot or other disease was evident, but Lindarin showed considerable premature drying in some replications. Phosphorus and potassium were at adequate levels but on this flat, slowly draining soil, available nitrogen was evidently low as nodulation increased yield from 8 bushels to 29 bushels.

Columbia, Missouri. Preliminary Groups III and IV and two replications of Groups III and IV were planted May 1 on soil which tested organic matter, 1.8; P, 205; K, 150; Ca, 3700; and pH, 6.6. Two hundred pounds of 0-20-20 were applied. Nodulation gave a 20 percent increase in yield. Moisture was adequate throughout the season. Rainfall during July was especially heavy. Growth was very heavy, especially in the later varieties. Stand counts at maturity on Preliminary Group IV, where lodging was severe, showed a range of from 73 plants per 15 ft. for Cl068 to 135 plants for S5-7144 with fair consistency between replications. However, stand accounted for only about 30 percent of the variation in lodging. The Delaware strains, especially, were badly lodged. Replications three and four of Groups III and IV were planted May 15. Bacterial blight was very heavy on the May 1 plantings in mid-July. Later strains had some damage from stink bugs. Group III and Preliminary III can be considered very good tests but the excessive lodging in Preliminary IV undoubtedly prevented expression of true yield potential in some strains.

Jefferson City, Missouri. Stands on this heavy clay soil were quite erratic and only three replications were harvested. Crabgrass was rather bad and morning glories caused lodging in some rows so no lodging scores were taken. Moisture was more than adequate for much of the season and plants showed signs of damage from excess water in July (yellow color and stunted appearance). Results of this test cannot be considered very reliable. Phosphorus, potassium, and calcium are extremely high on this heavy clay.

Concord, Nebraska. The Uniform Tests were planted on June 3 in a good seedbed and good stands were obtained. Cooler than normal temperatures prevailed during the growing season. Precipitation was above normal in July but less than half normal during the remainder of the summer. One irrigation was applied in August. Growth of beans appeared delayed during the season. Early frost on September 27 reduced seed quality of some strains although yields were not seriously affected. Tests were considered good for strain comparisons.
Lincoln, Nebraska. Nurseries were planted during the last week of May in well-prepared seedbeds. Good stands were obtained. Temperatures were below normal every month (-5.0 in June; -7.6 in July) during the growing season with only 16 days above 90°F reported. Record precipitation occurred in July, about normal in August, and twice normal in September. The Uniform Group III tests were injured by light frost on September 30, though killing frost did not occur until October 26. Growth and yields were satisfactory for good strain comparisons.

Manhattan, Kansas. Following planting May 24, ideal weather conditions prevailed throughout the growing season. Timely rains fell as needed and at no time did the crop suffer for moisture. A frost on October 1 killed the leaves of most all plants and many varieties and strains did not appear to be mature, though the frost was not severe enough to damage the beans.

Columbus, Kansas. Weather conditions in 1958 were ideal for soybean production. From the time of planting on June 10 until about two weeks before maturity, the following precipitation was recorded: June, 3.81 inches; July, 12.99 inches; August, 1.01 inches; September, 1.58 inches.

Bonners Ferry, Idaho. This nursery was located about seventy miles from the Sandpoint Branch Station. The soil type was an unclassified bottom land silt loam with a high organic-matter level. The nursery received no fertilization other than one air application of ten pounds of available nitrogen applied in the urea form. There was a high variability in the nursery yields which was partially caused by a very serious weed problem. A blotchy condition, which may have limited yield, developed on the leaves of all varieties. This condition did not kill the plants but caused necrosis of the affected area. In most cases there was some seed abortion and many pods contained only one seed. The Manitoba varieties were somewhat less affected by this pod condition than were the others.