

RESULTS OF THE COOPERATIVE UNIFORM SOYBEAN TESTS

PART I. NORTH CENTRAL STATES

1959

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TABLE OF CONTENTS

Introduction	2
Cooperation	3
Uniform Test Locations	5
Methods	7
Uniform Test, Group 00	10
Uniform Preliminary Test, Group 00	20
Uniform Test, Group 0	25
Uniform Test, Group I	36
Uniform Test, Group II	47
Uniform Preliminary Test, Group II	64
Uniform Test, Group III	70
Uniform Preliminary Test, Group III	84
Uniform Test, Group IV	90
Uniform Preliminary Test, Group IV	102
Disease Investigations	111
Weather Conditions and General Growth Response	125

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 Laboratory was expanded to include cooperation with twelve Agricultural Experiment Stations in the Southern Region also. At present six other states and two provinces in Canada are also cooperating informally in the Laboratory research program, which is directed toward the breeding of improved varieties and strains of soybeans for industrial use and the obtaining of fundamental information necessary to the efficient development of strains to meet specific needs.

The Uniform Soybean Tests were initiated on a limited basis in 1938 and since then the work has been expanded to where there are now ten groups to measure the yield and range of adaptation of the better strains developed through the cooperative breeding program. Group 00, the last one to be established, 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 and areas of similar latitude. The summary of performance of these first six 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 Preliminary Tests are grown at a limited number of locations throughout the region to screen a large number of the best experimental strains for maturity and general agronomic performance before they are entered in the Uniform Tests. Interest in the evaluation of very early strains has remained high since the Uniform Test, Group 00, was established in 1958, so in 1959 a Preliminary Group 00 was grown at eleven locations, seven of which came through satisfactorily in spite of the early snow and very unfavorable harvesting conditions encountered in the northern states and Canada.

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 1959 season, are included for most of the nursery locations as an aid to interpretation of the agronomic and chemical data. Where available, information on the soil analysis and the amount of fertilizers applied to each nursery plot has been included in the weather section.

The 1959 season was characterized by favorable growing weather in the north, resulting in higher average yields than for 1958, though an early snow prevented harvesting at a few of the test locations. In the southern part of the North Central Region, a severe drouth reduced yields in Group IV by an average of 6 bushels and in Group III by 4 bushels compared to 1958. Oil content of the Group III and IV strains was slightly higher in 1959 but the tests at the more northern locations gave up to 1.5% more oil. Contrasted to this, the protein content for all groups was nearly identical between the two seasons.

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UNIFORM TEST LOCATIONS, 1959

Location	Cooperator	UNIFORM TESTS											
		Groups								Prelim.			
		00	0	I	II	III	IV	00	II	III	IV		
Ottawa, Ont.	F. Dimmock, Central Exp. Farm	x	x							x			
Guelph, Ont.	G. E. Jones, Ont. Agr. College	x											
Ridgetown, Ont.	W. W. Snow, W. Ont. Agr. College	x	x	x						x			
Portage la Prairie, Man.	E. M. MacKey, Spec. Crops Substa.	x											
Winnipeg, Man.	B. R. Stefansson, U. of Manitoba	x								x			
Brandon, Man.	H. Gross, Experimental Farm	x											
Orono, Maine	C. R. Blackmon, Maine A.E.S.	x											
Jamesburg, N. J.	New Jersey Agr. Exp. Sta.				x	x							
Newark, Del.	F. B. Springer, Jr., Del. A.E.S.				x	x	x						x
Georgetown, Del.	F. B. Springer, Jr., Del. A.E.S.					x	x			x	x		x
Hoytville, Ohio	Northwestern Exp. Sta.		x	x	x					x	x		
Wooster, Ohio	Ohio Agr. Exp. Sta.		x	x						x			
Columbus, Ohio	P. E. Smith, Ohio State Univ.		x	x	x					x	x		
Chatham, Mich.	S. M. King, U.P. Exp. Sta., M.S.U.	x											
Norway, Mich.	Alfred Oelke, Cooperator	x											
Bark River, Mich.	Elmer Bolm, Cooperator	x											
Daggett, Mich.	Oren Berto, Cooperator	x											
Bath, Mich.	Muck Exp. Farm, Mich. State Univ.	x	x										
East Lansing, Mich.	H. M. Brown, Mich. State Univ.		x	x									
Ida, Mich.	Chester Metz, Cooperator		x	x	x								
Walkerton, Ind.	Frank Pulver, Cooperator			x	x					x			
Bluffton, Ind.	Gerald and Homer Bayless, Coop.				x	x							
Lafayette, Ind.	O. W. Luetkemeier, Purdue A.E.S.				x	x				x	x		
Greenfield, Ind.	Raymond Roney, Cooperator				x	x							
Worthington, Ind.	Frederic Sloan, Cooperator				x	x	x				x	x	
Evansville, Ind.	Bernard Wagner, Cooperator					x	x						x
Mason, Wis.	Anderson Bros., Cooperators	x											
Spooner, Wis.	Carl Rydberg, Spooner Br. E.S.	x	x							x			
Durand, Wis.	Antoine Sam, Wis. Agr. E.S.		x	x									
Madison, Wis.	J. H. Torrie, Wis. Agr. E.S.			x	x					x			
Shabbona, Ill.	R. R. Bell, N. Ill. Exp. Field			x	x								
Dwight, Ill.	Orland Bossert, Cooperator			x	x								
Urbana, Ill.	C. H. Farnham, Ill. Agr. Exp. Sta.		x	x	x					x	x		
Girard, Ill.	T. H. Lloyd & Sons, Cooperators				x	x					x		
Edgewood, Ill.	John Wilson, Cooperator				x	x	x						
Eldorado, Ill.	Cyril Wagner, Cooperator					x	x						x
Carbondale, Ill.	D. R. Browning, Southern Ill. U.					x	x						x
Miller City, Ill.	M. B. Patton, Cooperator						x						
Crookston, Minn.	Minn. Northwest Exp. Sta.	x	x										
Morris, Minn.	Minn. West Central Exp. Sta.		x										
St. Paul, Minn.	J. W. Lambert, Minn. A.E.S.	x	x	x						x			
Waseca, Minn.	Minn. Southern Exp. Sta.			x	x								
Sutherland, Iowa	Galva Primghar Exp. Farm				x								
Kanawha, Iowa	Northern Iowa Exp. Assoc.		x	x						x			
Independence, Iowa	Carrington-Clyde Exp. Assoc.				x								
Ames, Iowa	Iowa Agr. Exp. Sta.				x	x				x	x		
Ottumwa, Iowa	A. E. Newquist, Cooperator					x					x		

UNIFORM TEST LOCATIONS, 1959 (Continued)

Location	Cooperator	UNIFORM TESTS									
		Groups						Prelim.			
		00	0	I	II	III	IV	00	II	III	IV
Kirksville, Mo.	Earl Shockey, Cooperator									x	
Ladonia, Mo.	Carver Brown, Cooperator					x					
Columbia, Mo.	Mo. Agr. Exp. Sta.					x	x			x	x
Jefferson City, Mo.	Lincoln University						x				
Park River, N. D.	N. D. Agr. Exp. Sta.	x						x			
Fargo, N. D.	R. E. Bothun, N. D. Agr. E.S.		x								
Edgeley, N. D.	N. D. Agr. Exp. Sta.		x								
Fairmount, N. D.	N. D. Agr. Exp. Sta.		x								
Rosholt, S. D.	Irvin Voss, Cooperator		x								
Brookings, S. D.	C. J. Franzke, S. D. Agr. E.S.			x							
Concord, Nebr.	N. E. Nebr. Agr. Exp. Sta.				x				x		
Lincoln, Nebr.	J. H. Williams, Nebr. Agr. E.S.				x	x				x	
Powhattan, Kans.	L. B. Hertz, Cornbelt Exp. Field				x	x	x				
Manhattan, Kans.	E. L. Mader, Kans. Agr. E.S.					x	x			x	x
Mound Valley, Kans.	J. D. Ives, Branch Exp. Sta.						x				
Columbus, Kans.	V. H. Peterson, Columbus Exp. Field						x				x
Hermiston, Ore.	Umatilla Branch Exp. Sta.	x	x	x							
Ontario, Ore.	Malheur Branch Exp. Sta.	x	x	x				x			
Medford, Ore.	Southern Oregon Branch Exp. Sta.	x	x					x			

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 | 3 - Fair | 5 - Very poor |
| 2 - Good | 4 - 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

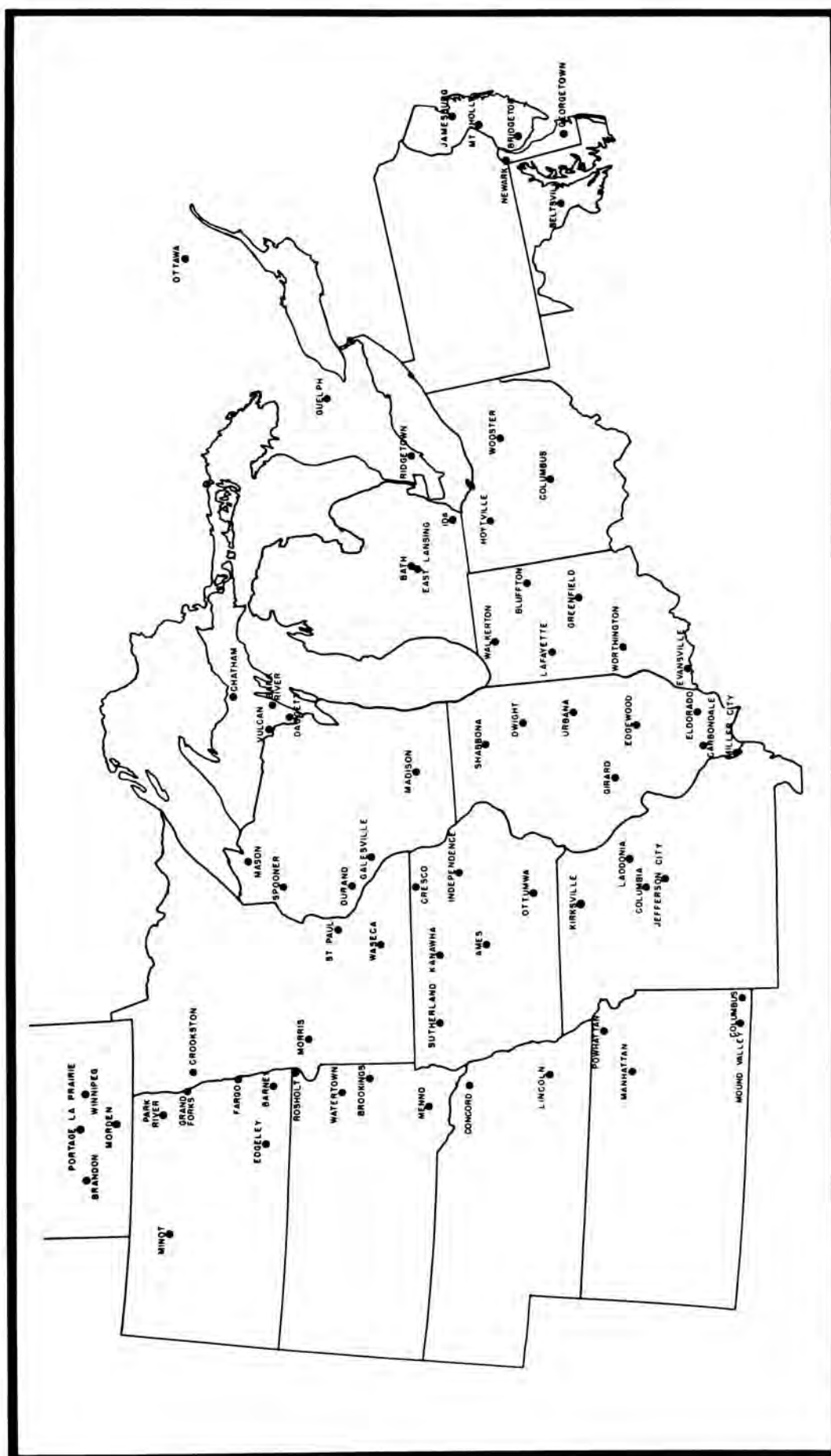
Calculating Summary Means. In cases where the lodging and seed quality notes are all 1 at a location, indicating no expression of strain differences, these locations are not included in the mean for these traits. Where the C. V. of yield is greater than 20% at a location, this location is not included 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.

<u>Code Letter</u>	<u>State</u>	<u>Code Letter</u>	<u>State</u>
UD	Delaware	Au	Alabama
L	Illinois	R	Arkansas
C	Indiana	B	California
A	Iowa	F	Florida
K	Kansas	Ga	Georgia
E	Michigan	La	Louisiana
M	Minnesota	Md	Maryland
S	Missouri	D	Mississippi
U	Nebraska	N	North Carolina
ND	North Dakota	Ok	Oklahoma
H	Ohio	SC	South Carolina
SD	South Dakota	UT	Tennessee
W	Wisconsin	TS	Texas
UM	Manitoba, Canada	V	Virginia
O	Ontario, Canada		

It is suggested that states cooperating in these Uniform Tests use these letters to designate their strains.



UNIFORM TEST, GROUP 00, 1959

Strain	Originating Agency	Origin	Generation Composited
Acme	Central Exp. Farm, Ottawa	Sel. from Pagoda	
Crest	Central Exp. Farm, Ottawa	ND8-291 x Mandarin	F ₈
Flambeau	Wis. Agr. Exp. Sta.	Introduction from Russia	
UM55-2	Univ. of Manitoba, Winnipeg, Man.	Pagoda 2 x 201-14-18	F ₅

Identification of Parent Strains

ND8-291	Sel. from Manitoba Brown x Mandarin
201-14-18	Sel. by Sven A. Holmberg, Norrkoping, Sweden

This test was begun in 1958 and participation continued strong in 1959 with 18 locations reporting data and with a substantial preliminary test being added. The data for this test are presented in Tables 1 through 7.

All four strains have been in the test both years. Flambeau is both the latest and the highest yielding strain in the test, being high at almost every location in 1959. The earlier strains, however, were superior in lodging resistance and oil content. Considering the two-year means, there was very little difference in mean yield among the three early varieties. Acme was superior in lodging resistance but was the poorest in yield in 1959. UM55-2 equalled the two-year mean yield of Crest and was 2½ days earlier.

Table 1. Summary of data for Uniform Test, Group 00, 1959

Strain	Yield	Matu- rity ¹	Lodg- ing	Height	Seed Quality	Seed Weight	Seed Composition	
No of Tests	13	8	10	12	10	13	Protein	Oil
Flambeau	30.8	-10.0	3.2	31	2.4	18.1	41.0	19.4
Crest	27.4	-5.6	2.1	29	2.7	21.4	40.8	19.9
UM55-2	26.6	-3.0	2.4	30	2.1	19.4	39.9	20.0
Acme	25.3	0	1.5	27	2.3	19.0	40.1	19.6
Mean	27.5	-4.7	2.3	29	2.4	19.5	40.4	19.7

¹Days earlier (-) or later (+) than Acme which matured September 24, 106 days after planting.

Table 2. Disease data for Uniform Test, Group 00, 1959

Strain	Bacterial Blight	Bacterial Pustule	Brown Spot	Brown Stem Rot	Frog- eye	Stem Canker	Phytoph- thora Rot	Cyst Nematode
Flambeau	R	S	S	S	S		S	S
Crest	S	S	S	S	R		R	
UM55-2	S	S	S	S	R		Seg	
Acme	S	S	S	S	S		Seg	S

Table 3. Yield and yield rank for Uniform Test, Group 00, 1959.

Strain	Mean of 13 Tests ¹	Ot- tawa Ont.*	Portage la Prairie Man.		Winni- peg Man.	Bran- don Man.	Orono Maine	Chat- ham Mich.	Nor- way Mich.	Bark River Mich.
Flambeau	30.8	32.9	32.8		40.8	30.0	29.8	18.6	25.8	24.6
Crest	27.4	27.2	28.7		30.6	25.5	28.7	14.8	22.9	25.5
UM55-2	26.6	26.5	25.7		32.4	25.8	25.6	10.3	21.0	25.4
Acme	25.3	27.5	29.2		27.5	24.2	26.9	9.9	19.0	22.5
Mean	27.5	28.5	29.1		32.8	26.4	27.8	13.4	22.2	24.5
Coef. of Var. (%)		9.9	12.1		7.1	--	12.4	32.5	6.6	15.8
Bu. Nec. for Sig. (5%)		--	--		3.7	N.S.	1.2	N.S.	2.3	N.S.
Row Spacing (In.)		30	30		24	36	36	24	36	36

Yield Rank									
Flambeau	1	1	1	1	1	1	1	1	3
Crest	3	3	3	3	2	2	2	2	1
UM55-2	4	4	2	2	4	3	3	3	2
Acme	2	2	4	4	3	4	4	4	4

*Irrigated.

¹Portage la Prairie, Manitoba, Chatham, Daggett, and Bath, Michigan, and Park River, North Dakota, not included in the mean.

Table 3. (Continued)

Strain	Dag- gett Mich.	Bath Mich.*	Mason Wis.	Spoon- er Wis.*	Crooks- ton Minn.	St. Paul Minn.	Park River N.D.	Her- miston Ore.	On- tario Ore.	Med- ford Ore.*
Flambeau	22.8	44.6	32.8	33.8	39.9	22.9	25.3	28.6	35.1	23.9
Crest	15.4	35.8	28.6	29.2	35.9	22.6	19.5	28.4	35.7	16.0
UM55-2	16.9	38.4	27.9	26.2	30.4	21.7	17.5	24.7	34.6	23.1
Acme	18.9	37.8	25.7	27.4	33.6	22.5	16.8	20.1	32.8	19.2
Mean	18.5	39.2	28.8	29.2	35.0	22.4	19.8	25.5	34.6	20.6
C. V. (%)	21.5	19.3	8.6	10.9	--	--	--	7.5	7.8	11.7
Bu. N. F. S. (5%)	N.S.	N.S.	3.5	4.8	--	--	--	3.1	4.3	3.9
Row Sp. (In.)	38	32	36	36	24	40	--	36	36	30

	Yield Rank									
Flambeau	1	1	1	1	1	1	1	1	2	1
Crest	4	4	2	2	2	2	2	2	1	4
UM55-2	3	2	3	4	4	4	3	3	3	2
Acme	2	3	4	3	3	3	4	4	4	3

Table 4. Maturity, days earlier (-) or later (+) than Acme, lodging, and plant height for Uniform Test, Group 00, 1959.

Strain	Mean of 8 Tests ¹	Ot- tawa Ont.	Portage la Prairie Man.	Winni- peg Man.	Bran- don Man.	Orono Maine	Chat- ham Mich.	Nor- way Mich.	Bark River Mich.
Flambeau	+10.0		--	+10	+12	+12	+6	+8	+10
Crest	+ 5.6		+5	+ 7	+ 8	+ 5	+3	+7	+ 5
UM55-2	+ 3.0		--	+ 7	+ 2	+ 9	+2	+1	+ 1
Acme	0		0	0	0	0	0	0	0
Date planted	5-24		5-21	5-21	5-20	6-5	5-28	5-27	5-26
Acme matured	9-7		9-10	9-8	8-30	9-24	9-20	9-17	9-16
Days to mature	106		112	110	102	111	115	113	113
	Mean of 10 Tests ²	Lodging							
Flambeau	3.2	2.5	4.0	2.0	1.0	1.0	3.0	3.0	4.0
Crest	2.1	1.0	2.0	1.0	1.0	2.0	1.0	3.0	2.0
UM55-2	2.4	2.0	3.0	1.8	1.0	2.0	1.0	3.0	2.0
Acme	1.5	1.0	1.0	1.0	1.0	1.0	2.0	2.0	3.0
Mean	2.3	1.6	2.5	1.5	1.0	1.5	1.8	2.8	2.8
	Mean of 12 Tests ³	Plant Height							
Flambeau	31	26	35	32	29	30	31	31	40
Crest	29	27	35	31	29	30	27	27	32
UM55-2	30	24	35	32	28	28	30	29	39
Acme	27	25	34	27	24	27	28	27	36
Mean	29	26	35	31	28	29	29	29	37

¹Portage la Prairie, Manitoba, Chatham and Daggett, Michigan, and Hermiston and Medford, Oregon, not included in the mean.

²Portage la Prairie and Brandon, Manitoba, Chatham, Daggett, and Bath, Michigan, Mason, Wisconsin, and Park River, North Dakota, not included in the mean.

³Portage la Prairie, Manitoba, Chatham, Daggett, and Bath, Michigan, and Park River, North Dakota, not included in the mean.

Table 4. (Continued)

Strain	Dag- gett Mich.	Bath Mich.	Mason Wis.	Spoon- er Wis.	St. Paul Minn.	Park River N.D.	Her- miston Ore.	On- tario Ore.	Med- ford Ore.
Flambeau	+7			+10	+10		+20	+8	-2
Crest	+8			+ 2	+ 4		+ 7	+7	0
UM55-2	+1			+ 1	+ 3		+ 4	0	-2
Acme	0			0	0		0	0	0
Date planted	5-22	5-25	5-25	5-26	5-23	5-15	5-21	5-13	5-20
Acme matured	9-21	--	--	9-6	8-23	--	9-1	8-24	9-30
Days to mature	122	--	--	103	92	--	103	103	133

Lodging

Flambeau	2.0	5.0	1.0	3.8	4.2	1.0	3.0	5.0	3.0
Crest	2.0	5.0	1.0	2.0	3.2	1.0	2.0	2.0	3.0
UM55-2	2.0	5.0	1.0	1.5	3.5	1.0	2.0	3.0	3.0
Acme	2.0	4.0	1.0	1.0	2.2	1.0	1.0	1.0	2.0
Mean	2.0	4.8	1.0	2.1	3.3	1.0	2.0	2.8	2.8

Plant Height

Flambeau	22	43	24	33	34	23	25	38	29
Crest	22	39	24	30	32	20	24	35	28
UM55-2	25	38	24	32	34	20	24	35	30
Acme	25	33	22	29	29	18	20	31	28
Mean	24	38	24	31	32	20	23	35	29

Table 5. Percentages of protein and oil for Uniform Test, Group 00, 1959.

Strain	Mean of 13 Tests ¹	Ot- tawa Ont.	Winni- peg Man.	Bran- don Man.	Orono Maine	Chat- ham Mich.	Nor- way Mich.	Bark River Mich.	Dag- gett Mich.
Flambeau	41.0	44.3	37.2	38.8	40.6	40.8	37.9	37.4	43.3
Crest	40.8	44.4	36.9	41.5	39.3	38.4	35.6	39.4	41.6
UM55-2	39.9	42.4	37.0	39.3	38.3	38.2	37.3	36.7	41.3
Acme	40.1	43.3	37.8	38.0	38.6	36.8	39.3	38.7	37.4
Mean	40.4	43.6	37.2	39.4	39.2	38.6	37.5	38.1	40.9

	Mean of 13 Tests ¹	Percentage of Oil							
Flambeau	19.4	19.5	20.8	19.4	18.3	19.1	21.4	21.2	19.8
Crest	19.9	19.9	20.8	18.7	19.7	20.4	22.4	21.2	19.6
UM55-2	20.0	19.6	21.6	19.2	20.5	19.7	21.1	21.3	19.1
Acme	19.6	19.5	20.3	18.8	19.8	19.5	20.2	20.4	19.1
Mean	19.7	19.6	20.9	19.0	19.6	19.7	21.3	21.0	19.4

¹Chatham, Daggett, and Bath, Michigan, not included in the mean.

Table 5. (Continued)

Strain	Bath Mich.	Mason Wis.	Spoon- er Wis.	Crooks- ton Minn.	St. Paul Minn.	Her- miston Ore.	On- tario Ore.	Med- ford Ore.
Flambeau	41.5	41.4	45.9	40.0	41.3	42.6	40.1	46.1
Crest	39.3	38.6	44.0	40.4	41.4	41.5	40.6	47.3
UM55-2	39.5	37.6	43.2	39.8	41.4	40.4	38.8	46.1
Acme	40.2	37.8	42.5	40.2	41.1	40.7	37.5	46.0
Mean	40.1	38.9	43.9	40.1	41.3	41.3	39.3	46.4

Percentage of Oil

Flambeau	21.2	19.5	18.3	19.9	20.7	17.5	19.9	15.6
Crest	22.0	20.0	19.2	20.3	20.4	18.7	21.0	16.3
UM55-2	21.7	20.2	19.2	19.9	20.5	18.9	21.7	16.3
Acme	21.4	20.1	19.5	19.4	19.6	19.1	22.4	16.1
Mean	21.6	20.0	19.1	19.9	20.3	18.6	21.3	16.1

Table 6. Two-year summary of data for Uniform Test, Group 00, 1958-1959.

Strain	Yield	Matu- rity ¹	Lodg- ing	Height	Seed Quality	Seed Weight	Seed Composition	
No. of Tests	25	15	16	23	20	24	Protein	Oil
Flambeau	27.6	+9.2	3.2	29	2.4	16.4	41.5	18.3
UM55-2	23.7	+2.5	2.4	29	2.1	17.9	39.8	19.3
Crest	23.7	+5.1	2.1	28	2.5	19.9	41.3	19.1
Acme	23.1	0	1.8	26	2.2	17.5	40.4	19.0
Mean	24.5	+4.2	2.4	28	2.3	17.9	40.8	18.9

¹Days earlier (-) or later (+) than Acme which matured September 20, 111 days after planting.

Table 7. Two-year summary of yield and yield rank for Uniform Test, Group 00, 1958-1959.

Strain	Mean of 25 Tests	Ot- tawa Ont.	Portage la Prairie Man.	Winni- peg Man.	Bran- don Man.	Chat- ham Mich.	Nor- way Mich. ¹
Flambeau	27.6	35.8	27.1	33.5	21.2	13.7	19.2
UM55-2	23.7	28.7	23.0	29.0	18.7	9.3	17.2
Crest	23.7	28.9	23.8	27.3	19.7	11.7	17.1
Acme	23.1	28.6	26.1	27.3	19.1	9.8	15.4
Mean	24.5	30.5	25.0	29.3	19.7	11.1	17.2

	Yield Rank						
Flambeau	1	1	1	1	1	1	1
UM55-2	3	4	2	4	4	4	2
Crest	2	3	3	2	2	2	3
Acme	4	2	3	3	3	3	4

¹Vulcan, Michigan, 1958.

Table 7. (Continued)

Strain	Bark River Mich.	Dag- gett Mich.	Spoon- er Wis.	Crooks ton Minn.	St. Paul Minn.	Park River N.D.	On- tario Ore.
Flambeau	16.5	17.1	29.3	38.1	31.5	25.0	35.2
UM55-2	16.2	14.0	22.1	31.3	25.2	18.6	33.1
Crest	16.4	12.7	23.1	34.5	25.5	20.1	43.7
Acme	15.1	14.6	21.4	32.3	26.6	19.4	37.5
Mean	16.1	14.6	24.0	34.1	27.2	20.8	37.4

	Yield Rank						
Flambeau	1	1	1	1	1	1	3
UM55-2	3	3	3	4	4	4	4
Crest	2	4	2	2	3	2	1
Acme	4	2	4	3	2	3	2

UNIFORM PRELIMINARY TEST, GROUP 00, 1959

Strain	Originating Agency	Origin	Generation Composited
Acme	Central Exp. Farm, Ottawa	Sel. from Pagoda	
Crest	Central Exp. Farm, Ottawa	ND8-291 x Mandarin	F8
Flambeau	Wis. Agr. Exp. Sta.	Introduction from Russia	
M350	Minn. A.E.S. & U.S.R.S.L.	P.I. 180501 x P.I. 194633	F5
M351	Minn. A.E.S. & U.S.R.S.L.	P.I. 180501 x P.I. 194633	F5
M352	Minn. A.E.S. & U.S.R.S.L.	P.I. 180501 x P.I. 194633	F5
M353	Minn. A.E.S. & U.S.R.S.L.	Blackhawk x P.I. 194633	F5
M354	Minn. A.E.S. & U.S.R.S.L.	Blackhawk x P.I. 194633	F5
M355	Minn. A.E.S. & U.S.R.S.L.	M10 x P.I. 194633	F5
0-52-903	Central Exp. Farm, Ottawa	Sel. No. 753-1	
0-57-2921	Central Exp. Farm, Ottawa	Blackhawk x Capital	F7
UM3	Univ. of Manitoba, Winnipeg, Man.	Sel. from P.I. 194630	
UM4	Univ. of Manitoba, Winnipeg, Man.	Acme x Comet	F5
UM5	Univ. of Manitoba, Winnipeg, Man.	Acme x Comet	F5

Identification of Parent Strains

M10	Sel. from Lincoln (2) x Richland.
ND8-291	Sel. from Manitoba Brown x Mandarin.
P.I. 180501	Sel. made in Germany from Strain 238 (of Manchurian origin) x P.I. 54616 (Yellow soybean from Kungchuling, Chekiang Province, China through B. W. Skvertzow, Harbin, Manchuria).
P.I. 194630	698-3-5, sel. by Sven A. Holmberg, Norrkoping, Sweden.
P.I. 194633	733-4, sel. by Sven A. Holmberg.
753-1	Sel. by Sven A. Holmberg; same as P.I. 194654.

This test was grown at seven locations in 1959 and represents the first Preliminary Test of this Group. The test consisted of 11 experimental strains and three check varieties. Maturity ranged from almost 5 days earlier than Acme to 12 days later. Probably the latest strain, M355, should be in Group 0. There was a very high correlation of yield with maturity, with the highest-yielding strains also being the latest. The earliest check variety was Acme, and none of the four earlier strains yielded as well. Crest averaged 5 days later than Acme, and of the seven earlier strains only one outyielded it. This strain, UM5, was the best yielding strain in the test considering its early maturity. The latest check variety, Flambeau, was outyielded by only one strain. This strain, 0-57-2921, was almost 3 bushels higher than Flambeau in average yield and considerably better in lodging resistance. Since maturity data were based on only four locations which varied considerably, the relative maturities may be expected to change somewhat on further testing.

Table 8. Summary of data for Uniform Preliminary Test, Group 00, 1959.

Strain	Yield	Rank	Matu- rity ¹	Lodg- ing	Height	Seed Quality	Seed Weight	Seed Composition	
								Protein	Oil
No. of Tests	7		4	6	7	6	6	6	6
Acme	25.8	8	0	1.4	26	1.9	18.9	41.3	19.9
Crest	26.2	7	+ 5.0	1.7	28	2.2	21.2	42.5	19.9
Flambeau	29.0	2	+10.0	3.1	29	2.2	17.9	43.0	19.8
M350	21.8	10	+ 0.8	1.4	25	2.8	17.0	43.6	19.4
M351	21.6	11	- 1.0	1.7	24	2.5	17.1	43.4	19.1
M352	20.1	14	+ 2.5	1.4	24	2.6	16.3	43.4	19.7
M353	27.2	3	+10.3	3.0	28	2.3	17.5	42.5	20.1
M354	21.6	11	- 1.0	2.5	26	2.9	16.9	44.0	19.0
M355	26.4	4	+12.3	2.6	29	2.0	18.4	44.8	19.4
0-52-903	20.6	13	- 4.8	1.7	26	2.8	20.8	43.0	20.0
0-57-2921	31.9	1	+10.0	1.9	29	1.9	16.0	41.4	20.4
UM3	26.4	4	+ 6.5	2.4	21	2.8	19.9	39.9	19.5
UM4	24.7	9	- 1.0	1.2	25	2.1	18.7	40.9	20.0
UM5	26.4	4	+ 2.5	1.7	26	2.1	19.0	40.9	20.1
Mean	25.0		+ 3.7	2.0	26	2.4	18.3	42.5	19.7

¹Days earlier (-) or later (+) than Acme which matured August 30, 101 days after planting.

Table 9. Disease data for Uniform Preliminary Test, Group 00, 1959.

Strain	Bacterial Blight	Bacterial Pustule	Brown Spot	Brown Stem Rot	Frog- eye	Stem Canker	Phytoph- thora Rot	Cyst Nematode
Acme	S	S	S	S	S		Seg	S
Crest	S	S	S	S	R		R	
Flambeau	R	S	S	S	S		S	S
M350	4Aa	5Aa	5Cn	4Ln, 5An				
M351	4Aa	4Aa	5Cn	4Ln, 4An				
M352	3Aa	3Aa	5Cn	4Ln, 4An				
M353	5Aa	4Aa	4Cn	4Ln, 4An				
M354	3Aa	5Aa	5Cn	4Ln, 3An				
M355	5Aa	5Aa	4Cn	4Ln, 4An				
0-52-903	4Aa	5Aa	5Cn	4Ln, 5An				
0-57-2921	4Aa	3Aa	4Cn	4Ln, 5An				
UM3	3Aa	4Aa	3Cn	5An				
UM4	3Aa	4Aa	5Cn	5An				
UM5	5Aa	3Aa	4Cn	5An				

P.I. 84946, included as a resistant check variety, rated 3Ln, 3An for Brown Stem Rot.

Table 10. Yield and yield rank for Uniform Preliminary Test, Group 00, 1959.

Strain	Mean of 7 Tests	Rank	Ot- tawa Ont.*	Winni- peg Man.	Spoon- er Wis.1	St. Paul Minn.2	Park River N.D.2	On- tario Ore.	Med- ford Ore.*
Acme	25.8	8	29.9	31.5	27.3	22.5	16.8	34.2	18.3
Crest	26.2	7	30.7	32.7	27.3	22.6	19.5	34.7	15.8
Flambeau	29.0	2	30.9	39.2	33.6	22.9	25.3	33.0	18.0
M350	21.8	10	20.4	25.4	30.1	17.0	15.6	30.7	13.2
M351	21.6	11	19.0	26.6	25.4	18.0	14.7	33.3	14.0
M352	20.1	14	20.3	25.0	23.0	15.4	13.3	29.7	13.9
M353	27.2	3	30.3	33.6	31.4	21.4	18.6	38.6	16.4
M354	21.6	11	24.1	29.2	22.4	18.7	13.7	26.7	16.3
M355	26.4	4	25.5	34.0	32.1	25.6	18.7	33.6	15.6
0-52-903	20.6	13	23.4	24.1	23.5	18.8	13.7	24.0	16.8
0-57-2921	31.9	1	37.7	38.7	27.8	26.8	24.6	42.8	25.2
UM3	26.4	4	26.3	34.0	22.4	22.9	17.3	38.5	23.5
UM4	24.7	9	29.6	29.6	26.0	23.0	11.3	36.1	17.0
UM5	26.4	4	29.3	28.0	26.4	25.8	14.3	39.9	21.0
Mean	25.0		27.0	30.8	27.1	21.5	17.0	34.0	17.5
Coef. of Var. (%)			9.7	8.2	11.6	--	--	8.0	8.9
Bu. Nec. for Sig. (5%)			4.9	4.9	6.0	--	--	5.9	4.8
Row Spacing (In.)			30	24	36	40	24	36	30

	Yield Rank						
Acme	5	7	6	8	7	7	4
Crest	3	6	6	7	3	6	10
Flambeau	2	1	1	5	1	10	5
M350	12	12	4	13	8	11	14
M351	14	11	10	12	9	9	12
M352	13	13	12	14	13	12	13
M353	4	5	3	9	5	3	8
M354	10	9	13	11	11	13	9
M355	9	3	2	3	4	8	11
0-52-903	11	14	11	10	11	14	7
0-57-2921	1	2	5	1	2	1	1
UM3	8	3	13	5	6	4	2
UM4	6	8	9	4	14	5	6
UM5	7	10	8	2	10	2	3

*Irrigated.

¹Irrigated, four replications.

²Four replications.

Table 11. Maturity, days earlier (-) or later (+) than Acme, for Uniform Preliminary Test, Group 00, 1959.

Strain	Mean of 4 Tests ¹	Winni- peg Man.	Spoon- er Wis.	St. Paul Minn.	On- tario Ore.	Med- ford Ore.
Acme	0	0	0	0	0	0
Crest	+ 5.0	+ 6	+ 3	+ 4	+ 7	0
Flambeau	+10.0	+11	+11	+10	+ 8	-2
M350	+ 0.8	- 1	+ 3	- 3	+ 4	0
M351	- 1.0	- 1	+ 1	- 4	0	-3
M352	+ 2.5	+ 4	+ 4	- 2	+ 4	-2
M353	+10.3	+ 7	+13	+ 7	+14	-2
M354	- 1.0	- 1	+ 2	- 5	0	+2
M355	+12.3	+ 7	+14	+14	+14	0
0-52-903	- 4.8	- 8	- 6	- 5	0	-3
0-57-2921	+10.0	+15	+ 9	+ 9	+ 7	-2
UM3	+ 6.5	+ 5	+13	+ 1	+ 7	+1
UM4	- 1.0	0	- 2	- 2	0	-4
UM5	+ 2.5	+ 5	+ 1	+ 4	0	-3
Date planted	5-21	5-21	5-26	5-23	5-13	5-20
Acme matured	8-30	9-7	9-5	8-23	8-24	9-28
Days to mature	101	109	102	92	103	131

¹Medford, Oregon, not included in the mean.

Table 12. Percentages of protein and oil for Uniform Preliminary Test, Group 00, 1959.

Strain	Mean of 6 Tests	Ot- tawa Ont.	Winni- peg Man.	Spoon- er Wis.	St. Paul Minn.	On- tario Ore.	Med- ford Ore.
Acme	41.3	43.0	37.5	41.9	41.1	38.3	46.0
Crest	42.5	43.3	36.9	45.2	41.4	41.0	47.1
Flambeau	43.0	43.8	37.7	46.9	41.3	41.0	47.3
M350	43.6	44.5	39.5	45.1	44.2	41.1	47.1
M351	43.4	43.2	39.0	44.5	44.6	41.3	47.9
M352	43.4	45.6	39.6	44.6	43.6	41.4	45.8
M353	42.5	43.6	37.9	45.8	40.2	40.9	46.7
M354	44.0	44.6	39.4	46.0	43.5	43.6	46.9
M355	44.8	45.5	40.7	47.8	43.0	44.6	47.1
0-52-903	43.0	43.6	41.6	44.0	43.8	37.7	47.3
0-57-2921	41.4	43.4	35.9	44.6	40.6	38.6	45.2
UM3	39.9	40.1	36.2	42.7	39.7	37.9	42.9
UM4	40.9	43.6	35.9	41.3	39.9	38.5	46.1
UM5	40.9	42.3	37.1	42.3	39.5	38.0	46.2
Mean	42.5	43.6	38.2	44.5	41.9	40.3	46.4

	Mean of 6 Tests	Percentage of Oil					
Acme	19.9	19.5	20.6	20.5	19.6	21.9	17.2
Crest	19.9	20.0	21.3	19.7	20.4	21.1	17.0
Flambeau	19.8	19.6	20.8	19.0	20.7	19.6	19.2
M350	19.4	19.3	20.3	19.9	18.6	20.7	17.5
M351	19.1	19.2	19.4	19.6	19.2	20.4	16.6
M352	19.7	19.6	20.4	19.8	19.1	20.9	18.4
M353	20.1	20.2	20.6	19.2	21.8	20.9	17.8
M354	19.0	19.9	19.9	18.9	19.1	20.2	16.2
M355	19.4	20.0	20.6	19.0	20.4	19.3	17.2
0-52-903	20.0	19.7	20.5	20.5	19.3	23.0	16.7
0-57-2921	20.4	20.9	21.9	19.8	20.3	21.5	17.8
UM3	19.5	18.0	21.7	18.4	21.8	21.1	16.0
UM4	20.0	19.3	21.7	20.5	19.7	21.7	17.3
UM5	20.1	20.3	21.4	19.9	20.7	21.7	16.7
Mean	19.7	19.7	20.8	19.6	20.1	21.0	17.3

UNIFORM TEST, GROUP 0, 1959

Strain	Originating Agency	Origin	Generation Compositied
Flambeau	Wis. Agr. Exp. Sta.	Introduction from Russia	F ₆
Grant	Wis. A.E.S. & U.S.R.S.L.	Lincoln x Seneca	
Mandarin (Ottawa)	Central Exp. Farm, Ottawa	Sel. from Mandarin	
Merit (0-55-2065)	Central Exp. Farm, Ottawa	Blackhawk x Capital	F ₈
Norchief	Wis. A.E.S. & U.S.R.S.L.	Hawkeye x Flambeau	F ₄
M316	Minn. A.E.S. & U.S.R.S.L.	Hawkeye x Capital	F ₅

This test consisted of five varieties and one experimental strain and was grown at 18 locations in 1959. The data are presented in Tables 13 through 19. Yields were normal to high at most locations except for very low yields at one location in Minnesota and several in the Dakotas. Over-all average yield for 1959 equalled that for 1958.

All of the six strains have been in the test for at least two years. The mean performance of the six strains was very similar in both years. The 2-year mean yield of the named varieties was in direct relationship to their maturity. The strain, M316, was outyielded by the earlier variety, Merit, and also included both tawny and gray pubescent plants.

The new variety, Merit, formerly 0-55-2065, was named in 1959. Its 1958-59 performance was good, yielding well for its maturity and being outstanding in lodging resistance. A description and an outline of the history of its development follows:

MERIT

Merit has white flowers, gray pubescence, yellow seed coat with a buff (light brown) hilum, and brown pod color. It is highly resistant to seed coat mottling.

The plant is erect with a bushy habit, and stems and leaves are of medium size. The variety has good resistance to lodging and high oil content. It matures about three days earlier than Mandarin (Ottawa) and Grant and two days later than Norchief. It is adapted to eastern and central Ontario and southwestern Quebec.

The history of its development follows:

- 1947 - Blackhawk x Capital cross (LX1241) made at Urbana, Illinois, by L. F. Williams, U. S. Regional Soybean Laboratory.
- 1948 - F₁. Grown at Urbana.
- 1949 - F₂. Grown at Madison, Wisconsin, by J. H. Torrie, University of Wisconsin.
- 1950 - F₃. Bulk planting at Ottawa, Ontario, by F. Dimmock, Forage Crops Division, Central Experimental Farm. Single plant selections made.

- 1951 - F₄. Plant progenies grown in nursery in comparison with Mandarin (Ottawa) included as check.
- 1952 to - F₆ to
1955 F₈. Selected progenies grown each year in nursery similar to 1951. Agronomic characters studied and protein and oil determinations made.
- 1956 - F₉. Progeny 2065 (1955 nursery) entered in preliminary performance trial (6 replicates) at Ottawa in comparison with other selected progenies and varietal checks.
- 1957 - F₁₀. Continued in preliminary replicated test at Ottawa and entered in Uniform Preliminary Test, Group 0, as 0-55-2065.
- 1958 - F₁₁. 0-55-2065 included in Uniform Test, Group 0. Also included in additional test at Ottawa and Quebec. Seed Board Tests in Quebec province. About 15 bushels of breeders seed produced at Ottawa.
- 1959 - F₁₂. 0-55-2065 named Merit and licensed by Plant Products Division, Department of Agriculture, Ottawa (License Number 764, dated March 31, 1959). Included in Uniform Test, Group 0. Twelve bushels of breeders seed (foundation) distributed to registered seed growers for production of registered seed. Approximately 300 to 350 bushels of this seed available to growers for 1960 planting. About 125 bushels of breeders seed produced at Ottawa.

Table 13. Summary of data for Uniform Test, Group 0, 1959.

Strain	Yield	Matu- rity ¹	Lodg- ing	Height	Seed Quality	Seed Weight	Seed Composition	
							Protein	Oil
No. of Tests	15	8	12	15	15	13	13	13
Grant	33.6	-0.3	2.5	29	2.4	17.2	41.4	20.1
Mandarin (Ottawa)	30.8	0	1.7	27	2.5	21.0	43.2	19.7
M316	30.6	-2.6	2.2	31	2.7	16.0	41.0	21.5
Merit	30.6	-2.9	1.7	29	2.3	15.6	41.4	21.2
Norchief	28.3	-5.5	2.0	27	3.1	18.4	42.1	20.1
Flambeau	25.7	-8.3	2.6	28	3.0	17.6	43.5	18.9
Mean	29.9	-3.3	2.1	29	2.7	17.6	42.1	20.3

¹Days earlier (-) or later (+) than Mandarin (Ottawa) which matured September 19, 122 days after planting.

Table 14. Disease data for Uniform Test, Group 0, 1959.

Strain	Bacterial Blight	Bacterial Pustule	Brown Spot	Brown Stem Rot	Frog- eye	Stem Canker	Phytoph- thora Rot	Cyst Nematode
Grant	S	S	S	S	S	S	S	S
Mandarin (Ottawa)	S	S	S	S	S		S	S
M316	S	S	S	S	R		S	
Merit	S	S	S	S	R		R	
Norchief	S	S	S	S	S	S	S	S
Flambeau	R	S	S	S	S	S	S	S

Table 15. Yield and yield rank for Uniform Test, Group 0, 1959.

Strain	Mean of 15 Tests ¹	Ot- tawa Ont.*	Guelph Ont.	Ridge- town Ont.	Bath Mich.*	East Lan- sing Mich.	Ida Mich.	Spoon- er Wis.*	Du- rand Wis.
Grant	33.6	49.8	40.2	36.0	33.7	48.2	43.5	41.2	23.0
Mandarin (Ottawa)	30.8	36.6	43.0	32.0	37.5	40.8	40.6	40.7	22.1
M316	30.6	43.1	33.7	33.7	27.9	39.0	39.2	32.7	22.7
Merit	30.6	43.7	31.7	30.9	29.7	33.4	39.0	35.4	21.4
Norchief	28.3	39.9	34.4	29.8	38.7	30.1	28.3	30.0	17.0
Flambeau	25.7	28.8	36.4	28.4	33.8	25.0	28.8	33.9	12.2
Mean	29.9	40.3	36.6	31.8	33.6	36.1	36.6	35.7	19.7
Coef. of Var. (%)		9.3	11.7	5.0	19.8	9.7	10.9	7.0	8.3
Bu. Nec. for Sig. (5%)		4.9	6.4	2.5	N.S.	6.2	6.7	3.7	2.5
Row Spacing (In.)		30	27	24	32	36	28	36	36

	Yield Rank							
Grant	1	2	1	4	1	1	1	1
Mandarin (Ottawa)	5	1	3	2	2	2	2	3
M316	3	5	2	6	3	3	5	2
Merit	2	6	4	5	4	4	3	4
Norchief	4	4	5	1	5	6	6	5
Flambeau	6	3	6	3	6	5	4	6

*Irrigated.

¹Bath, Michigan, Fairmount, North Dakota, and Rosholt, South Dakota, not included in the mean.

Table 15. (Continued)

Strain	Crooks- ton Minn.	Morris Minn.	St. Paul Minn.	Fargo N.D.	Edge- ley N.D.	Fair- mount N.D.	Ros- holt S.D.	Hermis- ton Ore.	On- tario Ore.	Med- ford Ore.*
Grant	27.5	13.8	30.2	25.0	20.0	13.2	7.8	42.6	42.1	20.9
Mandarin (Ottawa)	27.8	11.3	28.5	22.4	23.5	9.2	5.1	36.0	41.1	15.7
M316	21.3	13.0	30.7	23.6	17.8	10.5	6.5	41.8	44.0	22.3
Merit	32.8	13.1	29.0	25.6	17.7	9.8	8.2	39.5	40.1	25.2
Norchief	36.1	12.0	22.4	26.0	20.2	8.7	5.9	38.8	37.4	22.2
Flambeau	32.7	10.1	22.5	26.7	14.2	6.0	5.3	31.5	31.7	22.1
Mean	29.7	12.2	27.2	24.9	18.9	9.6	6.5	38.4	39.4	21.4
C. V. (%)	--	--	--	--	--	--	--	8.1	7.2	11.6
Bu. N. F. S. (5%)	--	--	--	--	--	--	--	4.7	4.3	3.7
Row Spacing (In.)	24	40	40	40	24	40	42	36	36	30

Yield Rank

Grant	5	1	2	4	3	1	2	1	2	5
Mandarin (Ottawa)	4	5	4	6	1	4	6	5	3	6
M316	6	3	1	5	4	2	3	2	1	2
Merit	2	2	3	3	5	3	1	3	4	1
Norchief	1	4	6	2	2	5	4	4	5	3
Flambeau	3	6	5	1	6	6	5	6	6	4

Table 16. Maturity, days earlier (-) or later (+) than Mandarin (Ottawa), lodging, and plant height for Uniform Test, Group 0, 1959.

Strain	Mean of 8 Tests ¹	Ot- tawa Ont.	Guelph Ont.	Ridge- town Ont.	Bath Mich.	East Lan- sing Mich.	Ida Mich.	Spoon- er Wis.	Du- rand Wis.
Grant	-0.3		--	+1		0		0	-1
Mandarin (Ottawa)	0		0	0		0		0	0
M316	-2.6		--	+1		-5		+3	-3
Merit	-2.9		0	0		-5		0	-2
Norchief	-5.5		-2	+1		-5		-6	-4
Flambeau	-8.3		-5	0		-5		-9	-7
Date planted	5-20	5-19	5-21	5-27	5-25	5-27	6-5	5-26	5-20
Mandarin (Ottawa) matured	9-19	--	9-4	9-14	--	9-15	--	9-25	9-15
Days to mature	122	--	106	110	--	111	--	122	118

	Mean of 12 Tests ²	Lodging							
Grant	2.5	2.5	2.3	1.0	5.0	3.0	2.0	3.5	1.4
Mandarin (Ottawa)	1.7	1.0	1.0	1.0	5.0	2.0	3.0	2.8	1.0
M316	2.2	1.0	2.0	2.0	5.0	2.0	3.0	3.0	1.8
Merit	1.7	1.0	1.0	1.0	5.0	1.0	2.0	2.5	1.5
Norchief	2.0	2.0	1.0	2.0	5.0	3.0	2.0	3.8	1.0
Flambeau	2.6	2.5	2.5	2.0	5.0	3.0	2.0	4.0	1.8
Mean	2.1	1.7	1.6	1.5	5.0	2.3	2.3	3.3	1.4

	Mean of 15 Tests ³	Plant Height							
Grant	29	28	37	24	41	30	31	33	28
Mandarin (Ottawa)	27	26	35	23	41	28	32	32	28
M316	31	27	38	26	43	28	37	39	32
Merit	29	27	38	24	41	24	34	37	30
Norchief	27	25	34	22	41	24	30	31	27
Flambeau	28	25	35	23	36	26	32	33	29
Mean	29	26	36	24	41	27	33	34	29

¹Guelph and Ridgetown, Ontario, Rosholt, South Dakota, and Hermiston, Oregon, not included in the mean.

²Bath, Michigan, Morris, Minnesota, Edgeley and Fairmount, North Dakota, and Rosholt, South Dakota, not included in the mean.

³Bath, Michigan, and Rosholt, South Dakota, not included in the mean.

Table 16. (Continued)

Strain	Morris Minn.	St. Paul Minn.	Fargo N.D.	Edge- ley N.D.	Fair- mount N.D.	Ros- holt S.D.	Hermis- ton Ore.	On- tario Ore.	Med- ford Ore.
Grant	0	+ 1	+1			+2	+5	0	-3
Mandarin (Ottawa)	0	0	0			0	0	0	0
M316	- 4	- 1	+1			0	+4	-5	-7
Merit	- 2	- 1	0			-2	0	-5	-8
Norchief	- 6	- 8	-3			-1	+5	-5	-7
Flambeau	-10	-17	-5			+2	+5	-7	-6
Date planted	5-20	5-23	5-16	5-19		5-23	5-21	5-13	5-20
Mandarin (Ottawa) matured	9-11	9-16	9-20	--		9-24	9-15	9-17	10-6
Days to mature	114	116	127	--		124	117	127	139

	Lodging								
Grant	1.0	3.0	1.3	1.0	1.0	1.0	3.0	4.0	3.0
Mandarin (Ottawa)	1.0	2.0	1.4	1.0	1.0	1.0	1.0	3.0	1.0
M316	1.0	3.0	1.6	1.0	1.0	1.0	2.0	3.0	2.0
Merit	1.0	2.0	2.1	1.0	1.0	1.0	2.0	2.0	2.0
Norchief	1.0	2.0	1.2	1.0	1.0	1.0	2.0	2.0	2.0
Flambeau	1.0	3.0	2.3	1.0	1.0	1.0	3.0	2.0	3.0
Mean	1.0	2.5	1.7	1.0	1.0	1.0	2.2	2.7	2.2

	Plant Height								
Grant	18	32	29	23	16	15	28	46	29
Mandarin (Ottawa)	18	30	24	23	15	15	24	36	28
M316	20	37	29	24	16	19	32	47	31
Merit	20	34	27	24	15	18	25	46	30
Norchief	17	29	26	22	14	15	30	39	29
Flambeau	18	31	28	25	17	15	24	41	28
Mean	19	32	27	24	16	16	27	43	29

Table 17. Percentages of protein and oil for Uniform Test, Group 0, 1959.

Strain	Mean of 13 Tests ¹	Ottawa Ont.	Guelph Ont.	Ridge- town Ont.	Bath Mich.	East Lan- sing Mich.	Ida Mich.	Spoon- er Wis.
Grant	41.4	40.3	38.1	41.2	39.3	43.9	40.7	43.7
Mandarin (Ottawa)	43.2	41.9	40.3	41.4	41.2	44.0	41.5	45.0
M316	41.0	39.0	39.8	39.5	38.6	41.2	39.1	43.2
Merit	41.4	39.9	39.6	39.6	39.4	41.7	39.8	44.8
Norchief	42.1	41.1	40.4	40.4	40.9	43.3	39.3	44.8
Flambeau	43.5	43.6	40.2	42.8	41.6	44.6	41.9	45.6
Mean	42.1	41.0	39.7	40.8	40.2	43.1	40.4	44.5

	Mean of 13 Tests ¹	Percentage of Oil						
Grant	20.1	20.9	22.2	21.4	22.4	20.7	21.9	20.2
Mandarin (Ottawa)	19.7	19.3	21.5	21.1	22.2	20.8	21.3	19.9
M316	21.5	22.4	22.0	23.3	23.7	22.9	23.8	21.1
Merit	21.2	22.5	21.8	23.3	23.1	22.6	23.5	21.1
Norchief	20.1	21.2	21.4	21.3	22.1	21.5	22.1	20.1
Flambeau	18.9	19.4	21.1	20.2	20.8	19.5	20.8	18.4
Mean	20.3	21.0	21.7	21.8	22.4	21.3	22.2	20.1

¹Bath, Michigan, not included in the mean.

Table 17. (Continued)

Strain	Du- rand Wis.	Crooks- ton Minn.	Morris Minn.	St. Paul Minn.	Hermis- ton Ore.	On- tario Ore.	Med- ford Ore.
Grant	44.0	39.2	44.7	41.1	37.3	40.0	44.2
Mandarin (Ottawa)	46.0	42.7	46.9	42.6	39.6	42.9	47.4
M316	42.1	39.4	43.7	40.4	37.3	41.3	46.5
Merit	44.0	40.6	44.8	41.0	38.5	38.7	45.5
Norchief	42.4	40.9	45.6	42.4	40.1	39.8	47.2
Flambeau	45.6	43.1	46.7	42.6	41.7	41.3	45.5
Mean	44.0	41.0	45.4	41.7	39.1	40.7	46.1

Percentage of Oil							
Grant	19.7	20.6	19.0	20.2	19.7	19.0	15.6
Mandarin (Ottawa)	18.3	20.0	18.7	20.3	19.6	19.5	16.3
M316	21.5	21.5	19.9	22.5	20.8	21.3	16.6
Merit	21.9	21.1	17.2	22.5	19.9	21.1	16.9
Norchief	20.0	19.8	19.2	20.3	18.7	19.7	15.9
Flambeau	18.5	19.2	18.3	18.9	17.8	18.9	15.2
Mean	20.0	20.4	18.7	20.8	19.4	19.9	16.1

Table 18. Two-year summary of data for Uniform Test, Group 0, 1958-1959.

Strain	Yield	Matu- rity ¹	Lodg- ing	Height	Seed Quality	Seed Weight	Seed Composition	
							Protein	Oil
No. of Tests	28	15	22	27	28	26	26	26
Grant	33.2	-0.2	2.7	30	2.3	16.5	40.8	19.6
Mandarin (Ottawa)	30.3	0	1.9	27	2.2	19.8	42.6	19.1
Merit	30.2	-2.8	1.8	30	2.1	14.5	40.5	20.4
M316	30.0	-1.7	2.2	31	2.5	14.9	40.5	20.6
Norchief	28.5	-4.8	2.2	28	2.8	17.1	41.5	19.6
Flambeau	26.5	-8.5	2.7	28	2.6	16.7	42.7	18.6
Mean	29.8	-3.0	2.3	29	2.4	16.6	41.4	19.7

¹Days earlier (-) or later (+) than Mandarin (Ottawa) which matured September 20, 121 days after planting.

Table 19. Two-year summary of yield and yield rank for Uniform Test, Group 0, 1958-1959.

Strain	Mean of 28 Tests	Ot- tawa Ont.	Guelph Ont.	Ridge- town Ont.	Bath Mich.	East Lansing Mich.	Ida Mich.	Spoon- er Wis.
Grant	33.2	44.6	43.5	38.5	24.3	45.1	42.2	35.5
Mandarin (Ottawa)	30.3	36.8	39.9	34.2	27.5	39.0	43.5	32.8
Merit	30.2	42.1	37.7	30.7	22.5	34.4	38.9	30.5
M316	30.0	40.2	40.1	32.8	20.0	36.3	38.4	28.2
Norchief	28.5	38.0	37.3	32.3	27.9	31.5	30.9	28.4
Flambeau	26.5	32.6	39.0	29.9	24.7	29.3	30.0	28.6
Mean	29.8	39.1	39.6	33.1	24.5	35.9	37.3	30.7

	Yield Rank						
Grant	1	1	1	4	1	2	1
Mandarin (Ottawa)	5	3	2	2	2	1	2
M316	2	5	5	5	4	3	3
Merit	3	2	3	6	3	4	6
Norchief	4	6	4	1	5	5	5
Flambeau	6	4	6	3	6	6	4

¹La Moure, North Dakota, 1958.

²Dwight, North Dakota, 1958.

Table 19. (Continued)

Strain	Du- rand Wis.	Crooks- ton Minn.	Morris Minn.	St. Paul Minn.	Fargo N.D.	Edge- ley N.D. ¹	Fair- mount N.D. ²	Ros- holt S.D.	On- tario Ore.
Grant	20.2	33.9	20.1	34.9	26.7	17.4	15.9	9.9	48.6
Mandarin (Ottawa)	19.7	32.0	18.6	29.9	23.8	18.4	13.7	6.6	47.7
Merit	17.9	35.2	18.8	31.7	26.1	16.1	15.3	9.4	49.1
M316	18.2	27.6	19.5	34.2	25.5	16.2	14.9	9.0	53.6
Norchief	16.6	36.5	17.7	28.4	25.0	17.2	13.6	7.6	41.6
Flambeau	14.3	33.9	16.9	27.2	25.7	12.2	10.9	6.6	39.6
Mean	17.8	33.2	18.6	31.1	25.5	16.3	14.1	8.2	46.7

	Yield Rank								
Grant	1	3	1	1	1	2	1	1	3
Mandarin (Ottawa)	2	5	4	4	6	1	4	5	4
M316	4	2	3	3	2	5	2	2	2
Merit	3	6	2	2	4	4	3	3	1
Norchief	5	1	5	5	5	3	5	4	5
Flambeau	6	3	6	6	3	6	6	5	6

UNIFORM TEST, GROUP I, 1959

Strain	Originating Agency	Origin	Generation Composited
Blackhawk	Iowa A.E.S. & U.S.R.S.L.	Mukden x Richland	F7
Chippewa	Ill. A.E.S. & U.S.R.S.L.	Lincoln (2) x Richland	F5
Mandarin (Ottawa)	Central Exp. Farm, Ottawa	Sel. from Mandarin	
M319	Minn. A.E.S. & U.S.R.S.L.	Lincoln x Hawkeye	F5
M328	Minn. A.E.S. & U.S.R.S.L.	Lincoln x Hawkeye	F5
W9-1982-32	Wis. A.E.S. & U.S.R.S.L.	Hawkeye x Manchu	F8

This test was grown at 18 locations in 1959, and the data are reported in Tables 20 through 26. The general yield level was higher than for the previous year and yields were excellent at most locations.

The test includes two check varieties, Blackhawk and Chippewa, and a Group 0 tie-in variety, Mandarin (Ottawa). The 1958 report gives a ten-year summary of performance for these three strains. This year was a very poor one for Chippewa, which yielded below Blackhawk at almost all locations.

W9-1982-32 has been in this test three years. It appreciably outyielded Blackhawk, to which it is similar in other traits, in both 1957 and 1958 but did not do so in 1959.

The remaining two strains, M319 and M328, were entered for the second year in this test. M319 is probably the best strain for agronomic performance in the test but is apparently still segregating for flower color. M328 has the best lodging resistance in the test but was short and lower in yield than M319.

Table 20. Summary of data for Uniform Test, Group I, 1959.

Strain	Yield	Matu- rity ¹	Lodg- ing	Height	Seed Quality	Seed Weight	Seed Composition	
No. of Tests	17	13	13	17	16	17	Protein	Oil
M319	34.9	+3.0	1.9	33	2.0	17.7	40.7	21.9
W9-1982-32	34.8	+5.9	2.3	39	2.3	18.8	41.1	21.3
Blackhawk	34.7	+5.2	2.4	35	2.3	17.2	41.5	21.2
M328	34.0	+3.5	1.5	30	2.3	18.5	40.3	22.6
Chippewa	33.0	0	1.9	32	2.4	16.1	41.2	21.3
Mandarin (Ottawa)	29.3	-3.1	1.7	27	2.8	19.8	42.7	20.2
Mean	33.5	+2.4	2.0	33	2.4	18.0	41.3	21.4

¹Days earlier (-) or later (+) than Chippewa which matured September 11, 112 days after planting.

Table 21. Disease data for Uniform Test, Group I, 1959.

Strain	Bacterial Blight	Bacterial Pustule	Brown Spot	Brown Stem Rot	Frog- eye	Stem Canker	Phytoph- thora Rot	Cyst Nematode
M319	S	S	S	S	R		S	
W9-1982-32	S	S	S	S	S		S	
Blackhawk	S	S	S	S	S	S	R	S
M328	S	S	S	S	R		S	
Chippewa	S	S	S	S	S		S	S
Mandarin (Ottawa)	S	S	S	S	S		S	S

Table 22. Yield and yield rank for Uniform Test, Group I, 1959.

Strain	Mean of 17 Tests ¹	Ridge- town Ont.	Hoyt- ville Ohio	Woos- ter Ohio	Co- lum- bus Ohio	East Lan- sing Mich.	Ida Mich.	Walk- erton Ind.	Du- rand Wis. ²	Madi- son Wis.
M319	34.9	36.5	32.2	31.5	26.8	47.3	39.2	19.6	29.2	34.2
W9-1982-32	34.8	35.5	33.8	36.4	27.9	47.7	46.8	21.0	25.9	35.3
Blackhawk	34.7	35.2	36.5	31.4	25.4	47.1	40.6	21.7	29.8	39.4
M328	34.0	35.0	28.3	25.7	21.8	48.9	40.7	17.3	27.8	43.2
Chippewa	33.0	34.8	28.2	28.8	23.1	45.6	38.6	19.2	23.0	35.2
Mandarin (Ottawa)	29.3	30.0	26.4	28.6	22.4	38.0	36.7	16.6	19.8	34.2
Mean	33.5	34.5	30.9	30.4	24.6	45.8	40.4	19.2	25.9	36.9
Coef. of Var. (%)		5.0	10.7	11.8	9.5	6.6	12.0	15.6	9.0	11.7
Bu. Nec. for Sig. (5%)		2.6	5.0	5.4	3.5	5.1	N.S.	N.S.	3.7	6.5
Row Spacing (In.)		24	36	28	28	36	28	40	36	36

	Yield Rank									
M319	1	3	2	2	3	4	3	2	5	
W9-1982-32	2	2	1	1	2	1	2	4	3	
Blackhawk	3	1	3	3	4	3	1	1	2	
M328	4	4	6	6	1	2	5	3	1	
Chippewa	5	5	4	4	5	5	4	5	4	
Mandarin (Ottawa)	6	6	5	5	6	6	6	6	5	

¹Urbana, Illinois, not included in the mean.

²Three replications.

Table 22. (Continued)

Strain	Shab-bona Ill.	Dwight Ill.	Ur-bana Ill.	St. Paul Minn.	Waseca Minn.	Kana-wha Iowa	Brook-ings S.D.	Her-miston Ore.	On-tario Ore.
M319	46.7	31.0	23.9	33.5	36.8	33.6	32.3	39.9	42.4
W9-1982-32	50.2	29.7	23.0	30.3	36.7	29.8	29.2	39.3	36.0
Blackhawk	47.7	35.4	23.0	28.0	37.1	31.5	25.6	42.6	35.0
M328	45.4	35.1	21.2	31.7	36.3	29.7	29.2	40.5	41.2
Chippewa	43.8	37.1	22.6	34.6	34.1	28.4	21.3	46.3	39.7
Mandarin (Ottawa)	41.7	26.2	19.0	27.9	29.8	26.4	20.8	34.9	38.2
Mean	45.9	32.4	22.1	31.0	35.1	29.9	26.4	40.6	38.8
Coef. of Var. (%)	2.3	7.1	6.4	--	--	5.4	--	7.4	9.3
Bu. Nec. for Sig. (5%)	1.6	3.5	2.1	--	--	2.4	--	4.5	5.4
Row Spacing (In.)	40	38	40	40	40	40	42	36	36

[illegible]

Table 23. Maturity, days earlier (-) or later (+) than Chippewa, lodging, and plant height for Uniform Test, Group I, 1959.

Strain	Mean of 13 Tests ¹	Ridge- town Ont.	Hoyt- ville Ohio	Woos- ter Ohio	Co- lum- bus Ohio	East Lan- sing Mich.	Ida Mich.	Walk- erton Ind.	Du- rand Wis.	Madison Wis.
M319	+3.0	+2	+2	+1	0	+5		+2		+2
W9-1982-32	+5.9	+2	+2	+7	+9	+8		+5		+6
Blackhawk	+5.2	+2	+5	+5	+4	+7		+2		+6
M328	+3.5	+1	+1	+2	+2	+5		+3		+3
Chippewa	0	0	0	0	0	0		0		0
Mandarin (Ottawa)	-3.1	-3	-3	-2	+1	-6		-8		0
Date planted	5-22	5-27	5-21	5-17	5-11	5-27	6-5	6-2	5-20	5-26
Chippewa matured	9-11	9-19	9-4	8-26	8-24	9-21	--	9-12	--	9-18
Days to mature	112	115	106	101	105	117	--	102	--	115

	Mean of 13 Tests ²	Lodging								
M319	1.9	1.0	1.0	1.0	1.0	2.0	1.0	1.0	1.0	2.9
W9-1982-32	2.3	2.0	1.0	1.0	1.0	3.0	1.0	1.3	1.5	3.5
Blackhawk	2.4	1.0	1.0	1.0	1.0	2.0	2.0	1.3	1.3	4.1
M328	1.5	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	2.1
Chippewa	1.9	1.0	1.0	1.0	1.0	3.0	2.0	1.0	1.0	2.6
Mandarin (Ottawa)	1.7	2.0	1.0	1.0	1.0	2.0	2.0	1.0	1.0	2.4
Mean	2.0	1.3	1.0	1.0	1.0	2.2	1.5	1.1	1.1	2.9

	Mean of 17 Tests ³	Plant Height								
M319	33	26	32	24	25	34	31	39	30	36
W9-1982-32	39	34	36	31	30	38	42	39	37	43
Blackhawk	35	29	39	30	26	32	38	36	34	38
M328	30	25	29	23	23	30	29	27	30	35
Chippewa	32	28	31	26	24	34	35	31	29	37
Mandarin (Ottawa)	27	24	30	21	22	24	29	26	28	30
Mean	33	28	33	26	25	32	34	33	31	37

¹Urbana, Illinois, and Hermiston and Ontario, Oregon, not included in the mean.

²Hoytville, Wooster, and Columbus, Ohio, Urbana, Illinois, and Brookings, South Dakota, not included in the mean.

³Urbana, Illinois, not included in the mean.

Table 23. (Continued)

Strain	Shab-bona Ill.	Dwight Ill.	Ur-bana Ill.	St. Paul Minn.	Waseca Minn.	Kana-wha Iowa	Brook-ings S.D.	Her-miston Ore.	On-tario Ore.
M319	+6	+4	+7	+4	+ 6	+6	-1	+ 5	+ 8
W9-1982-32	+8	+7	+5	+6	+12	+5	0	+10	+15
Blackhawk	+7	+3	+4	+8	+ 9	+8	+2	+10	+19
M328	+6	+3	+5	+7	+ 7	+8	-2	+ 3	+ 7
Chippewa	0	0	0	0	0	0	0	0	0
Mandarin (Ottawa)	-3	-4	-5	-4	- 3	-8	+3	-23	- 3
Date planted	5-13	5-26	5-18	5-23	5-19	5-25	5-18	5-21	5-13
Chippewa matured	9-3	9-12	8-22	9-21	9-11	9-8	9-26	10-8	9-26
Days to mature	113	109	96	121	115	106	131	140	136

Lodging

M319	1.8	2.3	1.0	2.0	1.9	1.2	1.0	3.0	4.0
W9-1982-32	2.1	2.4	1.0	2.5	1.8	1.4	1.0	2.0	5.0
Blackhawk	2.2	2.5	1.0	2.8	2.2	1.2	1.0	3.0	5.0
M328	1.4	2.1	1.0	1.5	1.8	1.0	1.0	1.0	3.0
Chippewa	2.1	2.5	1.0	2.0	1.8	1.1	1.0	2.0	3.0
Mandarin (Ottawa)	1.5	2.2	1.0	2.2	1.5	1.1	1.0	1.0	2.0
Mean	1.9	2.3	1.0	2.2	1.8	1.2	1.0	2.0	3.7

Plant Height

M319	38	32	23	35	34	27	25	43	45
W9-1982-32	48	38	28	39	39	34	32	39	56
Blackhawk	40	33	27	38	36	31	28	36	56
M328	33	30	20	34	31	26	24	32	43
Chippewa	36	33	24	33	32	26	27	30	45
Mandarin (Ottawa)	28	25	18	30	30	23	23	24	38
Mean	37	32	23	35	34	28	27	34	47

Table 24. Percentages of protein and oil for Uniform Test, Group I, 1959.

Strain	Mean of 17 Tests ¹	Ridge- town Ont.	Hoyt- ville Ohio	Woos- ter Ohio	Co- lum- bus Ohio	East Lan- sing Mich.	Ida Mich.	Walk- erton Ind.	Du- rand Wis.	Madi- son Wis.
M319	40.7	38.9	35.5	42.1	41.8	40.6	42.3	42.9	41.8	43.3
W9-1982-32	41.1	40.6	38.3	41.1	42.1	40.9	41.3	43.2	43.8	41.0
Blackhawk	41.5	39.8	41.8	40.7	41.3	40.5	43.4	42.6	43.8	43.4
M328	40.3	40.4	38.5	40.9	41.2	39.3	40.9	43.3	41.1	42.0
Chippewa	41.2	39.7	38.6	41.4	42.5	40.8	42.1	42.1	42.7	44.1
Mandarin (Ottawa)	42.7	42.4	40.7	41.7	42.0	41.8	42.1	46.5	46.1	46.0
Mean	41.3	40.3	38.9	41.3	41.8	40.7	42.0	43.4	43.2	43.3
Percentage of Oil										
	Mean of 17 Tests ¹									
M319	21.9	22.4	23.5	22.3	21.7	22.7	22.5	21.3	22.0	21.6
W9-1982-32	21.3	21.8	22.7	21.4	20.8	22.1	22.4	21.4	20.3	21.1
Blackhawk	21.2	22.4	23.1	21.3	22.0	22.1	21.8	20.9	20.2	20.6
M328	22.6	23.3	24.1	22.7	21.2	22.9	23.6	21.8	22.7	22.4
Chippewa	21.3	22.4	22.1	21.1	20.8	22.0	22.1	21.2	20.9	20.6
Mandarin (Ottawa)	20.2	20.9	21.0	21.0	21.1	20.6	20.4	19.4	18.4	19.2
Mean	21.4	22.2	22.8	21.6	21.3	22.1	22.1	21.0	20.8	20.9

¹Urbana, Illinois, not included in the mean.

Table 24. (Continued)

Strain	Shab- bona Ill.	Dwight Ill.	Ur- bana Ill.	St. Paul Minn.	Waseca Minn.	Kana- wha Iowa	Brook- ings S.D.	Her- miston Ore.	On- tario Ore.
M319	40.5	40.9	40.5	41.4	39.6	39.7	41.7	38.7	40.7
W9-1982-32	40.9	41.3	40.4	41.2	40.3	39.8	41.9	39.9	40.7
Blackhawk	42.3	41.6	40.9	42.2	39.3	40.0	42.8	39.8	41.0
M328	39.9	40.3	40.7	40.6	39.0	39.3	40.4	38.6	39.7
Chippewa	41.2	40.6	40.8	41.4	38.7	40.2	43.9	39.6	41.2
Mandarin (Ottawa)	42.1	42.3	40.8	42.3	40.2	41.7	44.3	40.9	43.5
Mean	41.2	41.2	40.7	41.5	39.5	40.1	42.5	39.6	41.1

	Percentage of Oil								
M319	22.1	22.2	23.9	21.6	22.9	23.1	21.8	19.5	19.2
W9-1982-32	21.7	21.8	21.5	20.4	21.6	22.5	21.4	19.4	18.9
Blackhawk	21.1	22.1	22.3	21.2	21.8	22.1	20.9	18.9	18.6
M328	23.1	23.3	23.7	22.1	23.3	23.9	23.1	20.1	20.0
Chippewa	21.5	22.0	22.3	21.5	22.2	22.4	20.2	19.5	18.8
Mandarin (Ottawa)	20.9	21.3	21.9	19.6	21.3	21.3	19.3	18.9	18.6
Mean	21.7	22.1	22.6	21.1	22.2	22.6	21.1	19.4	19.0

Table 25. Two-year summary of data for Uniform Test, Group I, 1958-1959.

Strain	Yield	Matu- rity ¹	Lodg- ing	Height	Seed Quality	Seed Weight	Seed Composition	
							Protein	Oil
No. of Tests	34	29	28	34	31	34	34	34
W9-1982-32	33.3	+5.1	2.1	37	2.0	18.3	41.3	20.8
M319	33.2	+2.9	1.7	32	1.8	17.3	41.0	21.3
Blackhawk	32.1	+6.4	2.1	34	2.0	16.8	41.6	20.6
Chippewa	31.8	0	1.7	32	2.1	16.2	41.4	20.7
M328	31.5	+3.5	1.4	29	2.1	18.1	40.6	21.9
Mandarin (Ottawa)	28.6	-2.4	1.6	27	2.3	19.6	43.1	19.8
Mean	31.8	+2.6	1.8	32	2.1	17.7	41.5	20.9

¹Days earlier (-) or later (+) than Chippewa which matured September 15, 115 days after planting.

Table 26. Two-year summary of yield and yield rank for Uniform Test, Group I, 1958-1959.

Strain	Mean of 34 Tests	Ridge- town Ont.	Hoyt- ville Ohio	Woos- ter Ohio	Colum- bus Ohio	East Lansing Mich.	Ida Mich.	Walk- erton Ind.
W9-1982-32	33.3	37.5	33.6	41.0	35.9	41.2	44.0	25.8
M319	33.2	36.3	33.7	36.0	35.2	43.7	39.9	25.1
Blackhawk	32.1	35.2	35.5	35.6	33.5	40.0	38.0	25.2
Chippewa	31.8	36.0	29.8	35.0	30.8	42.3	40.3	22.4
M328	31.5	36.5	27.5	33.7	30.7	40.6	40.8	23.7
Mandarin (Ottawa)	28.6	32.5	27.4	33.2	29.2	36.3	37.4	21.5
Mean	31.8	35.7	31.3	35.8	32.6	40.7	40.1	24.0

Yield Rank

W9-1982-32	1	2	1	1	3	1	1
M319	3	1	2	2	1	4	3
Blackhawk	5	3	3	3	5	5	2
Chippewa	4	4	4	4	2	3	5
M328	2	5	5	5	4	2	4
Mandarin (Ottawa)	6	6	6	6	6	6	6

Table 26. (Continued)

Strain	Durand Wis.	Madi- son Wis.	Shab- bona Ill.	St. Paul Minn.	Waseca Minn.	Kana- wha Iowa	Brook- ings S.D.
W9-1982-32	20.8	28.6	46.3	32.7	36.3	27.7	21.2
M319	23.1	26.3	44.5	36.1	35.6	30.7	24.0
Blackhawk	22.6	31.5	41.5	30.4	34.6	28.2	20.3
Chippewa	19.4	26.7	41.3	36.7	34.1	27.2	18.0
M328	21.9	28.4	42.8	31.8	35.8	27.4	22.0
Mandarin (Ottawa)	18.6	25.5	37.0	29.3	30.1	25.7	17.3
Mean	21.1	27.8	42.2	32.8	34.4	27.8	20.5

	Yield Rank						
W9-1982-32	4	2	1	3	1	3	3
M319	1	5	2	2	3	1	1
Blackhawk	2	1	4	5	4	2	4
Chippewa	5	4	5	1	5	5	5
M328	3	3	3	4	2	4	2
Mandarin (Ottawa)	6	6	6	6	6	6	6

UNIFORM TEST, GROUP II, 1959

Strain	Originating Agency	Origin	Generation Compositd
Adams	Iowa A.E.S. & U.S.R.S.L.	Illini x Dunfield	F ₇
Blackhawk	Iowa A.E.S. & U.S.R.S.L.	Mukden x Richland	F ₇
Ford	Iowa A.E.S. & U.S.R.S.L.	Lincoln (2) x Richland	F ₉
Harosoy	Harrow E.S., Harrow, Ont.	Mandarin (2) x A.K.	F ₅
Hawkeye	Iowa A.E.S. & U.S.R.S.L.	Mukden x Richland	F ₄ *
Lindarin	Purdue A.E.S. & U.S.R.S.L.	Mandarin (Ottawa) x Lincoln	F ₇
A2-4008	Iowa A.E.S. & U.S.R.S.L.	Adams x Blackhawk	F ₆
C1160	Purdue A.E.S. & U.S.R.S.L.	Perry x Mandarin (Ottawa)	F ₇
C1213	Purdue A.E.S. & U.S.R.S.L.	C1067 x Monroe	F ₇
H20771-9	Ohio A.E.S. & U.S.R.S.L.	Monroe x Lincoln	F ₅
H21793-7	Ohio A.E.S. & U.S.R.S.L.	Richland x H2	F ₅
L58g-1H	Ill. A.E.S. & U.S.R.S.L.	Harosoy (4) x F ₂ of Harosoy x Blackhawk	F ₂ **
S6-5004	Mo. A.E.S. & U.S.R.S.L.	Lincoln (2) x Richland	F ₁₁
W3-1069	Wis. A.E.S. & U.S.R.S.L.	Lincoln x Capital	F ₅

Identification of Parent Strains

C1067 F₆ line from Lincoln x Ogden; from same F₃ line as C1068.
H2 Sel. from Dunfield x Illini.

* A bulk of five F₆ lines from two F₅ lines.

**A composite of F₃ lines heterogeneous for reaction to Phytophthora rot.

This test was grown at 26 locations in 1959, and the data are presented in Tables 27 through 36. Tests were mostly satisfactory with only 3 locations (Walkerton, Indiana, Urbana, Illinois, and Powhattan, Kansas) averaging under 30 bushels per acre. The over-all mean in 1959 equals the four-year over-all mean for this test.

Four-year means are presented in Tables 35 and 36 and include four check varieties and two tie-in varieties, Blackhawk from Group I and Ford from Group III. The two leading varieties in yield, Harosoy and Ford, were virtually identical in mean values for all traits except maturity. The mean yield of Lindarin equalled that of Adams, falling near the mid-point between Harosoy and Hawkeye.

Three experimental strains appear in the three-year summaries in Tables 33 and 34. A2-4008 has been consistently poorer in seed quality than the other strains and otherwise similar to Lindarin in performance. The two H strains were similar in performance with H21793-7, being a day earlier. They were inferior in yield and oil content but are included here because of their resistance to Phytophthora rot.

One strain, C1160, has been in this test for two years, and its yield has been near the top in both years. It equalled Harosoy in over-all performance, but matured later.

Two strains, S6-5004 and W3-1069, were entered from the 1958 Preliminary Test II. S6-5004 topped the test in yield this year. Along with S2-5179 in Group III and S6-5162 in Group IV, this strain is a selection from Lincoln (2) x Richland, and all three strains represent moderate advances over the presently released varieties from Lincoln (2) x Richland.

C1213 and L58g-1H are new entries in Uniform Tests this year. C1213 was a selection from CX185A-25-1 tested in Uniform Preliminary Test, Group I, in 1957. It had excellent lodging resistance but little else to recommend it. L58g-1H represents an attempt to create a Phytophthora-resistant Harosoy through backcrossing. This strain is from the fourth backcross and was expected to perform similarly to Harosoy. However, in almost all traits it was intermediate to Blackhawk and Harosoy, and distinctly inferior to Harosoy in yield (although outyielding both H20771-9 and H21793-7 on the average). This is probably not due to linkage of these traits with the disease-resistant gene, since this strain is from heterogeneous plants, the progeny of homozygous resistant plants having been used for seed increase at Urbana and Lafayette in 1959. Further backcrossing has been done and the BC₇ should be available for testing in 1960.

Table 27. Summary of data for Uniform Test, Group II, 1959.

Strain	Yield	Matu- rity ¹	Lodg- ing	Height	Seed Quality	Seed Weight	Seed Composition	
							Protein	Oil
No. of Tests	24	24	21	24	22	24	24	24
S6-5004	39.6	+3.4	2.4	39	1.8	15.5	40.7	22.0
Harosoy	39.0	-2.5	2.1	40	2.1	18.2	41.4	21.6
C1160	39.0	-0.5	2.0	37	2.5	18.7	41.5	22.0
Ford	38.4	+5.9	2.4	41	2.1	16.9	41.5	21.5
Adams	37.6	+3.3	2.4	41	1.7	15.5	40.3	22.4
Lindarin	36.9	-2.3	1.9	36	1.8	16.7	41.3	22.2
W3-1069	36.8	+2.8	2.0	41	2.9	16.1	41.0	22.3
A2-4008	36.4	-1.4	1.8	36	2.8	18.7	40.5	22.5
Hawkeye	36.4	0	1.8	39	1.9	18.3	41.5	22.0
L58g-1H	35.7	-4.0	2.0	38	2.2	17.8	41.6	21.7
C1213	35.6	-0.7	1.7	37	2.4	17.0	41.9	22.3
H21793-7	34.9	-1.9	2.0	42	1.9	17.7	43.0	21.1
H20771-9	34.9	+0.6	2.0	40	2.1	14.0	42.6	21.3
Blackhawk	33.6	-5.0	2.0	35	2.3	16.6	41.4	21.7
Mean	36.8	-0.3	2.0	39	2.2	17.0	41.4	21.9

¹Days earlier (-) or later (+) than Hawkeye which matured September 18, 118 days after planting.

Table 28. Disease data for Uniform Test, Group II, 1959.

Strain	Bacterial Blight	Bacterial Pustule	Brown Spot	Brown Stem Rot	Frog- eye	Stem Canker	Phytoph- thora Rot	Cyst Nematode
S6-5004	3Aa	3Dn, 2Aa	3Cn	3Ln, 4An	RCa	4An		
Harosoy	S	S	S	S	R	S	S	S
C1160	S	S	S	S	S	2An	S	
Ford	S	S	S	S	R	S	S	S
Adams	S	S	S	S	R	S	S	S
Lindarin	S	S	S	S	R	S	S	S
W3-1069	2Aa	4Dn, 3Aa	3Cn	4Ln, 5An	RCa	2An		
A2-4008	S	S	S	S	R	S	R	
Hawkeye	S	S	S	S	S	S	S	S
L58g-1H	4Aa	3Dn, 3Aa	3Cn	4Ln, 5An	RCa	2An		
C1213	4Aa	3Dn, 4Aa	3Cn	4Ln, 4An	RCa	3An		
H21793-7	S	S	S	S	S	3An	R	
H20771-9	S	S	S	S	R	4An	R	
Blackhawk	S	S	S	S	S	S	R	S

Lincoln and Shelby, included as susceptible check varieties, rated 4An for Stem Canker.

Table 29. Yield and yield rank for Uniform Test, Group II, 1959.

Strain	Mean of 24 Tests ¹	Ridge- town Ont.	James- burg N.J.	New-Hoyt- ark Del.	Hoyt- ville Ohio	Woos- lum- ter Ohio	Co- bus Ohio	Ida Mich.	Walk- er- ton Ind.	Bluff- ton Ind.	La- fay- ette Ind.	Green- field Ind.	Worth- ing- ton Ind.
S6-5004	39.6	37.6	42.9	34.4	30.9	30.9	29.6	37.4	29.0	47.8	42.8	37.1	41.5
Harosoy	39.0	37.3	41.0	27.1	33.1	33.6	32.7	43.4	28.6	47.9	38.7	35.3	45.8
C1160	39.0	39.0	45.0	34.1	31.8	34.9	31.3	41.6	28.8	46.1	39.8	35.0	41.2
Ford	38.4	34.3	42.5	34.8	30.1	36.8	27.3	36.4	26.7	47.5	39.2	37.0	42.1
Adams	37.6	35.3	42.6	36.3	29.7	27.2	33.6	39.3	29.2	40.6	39.3	35.7	35.8
Lindarin	36.9	33.2	43.8	34.6	29.1	29.0	31.8	40.4	25.6	42.8	36.5	33.5	40.1
W3-1069	36.8	36.4	43.7	36.3	25.6	26.6	32.9	39.2	27.7	44.1	38.9	26.6	32.2
A2-4008	36.4	34.9	39.5	32.0	27.8	29.2	31.8	39.6	31.4	39.4	30.6	35.4	38.8
Hawkeye	36.4	35.4	42.8	30.0	27.7	28.0	30.5	39.4	26.5	46.2	36.4	28.6	42.0
L58g-1H	35.7	34.3	35.2	23.4	32.5	29.0	27.6	42.7	28.1	46.3	34.7	33.5	40.3
C1213	35.6	32.4	39.5	32.8	26.1	30.4	29.4	40.2	28.6	42.8	33.4	27.5	34.4
H21793-7	34.9	32.2	39.4	29.7	32.2	32.8	26.5	36.0	25.7	42.0	32.3	33.3	41.4
H20771-9	34.9	36.5	39.1	29.6	30.4	30.1	31.1	34.5	23.9	42.7	35.3	31.2	34.6
Blackhawk	33.6	31.3	35.0	31.2	32.7	28.0	25.9	38.0	26.7	43.0	31.8	30.1	32.7
Mean	36.8	35.0	40.9	31.9	30.0	30.5	30.1	39.2	27.6	44.2	36.4	32.8	38.8
C.V. (%)		4.9	9.3	6.6	13.9	11.2	10.6	10.3	10.0	6.8	7.5	9.2	6.2
B.N.F.S. (5%)		2.4	5.5	2.0	N.S.	4.9	4.6	6.9	3.9	4.3	3.8	4.4	3.5
Row Sp. (In.)		24	42	36	36	28	28	28	40	38	38	38	38

	Yield Rank											
S6-5004	2	4	5	6	5	9	11	3	2	1	1	4
Harosoy	3	8	13	1	3	3	1	5	1	6	5	1
C1160	1	1	6	5	2	6	3	4	6	2	6	6
Ford	9	7	3	8	1	12	12	9	3	4	2	2
Adams	7	6	1	9	13	1	8	2	13	3	3	10
Lindarin	11	2	4	10	9	4	4	13	9	7	7	8
W3-1069	5	3	1	14	14	2	9	8	7	5	14	14
A2-4008	8	9	8	11	8	4	6	1	14	14	4	9
Hawkeye	6	5	10	12	11	8	7	11	5	8	12	3
L58g-1H	9	13	14	3	9	11	2	7	4	10	7	7
C1213	12	9	7	13	6	10	5	5	9	11	13	12
H21793-7	13	11	11	4	4	13	13	12	12	12	9	5
H20771-9	4	12	12	7	7	7	14	14	11	9	10	11
Blackhawk	14	14	9	2	11	14	10	9	8	13	11	13

*Irrigated.

¹Independence, Iowa, and Powhattan, Kansas, not included in the mean.

Table 29. (Continued)

Strain	Madi- son Wis.	Shab- bona Ill.	Dwight Ill.	Ur- bana Ill.	Gir- ard Ill.	Edge- wood Ill.	Wa- seca Minn.	Suth- er- Iowa	Kana- wha Iowa	Inde- pen- dence Iowa	Ames Iowa	Con- cord Nebr.	Lin- coln Nebr.	Pow- hatan *Kans.
S6-5004	40.7	47.4	33.7	34.0	51.4	33.7	52.6	39.4	47.3	35.0	48.6	32.4	46.6	27.5
Harosoy	37.6	46.1	37.4	27.2	49.6	35.5	45.4	41.6	44.0	44.7	44.6	31.0	50.2	26.0
C1106	46.2	49.5	35.7	24.4	51.2	31.1	42.0	40.6	46.4	42.1	41.8	28.3	49.8	21.7
Ford	40.3	43.1	31.5	32.3	48.8	33.5	52.2	37.8	46.8	34.3	47.1	29.5	43.1	24.0
Adams	38.3	48.5	40.9	32.0	45.8	28.8	47.2	37.8	41.8	35.7	44.4	28.2	45.2	27.3
Lindarin	38.9	44.3	32.1	27.2	47.0	32.7	44.5	38.4	41.2	36.9	41.9	30.2	47.9	22.8
W3-1069	33.2	48.1	31.1	33.8	47.4	25.8	49.9	38.9	44.8	40.2	44.2	31.8	44.2	21.8
A2-4008	36.4	46.8	34.6	24.0	39.5	34.7	43.9	37.9	42.7	41.6	42.5	32.2	48.0	18.3
Hawkeye	35.6	44.0	30.9	26.5	44.2	30.2	48.3	43.4	41.2	37.6	43.3	29.3	43.6	23.9
L58g-1H	32.7	46.6	36.6	23.1	43.4	31.1	42.3	37.6	41.2	42.4	39.2	31.3	45.2	13.6
C1213	39.8	48.9	32.2	26.4	41.8	29.0	41.7	36.9	41.2	36.3	43.1	31.4	44.4	22.9
H21793-7	31.9	45.1	32.9	20.6	39.3	32.2	42.0	34.6	39.2	38.5	42.3	29.4	44.4	16.0
H20771-9	32.2	45.4	29.0	26.7	43.8	29.2	45.1	34.0	40.2	34.4	40.3	30.8	41.1	21.7
Blackhawk	31.8	43.8	31.4	21.5	35.0	27.6	41.2	34.6	37.0	35.7	40.8	31.1	45.0	15.9
Mean	36.8	46.3	33.6	27.1	44.9	31.1	45.6	38.1	42.5	38.2	43.2	30.5	45.6	21.7
CV(%)	9.1	5.3	9.2	6.5	8.7	15.3	--	8.8	5.3	6.0	6.0	6.4	7.0	21.0
BNFS(5%)	4.8	3.5	4.4	2.5	5.6	N.S.	--	4.6	3.2	3.2	3.7	N.S.	4.6	7.4
R.Sp.(In.)	36	40	38	40	38	38	40	40	40	40	40	40	38	40

	Yield Rank													
S6-5004	2	5	6	1	1	3	1	4	1	12	1	1	5	1
Harosoy	7	8	2	5	3	1	6	2	5	1	3	7	1	3
C1160	1	1	4	10	2	7	11	3	3	3	11	13	2	9
Ford	3	14	10	3	4	4	2	8	2	14	2	10	13	4
Adams	6	3	1	4	7	12	5	8	7	10	4	14	6	2
Lindarin	5	11	9	5	6	5	8	6	8	8	10	9	4	7
W3-1069	10	4	12	2	5	14	3	5	4	5	5	3	11	8
A2-4008	8	6	5	11	12	2	9	7	6	4	8	2	3	11
Hawkeye	9	12	13	8	8	9	4	1	8	7	6	12	12	5
L58g-1H	11	7	3	12	10	7	10	10	8	2	14	5	6	14
C1213	4	2	8	9	11	11	13	11	8	9	7	4	9	6
H21793-7	13	10	7	14	13	6	11	12	13	6	9	11	9	12
H20771-9	12	9	14	7	9	10	7	14	12	13	13	8	14	9
Blackhawk	14	13	11	13	14	13	14	12	14	10	12	6	8	13

Table 30. Maturity, days earlier (-) or later (+) than Hawkeye, for Uniform Test, Group II, 1959.

Strain	Mean of 24 Tests ¹	Ridge- town Ont.	James- burg N.J.	New- ark Del.	Hoyt- ville Ohio	Co- Woos- lum- ter Ohio	bus Ohio	Ida Mich.	Walk- er- ton Ind.	Bluff- ton Ind.	La- fay- ette Ind.	Green- field Ind.	Worth- ton Ind.
S6-5004	+3.4	+6	+1	-2	+5	+ 1	+10	0	+3	+4	+ 6	+3	+5
Harosoy	-2.5	-1	0	-2	-4	+ 2	- 2	-6	-2	-2	0	-2	+1
C1160	-0.5	+2	0	-2	-1	+ 3	- 4	-5	-3	+2	+ 4	0	+6
Ford	+5.9	+7	+5	0	+8	+ 7	+13	+3	+5	+5	+10	+5	+7
Adams	+3.3	+5	+1	0	+8	+ 1	+ 2	-2	0	+3	+ 4	+3	+9
Lindarin	-2.3	+2	-1	-5	-4	- 2	- 2	+2	-4	-3	- 1	-2	-1
W3-1069	+2.8	+5	+1	0	+8	0	+ 5	+1	0	+2	+ 7	+5	+2
A2-4008	-1.4	+1	0	0	+4	-14	- 2	-6	-2	+2	+ 6	+2	+2
Hawkeye	0	0	0	0	0	0	0	0	0	0	0	0	0
L58g-1H	-4.0	0	0	-5	-6	-11	- 2	-2	+5	-3	- 2	-2	+1
C1213	-0.7	+3	0	-2	+2	+ 2	- 3	-4	-3	+1	+ 6	+1	+3
H21793-7	-1.9	+1	0	-2	-2	- 9	- 4	-2	0	-1	+ 1	-5	+5
H20771-9	+0.6	+3	+5	0	+4	- 1	- 2	+2	0	+2	+ 7	-2	+3
Blackhawk	-5.0	-2	-2	-2	-5	-16	- 6	+2	-6	-3	- 2	0	-3
Date pltd.	5-23	5-27	6-2	5-28	5-21	5-17	5-11	6-5	6-2	5-28	5-19	6-1	5-7
Hawkeye mat.	9-18	9-24	9-24	9-21	9-14	9-20	9-7	9-28	9-21	9-8	9-10	9-19	9-8
Da. to mat.	118	120	114	116	116	126	119	115	111	103	114	110	124

¹Independence, Iowa, and Powhattan, Kansas, not included in the mean.

Table 30. (Continued)

Strain	Madi- son Wis.	Shab- bona Ill.	Dwight Ill.	Ur- bana Ill.	Gir- ard Ill.	Edge- wood Ill.	Wa- seca Minn.	Suth- er- land Iowa	Kana- wha Iowa	Inde- pen- dence Iowa	Ames Iowa	Con- cord Nebr.	Lin- coln Nebr.	Pow- hatan Kans.
S6-5004	+1	+3	+4	+6	+4	+4	+ 2	+4	+3	-1	+4	+4	+1	+3
Harosoy	-1	-1	0	-5	-4	-1	- 7	-4	-5	-3	-6	-3	-6	-2
C1160	-1	+1	-1	-7	0	0	- 1	-2	-1	0	-1	-4	+2	+1
Ford	+2	+6	+6	+7	+6	+5	+ 4	+7	+5	+5	+7	+7	+5	+6
Adams	+1	+3	+3	+4	+3	+2	+ 8	+3	+3	+2	+6	+3	+5	+7
Lindarin	-1	-2	-1	-1	-3	-1	- 3	-3	-5	-2	-6	-4	-4	-1
W3-1069	+1	+2	+2	+6	+2	+3	+ 2	+3	+3	-1	+1	+2	+5	+4
A2-4008	-2	-1	-3	-7	-4	-3	0	-3	-4	-1	0	-5	+5	+1
Hawkeye	0	0	0	0	0	0	0	0	0	0	0	0	0	0
L58g-1H	-3	-4	-2	-8.	-6	-4	-11	-6	-7	-3	-8	-2	-9	+1
C1213	+1	-2	0	+1	-4	-2	- 4	-3	-4	-1	-2	-2	-2	+2
H21793-7	-3	-2	-2	-2	-1	0	- 3	-3	-4	-2	-1	0	-7	+6
H20771-9	0	0	+1	0	-3	0	+ 2	+1	-1	0	-1	-3	-3	+4
Blackhawk	-2	-6	-6	-9	-6	-4	-12	-6	-7	-5	-6	-6	-6	-1
Date pltd.	5-26	5-13	5-26	5-18	5-16	6-3	5-19	5-12	5-25	5-26	5-8	5-25	6-2	6-8
Hawkeye mat.	10-2	9-16	9-21	9-4	9-5	9-8	10-4	9-18	9-25	9-21	9-18	9-15	9-28	9-24
Da. to mat.	129	126	118	109	112	97	138	129	123	118	133	113	118	108

Table 31. Lodging and plant height for Uniform Test, Group II, 1959.

Strain	Mean of 21 Tests ¹	Ridge- town Ont.	James- burg N.J.	New-Hoyt- ark Del.	ville Ohio	Woos- ter Ohio	Co- lum- bus Ohio	Ida Mich.	Walk- er- ton Ind.	Bluff- ton Ind.	La- fay- ette Ind.	Green- field Ind.	Worth- ing- ton Ind.
S6-5004	2.4	2.0	3.3	3.0	2.0	1.0	1.0	4.0	2.5	2.0	1.8	2.3	2.5
Harosoy	2.1	1.0	3.3	3.0	1.5	1.0	1.0	3.0	2.3	1.3	1.0	1.5	2.5
C1160	2.0	1.0	3.0	4.0	1.2	1.0	1.0	3.0	3.0	1.0	1.3	1.0	2.5
Ford	2.4	2.0	3.3	4.0	1.7	1.0	1.0	4.0	2.8	1.8	1.3	2.0	2.3
Adams	2.4	2.0	2.7	3.0	1.2	1.0	1.0	4.0	2.5	1.3	1.8	2.0	3.3
Lindarin	1.9	1.0	2.0	3.0	1.0	1.0	1.0	3.0	1.3	1.5	2.0	2.0	1.8
W3-1069	2.0	2.0	2.3	2.0	1.0	1.0	1.0	3.0	1.8	1.0	1.5	2.3	2.3
A2-4008	1.8	1.0	2.3	2.0	1.2	1.0	1.0	4.0	1.8	1.0	1.3	1.0	2.3
Hawkeye	1.8	1.0	2.0	3.0	1.2	1.0	1.0	3.0	2.3	1.0	1.0	1.3	1.8
L58g-1H	2.0	1.0	2.5	4.0	1.0	1.0	1.0	4.0	2.0	1.0	1.0	1.5	2.0
C1213	1.7	1.0	1.5	3.0	1.0	1.0	1.0	3.0	1.8	1.0	1.0	1.0	2.3
H21793-7	2.0	1.0	2.7	3.0	1.0	1.0	1.0	4.0	2.3	1.0	1.0	1.3	2.8
H20771-9	2.0	1.0	2.7	4.0	1.0	1.0	1.0	4.0	2.3	1.0	1.5	1.8	2.5
Blackhawk	2.0	1.0	3.3	3.0	1.0	1.0	1.0	4.0	2.3	1.0	1.0	1.3	2.8
Mean	2.0	1.3	2.6	3.1	1.2	1.0	1.0	3.6	2.2	1.2	1.3	1.6	2.4

Mean
of 24
Tests²

Plant Height

S6-5004	39	30	41	43	37	38	33	41	41	41	39	37	40
Harosoy	40	32	40	37	38	39	31	46	41	41	38	38	41
C1160	37	31	37	38	37	35	31	41	39	41	34	33	39
Ford	41	32	42	42	40	40	39	41	44	41	41	40	42
Adams	41	33	41	41	43	36	34	43	44	41	41	39	40
Lindarin	36	29	38	37	35	32	32	39	36	38	35	34	36
W3-1069	41	33	40	39	42	38	36	43	42	44	43	38	41
A2-4008	36	31	34	35	36	32	29	42	40	39	30	34	36
Hawkeye	39	30	40	39	39	38	32	44	43	41	37	32	38
L58g-1H	38	30	40	34	39	33	30	46	43	42	37	38	39
C1213	37	29	40	39	36	34	31	43	39	39	35	36	35
H21793-7	42	33	43	40	39	39	32	48	47	46	39	40	46
H20771-9	40	33	42	38	41	33	36	43	42	44	40	41	43
Blackhawk	35	30	37	38	37	32	29	38	39	38	33	34	37
Mean	39	31	40	39	39	36	33	43	41	41	37	37	40

¹Wooster and Columbus, Ohio, Waseca, Minnesota, Independence, Iowa, and Powhattan, Kansas, not included in the mean.

²Independence, Iowa, and Powhattan, Kansas, not included in the mean.

Table 31. (Continued)

Strain	Madi- son Wis.	Shab- bona Ill.	Dwight Ill.	Ur- bana Ill.	Gir- ard Ill.	Edge- wood Ill.	Wa- seca Minn.	Suth- er- Iowa	Kana- wha Iowa	Inde- pen- dence Iowa	Ames Iowa	Con- cord Nebr.	Lin- coln Nebr.	Pow- hatan Kans.
S6-5004	3.8	2.7	2.7	1.4	2.0	2.3	2.4	1.8	1.8	1.8	2.0	2.0	2.0	2.0
Harosoy	3.9	2.8	2.9	1.2	2.1	2.2	2.5	2.2	1.6	1.5	1.5	2.3	2.0	2.0
C1160	3.4	2.4	2.4	1.2	1.8	1.4	2.4	1.8	1.6	1.4	1.4	1.3	1.5	2.0
Ford	3.9	2.5	2.7	1.4	2.4	2.3	2.5	1.8	1.8	1.5	1.8	2.5	1.8	2.0
Adams	3.8	2.6	2.8	1.9	3.0	2.2	--	1.9	1.7	1.9	1.8	1.8	2.3	2.0
Lindarin	3.8	2.1	2.6	1.2	1.9	2.0	2.0	1.8	1.3	1.2	1.3	1.0	1.3	1.0
W3-1069	3.8	2.3	2.6	1.5	2.2	1.9	2.0	1.8	1.6	1.8	1.4	2.0	2.3	1.0
A2-4008	4.0	2.3	2.4	1.2	1.7	1.9	2.4	1.6	1.4	1.6	1.5	1.3	1.0	1.0
Hawkeye	3.4	2.2	2.3	1.2	1.4	1.8	2.1	1.6	1.4	1.3	1.4	2.0	1.5	1.0
L58g-1H	4.0	2.4	2.7	1.2	1.7	2.3	2.0	1.8	1.4	1.3	1.3	2.0	1.5	1.0
C1213	3.1	2.3	2.3	1.2	2.0	2.0	1.9	1.7	1.4	1.4	1.3	1.0	1.3	2.0
H21793-7	3.6	2.3	2.4	1.1	1.5	2.1	2.0	1.6	1.6	1.4	1.5	1.8	1.5	1.0
H20771-9	3.9	2.7	2.4	1.3	1.9	1.9	2.0	1.6	1.5	1.6	1.5	1.0	1.5	1.0
Blackhawk	4.4	2.4	2.3	1.2	1.9	1.9	2.4	1.6	1.3	1.4	1.3	1.0	1.0	1.0
Mean	3.8	2.4	2.5	1.3	2.0	2.0	2.2	1.8	1.5	1.5	1.5	1.6	1.6	1.4

Plant Height

S6-5004	43	45	40	34	41	36	41	36	38	45	43	42	46	30
Harosoy	45	47	41	31	36	39	42	34	36	46	43	43	50	32
C1160	42	44	37	28	34	32	38	34	36	41	40	39	43	27
Ford	45	48	42	34	43	38	42	37	42	44	44	44	49	32
Adams	46	49	42	35	42	38	44	38	42	45	46	45	46	31
Lindarin	42	42	37	30	33	34	37	30	33	39	37	37	42	28
W3-1069	44	48	40	36	39	38	39	34	40	44	44	44	47	28
A2-4008	43	43	35	28	31	33	37	34	36	44	40	36	42	25
Hawkeye	41	46	38	32	37	37	42	36	38	44	43	41	46	29
L58g-1H	42	45	41	28	34	36	38	32	36	46	40	41	49	27
C1213	44	46	37	29	33	33	36	32	34	42	39	42	45	29
H21793-7	43	50	42	30	39	42	44	37	42	49	48	45	52	30
H20771-9	46	48	41	34	37	38	40	35	39	46	43	41	49	31
Blackhawk	40	41	32	28	31	32	38	31	34	41	40	37	39	27
Mean	43	46	39	31	36	36	40	34	38	44	42	41	46	29

Table 32. Percentages of protein and oil for Uniform Test, Group II, 1959.

Strain	Mean of 24 Tests ¹	Ridge- town Ont.	James- burg N.J.	New-Hoyt- ark Del.	ville Ohio	Woos- ter Ohio	Co- lum- bus Ohio	Ida Mich.	Walk- er- ton Ind.	Bluff- ton Ind.	La- fay- ette Ind.	Green- field Ind.	Worth- ing- ton Ind.
S6-5004	40.7	40.1	42.2	39.5	37.2	39.3	41.6	42.2	40.5	42.2	39.6	41.9	43.9
Harosoy	41.4	39.3	43.3	40.1	39.5	40.7	41.2	42.2	43.0	41.5	40.7	42.5	43.9
C1160	41.5	40.8	42.4	39.5	39.9	40.0	42.5	42.1	43.6	42.7	40.5	43.6	44.0
Ford	41.5	40.3	43.8	40.3	38.6	40.3	42.0	43.6	43.0	41.7	39.6	43.7	44.3
Adams	40.3	39.5	42.5	39.2	37.8	38.1	40.2	41.5	41.6	40.4	37.9	41.6	42.9
Lindarin	41.3	41.1	41.8	39.8	39.5	40.8	41.5	43.0	42.6	42.0	39.7	42.6	44.8
W3-1069	41.0	39.8	42.5	40.5	38.9	38.7	40.7	42.4	42.1	41.7	40.9	43.3	44.7
A2-4008	40.5	38.0	41.9	40.0	38.7	38.9	41.2	42.0	41.4	40.9	40.3	40.6	42.8
Hawkeye	41.5	41.0	41.9	39.3	39.5	40.1	43.4	42.2	42.7	41.3	40.8	42.4	44.2
L58g-1H	41.6	40.4	43.4	39.8	39.8	39.2	41.8	42.9	42.8	42.6	41.7	43.3	44.6
C1213	41.9	41.9	43.9	40.2	39.9	39.0	42.5	43.1	42.6	42.6	41.5	43.5	45.7
H21793-7	43.0	42.4	44.7	41.0	40.6	40.3	43.4	42.9	42.7	42.8	43.0	43.8	46.6
H20771-9	42.6	42.6	43.5	41.9	40.6	39.1	43.9	43.9	43.5	43.6	41.7	44.9	46.0
Blackhawk	41.4	39.5	42.4	40.4	38.4	40.4	40.9	42.9	43.5	43.4	40.5	43.8	44.3
Mean	41.4	40.5	42.9	40.1	39.2	39.6	41.9	42.6	42.5	42.1	40.6	43.0	44.5

	Mean of 24 Tests ¹	Percentage of Oil											
S6-5004	22.0	23.1	22.1	23.6	24.3	23.2	20.7	21.2	22.4	21.6	22.9	22.2	21.4
Harosoy	21.6	22.5	20.7	22.5	23.0	22.4	20.9	21.0	21.5	21.3	21.6	21.6	21.1
C1160	22.0	22.8	22.2	23.3	23.6	22.3	21.1	21.7	21.5	21.9	23.2	21.4	21.5
Ford	21.5	22.4	21.0	23.0	23.1	22.8	19.9	20.1	20.7	21.2	23.3	21.5	21.1
Adams	22.4	23.1	22.2	23.7	23.8	23.8	22.1	21.8	20.9	22.1	24.1	22.4	22.1
Lindarin	22.2	22.9	22.5	23.6	23.2	22.4	21.4	21.1	22.3	21.9	23.2	22.2	21.0
W3-1069	22.3	23.4	21.6	23.2	24.4	23.0	21.5	21.4	22.5	21.5	23.3	21.6	22.0
A2-4008	22.5	24.4	22.1	23.5	24.1	23.1	22.2	21.9	22.9	21.5	23.3	22.0	22.0
Hawkeye	22.0	23.5	21.7	23.3	23.0	22.8	21.0	21.6	21.6	22.1	23.2	21.7	21.5
L58g-1H	21.7	22.1	20.6	22.6	23.6	21.8	20.7	21.3	22.5	21.1	22.3	21.6	20.5
C1213	22.3	22.3	21.8	24.0	23.8	22.8	22.0	21.9	22.1	21.5	23.4	21.4	21.0
H21793-7	21.1	21.9	20.5	21.8	23.3	21.5	20.9	20.8	21.5	20.6	22.0	20.1	20.4
H20771-9	21.3	22.2	21.3	22.1	22.1	21.6	21.0	20.6	21.0	20.7	22.8	20.2	20.2
Blackhawk	21.7	22.8	20.6	23.6	23.5	22.5	21.7	21.4	21.3	20.6	22.5	20.6	21.0
Mean	21.9	22.8	21.5	23.1	23.5	22.6	21.2	21.3	21.8	21.4	22.9	21.5	21.2

¹Independence, Iowa, and Powhattan, Kansas, not included in the mean.

Table 32. (Continued)

Strain	Madi- son Wis.	Shab- bona Ill.	Dwight Ill.	Ur- bana Ill.	Gir- ard Ill.	Edge- wood Ill.	Wa- seca Minn.	Suth- er- Iowa	Kana- wha Iowa	Inde- pen- dence Iowa	Ames Iowa	Con- cord Nebr.	Lin- coln Nebr.	Pow- hatan Kans.
S6-5004	40.3	41.2	40.4	39.4	40.2	42.9	39.6	39.6	40.2	44.4	41.7	41.2	41.0	36.4
Harosoy	42.2	41.1	40.9	40.6	42.2	43.0	41.1	40.9	40.6	42.9	41.6	41.8	40.4	38.0
C1160	42.3	41.6	41.4	40.2	40.8	42.9	40.7	41.2	40.3	43.0	41.5	41.5	41.0	37.7
Ford	41.2	40.9	41.4	40.6	40.0	44.1	41.1	40.9	41.2	42.8	42.3	42.1	39.9	38.8
Adams	40.8	39.9	39.6	39.4	39.8	42.9	39.7	39.8	40.3	41.1	41.0	40.2	40.4	37.4
Lindarin	42.7	41.8	41.0	40.0	40.1	43.0	40.9	40.3	40.6	42.4	41.2	41.3	39.9	38.5
W3-1069	42.5	39.1	39.8	39.8	40.0	43.6	40.2	40.0	39.7	42.1	40.6	40.8	40.6	36.3
A2-4008	41.2	40.9	39.8	37.4	40.3	42.0	40.1	40.1	39.9	41.5	41.8	40.2	40.7	38.8
Hawkeye	40.6	41.4	41.6	41.2	41.6	42.9	41.6	40.8	41.3	42.4	42.5	41.8	40.4	37.8
L58g-1H	43.7	41.3	40.6	41.2	41.4	42.5	39.4	41.1	39.5	42.5	41.7	41.9	41.0	36.3
C1213	43.2	42.1	40.8	41.4	42.4	42.7	40.9	41.7	40.8	43.5	44.4	39.7	39.9	38.1
H21793-7	43.7	42.6	42.6	42.9	43.7	43.0	42.4	42.9	43.0	43.5	43.8	43.2	43.0	38.5
H20771-9	43.2	42.1	41.8	42.4	42.0	43.4	41.7	41.8	41.4	43.5	43.7	41.5	41.6	37.6
Blackhawk	42.6	41.3	41.7	40.4	40.8	43.6	40.2	39.9	40.5	42.1	40.5	41.0	40.6	38.4
Mean	42.2	41.2	41.0	40.5	41.1	43.0	40.7	40.8	40.7	42.7	42.0	41.3	40.7	37.7

Percentage of Oil														
S6-5004	20.6	21.5	21.7	23.6	22.8	21.2	21.7	20.8	21.8	20.1	21.3	21.7	21.3	23.2
Harosoy	19.6	21.0	21.8	22.6	22.1	21.2	21.5	21.7	21.9	20.8	21.1	20.9	22.0	24.1
C1160	20.1	21.6	22.0	23.4	21.7	21.7	21.8	21.9	22.5	21.1	21.7	21.6	22.6	23.8
Ford	19.9	21.7	20.9	22.9	22.4	20.9	20.4	21.3	20.9	19.8	20.9	20.9	22.3	22.9
Adams	20.6	21.8	23.3	23.7	23.1	21.4	21.6	22.4	22.2	21.5	22.4	22.1	21.8	23.9
Lindarin	19.8	21.8	22.4	23.1	22.7	21.5	22.1	22.1	22.4	21.4	22.7	21.5	22.6	23.8
W3-1069	19.9	22.8	22.9	23.1	23.3	20.3	21.6	22.2	22.4	21.8	22.3	22.0	22.7	24.5
A2-4008	20.9	22.3	23.1	23.5	22.9	21.6	22.2	22.5	22.3	21.8	22.0	22.4	22.3	23.0
Hawkeye	20.4	21.6	21.9	23.2	22.7	21.2	21.7	21.9	22.1	20.7	21.9	21.3	22.2	23.6
L58g-1H	20.6	21.7	21.7	22.6	21.8	21.0	20.8	21.8	22.1	21.3	21.8	21.2	21.9	23.8
C1213	21.1	22.2	23.2	23.3	21.2	21.9	22.4	22.8	22.5	19.9	21.3	22.8	22.5	23.9
H21793-7	19.9	21.4	21.3	22.0	20.8	20.2	20.5	20.9	21.0	20.2	20.9	20.8	20.8	22.3
H20771-9	19.1	21.7	21.7	22.0	19.3	19.9	21.1	21.8	22.0	20.1	21.3	22.2	22.3	24.0
Blackhawk	20.2	21.5	21.8	22.8	22.0	20.2	21.9	21.9	22.1	20.7	21.2	20.4	22.6	23.1
Mean	20.2	21.8	22.1	23.0	22.1	21.0	21.5	21.9	22.0	20.8	21.6	21.6	22.1	23.6

Table 33. Three-year summary of data for Uniform Test, Group II, 1957-1959.

Strain	Yield	Matu- rity ¹	Lodg- ing	Height	Seed Quality	Seed Weight	Seed Composition	
No. of Tests	75	70	65	72	68	75	Protein	Oil
							75	75
Ford	38.3	+5.1	2.3	39	1.9	16.8	41.4	20.8
Harosoy	38.1	-3.0	2.2	39	1.8	17.7	41.1	21.1
Adams	36.9	+2.4	2.3	40	1.6	15.2	40.2	21.6
Lindarin	36.7	-3.0	1.8	35	1.6	16.2	41.3	21.4
A2-4008	36.2	-2.1	1.9	35	2.6	18.0	40.7	21.7
Hawkeye	35.9	0	1.9	38	1.8	18.0	41.2	21.3
H20771-9	34.2	+0.2	2.1	39	1.8	13.9	42.2	20.9
H21793-7	34.2	-1.1	2.0	41	1.8	17.5	42.6	20.5
Blackhawk	32.8	-4.9	1.9	34	2.0	16.3	41.3	21.0
Mean	35.9	-0.7	2.0	38	1.9	16.6	41.3	21.1

¹Days earlier (-) or later (+) than Hawkeye which matured September 22, 119 days after planting.

Table 34. Three-year summary of yield and yield rank for Uniform Test, Group II, 1957-1959.

Strain	Mean of 75 Tests	Ridge-New- town Ont.	Ark- Del.	Hoyt- ville Ohio	Woos- ter Ohio	Co- lum- bus Ohio	Ida Mich.	Walk- er- ton Ind.	Bluff- ton Ind.	La- fay- ette Ind.	Green- field Ind.	Worth- ing- ton Ind.	Madi- son Wis.
Years Tested		1957- 1959	1957- 1959	1957- 1959	1957- 1959	1957- 1959	1957- 1959	1957- 1959	1957- 1959	1957- 1959	1957- 1959	1958- 1959	1957- 1959
Ford	38.3	40.4	36.5	28.3	41.5	35.9	39.9	36.8	45.6	45.7	36.1	40.1	33.3
Harosoy	38.1	38.7	38.3	27.8	41.5	39.8	41.9	38.0	45.4	43.6	35.9	40.0	30.5
Adams	36.9	34.7	38.6	25.5	34.9	41.3	39.1	37.2	40.3	43.3	34.5	34.9	32.4
Lindarin	36.7	35.7	40.3	24.6	37.5	38.9	38.4	37.7	41.1	41.4	33.6	38.9	33.0
A2-4008	36.2	36.1	35.7	26.5	38.9	38.9	35.3	38.6	39.9	41.1	32.7	36.3	32.3
Hawkeye	35.9	37.1	35.4	25.2	37.6	37.5	37.8	36.7	41.6	43.5	31.8	36.7	31.6
H20771-9	34.2	36.4	35.0	28.1	36.2	36.2	33.8	33.2	39.4	39.2	32.3	32.0	28.8
H21793-7	34.2	33.5	35.3	27.0	38.1	35.5	34.6	34.1	38.7	39.4	32.8	36.9	28.2
Blackhawk	32.8	31.0	32.2	27.8	33.9	31.0	34.6	33.2	38.2	39.1	29.3	30.6	29.5
Mean	35.9	36.0	36.4	26.8	37.8	37.2	37.3	36.2	41.1	41.8	33.2	36.3	31.1

	Yield Rank												
Ford	1	4	1	1	7	2	5	1	1	1	1	1	1
Harosoy	2	3	3	1	2	1	2	2	2	2	2	2	6
Adams	7	2	7	8	1	3	4	5	4	3	7	3	3
Lindarin	6	1	9	6	3	4	3	4	5	4	3	2	2
A2-4008	5	5	6	3	3	6	1	6	6	6	6	6	4
Hawkeye	3	6	8	5	5	5	6	3	3	8	5	5	5
H20771-9	4	8	2	7	6	9	8	7	8	7	8	8	8
H21793-7	8	7	5	4	8	7	7	8	7	5	4	9	9
Blackhawk	9	9	3	9	9	7	8	9	9	9	9	9	7

Table 34. (Continued)

Strain	Shab- bona Ill.	Dwight Ill.	Ur- bana Ill.	Gir- ard Ill.	Wa- seca Minn.	Suth- er- Iowa	Kana- wha Iowa	Inde- pen- dence Iowa	Ames Iowa	Kirks- ville Mo.	Men- no S.D.	Con- cord Nebr.	Lin- coln Nebr.	Pow- hatan Kans.
Years Tested	1957-1957- 1959 1959	1957-1957- 1959 1959	1957-1957- 1959 1959	1957-1957- 1959 1959	1957-1957- 1959 1959	1957-1957- 1959 1959	1957-1957- 1959 1959	1957-1957- 1959 1959	1957-1957- 1959 1958	1957-1957- 1958 1958	1957-1957- 1959 1959	1957-1957- 1959 1959	1957-1957- 1959 1959	1957-1957- 1959 1959
Ford	44.0	41.4	40.0	42.7	41.2	38.1	38.1	35.2	44.5	33.8	12.3	35.2	39.2	26.7
Harosoy	44.6	43.7	38.9	40.5	39.9	40.5	37.6	38.0	39.5	35.4	16.5	35.7	38.9	24.5
Adams	44.7	46.7	39.6	39.5	39.5	36.8	37.0	33.7	41.5	31.9	16.6	33.3	38.4	26.7
Lindarin	42.3	39.8	41.1	39.3	37.5	38.2	35.5	34.6	39.8	34.1	13.3	36.0	38.6	23.7
A2-4008	43.5	42.8	36.3	36.1	38.2	39.3	37.4	35.5	40.8	34.6	15.5	37.0	37.9	19.7
Hawkeye	42.4	40.3	36.6	39.3	38.3	40.2	36.7	34.9	39.2	32.2	13.6	32.2	37.5	23.4
H20771-9	41.5	38.1	37.9	37.6	36.2	34.9	34.0	32.3	38.0	28.8	13.1	32.9	34.9	22.6
H21793-7	40.2	40.2	35.3	36.6	35.1	34.4	32.9	31.8	38.6	31.3	13.1	33.1	35.5	19.3
Blackhawk	38.9	39.7	34.6	33.5	35.9	34.3	33.7	31.2	36.1	30.1	15.7	33.1	33.3	18.9
Mean	42.5	41.4	37.8	38.3	38.0	37.4	35.9	34.1	39.8	32.5	14.4	34.3	37.1	22.8

	Yield Rank													
Ford	3	4	2	1	1	5	1	3	1	4	9	4	1	1
Harosoy	2	2	4	2	2	1	2	1	5	1	2	3	2	3
Adams	1	1	3	3	3	6	4	6	2	6	1	5	4	1
Lindarin	6	7	1	4	6	4	6	5	4	3	6	2	3	4
A2-4008	4	3	7	8	5	3	3	2	3	2	4	1	5	7
Hawkeye	5	5	6	4	4	2	5	4	6	5	5	9	6	5
H20771-9	7	9	5	6	7	7	7	7	8	9	7	8	8	6
H21793-7	8	6	8	7	9	8	9	8	7	7	7	6	7	8
Blackhawk	9	8	9	9	8	9	8	9	9	8	3	6	9	9

Table 35. Four-year summary of data for Uniform Test, Group II, 1956-1959.

Strain	Yield	Matu- rity ¹	Lodg- ing	Height	Seed Quality	Seed Weight	Seed Composition	
							Protein	Oil
No. of Tests	95	85	86	91	84	96	96	96
Harosoy	37.8	-3.2	2.3	39	1.9	17.8	41.4	20.9
Ford	37.8	+4.7	2.4	39	1.9	16.7	41.4	20.6
Adams	36.6	+2.3	2.3	40	1.6	15.1	40.2	21.4
Lindarin	36.6	-3.6	1.9	35	1.7	16.2	41.5	21.2
Hawkeye	35.7	0	2.0	38	1.8	18.0	41.3	21.1
Blackhawk	32.6	-5.4	2.0	34	2.0	16.3	41.4	20.9
Mean	36.2	-0.9	2.2	38	1.8	16.7	41.2	21.0

¹Days earlier (-) or later (+) than Hawkeye which matured September 22, 120 days after planting.

Table 36. Four year summary of yield and yield rank for Uniform Test, Group II, 1956-1959.

Strain	Mean of 95 Tests	Ridge- town Ont.	New- ark Del.	Hoyt- ville Ohio	Woos- ter Ohio	Colum- bus Ohio	Ida Mich. ¹	Walk- er- ton Ind.	Bluff- ton Ind.	Lafay- ette Ind.
Years Tested		1956- 1959	1956- 1959	1956- 1959	1956- 1959	1956- 1959	1956- 1959	1956- 1959	1956- 1959	1956- 1959
Harosoy	37.8	37.9	39.4	30.7	40.0	39.6	41.9	38.9	44.4	42.2
Ford	37.8	35.7	37.4	31.0	42.2	37.6	39.7	37.5	44.8	43.4
Adams	36.6	31.9	40.2	29.1	35.8	41.1	39.3	38.2	39.9	41.1
Lindarin	36.6	33.6	41.8	27.2	35.5	39.4	39.0	38.6	41.2	39.6
Hawkeye	35.7	33.7	37.7	27.1	37.4	37.6	38.4	37.2	39.7	41.5
Blackhawk	32.6	29.6	32.4	29.1	34.1	31.7	35.7	33.3	36.9	37.0
Mean	36.2	33.7	38.2	29.0	37.5	37.8	39.0	37.3	41.2	40.8

	Yield Rank									
Harosoy	1	3	2	2	2	1	1	2	2	
Ford	2	5	1	1	4	2	4	1	1	
Adams	5	2	3	4	1	3	3	4	4	
Lindarin	4	1	5	5	3	4	2	3	5	
Hawkeye	3	4	6	3	4	5	5	5	3	
Blackhawk	6	6	3	6	6	6	6	6	6	

¹Ottawa Lake, 1956.

Table 36. (Continued)

Strain	Green- field Ind.	Madi- son Wis.	Shab- bona Ill.	Dwight Ill.	Ur- bana Ill.	Wa- seca Minn.	Kana- wha Iowa	Inde- pen- dence Iowa	Ames Iowa	Menno S.D.	Lin- coln Nebr.
Years Tested	1956- 1959	1956- 1959	1956- 1959	1956- 1959	1956- 1959	1956- 1959	1956- 1959	1956- 1959	1956- 1959	1956- 1958	1956- 1959
Harosoy	33.8	31.5	43.8	43.3	40.6	37.4	34.5	35.3	33.3	16.0	37.9
Ford	34.4	33.3	42.0	41.8	42.4	37.9	36.0	31.7	37.9	13.2	39.8
Adams	32.1	32.5	42.6	45.8	42.0	35.7	34.5	30.5	35.2	15.4	38.8
Lindarin	31.8	33.0	42.5	39.8	42.4	35.2	32.8	32.4	33.8	15.2	38.6
Hawkeye	30.5	32.6	40.6	40.2	39.4	35.3	34.5	32.4	33.1	12.9	38.6
Blackhawk	27.8	30.2	37.8	38.6	36.8	33.7	31.4	29.1	30.3	15.5	33.4
Mean	31.7	32.2	41.6	41.6	40.6	35.9	34.0	31.9	33.9	14.7	37.9

[illegible]

UNIFORM PRELIMINARY TEST, GROUP II, 1959

Strain	Originating Agency	Origin	Generation Composited
Blackhawk	Iowa A.E.S. & U.S.R.S.L.	Mukden x Richland	F7
Ford	Iowa A.E.S. & U.S.R.S.L.	Lincoln (2) x Richland	F9
Harosoy	Harrow E.S., Harrow, Ont.	Mandarin (2) x A.K.	F5
Hawkeye	Iowa A.E.S. & U.S.R.S.L.	Mukden x Richland	F4
A5-5264	Iowa A.E.S. & U.S.R.S.L.	Adams x Hawkeye	F5
A5-5274	Iowa A.E.S. & U.S.R.S.L.	Adams x Hawkeye	F5
A5-5515	Iowa A.E.S. & U.S.R.S.L.	Ogden x Hawkeye	F5
A5-5740	Iowa A.E.S. & U.S.R.S.L.	Roanoke x Hawkeye	F5
L57-2702	Ill. A.E.S. & U.S.R.S.L.	Mukden x Richland	F8
L57-2705	Ill. A.E.S. & U.S.R.S.L.	Mukden x Richland	F8
L58-272	Ill. A.E.S. & U.S.R.S.L.	Harosoy, magenta-colored flowers	
U4-75	Nebr. A.E.S. & U.S.R.S.L.	Lincoln x Blackhawk	F6

This test was grown at 12 locations in 1959 and included eight experimental strains in addition to two check and two tie-in varieties. The data are presented in Tables 37 through 41.

The selections from Adams x Hawkeye, A5-5264 and A5-5274, both were excellent in oil content and A5-5264 was satisfactory in protein content. Neither, however, equalled the check varieties in agronomic performance. A5-5274 would be classed in Group III based on its 1959 performance.

The two selections, A5-5515 and A5-5740, are from "wide-crosses", i.e., Hawkeye x a southern U. S. variety. They outyielded all other strains and had excellent lodging resistance and oil content. The maturity of A5-5515 in 1959 indicates that it should be classed Group III.

The two selections from Mukden x Richland, L57-2702 and L57-2705, were entered because of their resistance to Phytophthora rot. While they are not outstanding in yield, they perform well in other traits. Since their mean yield was higher than that of Hawkeye, they would probably compare favorably with the two Phytophthora-resistant H strains in Uniform Test, Group II.

Considering its early maturity, the yield of U4-75 was outstanding in the test. Its poor lodging resistance appears to be its main shortcoming.

Table 37. Summary of data for Uniform Preliminary Test, Group II, 1959.

Strain	Yield	Rank	Matu- rity ¹	Lodg- ing	Height	Seed Quality	Seed Weight	Seed Composition	
No. of Tests	10	10	9	9	10	7	9	Protein	Oil
Blackhawk	31.1	12	-6.6	1.7	34	2.2	16.5	41.5	22.0
Ford	35.5	5	+7.1	2.0	40	2.0	17.2	41.3	21.6
Harosoy	35.8	4	-4.2	1.9	38	2.2	18.0	41.3	21.8
Hawkeye	32.4	10	0	1.7	38	1.6	18.1	41.7	22.2
A5-5264	34.9	6	+4.0	2.0	40	2.1	18.5	41.2	22.7
A5-5274	32.2	11	+6.0	2.4	40	1.8	16.1	38.9	23.2
A5-5515	36.4	2	+5.9	1.8	36	1.9	17.8	39.3	23.2
A5-5740	37.0	1	+4.7	1.7	43	1.7	17.7	41.2	22.8
L57-2702	33.4	9	-4.0	1.7	36	1.6	16.0	40.7	21.5
L57-2705	33.8	8	-2.6	2.0	39	1.8	17.3	40.5	21.8
L58-272	34.5	7	-3.1	2.0	38	2.1	18.2	42.2	21.2
U4-75	36.3	3	-3.1	2.2	38	2.2	17.8	41.5	21.6
Mean	34.4		+0.3	1.9	38	1.9	17.4	40.9	22.1

¹Days earlier (-) or later (+) than Hawkeye which matured September 21, 119 days after planting.

Table 38. Disease data for Uniform Preliminary Test, Group II, 1959.

Strain	Bacterial Blight	Bacterial Pustule	Brown Spot	Brown Stem Rot	Frog- eye	Stem Canker	Phytoph- thora Rot	Cyst Nematode
Blackhawk	S	S	S	S	S	S	R	S
Ford	S	S	S	S	R	S	S	S
Harosoy	S	S	S	S	R	R	S	S
Hawkeye	S	S	S	S	S	S	S	S
A5-5264	3Aa	3Dn, 4Aa	3Cn	4Ln, 5An	SCa			
A5-5274	3Aa	3Dn, 3Aa	3Cn	4Ln, 5An	RCa			
A5-5515	4Aa	3Dn, 4Aa	3Cn	4Ln, 4An	SegCa			
A5-5740	4Aa	4Dn, 3Aa	3Cn	4Ln, 5An	SCa			
L57-2702	4Aa	3Dn, 3Aa	4Cn	4Ln, 3An	SCa			
L57-2705	3Aa	3Dn, 2Aa	3Cn	4Ln, 4An	SCa			
L58-272	3Aa	3Dn, 2Aa	3Cn	4Ln, 5An	RCa			
U4-75	4Aa	3Dn, 4Aa	3Cn	4Ln, 5An	RCa			

Lincoln, included as a susceptible check variety, rated 4Aa for Bacterial Blight, 3Dn, 3Aa for Bacterial Pustule, and 4Ln, 5An for Brown Stem Rot.

Table 39. Yield and yield rank for Uniform Preliminary Test, Group II, 1959.

Strain	Mean of 10 Tests ¹	Co- Walk- La- Ridge-Hoyt- Woos-lum- er- fay- Madi-Ur- Kana- Kirks-Con- town ville ter bus ton ette son bana wha Ames ville cord Ont. Ohio Ohio Ohio Ind. Ind. Wis. Ill. ² Iowa Iowa Mo. Nebr.											
Blackhawk	31.1	34.0	35.8	31.5	27.2	29.0	27.3	34.8	22.1	32.5	37.7	27.2	26.4
Ford	35.5	35.7	33.0	36.4	20.1	26.3	37.9	36.7	35.0	40.9	44.0	43.5	28.6
Harosoy	35.8	45.4	36.1	35.9	20.5	33.0	34.1	34.2	29.6	38.4	41.0	38.5	30.5
Hawkeye	32.4	37.6	24.6	30.1	17.5	27.0	31.3	30.3	29.8	42.4	40.8	31.6	29.6
A5-5264	34.9	36.7	32.0	38.3	18.9	28.0	31.4	38.7	30.0	41.6	44.8	34.2	27.2
A5-5274	32.2	32.9	24.2	25.2	20.5	26.0	35.0	35.1	33.4	41.2	43.6	29.8	25.8
A5-5515	36.4	35.7	33.6	39.0	21.7	33.0	33.4	37.2	35.6	42.8	46.0	37.7	27.5
A5-5740	37.0	36.4	35.2	37.7	23.5	38.7	35.3	33.3	33.1	42.8	47.0	39.2	30.8
L57-2702	33.4	35.8	33.9	34.2	18.4	32.3	26.7	41.6	23.1	35.3	39.6	28.5	31.2
L57-2705	33.8	40.7	34.9	33.7	21.8	32.0	27.8	36.2	23.5	36.7	42.4	33.6	29.8
L58-272	34.5	41.9	34.9	35.8	19.4	38.9	31.0	29.2	27.5	38.3	39.3	35.8	27.8
U4-75	36.3	47.6	32.9	32.7	21.8	34.5	35.0	36.2	29.9	43.2	40.6	38.0	30.3
Mean	34.4	38.4	32.6	34.2	20.9	31.6	32.2	35.3	29.4	39.7	42.2	34.8	28.8
C.V. (%)		--	10.1	8.5	26.0	9.1	7.4	13.4	7.7	7.4	5.6	6.5	7.9
B.N.F.S. (5%)		--	7.3	6.4	--	6.3	5.3	N.S.	3.3	6.5	5.2	5.7	N.S.
Row Sp. (In.)		24	36	28	28	40	38	36	40	40	40	40	40

Yield Rank													
Blackhawk	12	11	2	10	1	8	11	8	12	12	12	12	11
Ford	5	9	8	4	8	11	1	4	2	7	4	1	7
Harosoy	4	2	1	5	6	4	5	9	8	8	7	3	3
Hawkeye	10	5	11	11	12	10	8	11	7	4	8	9	6
A5-5264	6	6	10	2	10	9	7	2	5	5	3	7	10
A5-5274	11	12	12	12	6	12	3	7	3	6	5	10	12
A5-5515	2	9	7	1	5	4	6	3	1	2	2	5	9
A5-5740	1	7	3	3	2	2	2	10	4	2	1	2	2
L57-2702	9	8	6	7	11	6	12	1	11	11	10	11	1
L57-2705	8	4	4	8	3	7	10	5	10	10	6	8	5
L58-272	7	3	4	6	9	1	9	12	9	9	11	6	8
U4-75	3	1	9	9	3	3	3	5	6	1	9	4	4

¹Columbus, Ohio, and Kirksville, Missouri, not included in the mean.

²Four replications.

Table 40. Maturity, days earlier (-) or later (+) than Hawkeye, for Uniform Preliminary Test, Group II, 1959.

Strain	Mean of 9 Tests ¹	Ridge- town Ont.	Hoyt- ville Ohio	Woos- ter Ohio	Co- lum- bus Ohio	Walk- erton Ind.	La- fay- ette Ind.	Madi- son Wis.	Ur- bana Ill.	Kana- wha Iowa	Con- cord Iowa Nebr.	
Blackhawk	-6.6	-2	-5	- 9	- 8	-4	-4	+1	-9	-8	-10	-8
Ford	+7.1	+9	+8	+14	+15	+5	+8	+6	+5	+4	+ 6	+5
Harosoy	-4.2	-1	-3	- 4	- 2	-5	-2	+2	-4	-4	-10	-5
Hawkeye	0	0	0	0	0	0	0	0	0	0	0	0
A5-5264	+4.0	+3	+8	+11	+ 2	+3	+4	+6	0	+4	+ 2	+1
A5-5274	+6.0	+5	+8	+15	+ 4	+4	+3	+5	+1	+5	+ 6	+7
A5-5515	+5.9	+6	+6	+12	+ 5	+5	+4	+7	+5	+4	+ 4	+7
A5-5740	+4.7	+5	+8	+12	+ 2	+3	+4	+2	+3	+3	+ 2	+2
L57-2702	-4.0	-2	-5	- 2	- 7	-3	+1	+3	-6	-6	- 8	-5
L57-2705	-2.6	-1	-4	- 5	- 4	0	+2	+4	-6	-2	- 2	-5
L58-272	-3.1	-1	-4	- 1	- 2	0	-2	+7	-4	-5	- 6	-5
U4-75	-3.1	+2	-3	- 4	- 3	0	+1	+5	-6	-4	- 8	-6
Date planted	5-21	5-27	5-21	5-17	5-11	6-2	5-19	5-26	5-18	5-25	5-8	5-25
Hawkeye mat.	9-17	9-26	9-14	9-12	9-6	9-22	9-12	10-3	9-6	9-22	9-20	9-17
Days to mat.	119	122	116	118	118	112	116	130	111	120	135	115

¹Columbus, Ohio, and Madison, Wisconsin, not included in the mean.

Table 41. Percentages of protein and oil for Uniform Preliminary Test, Group II, 1959.

Strain	Mean of 6 Tests ¹	Ridge- town Ont.	Colum- bus Ohio	Lafay- ette Ind.	Madi- son Wis.	Ur- bana Ill.	Ames Iowa	Con- cord Nebr.
Blackhawk	41.5	39.7	42.3	41.8	43.7	40.9	41.9	40.8
Ford	41.3	39.4	42.6	41.7	41.7	40.5	41.8	42.7
Harosoy	41.3	40.1	42.0	41.4	42.1	40.6	41.5	42.3
Hawkeye	41.7	40.9	43.5	41.3	42.3	41.8	41.3	42.4
A5-5264	41.2	41.0	43.1	40.0	41.4	40.3	41.9	42.3
A5-5274	38.9	38.8	40.1	37.3	39.5	37.7	39.9	39.9
A5-5515	39.3	38.4	40.0	38.4	40.0	38.5	39.5	41.0
A5-5740	41.2	40.0	41.2	40.8	41.4	41.5	41.8	41.5
L57-2702	40.7	39.9	41.9	40.5	40.6	40.4	41.2	41.3
L57-2705	40.5	39.3	41.6	40.8	41.0	40.0	40.5	41.5
L58-272	42.2	40.7	43.0	42.0	43.1	41.1	43.6	42.4
U4-75	41.5	40.5	42.2	41.1	42.3	41.0	42.0	42.1
Mean	40.9	39.9	42.0	40.6	41.6	40.4	41.4	41.7

	Mean of 6 Tests ¹	Percentage of Oil						
Blackhawk	22.0	22.8	21.6	22.5	20.1	22.9	21.8	21.8
Ford	21.6	22.4	21.1	23.2	18.9	23.0	21.6	20.6
Harosoy	21.8	22.9	21.4	22.3	19.8	22.6	22.1	20.9
Hawkeye	22.2	22.9	20.6	22.8	20.5	24.5	21.2	21.3
A5-5264	22.7	23.4	21.1	24.1	20.2	23.6	22.9	21.7
A5-5274	23.2	24.4	22.4	24.6	20.7	24.4	22.9	22.1
A5-5515	23.2	24.9	22.5	24.7	20.1	24.3	23.1	22.3
A5-5740	22.8	23.7	21.5	23.7	20.7	23.7	23.0	21.9
L57-2702	21.5	22.5	21.2	22.3	19.8	22.3	21.5	20.7
L57-2705	21.8	22.9	21.6	21.7	20.1	22.3	22.7	21.2
L58-272	21.2	22.2	20.8	22.2	18.8	22.2	20.9	20.6
U4-75	21.6	22.5	20.6	22.3	19.0	22.5	22.1	21.0
Mean	22.1	23.1	21.4	23.0	19.9	23.2	22.2	21.3

¹Columbus, Ohio, not included in the mean.

UNIFORM TEST, GROUP III, 1959

Strain	Originating Agency	Origin	Generation Composited
Clark	Ill. A.E.S. & U.S.R.S.L.	Lincoln (2) x Richland	F ₈
Ford	Iowa A.E.S. & U.S.R.S.L.	Lincoln (2) x Richland	F ₉
Lincoln	Ill. A.E.S. & U.S.R.S.L.	Mandarin x Manchu	F ₄
Shelby	Ill. A.E.S. & U.S.R.S.L.	Lincoln (2) x Richland	F ₈
A3-6319	Iowa A.E.S. & U.S.R.S.L.	Adams (2) x Hawkeye	F ₄
A6-7823	Iowa A.E.S. & U.S.R.S.L.	Adams x Clark	F ₅
H24157-4	Ohio A.E.S. & U.S.R.S.L.	Monroe x Lincoln	F ₅
S2-5179	Mo. A.E.S. & U.S.R.S.L.	Lincoln (2) x Richland	F ₉
S6-1018	Mo. A.E.S. & U.S.R.S.L.	A4-107-12 x (L49-4091 x L46-2132-1)	F ₇

Identification of Parent Strains

A4-107-12 F₆ line from Mukden x Richland, Hawkeye line.
 L46-2132 F₅ line from Lincoln (2) x Richland, progenitor of Clark.
 L49-4091 Pustule resistant F₄ line from L44-1219 x (Lincoln x CNS). L44-1219 is
 an F₃ line from Lincoln (2) x Richland.

This test was grown at 22 locations in 1959, and the data are presented in the following tables. Yield was near normal levels at all locations except for low yields at Columbus, Ohio, and Carbondale, Illinois.

The four check varieties have been in this test for eight years and the eight-year means are presented in Tables 50 and 51. Shelby and Ford, as an average of 160 tests, outyielded Lincoln by 2.8 and 1.2 bushels, respectively. The four varieties were similar in oil and protein content and height. Clark was slightly superior in lodging score, and Clark and Shelby in seed quality.

Three strains have been in this test for two years. Considering the two-year means, S2-5179, a selection from Lincoln (2) x Richland, appears to have a small but definite advantage over Shelby in yield and lodging resistance. S6-1018 was equal to S2-5179 in all traits and in addition has resistance to bacterial pustule, although observation in Mississippi in 1959 indicates that it is heterogeneous for pustule reaction. A3-6319 was intermediate between Clark and Shelby in yield and maturity and had excellent oil content accompanied by low protein content.

Two strains were entered in this test for the first time in 1959, having been in Preliminary Test, Group III, in 1958. H24157-4 is resistant to Phytophthora rot but has not excelled in general performance, being particularly low in oil content. A6-7823 was 1½ days earlier than Clark, averaged slightly lower in yield, and was otherwise similar.

Table 42. Summary of data for Uniform Test, Group III, 1959.

Strain	Yield	Matu- rity ¹	Lodg- ing	Height	Seed Quality	Seed Weight	Seed Composition	
No. of Tests	20	18	18	20	14	20	Protein	Oil
Clark	38.0	+5.5	2.0	41	1.8	16.1	41.1	21.9
A6-7823	37.0	+4.1	2.2	41	2.2	16.7	41.5	22.1
S2-5179	36.7	-0.4	1.8	40	2.0	15.4	40.9	22.0
S6-1018	36.5	-0.1	1.8	40	2.4	15.2	40.7	22.1
Shelby	36.0	0	2.2	42	1.9	15.9	41.1	22.2
A3-6319	35.4	+2.6	2.0	43	2.1	17.0	40.0	22.4
Ford	34.9	-1.2	2.0	40	2.5	16.3	41.6	21.9
H24157-4	34.6	+1.3	2.4	42	2.1	13.8	42.5	20.7
Lincoln	33.1	+0.4	2.4	41	2.4	14.4	41.0	22.2
Mean	35.8	+1.4	2.1	41	2.2	15.6	41.2	21.9

¹Days earlier (-) or later (+) than Shelby which matured September 20, 121 days after planting.

Table 43. Disease data for Uniform Test, Group III, 1959.

Strain	Bacterial Blight	Bacterial Pustule	Brown Spot	Brown Stem Rot	Frog- eye	Stem Canker	Phytoph- thora Rot	Cyst Nematode
Clark	S, 3Aa	S, 4Aa	S	S, 5An	R	S	S	S
A6-7823	3Aa	3Dn, 3Aa	3Cn	5An	RCa			
S2-5179	S, 3Aa	S, 2Aa	S	S, 5An	R		S	
S6-1018	S, 3Aa	S, 2Aa	S	S, 5An	R		S	
Shelby	S, 3Aa	S, 3Aa	S	S, 5An	R	S	S	S
A3-6319	S, 4Aa	S, 3Aa	S	S, 5An	S		S	
Ford	S, 4Aa	S, 4Aa	S	S, 5An	R	S	S	S
H24157-4	3Aa	3Dn, 3Aa	4Cn	5An	RCa			
Lincoln	S, 3Aa	3Dn, 4Aa	S	S, 5An	R			

Table 44. Yield and yield rank for Uniform Test, Group III, 1959.

Strain	Mean of 20 Tests ¹	James- burg N.J.	New- ark Del.	George- town Del.	Hoyt- ville Ohio	Co- lum- bus Ohio	Bluff- ton Ind.	La- fay- ette Ind.	Green- field Ind.	Worth- ton Ind.	Evans- ville Ind.	Ur- bana Ill.
Clark	38.0	46.5	36.1	39.0	39.2	22.5	38.0	42.7	38.0	39.4	54.0	40.8
A6-7823	37.0	41.6	38.0	37.2	33.8	18.4	39.2	42.4	34.3	44.7	46.6	38.0
S2-5179	36.7	47.3	32.3	32.5	35.5	17.5	37.8	42.9	38.1	43.6	46.5	37.3
S6-1018	36.5	42.2	36.6	37.2	34.7	17.8	43.7	41.3	36.0	41.0	47.7	37.8
Shelby	36.0	48.8	37.8	35.3	33.8	16.6	38.7	43.3	34.7	41.2	42.8	40.1
A3-6319	35.4	45.3	34.5	34.6	32.9	15.1	39.9	43.4	33.1	45.3	46.5	34.0
Ford	34.9	40.6	35.3	33.0	34.1	18.2	39.1	44.3	33.9	37.9	45.2	35.7
H24157-4	34.6	43.7	34.2	29.6	35.5	18.0	40.0	40.9	35.5	40.7	48.1	36.2
Lincoln	33.1	45.2	30.3	29.7	32.8	18.2	37.2	40.2	31.8	35.5	39.4	39.4
Mean	35.8	44.6	35.0	34.2	34.7	18.0	39.3	42.4	35.0	41.0	46.3	37.7
C.V. (%)		10.8	--	--	7.8	14.7	9.0	6.3	7.4	7.3	7.5	6.7
B.N.F.S. (5%)		6.7	N.S.	--	N.S.	--	N.S.	3.7	3.8	4.4	6.0	3.7
Row Sp. (In.)		42	36	36	36	28	38	38	38	38	38	40

	Yield Rank											
Clark	3	4	1	1	1	7	5	2	7	1	1	
A6-7823	8	1	2	6	2	4	6	6	2	4	4	
S2-5179	2	8	7	2	7	8	4	1	3	5	6	
S6-1018	7	3	2	4	6	1	7	3	5	3	5	
Shelby	1	2	4	6	8	6	3	5	4	8	2	
A3-6319	4	6	5	8	9	3	2	8	1	5	9	
Ford	9	5	6	5	3	5	1	7	8	7	8	
H24157-4	6	7	9	2	5	2	8	4	6	2	7	
Lincoln	5	9	8	9	3	9	9	9	9	9	3	

*Irrigated.

¹Eldorado, Illinois, and Powhattan and Manhattan, Kansas (irrigated), not included in the mean.

Table 44. (Continued)

Strain	Gir- ard Ill.	Edge- wood Ill.	El- dor- ado Ill.	Car- bon- dale Ill.	Ames Iowa	Ottum- wa Iowa	Lad- donia Mo.	Co- lum- bia Mo.	Lin- coln Nebr.*	Pow- hat- tan Kans.	Man- hat- tan Kans.	Man- hat- tan Kans.*
Clark	49.8	30.4	30.0	27.4	41.5	49.1	21.2	32.0	46.6	23.5	25.2	28.6
A6-7823	49.1	29.8	30.0	24.0	46.8	49.0	25.4	26.6	49.1	25.8	25.5	26.0
S2-5179	47.7	35.1	34.7	23.0	45.5	46.5	25.0	26.9	47.3	31.6	26.1	27.3
S6-1018	48.0	32.7	28.0	25.4	42.8	39.7	26.6	28.5	47.0	35.7	23.7	25.0
Shelby	48.7	30.7	29.3	23.1	43.6	45.7	24.3	26.9	42.2	28.2	20.9	27.8
A3-6319	50.2	28.6	30.1	24.5	45.3	40.2	27.8	25.6	40.4	26.8	21.4	27.0
Ford	47.5	29.4	23.9	21.9	40.8	41.4	26.6	26.4	45.7	22.6	21.5	24.5
H24157-4	45.6	26.8	30.6	22.1	36.8	43.0	25.2	23.3	42.7	30.3	23.3	27.1
Lincoln	46.9	25.2	24.9	23.5	39.4	40.4	21.6	21.9	44.0	27.9	19.9	26.8
Mean	48.2	29.9	29.1	23.9	42.5	43.9	24.9	26.5	45.0	26.9	23.1	26.7
C.V. (%)	7.1	15.2	9.4	--	7.4	10.9	14.0	7.3	8.0	24.0	12.3	15.1
B.N.F.S. (5%)	N.S.	N.S.	4.0	--	4.5	6.8	N.S.	4.5	5.3	N.S.	4.1	N.S.
Row Sp. (In.)	38	38	40	40	40	40	40	38	38	40	40	36

	Yield Rank											
Clark	2	4	4	1	6	1	9	1	4	8	3	1
A6-7823	3	5	4	4	1	2	4	5	1	7	2	7
S2-5179	6	1	1	7	2	3	6	3	2	2	1	3
S6-1018	5	2	7	2	5	9	2	2	3	1	4	8
Shelby	4	3	6	6	4	4	7	3	8	4	8	2
A3-6319	1	7	3	3	3	8	1	7	9	6	7	5
Ford	7	6	9	9	7	6	2	6	5	9	6	9
H24157-4	9	8	2	8	9	5	5	8	7	3	5	4
Lincoln	8	9	8	5	8	7	8	9	6	5	9	6

Table 45. Maturity, days earlier (-) or later (+) than Shelby, for Uniform Test, Group III, 1959.

Strain	Mean of 18 Tests ¹	James- burg N.J.	New- ark Del.	George- town Del.	Hoyt- ville Ohio	Co- lum- bus Ohio	Bluff- ton Ind.	La- fay- ette Ind.	Green- field Ind.	Worth- ton Ind.	Evans- ville Ind.
Clark	+5.5	+6	+2	+1	+16	+8	+6	+4	+4	+6	+6
A6-7823	+4.1	+6	+4	+3	+18	+6	+6	+3	+5	+3	+7
S2-5179	-0.4	+1	+2	-1	- 1	+2	0	-1	0	0	0
S6-1018	-0.1	0	-1	0	0	-3	0	0	-1	+1	+4
Shelby	0	0	0	0	0	0	0	0	0	0	0
A3-6319	+2.6	+1	+4	0	+16	+6	+5	0	+2	+3	+5
Ford	-1.2	+1	0	-2	- 1	-2	0	-2	-1	-1	0
H24157-4	+1.3	+3	+2	0	0	+3	+1	0	+1	+2	+3
Lincoln	+0.4	0	+2	0	+ 1	+4	0	0	0	0	+2
Date planted	5-22	6-2	5-28	5-29	5-21	5-11	5-28	5-19	6-1	5-7	5-4
Shelby matured	9-20	9-28	9-24	9-22	9-23	9-19	9-26	9-23	9-26	9-12	9-7
Days to mature	121	118	119	116	125	131	121	127	117	128	126

*Irrigated.

¹Hoytville, Ohio; Eldorado, Illinois, and Powhattan and Manhattan, Kansas (irrigated), not included in the mean.

Table 45. (Continued)

Strain	Ur- bana Ill.	Gir- ard Ill.	Edge- wood Ill.	El- dor- ado Ill.	Car- bon- dale Ill.	Ames Iowa	Ottum- wa Iowa	Co- lum- bia Mo.	Lin- coln Nebr.	Pow- hat- tan Kans.	Man- hat- tan Kans.	Man- hat- tan Kans.*
Clark	+7	+5	+7	+7	+11	+5	+7	+6	+5	+14	+3	0
A6-7823	+4	+2	-1	+2	+ 6	+2	+2	+5	+7	+ 8	+3	+4
S2-5179	-1	-1	+2	-3	0	-5	-1	-2	-4	+ 1	+1	-1
S6-1018	0	0	-2	-2	0	0	0	0	0	+ 6	0	+3
Shelby	0	0	0	0	0	0	0	0	0	0	0	0
A3-6319	0	-1	0	+5	+ 3	+3	+6	+2	+4	+11	+3	+5
Ford	-2	-4	-2	-2	0	-5	-2	-2	-1	+ 3	+3	+1
H24157-4	-2	-1	+4	0	- 2	+2	+3	+2	+2	+ 3	0	+2
Lincoln	0	-2	0	-1	- 1	-1	+1	-2	+1	+ 2	+4	+1
Date planted	5-18	5-16	6-3	5-2	5-5	5-8	6-6	5-19	6-2	6-8	6-5	5-27
Shelby matured	9-15	9-15	9-16	9-7	8-28	10-2	10-3	9-8	10-6	9-27	9-28	10-3
Days to mature	120	122	105	128	115	147	119	112	126	111	115	129

Table 46. Lodging and plant height for Uniform Test, Group III, 1959.

Strain	Mean of 18 Tests ¹	James- town N.J.	New- ark Del.	George- town Del.	Hoyt- ville Ohio	Co- lum- bus Ohio	Bluff- ton Ind.	Lafay- ette Ind.	Green- field Ind.	Worth- ing- ton Ind.	Evans- ville Ind.
Clark	2.0	3.0	3.0	3.0	1.0	1.0	1.5	1.3	2.0	2.5	2.0
A6-7823	2.2	2.7	3.0	3.0	1.7	1.0	1.0	2.0	2.0	2.0	3.0
S2-5179	1.8	1.7	2.0	3.0	1.0	1.0	1.3	1.8	1.8	2.3	2.3
S6-1018	1.8	2.5	1.0	2.0	1.0	1.0	1.3	1.3	2.0	2.8	2.3
Shelby	2.2	2.7	3.0	2.0	1.2	1.0	2.3	2.3	2.3	2.3	3.0
A3-6319	2.0	3.0	2.0	1.0	2.0	1.0	1.3	1.5	2.5	2.0	2.3
Ford	2.0	2.3	3.0	2.0	1.0	1.0	1.3	2.3	2.3	2.3	3.0
H24157-4	2.4	3.5	2.0	2.0	1.2	1.0	2.0	2.3	2.5	2.8	4.0
Lincoln	2.4	2.5	4.0	3.0	1.2	1.0	1.5	2.5	2.0	2.8	3.7
Mean	2.1	2.7	2.6	2.3	1.3	1.0	1.5	1.9	2.2	2.4	2.8

	Mean of 20 Tests ²	Plant Height									
Clark	41	41	44	39	41	32	46	45	42	44	42
A6-7823	41	42	45	39	44	29	44	44	43	47	40
S2-5179	40	40	43	39	40	28	47	43	39	44	42
S6-1018	40	39	43	41	42	29	44	43	41	45	40
Shelby	42	41	47	44	43	31	44	46	42	46	43
A3-6319	43	45	48	42	47	32	45	47	43	46	47
Ford	40	41	44	40	42	31	44	43	40	45	40
H24157-4	42	43	45	39	43	31	48	46	44	45	44
Lincoln	41	41	45	39	44	31	45	46	41	44	43
Mean	41	41	45	40	43	30	45	45	42	45	42

*Irrigated.

¹Columbus, Ohio; Eldorado, Illinois, and Powhattan and Manhattan, Kansas (irrigated), not included in the mean.

²Eldorado, Illinois, and Powhattan and Manhattan, Kansas (irrigated), not included in the mean.

Table 46. (Continued)

Strain	Ur- bana Ill.	Gir- ard Ill.	Edge- wood Ill.	El- dor- ado Ill.	Car- bon- dale Ill.	Ames Iowa	Ottum- wa Iowa	Lad- donia Mo.	Co- lum- bia Mo.	Lin- coln Nebr.	Pow- hat- tan Kans.	Man- hat- tan Kans.	Man- hat- tan Kans.*
Clark	1.4	2.6	2.5	2.0	1.8	1.9	2.2		1.2	2.0	2.0	1.6	1.7
A6-7823	1.5	2.5	2.3	1.8	1.5	1.8	2.5		1.6	2.3	2.0	2.6	1.9
S2-5179	1.2	2.1	2.4	1.8	1.3	1.7	2.1		1.1	1.3	2.0	1.7	1.8
S6-1018	1.6	2.0	2.5	2.2	1.5	1.7	2.3		1.4	1.0	2.0	2.5	2.2
Shelby	1.4	2.5	2.8	1.6	2.0	1.9	2.4		1.7	1.5	2.0	2.6	2.0
A3-6319	1.5	2.2	2.7	2.0	2.0	1.8	2.6		1.7	1.5	3.0	2.3	2.5
Ford	1.3	2.5	2.8	1.8	1.5	1.8	2.2		1.7	1.0	2.0	2.1	2.2
H24157-4	1.7	3.1	3.0	2.6	1.5	2.0	2.9		2.3	2.0	2.0	2.8	2.7
Lincoln	1.5	2.9	2.9	2.1	1.5	2.0	2.8		2.0	2.0	2.0	2.5	1.7
Mean	1.5	2.5	2.7	2.0	1.6	1.8	2.4		1.6	1.6	2.1	2.3	2.1

	Plant Height												
Clark	36	47	39	37	34	50	46	32	34	47	33	39	45
A6-7823	35	43	36	36	31	48	47	36	34	49	37	43	45
S2-5179	33	44	38	35	31	48	45	34	32	46	35	40	42
S6-1018	36	45	38	36	32	48	45	33	31	47	36	41	44
Shelby	38	46	39	36	34	49	47	34	33	49	38	42	45
A3-6319	37	45	38	38	35	54	47	39	34	51	38	43	48
Ford	37	43	39	34	31	46	44	32	31	48	34	40	43
H24157-4	38	45	40	36	33	48	50	33	32	49	40	42	44
Lincoln	39	44	40	35	34	47	47	33	32	47	38	40	43
Mean	37	45	39	36	33	49	46	34	33	48	37	41	44

Table 47. Percentages of protein and oil for Uniform Test, Group III, 1959.

Strain	Mean of 20 Tests ¹	James- burg N.J.	New- ark Del.	George- town Del.	Hoyt- ville Ohio	Co- lum- bus Ohio	Bluff- ton Ind.	Lafay- ette Ind.	Green- field Ind.	Worth- ing- ton Ind.	Evans- ville Ind.
Clark	41.1	43.2	40.0	42.0	39.7	40.6	42.9	39.8	41.9	42.5	40.2
A6-7823	41.5	42.5	40.4	44.2	39.3	41.2	42.4	40.5	40.4	44.1	42.0
S2-5179	40.9	42.4	39.4	42.6	38.1	41.0	40.9	39.5	42.2	43.7	40.2
S6-1018	40.7	42.4	39.5	43.1	37.3	40.4	41.9	38.8	41.9	41.9	40.8
Shelby	41.1	42.2	38.6	42.0	38.5	41.2	42.1	39.5	42.7	44.5	40.5
A3-6319	40.0	40.6	37.2	40.6	38.6	41.8	41.1	38.3	40.0	42.1	39.9
Ford	41.6	43.2	40.2	41.8	39.5	41.7	42.5	40.3	42.6	44.7	40.2
H24157-4	42.5	44.0	41.2	44.0	40.1	42.4	43.0	40.9	43.0	45.4	41.7
Lincoln	41.0	42.4	39.2	42.4	38.8	40.9	41.6	39.7	42.4	44.3	40.3
Mean	41.2	42.5	39.5	42.5	38.9	41.2	42.0	39.7	41.9	43.7	40.6
Percentage of Oil											
Clark	21.9	20.9	22.1	22.6	21.0	21.9	20.8	23.3	21.6	20.8	22.3
A6-7823	22.1	21.3	22.8	22.1	22.6	22.4	20.8	22.9	21.5	21.6	22.0
S2-5179	22.0	20.9	23.4	21.5	22.8	21.8	21.4	23.0	20.8	20.9	22.5
S6-1018	22.1	17.4	23.1	22.6	23.5	22.5	20.7	23.4	21.3	21.6	22.8
Shelby	22.2	21.9	23.4	22.1	23.2	21.7	21.6	22.9	21.2	20.0	22.8
A3-6319	22.4	22.3	23.6	23.0	22.5	21.8	20.9	23.8	21.3	20.9	22.8
Ford	21.9	21.0	23.0	22.2	21.3	21.8	20.4	23.1	21.3	21.1	21.9
H24157-4	20.7	19.3	21.3	21.1	22.0	20.9	19.8	22.1	19.6	19.7	21.4
Lincoln	22.2	21.8	23.9	21.3	23.3	21.8	21.5	23.2	21.3	20.9	22.8
Mean	21.9	20.8	23.0	22.1	22.5	21.8	20.9	23.1	21.1	20.8	22.4

*Irrigated.

¹Eldorado, Illinois, and Powhattan and Manhattan, Kansas (irrigated), not included in the mean.

Table 47. (Continued)

Strain	Ur- bana Ill.	Gir- ard Ill.	Edge- wood Ill.	El- dor- ado Ill.	Car- bon- dale Ill.	Ames Iowa	Ottum- wa Iowa	Lad- donia Mo.	Co- lum- bia Mo.	Lin- coln Nebr.*	Pow- hat- tan Kans.	Man- hat- tan Kans.	Man- hat- tan Kans.*
Clark	41.5	41.4	44.0	45.1	40.6	41.2	41.6	40.2	39.5	39.2	36.5	40.6	37.0
A6-7823	39.4	41.7	45.3	43.9	40.8	42.1	42.1	39.9	41.3	39.0	38.5	40.4	38.7
S2-5179	41.0	40.2	43.1	43.4	40.5	41.5	41.6	39.9	39.6	40.3	37.7	39.4	38.1
S6-1018	40.4	40.6	43.5	43.3	40.2	41.8	40.4	39.4	39.6	40.3	38.0	39.9	36.1
Shelby	40.7	40.5	43.9	45.3	40.5	41.8	40.9	40.4	41.0	40.3	40.0	40.5	38.9
A3-6319	39.6	39.3	42.5	43.3	39.9	40.5	39.4	39.1	40.4	38.7	38.0	40.7	39.3
Ford	41.2	40.7	45.5	43.6	41.4	41.6	42.2	40.4	40.8	40.3	38.8	41.1	38.9
H24157-4	41.7	42.2	46.5	45.7	41.5	42.4	43.2	42.0	41.5	41.2	40.4	41.6	39.3
Lincoln	40.4	40.7	44.5	46.4	40.5	41.2	39.9	40.3	40.4	40.1	40.2	40.9	38.0
Mean	40.7	40.8	44.3	44.4	40.7	41.6	41.3	40.2	40.5	39.9	38.7	40.6	38.3

Percentage of Oil

Clark	22.8	22.7	20.7	21.5	22.6	21.2	20.3	22.5	23.1	21.7	23.1	22.3	23.3
A6-7823	23.0	22.2	21.0	22.3	23.1	20.9	20.4	23.8	24.2	21.7	23.4	22.1	23.2
S2-5179	22.8	22.5	21.3	21.6	22.4	20.9	20.8	22.8	23.5	21.2	23.0	22.2	23.3
S6-1018	23.4	23.0	21.0	22.7	23.4	20.7	20.7	23.0	22.9	20.8	23.4	23.4	24.4
Shelby	23.0	22.8	21.1	22.0	22.4	21.9	21.3	22.7	23.2	21.7	23.2	22.1	23.0
A3-6319	23.2	23.4	21.8	22.6	22.8	21.5	21.1	23.2	23.5	21.1	22.4	23.2	23.3
Ford	23.0	22.5	20.8	22.0	22.0	20.9	21.4	23.1	23.2	21.2	22.3	22.4	23.1
H24157-4	21.8	21.7	18.5	20.9	21.3	19.4	18.2	20.9	22.4	20.5	21.7	21.6	22.7
Lincoln	23.6	23.1	20.0	22.2	22.2	22.0	21.6	22.5	23.2	21.6	22.7	22.0	24.3
Mean	23.0	22.7	20.7	22.0	22.5	21.0	20.6	22.7	23.2	21.3	22.8	22.4	23.4

Table 48. Two-year summary of data for Uniform Test, Group III, 1958-1959.

Strain	Yield	Matu- rity ¹	Lodg- ing	Height	Seed Quality	Seed Weight	Seed Composition	
							Protein	Oil
No. of Tests	40	38	37	41	32	41	41	41
Clark	40.8	+6.1	2.2	42	1.6	16.4	41.1	21.7
S6-1018	38.8	+0.3	2.0	40	2.2	15.3	40.9	21.6
S2-5179	38.7	-0.1	2.0	40	1.9	15.5	41.0	21.6
A3-6319	38.4	+3.8	2.2	44	2.0	17.5	39.8	22.0
Shelby	37.9	0	2.3	42	1.7	16.1	41.1	21.8
Ford	36.4	-1.0	2.2	40	2.1	16.6	41.5	21.6
Lincoln	34.6	+0.2	2.5	41	2.1	14.6	41.0	21.9
Mean	37.9	+1.3	2.2	41	1.9	16.0	40.9	21.7

¹Days earlier (-) or later (+) than Shelby which matured September 21, 122 days after planting.

Table 49. Two-year summary of yield and yield rank for Uniform Test, Group III, 1958-1959.

Strain	Mean of 40 Tests	New- ark Del.	George- town Del.	Hoyt- ville Ohio	Co- lum- bus Ohio	Bluff- ton Ind.	Lafay- ette Ind.	Green- field Ind.	Worth- ing- ton Ind.	Evans- ville Ind.	Ur- bana Ill.
Clark	40.8	44.1	47.4	34.5	40.1	37.5	46.9	40.9	38.3	53.0	46.3
S6-1018	38.8	41.1	43.1	29.3	28.7	40.8	45.1	37.8	36.7	46.5	43.0
S2-5179	38.7	39.6	40.2	33.8	37.1	37.8	46.3	37.7	38.6	47.0	43.8
A3-6319	38.4	40.3	42.9	34.1	33.7	39.7	44.7	39.6	40.2	45.1	44.2
Shelby	37.9	42.0	41.1	31.0	33.2	37.4	43.0	37.3	36.8	43.3	44.4
Ford	36.4	40.0	38.3	34.3	33.8	37.5	43.1	36.7	35.5	43.0	43.0
Lincoln	34.6	36.1	36.6	30.8	37.0	35.9	40.5	33.5	32.6	39.5	42.1
Mean	37.9	40.5	41.4	32.5	34.8	38.1	44.2	37.6	37.0	45.3	43.8

	Yield Rank									
Clark	1	1	1	1	4	1	1	3	1	1
S6-1018	3	2	7	7	1	3	3	5	3	5
S2-5179	6	5	4	2	3	2	4	2	2	4
A3-6319	4	3	3	5	2	4	2	1	4	3
Shelby	2	4	5	6	6	6	5	4	5	2
Ford	5	6	2	4	4	5	6	6	6	5
Lincoln	7	7	6	3	7	7	7	7	7	7

Table 49. (Continued)

Strain	Gir- ard Ill.	Edge- wood Ill.	El- dor- ado Ill.	Car- bon- dale Ill.	Ames Iowa	Ottum- wa Iowa	Lad- donia Mo.	Co- lum- bia Mo.	Lin- coln Nebr.	Pow- hat- tan Kans.	Man- hat- tan Kans.
Clark	46.9	37.8	46.2	30.0	46.2	45.6	26.1	37.4	43.8	25.5	34.3
S6-1018	47.9	39.7	40.0	29.1	43.5	42.9	26.8	35.7	43.6	29.4	34.6
S2-5179	45.8	39.7	43.9	28.6	46.8	45.6	26.2	35.2	43.5	26.3	32.4
A3-6319	46.9	37.5	41.0	28.8	45.7	41.1	25.2	32.4	40.2	24.4	32.2
Shelby	46.8	35.8	42.0	29.4	44.5	43.9	24.9	36.6	42.2	24.6	28.6
Ford	42.2	34.3	36.4	20.8	41.6	41.3	25.5	31.1	41.4	22.3	27.9
Lincoln	43.3	31.3	35.0	27.3	40.8	39.3	21.0	26.6	41.2	27.2	28.2
Mean	45.7	36.6	40.6	27.7	44.2	42.8	25.1	33.6	42.3	25.7	31.2

	Yield Rank										
Clark	2	3	1	1	2	1	3	1	1	4	2
S6-1018	1	1	5	3	5	4	1	3	2	1	1
S2-5179	5	1	2	5	1	1	2	4	3	3	3
A3-6319	2	4	4	4	3	6	5	5	7	6	4
Shelby	4	5	3	2	4	3	6	2	4	5	5
Ford	7	6	6	7	6	5	4	6	5	7	7
Lincoln	6	7	7	6	7	7	7	7	6	2	6

Table 50. Eight-year summary of data for Uniform Test, Group III, 1952-1959.

Strain	Yield	Matu- rity ¹	Lodg- ing	Height	Seed Quality	Seed Weight	Seed Composition	
							Protein	Oil
No. of Tests	160	136	143	155	138	159	160	160
Clark	38.1	+5.8	1.9	40	1.7	16.0	40.8	21.5
Shelby	35.6	0	2.1	40	1.9	15.5	40.8	21.5
Ford	34.0	-1.4	2.1	39	2.2	16.0	41.2	21.2
Lincoln	32.8	+0.1	2.2	39	2.2	14.3	40.7	21.5
Mean	35.1	+1.1	2.1	40	2.0	15.5	40.9	21.4

¹Days earlier (-) or later (+) than Shelby which matured September 22, 121 days after planting.

Table 51. Eight-year summary of yield and yield rank for Uniform Test, Group III, 1952-1959.

Strain	Mean of 160 Tests	New- ark Del.	Georgetown Del.	Colum- bus Ohio	Lafay- ette Ind.	Green- field Ind.	Worth- ington Ind.	Urbana Ill.	Girard Ill.
Years Tested		1952- 1959	1953-54 '56, 1958-59	1952- 1959	1952- 1959	1952- 1959	1952- 1959	1952- 1959	1955- 1959
Clark	38.1	45.3	34.2	38.7	46.0	41.9	45.4	38.1	44.8
Shelby	35.6	39.7	28.0	35.7	42.4	40.3	41.6	37.6	42.4
Ford	34.0	37.4	26.9	34.3	43.1	37.9	38.1	38.1	39.3
Lincoln	32.8	37.6	26.0	34.9	40.5	37.0	36.2	36.2	38.6
Mean	35.1	40.0	28.8	35.9	43.0	39.3	40.3	37.5	41.3

	Yield Rank								
Clark	1	1	1	1	1	1	1	1	1
Shelby	2	2	2	2	3	2	2	3	2
Ford	4	3	4	4	2	3	3	1	3
Lincoln	3	4	3	3	4	4	4	4	4

UNIFORM PRELIMINARY TEST, GROUP III, 1959

Strain	Originating Agency	Origin	Generation Compositd
Clark	Ill. A.E.S. & U.S.R.S.L.	Lincoln (2) x Richland	F8
Ford	Iowa A.E.S. & U.S.R.S.L.	Lincoln (2) x Richland	F9
Shelby	Ill. A.E.S. & U.S.R.S.L.	Lincoln (2) x Richland	F8
CX310	Purdue A.E.S. & U.S.R.S.L.	Bulk F ₄ of Shelby x A0-8618-1	F1
L57-0005	Ill. A.E.S. & U.S.R.S.L.	L46-2132 x Adams	F6
L57-2228	Ill. A.E.S. & U.S.R.S.L.	L49-4091 x Clark	F5
L57-2386	Ill. A.E.S. & U.S.R.S.L.	L49-4091 x Clark	F5
L57-2505	Ill. A.E.S. & U.S.R.S.L.	L49-4091 x Shelby	F5
L57-2883	Ill. A.E.S. & U.S.R.S.L.	L46-2132 x Adams	F6
S7-3575	Mo. A.E.S. & U.S.R.S.L.	Sel. from Irradiated Clark	X3
U2-38	Nebr. A.E.S. & U.S.R.S.L.	Hawkeye x H6150	F5

Identification of Parent Strains

A0-8618-1	Purple-flowered bulk isolate from A0-8618; Ford is the white-flowered bulk isolate from A0-8618.
H6150	Sel. from Lincoln (2) x Richland.
L46-2132	F ₅ line from Lincoln (2) x Richland, progenitor of Clark.
L49-4091	Pustule resistant F ₄ line from L44-1219 x (Lincoln x CNS). L44-1219 is an F ₃ line from Lincoln (2) x Richland.

This test consisted of 3 check varieties and 8 experimental strains and was grown at 12 locations in 1959. The data are presented in Tables 52 through 56.

The average yield of CX310 fell precisely on the mid-point between Ford and Shelby. It was similar to both parents in most traits but matured at the time of the earlier one, Ford. It was hoped that this bulk hybrid might have a wider regional adaptation equal to that of both parents but this was not realized. At most locations its yield was intermediate to that of the two parents. A mechanical mixture of these two parent strains was tested in the Uniform Test, Group III, in 1956 with similar results although the mixture matured with the later parent, Shelby.

L57-0005, the high-yielder in the test, was 2 days earlier than Clark and equal to it in all other traits. It is heterogeneous for flower color. L57-2883, from the same cross, performed similarly but was 2 bushels lower in yield.

The remaining three L strains were entered as pustule resistant. L57-2505, the best yielding of the three, was found to be pustule susceptible in 1959 in Mississippi. Of the two which proved to be resistant, L57-2228 and L57-2386, the former was the better performer, being almost equal to Shelby in performance.

S7-3575 is an apparent mutant selected from irradiated Clark. Its mean yield was well below Clark. It was a day earlier but 2 inches taller.

U2-38 was of the same maturity as Ford and performed similarly to Ford in other traits.

Table 52. Summary of data for Uniform Preliminary Test, Group III, 1959.

Strain	Yield	Rank	Matu- rity ¹	Lodg- ing	Height	Seed Quality	Seed Weight	Seed Composition	
								Protein	Oil
No. of Tests	12	12	11	10	12	8	11	8	8
Clark	37.9	2	+4.5	2.1	41	1.7	16.3	40.7	22.4
Ford	33.8	11	-1.5	2.0	40	2.1	16.5	41.4	22.1
Shelby	36.6	4	0	2.1	42	2.1	16.2	40.9	22.4
CX310	35.2	8	-1.4	1.9	41	2.2	16.4	40.5	22.1
L57-0005	38.1	1	+2.5	2.0	41	2.1	16.7	40.2	22.3
L57-2228	35.8	6	+0.9	2.0	42	1.8	15.2	40.5	22.4
L57-2386	34.8	9	+0.5	2.0	42	2.1	16.0	41.0	22.4
L57-2505	37.7	3	+1.3	2.0	42	2.0	16.7	41.9	21.6
L57-2883	36.1	5	+2.4	2.1	42	2.3	16.2	40.6	22.0
S7-3575	35.8	6	+3.7	1.9	43	1.6	16.4	40.6	22.2
U2-38	34.1	10	-1.8	2.1	42	2.2	14.4	39.8	21.9
Mean	36.0		+1.0	2.0	42	2.0	16.1	40.7	22.1

¹Days earlier (-) or later (+) than Shelby which matured September 22, 124 days after planting.

Table 53. Disease data for Uniform Preliminary Test, Group III, 1959.

Strain	Bacterial Blight	Bacterial Pustule	Brown Spot	Brown Stem Rot	Frog- eye	Stem Canker	Phytoph- thora Rot	Cyst Nematode
Clark	S	S,4Aa	S	S,5An	R	S	S	S
Ford	S	S,4Aa	S	S,5An	R	S	S	S
Shelby	S	S,3Aa	S	S,5An	R	S	S	S
CX310	4Aa	3Dn,3Aa	4Cn	4Ln	RCa			
L57-0005	4Aa	3Dn,3Aa	3Cn	4Ln	RCa			
L57-2228	3Aa	1Dn,3Aa	4Cn	4Ln	RCa			
L57-2386	4Aa	1Dn,3Aa	3Cn	4Ln	RCa			
L57-2505	5Aa	4Dn,3Aa	4Cn	4Ln	RCa			
L57-2883	5Aa	4Dn,2Aa	4Cn	4Ln	RCa			
S7-3575	4Aa	4Dn,2Aa	3Cn	4Ln	RCa			
U2-38	5Aa	4Dn,4Aa	4Cn	4Ln	RCa			

Table 54. Yield and yield rank for Uniform Preliminary Test, Group III, 1959.

Strain	Mean of 12 Tests	George- town Del.	Hoyt- ville Ohio	Co- lum- bus Ohio	La- fay- ette Ind.	Worth- ton Ind.	Ur- bana Ill.	Gir- ard Ill.	Ames Iowa	Ot- tum- wa Iowa	Co- lum- bia Mo.	Lin- coln Nebr.*	Man- hat- tan Kans.
Clark	37.9	26.3	43.0	21.7	39.8	41.5	42.5	59.3	42.0	44.0	32.0	39.5	23.7
Ford	33.8	23.7	34.3	20.2	38.6	36.7	37.0	47.2	39.8	40.4	26.4	42.1	18.6
Shelby	36.6	19.0	36.7	23.5	41.0	44.1	39.6	53.4	46.9	43.5	26.9	40.3	24.1
CX310	35.2	18.9	36.3	19.9	39.3	40.0	39.0	49.6	39.9	41.9	31.4	45.4	21.0
L57-0005	38.1	28.0	35.3	27.0	41.4	35.6	40.8	54.2	43.6	44.4	32.2	50.4	24.7
L57-2228	35.8	23.8	34.1	21.4	39.1	38.7	42.7	47.7	44.6	42.7	27.2	47.2	20.8
L57-2386	34.8	15.9	37.9	24.4	35.7	37.7	39.9	51.7	41.6	40.0	27.7	42.2	22.5
L57-2505	37.7	25.3	38.3	20.6	41.3	47.6	41.3	56.7	45.1	45.0	25.7	45.2	20.8
L57-2883	36.1	26.1	32.3	23.7	39.5	35.1	39.2	54.1	46.8	42.4	26.3	41.6	25.7
S7-3575	35.8	23.7	33.9	19.0	37.2	38.4	40.7	52.7	45.1	43.0	29.6	41.4	25.4
U2-38	34.1	26.1	34.3	23.7	37.8	35.9	39.1	47.7	42.2	34.0	25.3	40.8	22.7
Mean	36.0	23.3	36.0	22.3	39.2	39.2	40.2	52.2	43.4	41.9	28.2	43.3	22.7
C.V. (%)		--	8.1	14.9	4.1	5.1	5.3	6.0	5.0	9.3	9.8	8.3	5.9
BNFS(5%)		N.S.	N.S.	--	3.5	4.4	3.1	7.0	4.8	8.7	N.S.	N.S.	3.0
Row Sp. (In.)		36	36	28	38	38	40	38	40	40	38	38	40

Yield Rank

Clark	2	2	1	6	4	3	2	1	8	3	2	11	5
Ford	11	7	7	9	8	8	11	11	11	9	8	6	11
Shelby	4	9	4	5	3	2	7	5	1	4	7	10	4
CX310	8	10	5	10	6	4	10	8	10	8	3	3	8
L57-0005	1	1	6	1	1	10	4	3	6	2	1	1	3
L57-2228	6	6	9	7	7	5	1	9	5	6	6	2	9
L57-2386	9	11	3	2	11	7	6	7	9	10	5	5	7
L57-2505	3	5	2	8	2	1	3	2	3	1	10	4	9
L57-2883	5	3	11	3	5	11	8	4	2	7	9	7	1
S7-3575	6	7	10	11	10	6	5	6	3	5	4	8	2
U2-38	10	3	7	3	9	9	9	9	7	11	11	9	6

*Irrigated.

1Four replications.

Table 55. Maturity, days earlier (-) or later (+) than Shelby, for Uniform Preliminary Test, Group III, 1959.

Strain	Mean of 11 Tests ¹	George- town Del.	Hoyt- ville Ohio	Co- lum- bus Ohio	La- fay- ette Ind.	Worth- ton Ind.	Ur- bana Ill.	Gir- ard Ill.	Ames Iowa	Ot- tum- Iowa	Co- lum- bia Mo.	Lin- coln Nebr.	Man- hat- tan Kans.
Clark	+4.5	+3	+14	+6	+2	+4	+6	+6	+6	+6	+6	+1	+3
Ford	-1.5	-3	- 1	-3	0	0	-3	-3	-3	-2	-2	0	+3
Shelby	0	0	0	0	0	0	0	0	0	0	0	0	0
CX310	-1.4	0	0	+1	0	0	-2	-1	-3	-2	-2	-3	-3
L57-0005	+2.5	+5	+12	-3	+2	+3	+1	+3	+4	+6	+3	+6	-3
L57-2228	+0.9	-2	+ 5	+5	+1	+1	+2	+2	+2	+1	+1	+1	-4
L57-2386	+0.5	-4	+ 4	+3	+2	+1	+1	0	+1	0	+1	+2	-1
L57-2505	+1.3	+1	+ 2	0	+1	0	+1	+2	+4	+2	+2	+4	-3
L57-2883	+2.4	+1	+14	+3	+2	+3	+3	+2	+2	+4	+4	+6	-4
S7-3575	+3.7	+3	+17	+3	+2	+3	+6	+5	+4	+5	+5	+8	-3
U2-38	-1.8	-4	+ 1	-2	0	0	0	0	-4	-2	-2	-2	-4
Date pltd.	5-21	5-29	5-21	5-11	5-19	5-7	5-18	5-16	5-8	6-6	5-19	6-2	6-5
Shelby mat.	9-22	9-20	9-23	9-22	9-21	9-13	9-15	9-14	10-2	10-4	9-8	10-6	9-28
Da. to mat.	124	114	125	134	125	129	120	121	147	120	112	126	115

¹Hoytville, Ohio, not included in the mean.

Table 56. Percentages of protein and oil for Uniform Preliminary Test, Group III, 1959.

Strain	Mean of 8 Tests	George- town Del.	Co- lum- bus Ohio	Lafay- ette Ind.	Ur- bana Ill.	Ames Iowa	Co- lum- bia Mo.	Lin- coln Nebr.	Man- hat- tan Kans.
Clark	40.7	42.6	42.2	39.7	40.6	41.2	39.4	39.8	40.2
Ford	41.4	44.3	42.5	39.9	40.7	42.0	40.5	40.3	40.6
Shelby	40.9	43.8	41.2	40.0	40.6	40.7	41.0	40.6	39.6
CX310	40.5	43.0	39.2	39.8	40.0	40.5	40.6	41.0	39.6
L57-0005	40.2	42.7	40.0	39.5	39.5	42.0	39.6	39.1	39.1
L57-2228	40.5	43.4	42.1	38.0	39.7	40.8	39.7	40.3	39.8
L57-2386	41.0	42.6	42.0	40.4	40.8	41.6	39.7	39.9	41.1
L57-2505	41.9	40.9	43.1	40.6	41.9	43.8	41.5	41.8	41.7
L57-2883	40.6	42.5	40.9	40.0	40.6	41.8	39.4	39.0	40.7
S7-3575	40.6	41.8	42.6	38.8	40.8	41.9	39.5	38.3	40.8
U2-38	39.8	41.4	40.5	39.0	39.5	40.1	38.6	39.6	39.4
Mean	40.7	42.6	41.5	39.6	40.4	41.5	40.0	40.0	40.2
	Mean of 8 Tests	Percentage of Oil							
Clark	22.4	23.4	21.2	23.2	23.1	21.1	23.8	21.6	21.6
Ford	22.1	22.1	20.7	23.0	23.2	21.1	23.5	20.9	21.9
Shelby	22.4	22.6	21.4	23.7	22.7	21.5	23.0	21.4	22.8
CX310	22.1	21.7	21.2	22.8	22.5	21.4	23.3	21.3	22.4
L57-0005	22.3	21.8	22.2	23.1	23.0	20.5	23.4	21.4	22.8
L57-2228	22.4	22.2	21.9	23.8	23.4	21.1	22.9	21.3	22.4
L57-2386	22.4	22.3	21.1	23.1	22.9	21.2	24.0	22.0	22.2
L57-2505	21.6	22.1	20.3	23.3	22.5	20.5	22.7	20.1	21.6
L57-2883	22.0	22.4	21.1	23.0	22.3	20.4	23.5	21.0	21.9
S7-3575	22.2	22.7	21.0	23.0	22.9	20.8	23.6	21.6	21.9
U2-38	21.9	21.8	20.5	23.1	22.9	21.5	23.1	20.8	21.7
Mean	22.1	22.3	21.1	23.2	22.9	21.0	23.3	21.2	22.1

UNIFORM TEST, GROUP IV, 1959

Strain	Originating Agency	Origin	Generation Compositd
Clark	Ill. A.E.S. & U.S.R.S.L.	Lincoln (2) x Richland	F ₈
Scott	Mo. A.E.S. & U.S.R.S.L.	D49-2525 x L46-5679	F ₄
Wabash	Purdue A.E.S. & U.S.R.S.L.	Dunfield x Mansoy	F ₇
C1068	Purdue A.E.S. & U.S.R.S.L.	Lincoln x Ogden	F ₇
S6-5162	Mo. A.E.S. & U.S.R.S.L.	Lincoln (2) x Richland	F ₁₁
S7-5343	Mo. A.E.S. & U.S.R.S.L.	Clark (3) x S4-1714	F ₃
UD297-6	Del. A.E.S. & U.S.R.S.L.	F.C. 33243 x Hawkeye	F ₅
UD321-5	Del. A.E.S. & U.S.R.S.L.	F.C. 33243 x Perry	F ₅
UD580-10	Del. A.E.S. & U.S.R.S.L.	F.C. 33243 x C985	F ₅

Identification of Parent Strains

C985	F ₃ line from Lincoln x Ogden, progenitor of C1068.
D49-2525	Pustule resistant F ₆ line from S100 x CNS, sib of Lee.
L46-5679	F ₅ line from Lincoln x Richland.
S4-1714	Selection from L49-4091 x Clark. L49-4091 is a pustule resistant F ₄ line from L44-1219 x (Lincoln x CNS). L44-1219 is an F ₃ line from Lincoln (2) x Richland.

This test was grown at 14 locations in 1959, and the data are presented in Tables 57 through 64. The 1959 mean yield is slightly below average for this test. Locations varied in yield less than in any other recent year, with no location mean below 25 and none above 46 bushels.

Three-year mean tables are presented for Clark, Scott, Wabash, and C1068. C1068 has outyielded the others at 12 out of 14 locations and also yielded at or near the top at most locations in 1959. Compared with Scott, the other late Group IV variety, C1068 is somewhat better in lodging resistance and higher in both oil and protein.

Four strains in this test were entered from last year's Preliminary Test IV. S6-5162 is a selection from Lincoln (2) x Richland, which has outyielded Clark by a small margin in both 1958 and 1959, and appears to be similar to Clark in other traits. The three UD strains matured at about the same time as C1068 or Scott but were lower in yield. They have resistance to root knot nematode inherited from the parent, F.C. 33243.

The pustule-resistant Clark backcross strain, S7-5343, was entered in Uniform Tests for the first time this year. Its performance was very similar to Clark's, averaging only .7 bushel lower. There were probably very few locations with sufficient infection of bacterial pustule to have affected Clark's yield.

Table 57. Summary of data for Uniform Test, Group IV, 1959.

Strain	Yield	Matu- rity ¹	Lodg- ing	Height	Seed Quality	Seed Weight	Seed Composition	
No. of Tests	13	11	12	12	13	13	Protein	Oil
C1068	38.1	+ 8.5	1.5	40	2.3	16.7	40.2	22.1
Scott	35.7	+10.9	1.9	43	2.1	14.1	38.5	21.5
S6-5162	34.7	- 0.5	2.1	40	2.6	14.7	40.4	22.2
UD297-6	34.3	+10.3	2.0	45	2.0	14.6	40.1	22.0
UD321-5	34.1	+ 9.6	1.9	45	2.6	15.2	41.3	21.0
UD580-10	33.6	+ 8.0	2.3	41	2.9	15.6	38.9	22.8
Clark	33.3	- 0.6	1.7	39	2.4	15.7	40.3	22.3
S7-5343	32.6	- 0.2	1.6	39	2.5	14.1	40.0	22.2
Wabash	31.4	0	1.9	42	2.1	14.5	40.0	22.2
Mean	34.2	+ 5.1	1.9	42	2.4	15.0	40.0	22.0

¹Days earlier (-) or later (+) than Wabash which matured September 24, 124 days after planting.

Table 58. Disease data for Uniform Test, Group IV, 1959.

Strain	Bacterial Blight	Bacterial Pustule	Brown Spot	Brown Stem Rot	Frog- eye	Stem Canker	Phytoph- thora Rot	Cyst Nematode
C1068	S,4Aa	S,4Aa	S,5Cn	S	R	S	S	S
Scott	S,3Aa	S,3Aa	S,3Cn	S	S		S	
S6-5162	S,3Aa	S,4Aa	S,5Cn	S	R		S	
UD297-6	S,4Aa	S,3Aa	S,4Cn	S	R		S	
UD321-5	S,4Aa	S,4Aa	S,4Cn	S	R		S	
UD580-10	S,4Aa	S,3Aa	S,3Cn	S	R		S	
Clark	S,4Aa	S,4Aa	S,4Cn	S	R	S	S	S
S7-5343	3Aa	2Aa	4Cn	4Ln,5An	RCa			
Wabash	S,4Aa	S,4Aa	S,4Cn	S	R	S	S	S

Lincoln, included as a susceptible check variety, rated S,4Aa for Bacterial Blight and S,4Aa for Bacterial Pustule.

Table 59. Yield and yield rank for Uniform Test, Group IV, 1959.

Strain	Mean of 13 Tests ¹	New- ark Del.	George- town Del. ²	Worth- ington Ind.	Evans- ville Ind. ²	Edge- wood Ill.	Eldor- ado Ill.	Carbon- dale Ill.
C1068	38.1	42.6	45.3	47.0	57.7	34.6	44.8	31.6
Scott	35.7	38.1	40.7	42.2	46.5	29.3	45.7	29.5
S6-5162	34.7	36.6	38.7	42.8	40.3	31.9	38.8	25.0
UD297-6	34.3	38.1	40.3	41.8	47.9	29.3	49.7	29.1
UD321-5	34.1	34.5	38.1	46.2	52.0	34.3	38.8	28.3
UD580-10	33.6	33.4	32.1	44.9	40.7	33.3	36.9	28.3
Clark	33.3	35.7	36.4	34.0	43.8	32.1	31.7	21.8
S7-5343	32.6	37.7	35.0	33.4	44.3	31.1	28.8	21.4
Wabash	31.4	36.4	34.3	38.6	41.2	30.1	36.0	22.6
Mean	34.2	37.0	37.9	41.2	46.0	31.8	39.0	26.4
Coef. of Var. (%)		--	8.3	9.4	9.7	12.2	10.6	--
Bu. Nec. for Sig. (5%)		--	2.4	5.3	7.2	N.S.	6.0	--
Row Spacing (In.)		36	36	38	38	38	40	40

	Yield Rank						
C1068	1	1	1	1	1	3	1
Scott	2	2	5	4	8	2	2
S6-5162	5	4	4	9	5	4	6
UD297-6	2	3	6	3	8	1	3
UD321-5	8	5	2	2	2	4	4
UD580-10	9	9	3	8	3	6	4
Clark	7	6	8	6	4	8	8
S7-5343	4	7	9	5	6	9	9
Wabash	6	8	7	7	7	7	7

*Irrigated.

¹Eldorado, Illinois, and Manhattan, Kansas (irrigated), not included in the mean.

²Three replications.

³Two replications.

Table 59. (Continued)

Strain	Miller City Ill.	Colum- bia Mo. ³	Jeffer- son City Mo. ²	Pow- hat- tan Kans. ²	Man- hat- tan Kans.	Man- hat- tan Kans.*	Mound Valley Kans.	Colum- bus Kans.
C1068	40.0	34.5	34.8	31.6	29.2	26.3	27.6	39.1
Scott	42.5	34.1	32.7	38.4	26.5	24.2	26.3	37.9
S6-5162	34.4	34.6	35.6	35.0	26.9	27.3	28.1	41.3
UD297-6	35.6	31.1	32.3	32.5	26.6	25.4	26.7	34.6
UD321-5	32.0	30.2	29.2	28.1	25.2	28.4	27.9	37.1
UD580-10	35.8	33.6	34.3	29.3	27.4	21.6	25.7	37.8
Clark	38.8	32.0	35.3	24.9	27.5	23.6	30.1	41.1
S7-5343	36.3	30.4	33.3	30.5	27.3	32.3	26.3	37.2
Wabash	30.5	27.5	32.8	28.1	26.7	23.2	23.7	35.6
Mean	36.2	32.0	33.4	30.9	27.0	25.8	26.9	38.0
Coef. of Var. (%)	8.0	13.7	6.9	8.0	9.1	18.5	12.0	--
Bu. Nec. for Sig. (5%)	4.2	N.S.	N.S.	4.5	N.S.	N.S.	N.S.	--
Row Spacing (In.)	38	38	40	40	40	36	42	40

	Yield Rank							
C1068	2	2	3	4	1	4	4	3
Scott	1	3	7	1	8	6	6	4
S6-5162	7	1	1	2	5	3	2	1
UD297-6	6	6	8	3	7	5	5	9
UD321-5	8	8	9	7	9	2	3	7
UD580-10	5	4	4	6	3	9	8	5
Clark	3	5	2	9	2	7	1	2
S7-5343	4	7	5	5	4	1	6	6
Wabash	9	9	6	7	6	8	9	8

Table 60. Maturity, days earlier (-) or later (+) than Wabash, for Uniform Test, Group IV, 1959.

Strain	Mean of 11 Tests ¹	New- ark Del.	George- town Del.	Worth- ington Ind.	Evans- ville Ind.	Edge- wood Ill.	Eldor- ado Ill.	Carbon- dale Ill.
C1068	+ 8.5	+6	+3	+7	+ 8	+7	+9	+12
Scott	+10.9	+6	+3	+9	+10	+7	+8	+16
S6-5162	- 0.5	-2	-6	-2	- 3	+1	-2	- 3
UD297-6	+10.3	+6	+3	+7	+12	+8	+7	+15
UD321-5	+ 9.6	+4	+3	+5	+12	+7	+8	+13
UD580-10	+ 8.0	+3	+3	+2	+ 7	+8	+6	+12
Clark	- 0.6	-1	+3	-2	- 4	0	-1	- 4
S7-5343	- 0.2	-1	-4	-2	- 2	0	-1	0
Wabash	0	0	0	0	0	0	0	0
Date planted	5-23	5-28	5-29	5-7	5-4	6-3	5-2	5-5
Wabash matured	9-24	9-30	10-2	9-24	9-18	9-24	9-19	9-14
Days to mature	124	125	126	140	137	113	140	132

*Irrigated.

¹Eldorado, Illinois, and Manhattan (irrigated) and Columbus, Kansas, not included in the mean.

Table 60. (Continued)

Strain	Miller City Ill.	Colum- bia Mo.	Pow- hattan Kans.	Man- hattan Kans.	Man- hattan Kans.*	Mound Valley Kans.	Colum- bus Kans.
C1068	+ 8	+ 8	+10	+ 9	+ 8	+16	+2
Scott	+12	+ 8	+16	+13	+13	+20	+2
S6-5162	- 1	- 2	+ 6	0	0	+ 6	0
UD297-6	+13	+ 8	+11	+15	+15	+15	+2
UD321-5	+10	+11	+13	+12	+13	+16	+2
UD580-10	+ 6	+ 5	+ 8	+14	+10	+20	+2
Clark	- 1	- 4	+ 2	0	+ 1	+ 4	0
S7-5343	- 2	- 2	+ 5	0	+ 2	+ 6	0
Wabash	0	0	0	0	0	0	0
Date planted	5-19	5-19	6-8	6-5	5-27	6-4	6-6
Wabash matured	9-9	9-19	10-7	10-2	10-5	9-22	9-20
Days to mature	113	123	121	119	131	110	106

Table 61. Lodging and plant height for Uniform Test, Group IV, 1959.

Strain	Mean of 12 Tests ¹	New- ark Del.	George- town Del.	Worth- ington Ind.	Evans- ville Ind.	Edge- wood Ill.	Eldor- ado Ill.	Carbon- dale Ill.
C1068	1.5	1.0	1.0	1.3	2.0	2.5	1.9	1.8
Scott	1.9	1.0	1.0	2.0	2.3	2.8	2.5	3.0
S6-5162	2.1	3.0	3.0	2.0	2.0	2.7	2.1	2.0
UD297-6	2.0	1.0	1.0	2.3	3.0	3.2	2.5	2.0
UD321-5	1.9	1.0	1.0	1.5	3.0	2.6	2.1	2.3
UD580-10	2.3	4.0	2.0	2.0	2.3	2.7	2.7	2.3
Clark	1.7	2.0	2.0	1.8	2.7	2.8	2.3	1.8
S7-5343	1.6	1.0	1.0	1.8	2.7	2.4	2.2	2.0
Wabash	1.9	1.0	1.0	2.3	2.0	2.9	2.6	2.0
Mean	1.9	1.7	1.4	1.9	2.4	2.7	2.3	2.1

	Mean of 12 Tests ¹	Plant Height						
C1068	40	48	44	45	43	42	39	35
Scott	43	46	41	52	46	45	42	42
S6-5162	40	44	43	48	43	42	39	35
UD297-6	45	49	45	53	51	46	45	42
UD321-5	45	46	44	55	52	47	46	44
UD580-10	41	41	45	48	45	45	39	39
Clark	39	43	42	46	44	41	38	32
S7-5343	39	48	42	43	44	42	37	34
Wabash	42	48	43	48	48	43	44	39
Mean	42	46	43	49	46	44	41	38

*Irrigated.

¹Eldorado, Illinois, and Manhattan, Kansas (irrigated), not included in the mean.

Table 61. (Continued)

Strain	Miller City Ill.	Colum- bia Mo.	Pow- hattan Kans.	Man- hattan Kans.	Man- hattan Kans.*	Mound Valley Kans.	Colum- bus Kans.
C1068	1.8	1.0	2.0	1.4	1.4	1.3	1.0
Scott	2.6	1.0	3.0	2.1	2.2	1.3	1.0
S6-5162	2.6	1.3	2.0	1.8	2.0	1.3	1.0
UD297-6	2.7	1.5	3.0	2.0	2.7	1.0	1.0
UD321-5	2.3	1.4	3.0	2.0	2.0	1.0	2.0
UD580-10	2.6	1.2	2.0	2.8	2.2	1.3	2.0
Clark	1.7	1.2	1.0	1.4	1.4	1.0	1.0
S7-5343	1.7	1.2	2.0	1.8	1.8	1.0	1.0
Wabash	2.2	1.8	2.0	2.0	2.0	1.0	2.0
Mean	2.2	1.3	2.2	1.9	2.0	1.1	1.3

Plant Height							
C1068	39	33	34	43	38	29	39
Scott	44	36	40	47	45	31	44
S6-5162	40	35	35	45	41	29	39
UD297-6	45	41	40	48	45	32	44
UD321-5	47	41	40	48	45	33	45
UD580-10	41	37	38	45	44	31	42
Clark	39	34	33	44	43	29	39
S7-5343	40	33	34	44	45	31	38
Wabash	43	36	39	45	46	29	40
Mean	42	36	37	45	44	30	41

Table 62. Percentages of protein and oil for Uniform Test, Group IV, 1959.

Strain	Mean of 13 Tests ¹	New- ark Del.	George- town Del.	Worth- ington Ind.	Evans- ville Ind.	Edge- wood Ill.	Eldor- ado Ill.	Carbon- dale Ill.
C1068	40.2	39.6	41.0	42.1	39.3	42.5	44.2	42.6
Scott	38.5	37.6	39.5	40.0	37.9	40.2	41.9	40.8
S6-5162	40.4	39.3	41.7	43.2	40.0	42.9	46.1	40.9
UD297-6	40.1	38.9	41.0	42.2	39.9	42.7	46.0	43.0
UD321-5	41.3	41.4	42.5	42.9	41.6	42.2	47.1	42.6
UD580-10	38.9	40.9	40.2	40.0	40.0	38.4	43.3	40.2
Clark	40.3	39.3	41.6	44.0	38.8	43.3	45.7	40.3
S7-5343	40.0	39.1	41.5	42.6	41.0	43.1	46.0	39.2
Wabash	40.0	39.2	41.7	42.4	40.3	41.7	44.2	40.0
Mean	40.0	39.5	41.2	42.2	39.9	41.9	44.9	41.1

	Mean of 13 Tests ¹	Percentage of Oil						
C1068	22.1	22.0	21.8	21.3	22.3	20.1	20.5	21.6
Scott	21.5	20.9	20.8	20.4	22.0	19.5	20.4	21.6
S6-5162	22.2	22.0	21.9	21.2	22.2	20.2	20.4	22.3
UD297-6	22.0	22.0	21.7	21.5	21.9	20.1	20.2	20.5
UD321-5	21.0	20.5	20.8	20.5	21.4	20.0	19.1	20.9
UD580-10	22.8	22.7	22.5	22.7	22.8	21.0	21.8	22.1
Clark	22.3	21.9	22.3	20.6	22.7	20.3	21.6	22.1
S7-5343	22.2	22.1	22.4	20.6	22.0	20.2	21.3	22.5
Wabash	22.2	22.7	21.1	21.5	22.9	20.9	21.7	22.1
Mean	22.0	21.9	21.7	21.1	22.2	20.3	20.8	21.7

*Irrigated.

¹Eldorado, Illinois, and Manhattan, Kansas (irrigated), not included in the mean.

Table 62. (Continued)

Strain	Miller City Ill.	Colum- bia Mo.	Jeffer- son City Mo.	Pow- hat- tan Kans.	Man- hat- tan Kans.	Man- hat- tan Kans.*	Mound Valley Kans.	Colum- bus Kans.
C1068	40.2	40.1	39.8	36.7	39.3	39.4	39.4	40.5
Scott	38.7	39.5	37.7	37.2	37.4	36.3	36.1	37.4
S6-5162	41.6	39.7	39.2	36.0	41.4	40.0	39.1	40.2
UD297-6	40.5	40.3	37.8	35.9	39.5	38.4	40.0	39.8
UD321-5	41.6	41.7	41.3	37.0	41.3	40.7	40.3	40.5
UD580-10	38.4	39.1	40.1	32.9	39.3	38.5	38.1	37.6
Clark	41.2	39.5	39.6	37.2	40.9	38.6	38.8	39.7
S7-5343	41.7	39.3	39.1	34.4	40.8	38.6	38.3	39.9
Wabash	40.2	40.3	39.4	37.3	40.1	38.5	39.1	37.9
Mean	40.5	39.9	39.3	36.1	40.0	38.8	38.8	39.3

Percentage of Oil

C1068	21.5	22.6	23.3	23.5	20.1	22.0	24.0	23.7
Scott	22.3	22.2	21.6	20.3	21.4	21.6	22.7	23.4
S6-5162	21.4	23.6	23.7	23.3	21.0	23.0	22.8	23.6
UD297-6	22.4	22.6	24.2	22.0	21.7	21.4	22.8	22.4
UD321-5	20.4	21.2	21.8	20.8	20.3	20.5	22.1	22.5
UD580-10	22.6	22.7	22.5	24.6	22.3	23.0	23.7	24.3
Clark	21.1	23.6	23.5	22.8	21.6	22.0	23.2	23.8
S7-5343	20.6	23.8	23.6	23.7	19.0	22.5	23.7	23.9
Wabash	21.6	22.5	22.3	22.3	22.0	22.2	23.7	23.2
Mean	21.5	22.8	22.9	22.6	21.0	22.0	23.2	23.4

Table 63. Three-year summary of data for Uniform Test, Group IV, 1957-1959.

Strain	Yield	Matu- rity ¹	Lodg- ing	Height	Seed Quality	Seed Weight	Seed Composition	
							Protein	Oil
No. of Tests	37	30	29	33	34	38	38	38
Cl068	40.9	+8.6	1.7	40	2.0	17.6	40.5	22.1
Scott	37.2	+9.6	2.2	42	1.9	14.6	38.6	21.2
Clark	36.4	-1.8	1.9	40	2.2	16.1	40.9	22.1
Wabash	33.1	0	2.2	42	1.9	14.8	40.3	21.9
Mean	36.9		2.0	41	2.0	15.8	40.1	21.8

¹Days earlier (-) or later (+) than Wabash which matured September 25, 123 days after planting.

Table 64. Three-year summary of yield and yield rank for Uniform Test, Group IV, 1957-1959.

Strain	Mean of 37 Tests	New- ark Del.	George- town Del.	Worth- ington Ind.	Evans- ville Ind.	Edge- wood Ill.	Eldor- ado Ill.	Carbon- dale Ill.
Years Tested		1957- 1959	1958- 1959	1957- 1959	1957- 1959	1958- 1959	1957- 1959	1957- 1959
Cl068	40.9	47.1	55.4	52.6	62.0	43.8	47.9	33.3
Scott	37.2	40.2	47.6	45.0	52.6	40.0	44.6	29.6
Clark	36.4	42.4	44.1	42.3	49.5	39.1	42.2	25.3
Wabash	33.1	38.1	37.7	43.3	43.3	36.6	40.9	23.7
Mean	36.9	42.0	46.2	45.8	51.9	39.9	43.9	28.0

	Yield Rank							
Cl068	1	1	1	1	1	1	1	1
Scott	3	2	2	2	2	2	2	2
Clark	2	3	4	3	3	3	3	3
Wabash	4	4	3	4	4	4	4	4

Table 64. (Continued)

Strain	Miller City Ill.	Colum- bia Mo.	Jeffer- son City Mo.	Pow- hattan Kans.	Man- hattan Kans.	Mound Valley Kans.	Colum- bus Kans.
Years Tested	1958- 1959	1957- 1959	1958- 1959	1958- 1959	1958- 1959	1957- 1959	1957- 1959
C1068	44.5	38.6	31.6	25.7	37.7	25.4	29.6
Scott	44.5	37.4	28.8	36.8	35.7	24.8	27.5
Clark	41.9	37.8	30.9	26.2	35.0	26.0	28.8
Wabash	34.6	31.8	29.4	30.0	33.0	22.3	25.3
Mean	41.4	36.4	30.2	29.7	35.4	24.6	27.8

Yield Rank							
C1068	1	1	1	4	1	2	1
Scott	1	3	4	1	2	3	3
Clark	3	2	2	3	3	1	2
Wabash	4	4	3	2	4	4	4

UNIFORM PRELIMINARY TEST, GROUP IV, 1959

Strain	Originating Agency	Origin	Generation Composited
Clark	Ill. A.E.S. & U.S.R.S.L.	Lincoln (2) x Richland	F8
Wabash	Purdue A.E.S. & U.S.R.S.L.	Dunfield x Mansoy	F7
C1068	Purdue A.E.S. & U.S.R.S.L.	Lincoln x Ogden	F7
L57-0011	Ill. A.E.S. & U.S.R.S.L.	L46-2132 x Adams	F6
L57-0025	Ill. A.E.S. & U.S.R.S.L.	L46-2132 x Adams	F6
L57-0034	Ill. A.E.S. & U.S.R.S.L.	L46-2132 x Adams	F6
L57-2322	Ill. A.E.S. & U.S.R.S.L.	L49-4091 x Clark	F5
S7-4196	Mo. A.E.S. & U.S.R.S.L.	S4-1714 x Clark	F3
S7-4241	Mo. A.E.S. & U.S.R.S.L.	S4-1714 x Clark	F3
S7-4260	Mo. A.E.S. & U.S.R.S.L.	S4-1714 x Clark	F3
S7-4264	Mo. A.E.S. & U.S.R.S.L.	S4-1714 x Clark	F3
S7-4270	Mo. A.E.S. & U.S.R.S.L.	S4-1714 x Clark	F3
S7-4302	Mo. A.E.S. & U.S.R.S.L.	S4-1714 x Clark	F3
S7-4319	Mo. A.E.S. & U.S.R.S.L.	S4-1714 x Clark	F3
S7-4362	Mo. A.E.S. & U.S.R.S.L.	S4-1714 x Clark	F3
UD2	Del. A.E.S. & U.S.R.S.L.	F.C. 33243 x Wabash	F6
UD36	Del. A.E.S. & U.S.R.S.L.	F.C. 33243 x Wabash	F6
UD53	Del. A.E.S. & U.S.R.S.L.	F.C. 33243 x Wabash	F6
UD277-7	Del. A.E.S. & U.S.R.S.L.	Hawkeye x F.C. 33243	F6
UD288	Del. A.E.S. & U.S.R.S.L.	Hawkeye x F.C. 33243	F6
UD290	Del. A.E.S. & U.S.R.S.L.	Hawkeye x F.C. 33243	F6
UD356	Del. A.E.S. & U.S.R.S.L.	F.C. 33243 x Perry	F6
UD523	Del. A.E.S. & U.S.R.S.L.	C985 x F.C. 33243	F6
UD545-1-1	Del. A.E.S. & U.S.R.S.L.	C985 x F.C. 33243	F6
UD579	Del. A.E.S. & U.S.R.S.L.	C985 x F.C. 33243	F6
UD672	Del. A.E.S. & U.S.R.S.L.	C799 x F.C. 33243	F6

Identification of Parent Strains

C985	F ₃ line from Lincoln x Ogden, progenitor of C1068.
L46-2132	F ₅ line from Lincoln (2) x Richland, progenitor of Clark.
L49-4091	Pustule resistant F ₄ line from L44-1219 x (Lincoln x CNS). L44-1219 is an F ₃ line from Lincoln (2) x Richland.
S4-1714	Selection from L49-4091 x Clark.

This test consisted of 23 strains and 3 check strains grown at 9 locations in 1959.

The first group of these strains consists of three selections from L46-2132 x Adams. One or two of these appear to have some promise due to their high oil along with satisfactory protein and yield.

The second group consists of nine strains (L57-2322 and all S strains) entered as resistant to bacterial pustule. They are similar to the related variety Clark in most traits, ranging from $1\frac{1}{2}$ days earlier to $2\frac{1}{2}$ days later, but varied widely in yield performance. In tests in Mississippi in 1959, S7-4241 and S7-4260 appear to be susceptible and S7-4302 heterogeneous in reaction to pustule. These three strains plus S7-4264 are heterogeneous for flower color while the others appeared uniform for qualitative traits.

The 11 UD strains all have resistance to the root knot nematode inherited from their common parent, F.C. 33243. They are rather late, ranging from $3\frac{1}{2}$ days earlier than C1068 to 4 days later. Several of them performed quite well although none equalled C1068 in yield. UD288 was heterogeneous in flower color and UD523 in pubescence color.

At Eldorado, Illinois, where a duddy condition of the plants associated with a rotted appearance of the seeds was prevalent over most of the test, three strains, UD290, UD356, and UD672, escaped these symptoms to some extent. This was also reflected in much higher yields for these three strains.

Table 65. Summary of data for Uniform Preliminary Test, Group IV, 1959.

Strain	Yield	Rank	Maturity ¹	Lodging	Height	Seed Quality	Seed Weight	Seed Composition	
								Protein	Oil
No. of Tests	8	8	7	7	7	8	7	5	5
Clark	34.2	14	-3.1	1.7	39	2.5	15.8	39.4	22.8
Wabash	32.0	22	0	2.2	41	1.9	14.7	39.6	22.8
C1068	43.8	1	+5.3	1.3	40	2.2	17.2	39.5	22.3
L57-0011	34.1	15	-3.7	1.8	37	2.3	15.5	38.6	23.5
L57-0025	34.1	15	+0.3	1.6	41	2.5	15.2	39.5	23.5
L57-0034	36.8	3	+2.7	1.7	37	2.2	15.6	39.4	23.3
L57-2322	33.5	18	-4.6	1.5	41	3.1	16.4	40.2	23.3
S7-4196	34.8	13	-1.7	1.6	39	2.6	14.3	40.2	22.5
S7-4241	32.3	21	-0.7	1.8	40	2.5	14.4	40.4	22.4
S7-4260	36.0	8	-1.7	2.1	39	2.4	14.7	40.0	22.4
S7-4264	35.9	9	-2.0	1.9	38	2.5	14.2	39.5	23.0
S7-4270	33.8	17	-2.6	1.7	38	2.8	14.2	40.0	22.5
S7-4302	36.3	7	-2.0	1.7	38	2.4	14.7	40.4	22.6
S7-4319	35.3	11	-2.0	1.7	40	2.7	15.2	40.1	22.5
S7-4362	35.3	11	-0.7	2.1	40	2.6	13.7	39.4	23.0
UD2	30.7	26	+1.7	3.0	39	2.1	17.1	40.6	22.9
UD36	36.4	6	+5.7	2.4	42	2.0	16.6	41.3	22.1
UD53	31.6	25	+5.4	2.8	42	2.1	16.4	41.5	21.9
UD277-7	35.9	9	+7.7	2.3	41	2.4	14.7	41.2	21.4
UD288	36.7	4	+9.0	1.9	42	2.6	15.9	41.5	21.4
UD290	32.5	20	+4.1	2.2	41	2.2	15.4	39.5	22.9
UD356	33.4	19	+8.4	1.5	39	2.0	14.5	41.3	22.1
UD523	37.8	2	+6.6	1.3	42	2.5	15.2	39.8	21.7
UD545-1-1	31.8	24	+1.6	2.5	38	2.3	16.1	39.9	22.7
UD579	32.0	22	+2.1	2.0	38	2.6	16.7	40.7	22.5
UD672	36.6	5	+9.4	1.6	41	2.1	15.5	40.0	22.6
Mean	34.8		+1.7	1.9	40	2.4	15.4	40.1	22.6

¹Days earlier (-) or later (+) than Wabash which matured September 23, 126 days after planting.

Table 66. Disease data for Uniform Preliminary Test, Group IV, 1959.

Strain	Bacterial Blight	Bacterial Pustule	Brown Spot	Brown Stem Rot	Frog- eye	Stem Canker	Phytoph- thora Rot	Cyst Nematode
Clark	S	S,4Aa	S	S	R	S	S	S
Wabash	S	S,4Aa	S	S	R	S	S	S
C1068	S	S,4Aa	S	S	R	S	S	S
L57-0011		4Dn	3Cn	4Ln, 5An	RCa			
L57-0025		4Dn	3Cn	4Ln, 5An	RCa			
L57-0034		4Dn	4Cn	4Ln, 5An	RCa			
L57-2322		1Dn	4Cn	4Ln, 5An	RCa			
S7-4196		1Dn	3Cn	4Ln, 5An	RCa			
S7-4241		3Dn	4Cn	4Ln, 5An	RCa			
S7-4260		4Dn	4Cn	4Ln, 5An	RCa			
S7-4264		1Dn	4Cn	4Ln, 4An	RCa			
S7-4270		1Dn	3Cn	4Ln, 5An	RCa			
S7-4302		3Dn	3Cn	4Ln, 5An	RCa			
S7-4319		1Dn	4Cn	4Ln, 5An	RCa			
S7-4362		1Dn	4Cn	4Ln, 5An	RCa			
UD2		5Dn	4Cn	4Ln, 5An	RCa			
UD36		4Dn	4Cn	4Ln, 5An	RCa			
UD53		3Dn	4Cn	4Ln, 4An	RCa			
UD277-7		3Dn	3Cn	4Ln, 5An	RCa			
UD288		4Dn	3Cn	4Ln, 5An	RCa			
UD290		4Dn	4Cn	4Ln, 5An	RCa			
UD356		3Dn	4Cn	4Ln, 3An	RCa			
UD523		3Dn	5Cn	4Ln, 5An	SegCa			
UD545-1-1		4Dn	5Cn	4Ln, 5An	RCa			
UD579		4Dn	5Cn	4Ln, 5An	SegCa			
UD672		4Dn	3Cn	4Ln, 5An	RCa			

Lincoln, included as a susceptible check variety, rated 3Dn for Bacterial Pustule and 4Ln for Brown Stem Rot.

Table 67. Yield for Uniform Preliminary Test, Group IV, 1959.

Strain	Mean of 8 Tests ¹	New- ark Del.	George- town Del.	Worth- ington Ind.	Evans- ville Ind.	Eldor- ado Ill.	Carbon- dale Ill.	Colum- bia Mo.	Man- hattan Kans.	Colum- bus Kans.
Clark	34.2	40.1	23.8	38.7	45.7	30.4	27.1	32.9	27.2	38.2
Wabash	32.0	36.8	27.7	36.1	43.9	31.5	20.8	29.2	25.4	36.0
C1068	43.8	49.5	47.5	46.4	70.0	40.7	33.2	34.9	29.6	39.6
L57-0011	34.1	37.4	30.8	32.4	48.0	27.9	25.6	31.2	27.8	39.8
L57-0025	34.1	36.6	31.3	42.7	44.7	25.0	25.8	32.3	23.9	35.7
L57-0034	36.8	38.9	36.5	34.5	50.3	30.5	27.1	35.0	28.6	43.8
L57-2322	33.5	44.5	28.0	36.9	42.3	20.7	22.9	30.1	24.7	38.7
S7-4196	34.8	34.9	37.3	34.5	51.8	32.1	26.0	31.7	24.0	38.2
S7-4241	32.3	35.9	26.7	36.9	32.7	33.0	26.7	33.7	26.8	38.9
S7-4260	36.0	43.2	32.4	37.1	46.4	27.3	27.3	30.6	28.8	42.1
S7-4264	35.9	38.6	34.0	34.3	55.2	33.6	25.4	31.3	31.2	36.8
S7-4270	33.8	39.5	28.7	35.5	48.2	30.0	26.8	28.3	27.8	35.5
S7-4302	36.3	40.6	37.5	32.8	51.0	33.2	29.8	32.7	26.4	39.8
S7-4319	35.3	34.5	29.4	34.3	51.5	27.7	28.3	34.4	29.2	40.9
S7-4362	35.3	37.4	28.4	36.5	51.8	35.2	26.1	30.1	31.6	40.7
UD2	30.7	27.1	37.6	34.2	33.5	29.7	22.5	28.6	21.7	40.5
UD36	36.4	38.0	43.5	36.6	50.1	42.3	29.4	32.0	22.4	39.4
UD53	31.6	32.5	26.3	31.1	47.2	34.6	26.4	27.2	22.8	39.4
UD277-7	35.9	37.1	37.0	38.9	46.2	39.3	30.6	31.8	28.1	37.2
UD288	36.7	37.6	46.4	35.0	47.7	42.3	28.7	33.5	26.5	38.1
UD290	32.5	39.6	25.1	37.0	41.2	45.5	24.6	30.8	25.4	36.2
UD356	33.4	41.2	21.3	38.0	44.1	49.0	27.2	32.1	29.0	34.4
UD523	37.8	47.8	31.0	43.3	52.8	38.3	25.9	36.8	30.7	33.9
UD545-1-1	31.8	36.6	28.0	31.8	39.6	38.1	25.0	33.3	25.0	35.0
UD579	32.0	31.9	28.7	38.6	44.0	35.0	21.8	29.4	27.2	34.2
UD672	36.6	40.8	35.0	41.3	51.3	51.2	31.3	33.4	26.5	33.2
Mean	34.8	38.4	32.3	36.7	47.4	34.8	26.6	31.8	26.9	37.9
C.V. (%)		--	--	8.1	12.6	8.9	--	11.4	--	--
Bu.N.F.S. (5%)		N.S.	N.S.	6.1	12.2	6.4	--	N.S.	--	--
Row S _D . (In.)		36	36	38	38	40	40	39	--	40

¹Eldorado, Illinois, not included in the mean.

Table 68. Yield rank for Uniform Preliminary Test, Group IV, 1959.

Strain	Mean Rank	New- ark Del.	George- town Del.	Worth- ington Ind.	Evans- ville Ind.	Eldor- ado Ill.	Carbon- dale Ill.	Colum- bia Mo.	Man- hattan Kans.	Colum- bus Kans.
Clark	14	8	25	6	17	19	10	9	12	13
Wabash	22	18	21	15	21	17	26	23	18	19
Cl068	1	1	1	1	1	6	1	3	4	8
L57-0011	15	15	14	24	12	22	19	17	10	6
L57-0025	15	19	12	3	18	25	18	11	23	20
L57-0034	3	11	8	18	9	18	10	2	8	1
L57-2322	18	3	19	11	22	26	23	20	21	12
S7-4196	13	22	6	18	4	16	16	15	22	13
S7-4241	21	21	22	11	26	15	13	5	14	11
S7-4260	8	4	11	9	15	24	8	19	7	2
S7-4264	9	12	10	20	2	13	20	16	2	17
S7-4270	17	10	16	16	11	20	12	25	10	21
S7-4302	7	7	5	23	8	14	4	10	17	6
S7-4319	11	23	15	20	6	23	7	4	5	3
S7-4362	11	15	18	14	4	10	15	20	1	4
UD2	26	26	4	22	25	21	24	24	26	5
UD36	6	13	3	13	10	4	5	13	25	9
UD53	25	24	23	26	14	12	14	26	24	9
UD277-7	9	17	7	5	16	7	3	14	9	16
UD288	4	14	2	17	13	4	6	6	15	15
UD290	20	9	24	10	23	3	22	18	18	18
UD356	19	5	26	8	19	2	9	12	6	23
UD523	2	2	13	2	3	8	17	1	3	25
UD545-1-1	24	19	19	25	24	9	21	8	20	22
UD579	22	25	16	7	20	11	25	22	12	24
UD672	5	6	9	4	7	1	2	7	15	26

Table 69. Maturity, days earlier (-) or later (+) than Wabash, for Uniform Preliminary Test, Group IV, 1959.

Strain	Mean of 7 Tests ¹	New- ark Del.	George- town Del.	Worth- ington Ind.	Evans- ville Ind.	Eldor- ado Ill.	Car- bon- dale Ill.	Colum- bia Mo.	Man- hat- tan Kans.	Colum- bus Kans.
Clark	-3.1	-5	- 9	-5	- 4	-2	- 3	- 4	0	-1
Wabash	0	0	0	0	0	0	0	0	0	0
C1068	+5.3	+3	0	0	+ 8	+7	+10	+ 8	+ 6	+2
L57-0011	-3.7	-5	-12	-4	- 6	-8	- 7	- 4	+ 1	-1
L57-0025	+0.3	+1	- 6	+2	- 3	-2	+ 1	+ 1	+ 1	-1
L57-0034	+2.7	+1	- 6	+5	+ 7	-1	+ 6	0	+ 1	-1
L57-2322	-4.6	-5	-11	-6	- 5	-7	-10	- 8	+ 3	-1
S7-4196	-1.7	-5	-12	-3	- 3	-3	+ 1	- 2	+ 1	-1
S7-4241	-0.7	-1	- 7	0	- 3	0	0	- 2	+ 1	0
S7-4260	-1.7	-1	- 6	-5	- 3	0	- 2	- 2	+ 1	0
S7-4264	-2.0	-3	- 9	-2	- 3	-3	- 2	- 3	0	-1
S7-4270	-2.6	-4	- 9	-3	- 4	-1	- 1	- 4	- 1	-1
S7-4302	-2.0	-3	- 7	-4	- 3	-1	0	- 2	- 1	-1
S7-4319	-2.0	-4	- 8	-3	- 2	-1	- 2	- 3	+ 1	-1
S7-4362	-0.7	-1	- 6	-5	- 1	-1	+ 1	- 1	+ 2	0
UD2	+1.7	+3	- 4	+3	+ 1	0	- 1	+ 1	+ 5	0
UD36	+5.7	+3	0	+5	+ 7	+3	+15	+ 5	+ 3	+2
UD53	+5.4	+1	- 1	+3	+ 8	+2	+ 7	+ 7	+10	+2
UD277-7	+7.7	+4	+ 3	+1	+14	+8	+14	+10	+ 9	+2
UD288	+9.0	+5	+ 1	+6	+13	+8	+18	+ 7	+10	+4
UD290	+4.1	+3	0	+3	+ 4	+1	+ 6	+ 4	+ 9	0
UD356	+8.4	+4	0	+5	+ 9	+7	+14	+ 8	+15	+4
UD523	+6.6	+3	- 1	+6	+ 9	+3	+13	+ 6	+ 8	+1
UD545-1-1	+1.6	+4	- 1	+2	+ 1	+1	0	+ 1	+ 3	0
UD579	+2.1	+2	- 2	+6	+ 3	+1	+ 1	+ 2	+ 2	-1
UD672	+9.4	+5	- 2	+5	+12	+8	+18	+ 9	+14	+3
Date planted	5-20	5-28	5-29	5-7	5-4	5-2	5-5	5-25	6-5	6-6
Wabash matured	9-23	10-2	10-5	9-27	9-18	9-20	9-11	9-19	10-2	9-21
Days to mature	126	127	129	143	137	141	129	117	119	107

¹Georgetown, Delaware, and Eldorado, Illinois, not included in the mean.

Table 70. Percentage of protein for Uniform Preliminary Test, Group IV, 1959.

Strain	Mean of 5 Tests	New- ark Del.	Evans- ville Ind.	Carbon- dale Ill.	Colum- bia Mo.	Colum- bus Kans.
Clark	39.4	39.5	40.6	40.0	37.8	39.0
Wabash	39.6	39.8	40.6	39.1	40.4	38.2
C1068	39.5	38.1	39.5	40.0	39.7	40.0
L57-0011	38.6	38.6	39.9	37.7	38.1	38.8
L57-0025	39.5	39.7	40.4	39.0	39.4	39.0
L57-0034	39.4	39.1	40.0	39.6	39.0	39.5
L57-2322	40.2	39.3	42.5	40.1	40.1	39.1
S7-4196	40.2	40.7	42.0	38.8	40.1	39.2
S7-4241	40.4	40.3	41.9	40.0	39.9	39.7
S7-4260	40.0	39.5	41.3	39.9	40.2	39.0
S7-4264	39.5	39.4	40.8	39.1	39.0	39.0
S7-4270	40.0	39.5	42.0	40.2	39.1	39.1
S7-4302	40.4	39.5	41.9	40.1	40.5	40.2
S7-4319	40.1	39.7	42.1	39.9	38.9	40.0
S7-4362	39.4	38.4	40.1	40.0	38.4	40.0
UD2	40.6	40.5	41.0	40.4	40.2	41.0
UD36	41.3	40.5	41.4	42.9	40.8	41.0
UD53	41.5	40.9	42.1	42.3	41.5	40.5
UD277-7	41.2	40.8	41.6	43.1	40.3	40.4
UD288	41.5	40.8	42.4	42.7	40.5	41.3
UD290	39.5	38.2	39.2	40.4	40.1	39.4
UD356	41.3	39.5	41.5	42.4	42.1	41.1
UD523	39.8	38.7	40.0	40.7	40.8	39.0
UD545-1-1	39.9	39.4	39.4	40.0	40.5	40.0
UD579	40.7	39.1	41.7	39.9	42.1	40.7
UD672	40.0	39.5	40.2	40.9	39.7	39.6
Mean	40.1	39.6	41.0	40.4	40.0	39.8

Table 71. Percentage of oil for Uniform Preliminary Test, Group IV, 1959.

Strain	Mean of 5 Tests	New- ark Del.	Evans- ville Ind.	Carbon- dale Ill.	Colum- bia Mo.	Colum- bus Kans.
Clark	22.8	22.4	22.5	22.7	23.3	23.3
Wabash	22.8	22.4	22.5	23.0	22.1	24.1
C1068	22.3	22.3	22.6	21.0	22.6	23.0
L57-0011	23.5	22.6	22.5	24.4	24.0	24.0
L57-0025	23.5	22.4	23.1	24.3	23.8	24.1
L57-0034	23.3	22.4	22.6	23.9	23.7	24.0
L57-2322	23.3	22.9	22.8	24.0	23.9	23.1
S7-4196	22.5	21.7	21.3	23.1	23.3	23.3
S7-4241	22.4	21.6	21.8	22.5	23.0	23.3
S7-4260	22.4	22.3	21.6	22.7	22.5	22.8
S7-4264	23.0	22.3	22.3	23.5	23.7	23.1
S7-4270	22.5	22.3	21.3	22.5	23.3	23.3
S7-4302	22.6	22.5	21.8	22.3	22.8	23.5
S7-4319	22.5	22.0	20.2	23.0	23.3	24.2
S7-4362	23.0	21.7	22.3	23.2	23.5	24.3
UD2	22.9	21.8	22.4	23.2	23.4	23.7
UD36	22.1	21.3	22.0	22.3	21.8	23.3
UD53	21.9	21.7	21.8	21.3	21.7	23.2
UD277-7	21.4	20.5	20.5	20.6	21.9	23.3
UD288	21.4	20.8	20.9	21.2	21.5	22.8
UD290	22.9	23.3	22.5	22.1	22.1	24.5
UD356	22.1	22.2	21.9	21.7	21.0	23.5
UD523	21.7	21.6	21.2	21.8	21.7	22.3
UD545-1-1	22.7	22.3	22.6	23.1	22.1	23.4
UD579	22.5	22.1	22.6	22.6	21.2	23.8
UD672	22.6	22.5	22.8	22.2	21.9	23.8
Mean	22.6	22.1	22.0	22.6	22.7	23.5

SOYBEAN DISEASE INVESTIGATIONS IN 1959

Compiled from Data Supplied by:

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The 1959 growing season in the Central Midwest was notable for an unusually low incidence of soybean diseases. In Illinois, Indiana, and Iowa, soybean diseases were reduced to the lowest level of prevalence and severity in recent years. In Ohio, the only diseases that showed an increase over the 1958 level were bacterial blight and downy mildew. Notable, too, was the fact that bacterial pustule was not among the four most prevalent diseases in the Midwest in 1959. Droughty conditions, especially severe in Illinois and Indiana, contributed to the drop in prevalence of leaf spot diseases.

The prevalence of red spider mites was an unusual situation for Illinois that became apparent during the course of the disease survey in August. Thirty-five percent of the fields showed varying degrees of infestation, and four fields were severely affected. Cucumber beetles were especially prevalent during the 1959 season on soybeans.

To illustrate the difference in the relative prevalence of the various diseases over the past three years, the following table lists the percentages of infected fields in the states from which the information was available for 1957, 1958, and 1959.

Disease	% of Infected Fields in:											
	Illinois			Indiana			Iowa			Ohio		
	1957	1958	1959	1957	1958	1959	1957	1958	1959	1957	1958	1959
Bacterial Blight	44	81	26	7	57	34	72	64	25	59	76	84
Bacterial Pustule	96	83	16	49	52	8	37	8	6	--	--	--
Brown Spot	75	93	40	54	97	50	29	12	16	67	94	79
Downy Mildew	33	57	42	51	41	11	17	48	40	42	27	62
Brown Stem Rot	30	13	21	3	10	2	15	20	0	20	19	9
Phytophthora Rot	13	9	12	10	16	23	--	--	--	41	47	29
Stem Canker	26	7	0	17	16	3	33	51	18	37	33	--
Bud Blight	10	6	0	28	2	6	7	2	6	--	4	--

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.

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

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, 1959.

Strain	Bacterial Blight	Bacterial Pustule	Brown Spot
Earlyana*			4Ln
Flambeau**	2Aa, 1An		
Lee**		1Aa, 1An, 1Sn, 1Dn, 1La	
Lincoln*	3Aa, 4An	3Aa, 4An, 3Sn, 4Dn, 3La	
Scott		2Aa, 1An, 1Sn, 1La	
CX262-79-3			2Ln
L56-1513	3Aa, 2An		
L57-1885	3Aa, 2An		
S4-1714		2Aa, 1An, 1Sn, 1Dn, 1La	
P. I. 68521	2Aa, 1An		
68554	3Aa, 1An		
68708	1Aa, 1An		
90763		1Aa, 1An, 1Sn, 4Dn, 3La	
96333		2Aa, 1An, 1Sn, 3Dn, 3La	
153213	2Aa, 2An	1Aa, 1An, 2Sn, 3La	
166147	2Aa, 1An		
215693		1Aa, 1An, 1Sn, 1Dn, 1La	

* Susceptible check.

**Resistant check.

General Weather Conditions at Regional Test Stations

Illinois: Rainfall generally below normal, very dry in central Illinois. Temperature above normal during early and latter part of growing season. Drought and high temperature reduced yields in central and western Illinois.

Indiana: Rainfall below normal, drought moderate to severe. Temperature above normal. Drought and high temperature reduced yield in general.

Iowa: Rainfall above normal for May; normal north and below normal south for June; normal for entire state for remainder of growing season. Temperature averaged slightly below normal during growing season.

Mississippi: Rainfall normal and well spaced over entire growing season. Temperature slightly below normal during growing season.

Downy Mildew Reaction -- Regional Test at Ames and Cresco, Iowa (field).

Strain	Reaction		Strain	Reaction	
	Ames	Cresco		Ames	Cresco
Acadian	1	1	Yelnando	1	1
Dorman	1	1	D49-2491	3	2
Kanrich	1	1	F.C. 34195	1	1
Kingwa	3	3	P.I. 157463A	1	1
Jackson	1	1	171443	1	1
Lee	3	2	200527	1	1
Mendota	1	1	201422	1	1

Downy Mildew Reaction of Uniform and Preliminary Test Entries (Reaction of Seedling Plants, Tested in the Greenhouse), 1958.

Variety or line	Disease Rating						
	Race of downy mildew						
	2	3A	8	18	21	24	25
<u>Group 00</u>							
Acme	5	1	1	1	5	1	-
Crest	5	2	1	-	2	1	2
Flambeau	4	3	1	4	1	2	2
UM55-2	1	1	1	1	1	2	1
UM56-1	2	1	1	2	2	2	1
<u>Group 0</u>							
Capital	5	2 ⁿ	5	5	4	5	4
Flambeau	4	3	1	4	1	2	2
Grant	5	5	5	4	5	4	4
Mandarin (Ottawa)	5	1	4	4	1	1	1
Norchief	5	5 ⁿ	5	3	2	4	2
M316	5	2	5	-	5	5	5
O-55-2065	5	2	5	4	2	4	4
<u>Group I</u>							
Blackhawk	5	1	5	1	1	2	1
Chippewa	5	1	3	2	1	2	2
Mandarin (Ottawa)	5	1	4	4	1	1	1
A6K-1428-C4	4	5	5	5	2	5	5
M304	5	5	3	3	2	3	4
M319	5	1	3	3	1	2	4
M328	5	3	4	5	1	5	4
M336	5	1	3	3	1	2	4
W9-1982-32	5	1	3	1	1	2	2

Downy Mildew Reaction of Uniform and Preliminary Test Entries, 1958 (Continued)

Variety or line	Disease Rating						25
	2	3A	Race of downy mildew			24	
			8	18	21		
<u>Group II</u>							
Adams	5	5	4	5	2	5	4
Blackhawk	5	1	5	1	1	2	1
Ford	5	4	4	3	3	2	5
Harosoy	5	2 ⁿ	4	4	1	5	4
Hawkeye	5	1, 5 ^a	4	4	1	1	1
Lindarin	5	1	3	5	5	2	3
A2-4008	5	3 ⁿ	5	3	2, 5 ^a	3	4
A4K-1406	4	3	-	4	1	4	3
AX29-267-1-1-2	4	3	4	4	3	3	3
C1128	4	2 ⁿ	4	3	3	2	3
C1160	3	2 ⁿ	3	4	2	3	4
C1213*	-	-	2	-	-	-	-
H20771-9	5	2 ⁿ	3	5	4	4	3
H21793-7	5	1	3	4	2	2	1
L54-1055	5	2	4	5	1	4	3
L58g-1H*	-	-	4	-	-	-	-
<u>Preliminary II</u>							
Kanrich	1	1	1, 5 ^a	1	1	1	1
Kim	3	5	3	4	2	5	4
A6-7818	5	5	4	5	3	5	4
AX58-C41-1	4	1	3	5	2	2	3
CX252-3-1	5	1	3	1	2	1	1
CX252-26-4	2	2	3	4	2	3	2
CX252-34-3	2, 5 ^a	2	2	1	1	2	3
H20833-7	5	1	2	1	1	1	1
S6-5004	5	-	3 ⁿ	5	-	3 ⁿ	3
U2-28	5	2 ⁿ	3	5	3	3	3
W1-2118	5	1	4	2	2	1	1
W3-1069	5	4	4	5	3	5	5
<u>Group III</u>							
Clark	4	5	4	5	2	4	5
Ford	5	4	4	3	2	2	5
Lincoln	5	5	3	5	3	4	5
Shelby	5	2	2	1	-	3	2

Downy Mildew Reaction of Uniform and Preliminary Test Entries, 1958 (Continued)

Variety or line	Disease Rating						
	Race of downy mildew						
	2	3A	8	18	21	24	25
<u>Group III (Contd)</u>							
A3-6319	4	2	4	1	1	1	1
C1128	5	3	3	1	2	1	2
S2-5179	5	2	5	3	2	5	3
S6-1018	4	5	5	4	2	4	4
<u>Preliminary III</u>							
A6-6522	5	3 ⁿ	4	5	3	5	4
A6-7823	3	5	2	4	2	4	3
CX252-7-4	4	1	2	1	1	1	1
H24157-4	5	2	2	3	4	2	3 ⁿ
H24157-5	5	2	4	3	3	3	2
S4-1207 Dull	5	5	4	3	-	3	5
S4-1207 Shiny	5	4	5	4	3	4	5
U2-42	4	2	4	1	2	2	2
<u>Group IV</u>							
Clark	4	5	4	5	2	2	5
Scott	4	3	5	5	1	3 ⁿ	2
Wabash	5	3	3	2	3	3	3 ⁿ
C1068	1	2	3	1	1	1	1
C1069	4	3	2	2	2	2 ⁿ	2
D53-354	5	2	5	1	2	1	1
S4-2090	4	5	4	4	1	3	4
S7-5343*	-	-	5	-	-	-	-
<u>Preliminary IV</u>							
CX237-205-2	4	3	2	2	3	3	3 ⁿ
CX252-113-4	1	3	1	2	1	3	2 ⁿ
S5-7047	1	5	1	1	1	5	3
S5-7116	4	5	1	1	1	3 ⁿ	1,5 ¹
S5-7144	5	1	4	1	1	1	1
S6-5092	5	5	5	5	3	4	4
S6-5162	5	3 ⁿ	2	5	3	4	2
UD29-13	4	2	2	-	3	3 ⁿ	2
UD74-9	1	1	1	2	1	2	1
UD295-12	2	4	5	5	2	5	5
UD297-6	2	3	5	5	2	4	4
UD321-5	4	2	3	3	2	2	5
UD580-10	2	1	2	1	2	1	1

*1959 Entry. n = necrotic. a = segregating.

¹Segregating; purple flowered is resistant, white is susceptible.

Disease Reaction Data for the Old Variety Germplasm Collection, 1958-1959.

Variety	Bacte- rial Blight	Bacte- rial Pustule	Brown Spot	Brown Stem Rot	Frog- eye	Phytoph- thora Rot	Cyst Nematode
Agate	5La	4Ln	5Cn	5Ln		SCa	4Nn
A.K. (F.C. 30761-1)	4La	4La	2Cn	4Ln	SCa	SCa	
A.K. (Harrow)	4La	4La	2Cn	4Ln, 5An	RCa	RCa	3Nn
A.K. (Kansas)	4La	4La	3Cn	4Ln	SCa	RCa	4Nn
Aksarben	4La	4Ln	3Cn	4Ln	SCa	SCa	
Aoda	4La	2Ln	2Cn	4Ln	RCa	SCa	4Nn
Bansei	4La	4Ln	2Cn	4Ln	RCa	SCa	4Nn
Bavender Special	4La	4Ln	2Cn	4Ln, 5An	SegCa	SCa	4Nn
Black Eyebrow	4La	4Ln	3Cn	5Ln	SCa	SCa	4Nn
Boone	4La	4Ln	3Cn	4Ln	SCa	RCa	4Nn
Burwell	4La	4Ln		4Ln			4Nn
Carlin	4La	4Ln	3Cn	4Ln	SegCa	SCa	4Nn
Cayuga	4La	4Ln	3Cn	4Ln	SCa	R & SCa	4Nn
Chestnut	4La	4Ln	3Cn	4Ln, 5An	SCa	SCa	4Nn
Chief	4La	4La	3Cn	4Ln	ICa	SCa	4Nn
Chusei	5La	4La	3Cn	4Ln, 5An	RCa	R & SCa	4Nn
Cloud	4La	4La	3Cn	4Ln, 5An	SCa	SCa	4Nn
Lincoln (check variety)	4La	4La		5Ln			3Nn
Columbia	3La	3Ln	2Cn	4Ln, 5An	SCa	SCa	4Nn
Comet	4La	4La	3Cn	4Ln	SCa	SCa	4Nn
Cypress #1	4La	4La	3Cn	4Ln	SCa	SCa	4Nn
Dunfield	4La	4Ln	2Cn	4Ln, 5An	SCa	SCa	4Nn
Earlyana	4La	4La	3Cn	5Ln	SCa	SCa	4Nn
Early White Eyebrow	5La	4Ln	2Cn	4Ln	SCa	SCa	4Nn
Easycook	4La	4La	3Cn	4Ln		SCa	5Nn
Ebony	4La	4Ln	4Cn	4Ln	RCa	SCa	4Nn
Elton	4La	5Ln	2Cn	4Ln	SCa	SCa	4Nn
Emperor	4La	4La	3Cn	4Ln	RCa	SCa	4Nn
Etum	4La	5La	3Cn	4Ln	RCa	SCa	4Nn
Fabulin	4La	3La	4Cn	4Ln	RCa	SCa	4Nn
Fuji	4La	4Ln	4Cn	4Ln, 5An	RCa	RCa	4Nn
Funk Delicious	4La	5Ln	4Cn	4Ln	RCa	SCa	4Nn
Funman	4La	4Ln	4Cn	4La	SCa	SCa	4Nn
Giant Green	5La	4La	4Cn	4La	RCa	SCa	4Nn
Gibson	4La	5La	2Cn	4La	SCa	SCa	4Nn
Goku	4La	4Ln	3Cn	4La	RCa	RCa	4Nn
Goldsoy	4La	4Ln	4Cn	4La	RCa	SCa	4Nn
Lincoln (check variety)	4La	4Ln		4Ln			
Granger	3La	4Ln	5Cn	4Ln, 5An	RCa	SCa	4Nn
Green and Black	4La	4Ln	4Cn	4Ln	RCa	RCa	4Nn
Habaro	4La	5Ln	3Cn	4Ln	SCa	RCa	4Nn

Disease Reaction Data for the Old Variety Germplasm Collection (Continued)

Variety	Bacterial Blight	Bacterial Pustule	Brown Spot	Brown Stem Rot	Frog- eye	Phytoph- thora Rot	Cyst Nematode
Hahto	4La	5La	3Cn	4Ln	RCa	RCa	
Hakote	4La	4La	4Cn	4Ln	RCa	R & SCa	4Nn
Harbinsoy	4La	4Ln	5Cn	4Ln	SCa	SCa	4Nn
Hardome	4La	4La	2Cn	4Ln	SCa	SCa	4Nn
Harly	4La	5Ln	3Cn	4Ln	RCa	RCa	4Nn
Harman	4La	5Ln	4Cn	4Ln, 5An	SCa	SCa	4Nn
Hidatsa	4La		5Cn	4Ln		RCa	4Nn
Higan (P.I. 80475)	4La	4Ln	4Cn	4Ln	RCa	RCa	4Nn
Hokkaido	4La	4La	5Cn	4Ln, 5An	RCa	SCa	4Nn
Hongkong	4La	4Ln	4Cn	4Ln	SCa	SCa	4Nn
Hoosier	4La	5Ln	3Cn	4Ln	RCa	SCa	4Nn
Hurrelbrink	4La	4La	4Cn	4Ln	RCa	RCa	4Nn
Illington	4La	4La	4Cn	4Ln, 5An	RCa	RCa	4Nn
Illini	5La	4Ln	3Cn	4Ln, 5An	RCa	RCa	4Nn
Ilsoy	4La	4Ln	3Cn	4Ln, 5An	SCa	SCa	1Nn
Imperial	5La	4Ln	5Cn	4Ln	RCa	SCa	3Nn
Lincoln (check variety)	4La	4Ln		5Ln		SCa	
Jackson (P.I. 82581)	4La	4La	3Cn	4Ln	RCa	SCa	4Nn
Jefferson	4La	4Ln	4Cn	4Ln	SegCa	SCa	4Nn
Jogun	5La	4Ln	4Cn	4Ln, 5An	RCa	SCa	4Nn
Kabott	4La	4Ln	4Cn	4Ln	SCa	SCa	4Nn
Kagon	4La	4Ln	3Cn	4Ln	SCa	SCa	4Nn
Kanro	4La	5Ln	3Cn	4Ln	RCa	SCa	4Nn
Kanum	5La	5Ln	3Cn	4Ln	RCa	SCa	4Nn
Kingston	4La	4Ln	3Cn	4Ln	RCa	SCa	3Nn
Kingwa	4La	4Ln	3Cn	4Ln	RCa	RCa	4Nn
Korean	3La	3La	3Cn	4Ln	SCa		4Nn
Kura	4La	4La	4Cn	4Ln, 5An	RCa	R & SCa	4Nn
Linman 533	3La	4La	5Cn	4Ln	SCa	SCa	2Nn
Little Wonder	4La	2La	3Cn	4Ln, 5An	SCa	SCa	2Nn
Macoupin	4La	2La	3Cn	4Ln	SCa	SCa	4Nn
Manchu (L55-143)	4La	4La	4Cn	4Ln	SCa	SCa	3Nn
Manchu (L54-161)	4La	4La	5Cn	4Ln	SCa	SCa	4Nn
Manchu (42 Lafayette)	4La	4La	4Cn	4Ln	SCa	SCa	3Nn
Manchu (Madison)	3La	4La	4Cn	4Ln	SCa	SCa	4Nn
Manchu (Early Minn.)	4La	4La	5Cn	4Ln, 5An	SCa	SCa	
Lincoln (check variety)	4La	4La		4Ln			
Manchu (Hudson)	4La	2La	3Cn	4Ln	SCa	SCa	4Nn
Manchu (Montreal)	3La	3La	5Cn	4Ln	SCa	SCa	4Nn
Manchu 3 (Wisconsin)	4La	4La	4Cn	4Ln	SCa	SCa	4Nn

Disease Reaction Data for the Old Variety Germplasm Collection (Continued)

Variety	Bacte- rial Blight	Bacte- rial Pustule	Brown Spot	Brown Stem Rot	Frog- eye	Phytoph- thora Rot	Cyst Nematode
Manchu 606 (Wisconsin)	3La	4La	5Cn	4Ln	SCa	SCa	
Manchu 2204	4La	4La	5Cn	4Ln, 5An	SCa	SCa	4Nn
Manchukota	4La	4La	5Cn	4Ln	SCa	SCa	3Nn
Manchuria	3La	4La	3Cn	4Ln	SCa	SCa	
Manchuria 13-177	3La	3La	3Cn	4Ln, 5An	SCa	R & SCa	4Nn
Manchuria 20173	4La	3La	4Cn	4Ln, 5An	SCa	R & SCa	3Nn
Mandarin	4La	3La	3Cn	4Ln	SCa	SCa	
Mandarin 507	4La	3La	3Cn	4Ln	SCa	R & SCa	4Nn
Mandell	4La	3La	5Cn	4Ln, 5An	ICa	SCa	3Nn
Manitoba Brown	4La			4Ln			4Nn
Medium Green (T44)	4La	2La	2Cn	4Ln, 5An	SCa	SCa	4Nn
Medium Green (34 Lafayette)	4La	4La	4Cn	4Ln	SCa	RCa	4Nn
Mendota	4La	4La	3Cn	4Ln	RCa	R & SCa	4Nn
Midwest	4La	4La	5Cn	4Ln	RCa	SCa	4Nn
Mingo	4La	3La	5Cn	4Ln, 5An	SCa	SCa	4Nn
Minsoy	5La		3Cn	4Ln		SCa	4Nn
Lincoln (check variety)	4La	4La		4Ln		SCa	
Monroe	4La	3La	3Cn	4Ln	SCa	RCa	3Nn
Morse	4La		3Cn		SCa	SCa	3Nn
Mukden	3La	2La	3Cn	4Ln	SCa	RCa	4Nn
Norredo	4La		4Cn		SCa	SCa	4Nn
Norredo B (F.C. 31930)	4La		3Cn		SCa	RCa	
Norsoy	4La		3Cn		SCa	SCa	
O. A. C. No. 211	4La	3La	3Cn	4Ln	SCa	SCa	4Nn
O. A. C. No. 211 (T51)	3La	3La	3Cn	4Ln	SCa	RCa	4Nn
Ogemaw H	4La		5Cn	4Ln		SCa	4Nn
Ontario	4La	3La	4Cn	4Ln	SCa	SCa	4Nn
Osaya	4La	3La	4Cn	4Ln, 5An	RCa		4Nn
Pagoda	5La		5Cn	2Ln		R & SCa	4Nn
Pando	5La		5Cn	3Ln		RCa	4Nn
Patoka	4La	4La	3Cn	4Ln	SCa	SCa	4Nn
Peking	4La	4La	2Cn	4Ln	SegCa	SCa	1Nn, 1Sn
Pennsoy	4La		4Cn	5An	RCa	SCa	4Nn
Perry	4La		4Cn		ICa	SCa	3Nn
Pocahontas	5La	4La	3Cn	4Ln	SCa	SCa	4Nn
Poland Yellow	4La		3Cn	4Ln	SCa		3Nn
Lincoln (check variety)	4La	4La					
Polysoy	4La	5La	3Cn	4Ln	SCa		4Nn
Portugal	5La			4Ln			4Nn
Pridesoy	3La	4La	3Cn	5Ln	SCa		4Nn

Disease Reaction Data for the Old Variety Germplasm Collection (Continued)

Variety	Bacte- rial Blight	bacte- rial Postule	Brown Spot	Brown Stem Rot	Frog- eye	Phytoph- thora Rot	Cyst Nematode
Pridesoy 57	4La	4La	3Cn	4Ln	SCa		3Nn
Renville	4La	4La	3Cn	5Ln	SCa		4Nn
Richland	4La	4La	3Cn	5Ln	RCa		4Nn
Roe	4La	3La	4Cn	4Ln	SCa		
Sac	4La	2La	4Cn	4Ln	RCa		4Nn
Sangra	4La	4La	3Cn	4Ln	SCa		
Sato-3	4La	2La		4Ln			4Nn
Scioto	3La	3La	4Cn	4Ln	SCa		4Nn
Seneca	4La	2La	2Cn	4Ln	SCa		3Nn
Shingto	4La	4La		4Ln			4Nn
Shiro	5La	2La	3Cn	4Ln	RCa		3Nn
Sioux	5La			4Ln			
Sooty	4La	3La	4Cn	4Ln	SCa		2Nn
Sousei	4La	2La	5Cn	4Ln	SegCa		4Nn
Soysoya	4La	3La	4Cn	4Ln	SCa		4Nn
Tastee	4La	4La	4Cn	4Ln	RCa		4Nn
Lincoln (check variety)	4La	4La		4Ln			
Toku	5La	4La	3Cn	4Ln	RCa		4Nn
Tortoise Egg	5La	2La	4Cn	4Ln	RCa		4Nn
Viking	4La	5La	4Cn	4Ln, 5An	SCa	SCa	4Nn
Virginia	4La	2La	4Cn	4Ln	RCa	RCa	4Nn
Waseda	4La	2La		4Ln			4Nn
Wea	4La	3La	3Cn	4Ln	SCa	SCa	4Nn
Willomi	4La	2La	3Cn	4Ln, 5An	ICa	R & SCa	4Nn
Wilson	4La	4La	3Cn	4Ln	RCa	SCa	3Nn
Wilson-5 (L43-132)	3La	4La	3Cn	4Ln	SCa	SCa	4Nn
Wilson-5 (T68)	4La	2La	3Cn	4Ln	SCa	SCa	4Nn
Wing Jet	4La	4La	3Cn	4Ln	RCa	SCa	4Nn
Wisconsin Black	4La	4La	3Cn	4Ln	SCa	SCa	4Nn
Wolverine	4La	4La	4Cn	4Ln, 5An	RCa	SCa	3Nn

Report on Preliminary Group III and IV strains, showing the percent of seeds infected with Cercospora kikuchii and Diaporthe phaseolorum var. sojae, Newark, Delaware.

Strain	% Cercospora kikuchii	% Diaporthe phaseolorum var. sojae	Strain	% Cercospora kikuchii	% Diaporthe phaseolorum var. sojae
<u>Preliminary III</u>					
Clark	5	15	L57-2386	5	30
Ford	10	10	L57-2505	6	3
Shelby	4	25	L57-2883	5	5
CX310	3	20	S7-3575	3	6
L57-0005	4	6	U2-38	8	10
L57-2228	8	10			

<u>Preliminary IV</u>					
Wabash	1	0	S7-4319	5	5
C1068	4	0	S7-4362	3	10
L57-0011	8	5	UD2	2	0
L57-0025	2	0	UD36	5	0
L57-0034	2	0	UD53	2	0
L57-2322	8	20	UD277-7	12	1
S7-4196	4	8	UD288	10	1
S7-4241	3	2	UD290	4	0
S7-4260	2	3	UD356	5	0
S7-4264	2	3	UD545-1-1	3	0
S7-4270	3	6	UD579	3	0
S7-4302	4	15	UD672	2	0

Disease Reaction Data for Miscellaneous Strains.

Strain	Bacterial Blight	Bacterial Pustule	Brown Spot	Brown Stem Rot	Frog- eye	Phytoph- thora Rot
Dorman	4La	3La	3Cn	4Ln	RCa	RCa
Early Woods Yellow	4La	4Ln	3Cn	4Ln	RCa	RCa
F.C. 33124	4La	4Ln	4Cn	4Ln	RCa	SCa
21340			3Cn		RCa	
30685			5Cn		RCa	

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

Variety	Matu- rity Group	Bacte- rial Blight	Bac- te- rial Pus- tule	Brown Spot	Frog- eye	Stem Can- ker	Brown Stem Rot	Phytoph- thora Rot	Sphace- loma Dis- ease	Tar- get Spot	Pur- ple Seed Stain	Soy- bean Cyst Nema- tode ¹
Capital	0	3	5	4	S	5	4	5Hn	R			4
Flambeau	0	2	3	2-3	S	5	4	5Hn				4
Blackhawk	I	5	5	3-4	S	44Cn	5	RHn	R			4
Monroe	I	5	5	4	S	10Cn	4	RHn				3
Adams	II	5	5	3	R	3	5	SHn				3
Harly	II	4	5				4	RHn,RCa				
Harosoy	II	5	5	5	R	R	5	SHn				4
Hawkeye	II	5	5	4	S	100Cn	5	SHn	R			4
Jogun	II	5	4			2	4	SCa	R			4
Kanro	II	4	5				4	SCa	R			4
Mukden	II	3	5	3	S	5	4	RHn				4
H3665	II	2	4	4Cn	S	5	5	3Hn,SCa				4
L8-7289	II	2	4	3	S	37Cn	5	3Hn,SCa				4
Illini	III	5	4	4	R	40Cn	5	RHn				4
Ilsoy	III	4	4				4	SCa				1.3
Lincoln	III	5	5	4	R	20Cn	5	SHn				3
L9-4091	III	3	2	4	R	17Cn	5	3Hn				4
L9-4197	III	3	2	5	S	5	4	1Hn,R-SCa				3
Clark	IV	5	5	3	R	67Cn	5	SHn				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	5Cn	S	0	4	3Hn,SCa				3
Peking	IV	4	4				4	SCa				1
A.K. (Kansas)	V	4	4	3	S	1	4	RHn,RCa				4
Dorman	V	4	3.5	3	R	4	4	2Hn,RCa		3		4
Arksoy	VI	5	4	3	R	3	4	RHn				3
Lee	VI	4	1	3	R	3	4			R	R	5Sn
Ogden	VI	4	3	4	I or R	3	5	3Hn	R	2		5Sn
CNS	VII	5	1	3	R		4	RHn			R	4
Jackson	VII	4	3		R	1	4	2Hn		R		5
Roanoke	VII	4	3	3	R	2	4	3Hn		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.

Identity	Maturity Group	Bacterial Blight	Bacterial Pustule	Stem Can-ker	Brown Spot	Frog-eye	Brown Stem Rot	Phytophthora Rot	Root-knot Nematode	Soybean Cyst Nematode ¹
P.I. 153239	0	3	4	5	2	R	5	2Hn, R-SCa		3
153252	0	4	5	5	3	R	3	3Hn, R-SCa		3
153252-1	0	5	4		3	R	3	1Hn, R-SCa		3
153262-1	0	5	4	5	3	R	3	2Hn, R-SCa		3
153300	0	5	4	5	2		5	2Hn, SCa		3
161988	0	5	5	5	3	R	3	2Hn, SCa		4
177100	0	5	4	5	2	R	4	2Hn, SCa		3
179822	0	4	4	5	1	S	3	4Hn, SCa		3
180524	0	5	4	4	3	R	2	3Hn, SCa		4
180525	0	5	4	4	2	R	3	2Hn, SCa		4
189859	0	4	5	1	2	S	5	4Hn, SCa		4
189923	0	5	4	3	3	R	5	2Hn, SCa		4
68521	I	3	4	4	5	I	4	2Hn, SCa		2
68554-1	I	4	5	4	3	S	5	5Hn		4
92625	I	5	5	5	3	S	4	3Hn, SCa		4
153213	I	1-2	2	3	4	S	4	3Hn, SCa		3
180498	I	4	4	5	2	S	4	4Hn		3
65338	II	5	4	5	2	S	5	2Hn, SCa		3
68708	II	3	4	5	2	S	4	2Hn, SCa		2
79609	II	4	3	5	1	S	5	2Hn, SCa		4
79726	II	4	5	5	1-2	R	5	3Hn, SCa		4
84673	II	3	4	1	1-2	R	5	2Hn, SCa		2
86031	II	5	4	3	1-2	S	5	1Hn, SCa		4
86069	II	3	3	3	1-2	R	4	3Hn, SCa		3
87628	II	5	4	3	2	S	5	2Hn, SCa		4
90567	II	4	3	5	3	S	5	2Hn		2
91114	II	5	4	5	1-2	R	4	1Hn, SCa		4
91341	II	3	4	5	2	R	3	4Hn, SCa		4
92733	II	4	4	4	2	R	5	2Hn		3
200595	II	5	4	4	2	S	4	2Hn, SCa		4
F.C. 33243 (Anderson)	III	4	4	5	3	SegCa	4	3Hn, SCa	R	4
P.I. 54583	III	4	4	3	1-2	S	5	3Hn, RCa		4
84578	III	4	4	4	1-2	S	5	3Hn, R-SCa		4
84946-2 ²	III	4	4	4	3	S	R*	5Hn, SCa		3
901803	III	5	5	3	2	R	5	2Hn, R-SCa		3

Reference List of Plant Introductions...(Continued)

Identity	Maturity Group	Bacterial Blight	Bacterial Pustule	Stem Canker	Brown Spot	Frog-eye	Brown Stem Rot	Phytophthora Rot	Root-knot Nematode	Soybean Cyst Nematode ¹
P.I. 96188	III	4	4	3	1-2	R	5	3Hn,SCa		4
90763	III	4	2		5	R	5	SCa		1
96322	III	4	3	3	2	S	5	3Hn,SCa		4
157416	III	5	3	4	1	S	4	2Hn,SCa		3
84751	IV	4	3	4	4	S	4	SCa		1
91153-1	IV	4	4	2	2	S	4	3Hn,SCa		2
91346	IV	4	4	3	2	R	5	2Hn,RCa		4
96333	IV	5	4	2	1	S	3	4Hn		4
157418	IV	5	4	2	2	S	4	3Hn,SCa		4
157448	IV	5	4	1	1	S	3	2Hn,RCa		4
171431	IV	5	3	1	2	S	5	2Hn,SCa		4
209332	IV	3	4				4			2
82200-1	V	3			1-2	S	3	SCa		2Sn
166147	VI	2	4	2			4			5
215693	VI	4	1	1	4		4	1		5

¹Unless otherwise noted, cyst nematode reactions originated from North Carolina.

²Selection 84946-2-L1 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. number is unknown.

*Selections from this P.I. show 75-90% disease-free plants while Lincoln control rows show 100% infection.

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

Strain	Maturity Group	Field Reaction ¹		Greenhouse Reaction ²
		Bethel	Phillips	
F.C. 33243	III	0	0	Light
P.I. 200446	VI	1	0	Light
200507	VII	0	0	Very Light
205909	VIII	0	0	Light

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 1959 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 1959 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 hot and dry throughout. Temperatures were above normal during almost the entire season and rainfall was below normal from planting time until the middle of August. Because of the abnormally hot, dry conditions, the soybeans showed signs of wilting and about one inch of water was sprinkler irrigated on August 6. Whether or not irrigation was the cause, the earliest maturing varieties and strains, up to about the maturity of Norchief or slightly later, matured quite abnormally. Those that should have matured about August 31 or thereabouts were still partially immature almost a month later, while the varieties and strains later than Norchief matured normally or nearly so. Green leaves and pods were still present on the earliest varieties at the end of September--many pods were fully mature and some leaves had fallen.

Fertilizer Treatment: 250 lbs. 8-16-16. Fertility Level: pH, 7.4; P, 182; K, 270.

Guelph, Ontario, Canada. This nursery had adequate phosphate and potash for 95 percent of maximum yield.

Fertilizer Treatment: 250-300 lbs./A. 5-20-10. Fertility Level: pH, 7.5; P, 420; K, 165; Ca, 1500; Mg, 250.

Ridgetown, Ontario, Canada. June, 1959, was the driest on record. A total of .27 inches of rain fell, which took seven days to accumulate. July and August were adequate in rainfall but the deficit accumulated by a dry June meant little soybean growth. Temperatures were well above normal in June, July, and August and intensified the deficit. Above average rainfall in October made harvesting difficult.

Fertilizer Treatment: 550 lbs./A. 4-24-20. Fertility Level: pH, 6.8; P, 432H+; K, 184H.

Portage la Prairie, Manitoba, Canada. The weather conditions this year proved almost disastrous for the Special Crops. Following a fairly normal spring and summer, frequent rains in September and an abnormally early snowfall interfered with harvesting operations. The first frost occurred on September 10, ten days earlier than normal, and the first killing frost occurred on September 15, twenty days earlier than normal. A heavy snowfall, amounting to nearly 16 inches, occurred in the period of October 6 to 11. The total snowfall for October was about 22.6 inches. The combination of moist soil conditions and heavy snowfall reduced or prevented the harvesting of soybeans.

Fertilizer Treatment: None. Fertility Level: 48 bu. wheat/A.

Winnipeg, Manitoba, Canada. This nursery was planted on May 21. Emergence and stands were good. Temperatures in June, July, and August were slightly above

normal (+1.2° F, +0.7° F and +2.9° F, respectively). Precipitation was much above normal but drainage was adequate. Flambeau yielded higher than it had since 1953.

Fertilizer Treatment: None. Fertility Level: pH, 7.3; P, 196; K, 300+.

Brandon, Manitoba, Canada. The season was very good for production of soybeans this year. Seedlings developed uniformly from a good stand. They did not appear to be restricted in growth at any time during the season, although the first three weeks of June were very dry. Very little disease developed and no insect damage was recorded. Even Flambeau produced seed of fair quality and all entries were superior to Acme in production of seed.

Fertilizer Treatment: None. Fertility Level: pH, 7.7; Phosphate, high; Potash, high.

Morden, Manitoba, Canada. The April to September precipitation was 15.3 inches compared to 13.9 for the long-term average. Above average temperatures and good moisture resulted in a well-developed crop of soybeans. Above average moisture conditions in October prevented the beans from drying down to the point where they could be threshed. This was followed by a heavy snowfall which never disappeared to the point where we could harvest.

Jamesburg, New Jersey. In general, the growing conditions were good. There was sufficient soil moisture at planting time for good emergence and a subsequent drouth through most of June facilitated weed control. Rainfall during July and August was adequate and well distributed. Exceptionally high humidity prevailed almost continuously through July, August, and September with summer temperatures holding until October 11. Subsequent harvest conditions were very good.

Fertilizer Treatment: 500 lbs./A 0-20-20. Fertility Level: pH, 6.0; P, 18; K, 85; Mg, 100.

Hoytville, Ohio. Both rainfall and temperatures during May were above normal and soybean growth was very good. Rainfall in June was below normal until the last week when soil moisture was replenished. Temperatures were only slightly above normal. June growing conditions were generally good. July rainfall and temperatures were normal and adequate for growth. August rainfall was below normal and temperatures above normal; however, soil moisture reserves were adequate for continued good growth. The harvest period was generally wet.

Fertilizer Treatment: None. Fertility Level: pH, 6.2; P, 140; K, 300+.

Wooster, Ohio. May rainfall was slightly below normal but adequate for good germination and growth, and temperatures were generally normal. June rainfall was above normal and temperatures below normal which resulted in a widespread attack of brown spot on all soybean varieties and strains. July rainfall was above normal and temperatures about normal, resulting in excellent growing conditions. Both rainfall and temperatures were above normal in August with continued good growing conditions. The harvest period was extremely wet with near normal temperatures.

Fertilizer Treatment: 500 lbs./A. 10-10-10. Fertility Level: pH, 6.6; P, 67; K, 158.

Columbus, Ohio. May rainfall and temperatures were slightly above normal which resulted in considerable kill by Pythium root rot and some damage from Rhizoctonia. June was generally dry with rainfall below normal and temperatures above normal. July continued hot and dry and soybeans began to show effects of lack of moisture and above normal temperatures. Continued unseasonably dry weather and above normal temperatures existed in August. September continued dry with near normal to slightly below normal temperatures and October was generally wet.

Fertilizer Treatment: 300 lbs./A. 0-20-20. Fertility Level: pH, 6.6; P, 111; K, 270.

Chatham, Michigan. The summer was characterized by much warmer temperatures than usual. At no time was there a lack of moisture. Harvest conditions were bad, due to excessive moisture.

Fertilizer Treatment: 400 lbs./A. 12-12-12 BRD. Fertility Level: pH, 7.0; N, 200; P, 150; K, 144.

Norway and Bark River, Michigan. The summer was very warm. The rainfall was at times excessive, and moisture was at no time lacking on these sandy loam soils. Growth of beans was excellent.

Norway--Fertilizer Treatment: 200 lbs./A. 5-20-20. Fertility Level: pH, 7.1; N, 40; P, 42; K, 89.

Bark River--Fertilizer Treatment: 200 lbs./A. 5-20-20. Fertility Level: pH, 6.9; N, 80; P, 11; K, 55.

Daggett, Michigan. The summer was very warm, and there was sufficient moisture after July 1. The month of June was exceptionally dry in certain areas of Menominee County, including the plot area. This reduced yields. There was also more Agropyron repens than in the other plots. Generally, growing conditions for soybeans in the Upper Peninsula were as favorable as they have ever been. The weather from the middle of September until harvest time in early October was mostly cloudy and wet. This accounted for the generally poor quality of the seed.

Fertilizer Treatment: 225 lbs./A. 5-20-20. Fertility Level: pH, 7.6; N, 80; P, 38; K, 69.

Bath, Michigan. A wet May delayed planting on Muck plots until May 25. On June 13-14 a frost browned all leaves above the cotyledons. Plants made good recovery. Heavy frost on the night of September 16-17 stopped growth on all but those early lines which had already matured. June and early July were dry, so irrigation was used. After that there was plenty of rain, in fact, too much during September.

Fertilizer Treatment: 500 lbs./A. 5-10-20. Fertility Level: Very good; pH, 5.9.

East Lansing, Michigan. A wet May delayed planting. June and July were dry but rainfall in August, September, and October compensated for it. We had a long fall for maturing the later soybeans even though some growth was stopped by frost on September 16-17. The growing season ended with the October 18-19 freeze.

Fertilizer Treatment: 400 lbs./A. 5-20-20.

Ida, Michigan. The wet spring considerably delayed planting, which was the latest it had been for the last five years. The growing season had a dry spell in June and early July but from then on there was adequate moisture. During the last of September and first half of October the problem of enough dry days together to combine was troublesome. The frost of September 16-17 curtailed some growth of the later lines, and the freeze of October 18-19 terminated all growth.

Fertilizer Treatment: April 1, 200 lbs./A. 20% ammonium sulphate and 100 lbs./A. potash. June 4, 150 lbs./A. 4-16-16.

Walkerton, Indiana. This plot was planted June 2 and growth conditions were good through July. Precipitation was only 1.15 inches in August with a deficiency of 2.00 inches. There were 18 days in August with temperatures of 90° F. or above. Yields were depressed considerably. Seed was small and wrinkled badly. Harvest conditions were good. Bacterial blight, pustule, and mildew were present in only moderate to small amounts. Mildew was insufficient to make ratings at this location. Frost of 31° occurred early, September 18, and caused some injury to varieties that normally do not mature until about October 1.

Fertilizer Treatment: 100 lbs./A. 6-24-0 + K₂O. Fertility Level: pH, 6.5; P, 208; K, 78.

Bluffton, Indiana. This location was planted May 28 under fairly good soil and moisture conditions. Precipitation was above normal during the growing season. Temperatures were 90° F. or above for 13 days in August and 28 days for the growing season. This is well above normal. In general, growth conditions were good to excellent. Frost of 31° occurred early, September 18, and was probably effective in reducing average yields of Group III, 39.4, below Group II, 44.4. Only brown spot showed a light infection. Manganese deficiency was evident to a minor extent but growth was good.

Fertilizer Treatment: 100 lbs./A. 6-24-24 + 20 lbs./A. MnSO₄. Fertility Level: pH, 6.5; P, 575; K, 266.

Lafayette, Indiana. Yield trials were planted very timely on May 19 with good soil and moisture conditions. Early growth was slow and initial flowering near ground level. No precipitation occurred from June 11 until July 17. Temperature reached 96° F. June 30 with 6 days 90° or higher in June, 7 in July, 11 in August, and 4 in September. August was dry with only 1.72 inches of rain. Diseases were generally negligible with mainly a trace of bacterial blight, pustule, and stem canker. Final growth was fair and average yields of 36 and 42 bushels per acre in Uniform Groups II and III, respectively, were fair.

Fertilizer Treatment: 80 lbs./A. 5-20-20. Fertility Level: pH, 6.0; P, 103; K, 166.

Greenfield, Indiana. This plot was planted June 1 under good soil and moisture conditions. Several varieties, notably Hawkeye and W3-1069, showed very poor early growth as if the seed were weak. This was not observed at other locations. June and August were well below normal in rainfall, and temperatures were somewhat above normal. There was about 5% Phytophthora rot infection on susceptible varieties in the plot. Brown spot was present on the unifoliate leaves. Other diseases were insignificant. There was slight manganese deficiency. Yields generally were below average for the soil type and fertility present.

Fertilizer Treatment: 100 lbs./A. 4-16-16. Fertility Level: pH, 6.6; P, 595; K, 231.

Worthington, Indiana. This plot was planted somewhat early, May 7, for best maturity in Groups II and III. Early planting along with other seasonal conditions may have been a contributing factor to excessive "dudding" and abnormal maturity among early varieties. Precipitation was below normal in May and June but above normal in August. Yields were good but somewhat lower than expected in relation to foliar growth, especially in Group IV. Diseases were insignificant except pod and stem blight and related factors which caused very poor quality seed.

Fertilizer Treatment: 160 lbs./A. 5-20-20. Fertility Level: pH, 7.6; P, 550; K, 162.

Evansville, Indiana. This plot was planted very early on May 4. Emergence was spotty and stands erratic. The soil became very compacted prior to the first cultivation with 7.80 inches of rain in May. 3.15 inches occurred in one rain. Some plants were injured and stands thinned further during the first cultivation. The average summer temperature was 4.7° above normal. Diseases were insignificant except those which affected seed quality. Yields were very good but seed quality was generally below average.

Fertilizer Treatment: 240 lbs./A. 4-12-12 + 300 lbs./A. 4-10-10. Fertility Level: pH, 5.6; P, 900; K, 334.

Mason (Ashland), Wisconsin. Emergence and stands were good in all plots. Temperatures averaged above normal and rainfall was adequate for the entire growing season. Killing frost occurred after maturity.

Fertilizer Treatment: 10-12 tons/A. Sheep manure. Fertility Level: pH, 6.6; P, 12; K, 150.

Spooner, Wisconsin. This nursery was planted May 26 under ideal conditions. Stand and emergence were excellent. Temperatures during June were above normal with rainfall 1.75 inches below normal, the bulk of which occurred during the last two weeks of June. Drouth conditions during periods July 9-23 and again around July 31 necessitated irrigation. Two inches were applied on July 20 and again on July 31. Rainfall was heavy during August with temperatures 3° above normal. Similar conditions prevailed in September which resulted in a delay in maturity of the later strains. The first killing frost occurred September 17, the temperature being 25° F.

The effect of the two irrigations is shown by the performance of Norchief in an irrigated nursery and in a non-irrigated field of similar fertility. In the irrigated nursery Norchief yielded 30.0 bushels per acre and was 31 inches tall, while in the non-irrigated field, it yielded 8.8 bushels and was 21 inches tall.

Fertilizer Treatment: 250 lbs./A. 0-20-20. Fertility Level: pH, 6.6; P, 140; K, 175.

Durand, Wisconsin. The temperature was normal when this nursery was planted, May 20. Emergence and stands were normal. Temperature was normal and rainfall was above normal during July and August. This soil is light and sandy and as a result, short dry periods can reduce yields if they occur at critical periods. During 1959 dry periods reduced yields of the Group 0 and early Group I varieties to a greater

extent than the later Group I varieties. All varieties matured prior to fall frost.

Fertilizer Treatment: None. Fertility Level: pH, 6.1; P, 40; K, 190.

Madison, Wisconsin. This nursery was planted May 26. Emergence and stands were good. The 1959 season was characterized by above normal temperatures during May, June, August, and September, with above normal rainfall during June, July, August, and September. Lodging first occurred during late June as a result of a heavy driving rain. Similar storms which occurred at frequent intervals increased lodging. Final lodging index averaged about 4 with very little differential among varieties. All varieties matured prior to frost. Disease was not serious.

Fertilizer Treatment: 200 lbs./A 0-20-20. Fertility Level: pH, 7.0; P, 115; K, 180.

Shabbona, Illinois. This nursery was planted in a well prepared and moist seedbed. During the growing season, temperatures were above normal and precipitation was slightly below normal. Plant growth was exceedingly luxuriant (heights of 45-50") and very high yields were obtained. A slight infection of bacterial blight and a moderate infection of downy mildew were observed. A killing frost on September 18 accelerated the approach to maturity of the later Group II strains.

Fertilizer Treatment: None. Fertility Level: pH, 6.1; P, 59; K, 208.

Dwight, Illinois. Planting was made in a rather moist but rough cloddy seedbed. A band application of Radox was applied on June 2. Six weeks later a severely stunted condition was observed in many of the terminal growing points. Chemical damage or bud blight was suspected, however, a positive identification was not possible. Recovery from this condition was slow, resulting in lower than average heights and yields despite near normal temperature and rainfall. Many plants were partially sterile. A light frost on September 18 killed the foliage and accelerated the maturity of the numerous duddy plants.

Fertilizer Treatment: None. Fertility Level: pH, 6.6; P, 67; K, 233.

Urbana, Illinois. Planting was made in a well prepared and moist seedbed. Heavy rains following planting caused crusting which reduced stands. Early growth was rapid until the drouth of mid-June and July when no appreciable rain fell during a 45-day period. A uniform and severe infestation of red spider mites was associated with the dry weather. Control by Malathion was attempted on two spraying dates, which temporarily checked the pest. Yields of early maturing varieties were more severely affected by the drouth than full-season or late maturing varieties. No appreciable amount of any disease was observed.

Fertilizer Treatment: None. Fertility Level: pH, 6.2; P, 124; K, 300.

Girard, Illinois. Seeding was made in a well prepared and moist seedbed. Excellent stands were obtained. No appreciable rain fell during a seven-week period from mid-June to early August, however, ample moisture was present at all other times during the growing season. There were no diseases evident and excellent yields were obtained.

Fertilizer Treatment: None. Fertility Level: pH, 6.0; P, 102; K, 265.

Edgewood, Illinois. Planting was made in a well prepared seedbed. Excellent stands were obtained. The nursery site contained numerous "slick spots" in which a severe potassium deficiency was expressed. An early leaf drop was attributed to a severe bacterial blight and a moderate bacterial pustule infection. Average growth and yields were obtained.

Fertilizer Treatment: None. Fertility Level: pH, 6.1; P, 51; K, 166.

Eldorado, Illinois. This nursery was planted in soil lacking ample moisture but despite uneven emergence, fair stands were obtained. Downy mildew was prevalent and a moderate amount of bacterial pustule occurred. Nearly seven inches above normal rainfall occurred in August. Maturity dates were quite variable and nearly all material exhibited green leaves and stems after the pods were ripe. A duddy condition was observed in many fields in this part of Illinois and appeared to be due to bud blight or to destroying of flowers by insects, judging from the appearance of the plants and the pattern of development in the field. It was necessary to cut and shock all plots to facilitate drying prior to threshing. Yields, with a few exceptions, were quite low. Much of the seed was moldy and purple stained; a notable exception to this general condition were the varieties Hill and Dorman.

Fertilizer Treatment: 350 lbs./A. 8-16-8. Fertility Level: pH, 6.4; P, 140; K, 243.

Miller City, Illinois. This nursery was planted in a well prepared seedbed. Normal temperatures and above average rainfall prevailed throughout the growing season. Luxuriant growth and above average yields were obtained. Considerable mildew and moderate amounts of bacterial pustule were observed.

Fertilizer Treatment: None. Fertility Level: pH, 7.0; P, 158; K, 288.

Crookston, Minnesota. Timely planting, good fertile seedbed, adequate rainfall, and a warm growing season resulted in good stands, growth, maturity, and yield. A moderate amount of chlorosis was evident on highly susceptible varieties.

Fertilizer Treatment: None. Fertility Level: pH, 7.9; OM, 5.6; P, 24; K, 220.

Morris Minnesota. Planting was timely. The seedbed was good and good stands were obtained. Drouth was rather severe from July 1 until September. Yields were the lowest obtained in at least 15 years.

Fertilizer Treatment: None. Fertility Level: pH, 6.5; OM, 5.9; P, 20; K, 330.

St. Paul, Minnesota. Planting was timely. The seedbed was good, fertility high, and rainfall adequate until almost the end of the season. Stands were excellent. It could be considered a good but not excellent season.

Fertilizer Treatment: Manure. Fertility Level: pH, 6.3; OM, 4.4; P, 200; K, 430.

Waseca, Minnesota. These trials were planted under good conditions. Good stands were obtained. Drouth during July and early August probably reduced potential yields. Heavy rainfall through late August, September, and October hampered harvest somewhat. It was a good but not excellent season.

Fertilizer Treatment: None. Fertility Level: pH, 6.2; OM, 5.9; P, 36; K, 240.

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 19 on corn land. Immediately after planting a severe thunderstorm occurred with severe soil crusting resulting. Crusting wet conditions coupled with an attack by Fusarium rot reduced stand to an impossible, unrecoverable nursery. Therefore, the nursery was abandoned after the haphazard nature of the stand reductions were noted and after attempts were made to transplant.

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 12 on corn land. Stands were excellent and plots were kept weed-free. Killing frost (October 9) did not occur before maturity. Growth response, yields, and lodging were reduced slightly because of some drouth and light hail in late August. This nursery was considered fair for making strain comparisons.

Fertilizer Treatment: None. Fertility Level: 70 bu. corn/A.

Kanawha, Iowa. This nursery is located in north central Iowa on level, productive Webster silty clay loam. Planting was completed on May 25 on land previously grown to corn. Stands were generally good to excellent and plots were kept weed-free. Practically no bacterial blight occurred in July as normally happens. The over-all average precipitation from May through September was +8.7 inches above normal. These conditions permitted good growth and above normal yields and lodging. A killing frost (October 11) did not occur until after maturity. Harvesting was completed under good conditions. This nursery was considered very good for making strain comparisons.

Fertilizer Treatment: None. Fertility Level: 75 bu. corn/A.

Independence, Iowa. This nursery is located in northeast central Iowa on well drained Carrington silt loam, medium in productivity. Planting was completed on May 26. Stands were fair and plots were kept weed-free. Growth, yield, and general response was only fair because disease (stem canker) infected all late maturing strains two weeks before maturity, whereas early strains were not as severely affected. Frost occurred later than normal (October 12). This nursery was considered poor for making strain comparisons.

Fertilizer Treatment: 200 lbs./A. 0-20-20 Fertility Level: 75 bu. corn/A.

Ames, Iowa. This nursery is centrally located on level, productive Webster silt loam. Planting was completed on May 8 with subsequent stands excellent. Growth, yield, and general response were good. A lower than normal incidence of disease occurred. Frost occurred on October 12 after the normal date, October 5. Strain comparisons are believed to be very good.

Fertilizer Treatment: None. Fertility Level: 75 bu. corn/A.

Ottumwa, Iowa. This nursery is in southeastern Iowa on flat, very productive Haig silt loam. The nursery was planted June 6 because of excessive moisture in May. Stands were fair to good and weeds were controlled. Growth, yield, and response were good to very good. Killing frost occurred on November 16, much later than normal, October 10. Strain comparisons are believed to be good in spite of the slightly late planting date.

Fertilizer Treatment: None. Fertility Level: 75 bu. corn/A.

Kirksville, Missouri. These tests were planted in a very fertile field. Rainfall in June was 3 inches below normal but due to ample rain in May, moisture seemed adequate for good growth. Rainfall in July was above normal and interfered with proper weeding. Considerable damage was done removing cockleburrs from rows. Morning glories and heavy growth due to ample rain in July and August resulted in heavy lodging, undoubtedly reducing yields. September rainfall was 2.5 inches above normal. This interfered with harvesting at the proper time. Only Preliminary Group II was harvested.

Fertilizer Treatment: None. Fertility Level: 125 bu. corn/A.

Ladonia, Missouri. This test was planted in June in a fertile soil that had been in sod for several years. Stands were good and no weeds were present. Heavy rainfall interfered with harvesting at proper time, resulting in some weather damage.

Fertilizer Treatment: None. Fertility Level: 65 bu. corn/A.

Columbia, Missouri. Half the replications were planted May 5 and half on May 31. May had many rainy days and the early plantings became rather grassy. No rain fell after the May 31 planting until July 4 and by this time soybeans were suffering severely. July rainfall was about normal but August and early September were very dry. When rains began September 20, strains of Clark maturity were ripe. The almost daily rains from September 20 to October 15 benefited late Group IV strains and kept them green and also prevented harvesting earlier strains. Weather damage was serious on earlier strains during this period. In general, diseases were not serious.

Fertilizer Treatment: None. Fertility Level: pH, 6.5; OM, 2.6; P₂O₅, 166; K, 150; Ca, 4000; Mg, 200.

Jefferson City, Missouri. May rainfall was above average and although June was 3 inches below normal, soil moisture on this heavy gumbo soil appeared to be adequate for good growth. Harvest was delayed which seemed to result in less shattering and weather damage than at Columbia, but purple spot was especially heavy on the seed. Wabash had the least purple spot. Other diseases were not serious.

Fertilizer Treatment: None. Fertility Level: pH, 7.4; OM, 2.6; P₂O₅, 560; K, 500; Ca, 9500; Mg, 1400.

Rosholt, South Dakota. Moisture was inadequate throughout the growing season and fall moisture only fair. The season was dry, with a cold spring, hot June, cool July, and hot August.

Fertilizer Treatment: None. Fertility Level: 65 bu. oats/A.

Brookings, South Dakota. Throughout the growing season moisture was very inadequate and never ample for good growing conditions. The spring was dry and cold. There was a very dry hot two-week period in June, a cool and dry July, and a very dry, hot August.

Fertilizer Treatment: None. Fertility Level: 80 bu. oats/A.

Menno, South Dakota. There was ample moisture in the spring which was cold. The remainder of the growing season was dry and hot. Fall moisture was short. Very few beans set seed due to extreme high temperatures during the fruiting period, so this test was not harvested.

Fertilizer Treatment: None.

Concord, Nebraska. This nursery was planted on May 25 in a well prepared seedbed on Wabash silt loam. No fertilizer was added. Rainfall was below normal during June, normal in July and August, and less than normal in September. Temperatures were about normal during the season except for a hot period in June and a below normal July. A light frost on September 10 killed leaves on the upper part of the plant; killing frost occurred on September 28.

Fertilizer Treatment: None.

Lincoln, Nebraska. Uniform Tests planted on June 2 followed corn on level, productive Wabash silt loam. Heavy rains shortly after planting resulted in crusting of the soil surface and erratic stands. Stands were considered adequate for yield evaluations. Rainfall was above normal in May, normal in June and early July, and below normal from mid-July to mid-September. Two furrow irrigations, on July 28 and August 15, were applied. Temperatures were below normal in June and July and above normal in August until mid-September when cool, wet weather prevailed until frost. A light frost on October 9 caused some damage; killing frost occurred on October 17.

Fertilizer Treatment: None. Fertility Level: pH, 5.9; N, medium; P, very high; K, high.

Powhattan, Kansas. Wet weather delayed planting, and the resulting stands were somewhat erratic. Weeds, especially pig-weeds, were heavy and were removed late, probably resulting in some reduction in yield and affecting the accuracy of the test. Excellent moisture conditions prevailed throughout the entire growing season, resulting in reasonably good yield wherever stands were adequate. There was some evidence of insect damage to leaves of all plants. There did not seem to be any variety differentiation. The age of plants tended to control the amount of damage. All varieties matured before the first killing frost and harvest conditions were ideal. This nursery was considered fair for making strain comparisons.

Fertilizer Treatment: None; fallowed in 1958.

Manhattan, Kansas. The Uniform Group III and Group IV irrigated nurseries were planted on a rather heterogenous bottom land sandy soil May 27. The Groups III and IV Uniform and Preliminary dryland nurseries were planted June 5. Above normal rainfall in May prevented normal field operations; consequently, plantings were somewhat delayed. August temperatures were high--only three days with readings below 90 degrees. October was the second wettest month on record. The abnormally wet period resulted in delayed harvest, especially of Group III, and caused most of the beans to grade low in quality.

Non-Irrigated--Fertilizer Treatment: None. Fertility Level: 80 bu. corn/A.

Irrigated--Fertilizer Treatment: 20 lbs. N + 30 lbs. P. Fertility Level: 125 bu. corn/A.

Mound Valley, Kansas. This season had abnormally high rainfall. July had a record 12.88 inches of rainfall. August and September were near to a little above normal. Although some of the beans had reached maturity by October, heavy rains during the first half of the month prevented harvest for some time and was possibly the cause of the poor seed quality.

Fertilizer Treatment: 100 lbs. 0-42-0. Fertility Level: pH, 5.7; P, 26; K, 240.

Columbus, Kansas. The precipitation from time of seeding to date of maturity was as follows: June, 1.70 inches; July, 9.45 inches; August, 2.58 inches; September, 0.31 inches.

Fertilizer Treatment: 0-60-80. Fertility Level: pH, 5.7; P, 14; K, 152.

Sandpoint, Idaho. This nursery was very much delayed as a result of weather conditions. Planting was delayed in the spring due to extremely low temperatures. The mean summer temperatures were quite low, which resulted in slow growth. In spite of this, the amount of growth was surprising. The variety, Flambeau, showed up extremely well again this year. Cattle damaged this nursery so severely that it was not harvested.

Ontario, Oregon. An unusually cold May followed planting. Between July 10 and July 26 there was an unusual hot period during which time the daily high average temperature was 101° F. These two factors may be a partial explanation for this year's reduced yields. About 20" of water was applied by row irrigation from May to August. During September there was 2.92 inches of rainfall compared to a 16-year average of .22 inches for this same period. Most of the 2.92 inches fell between September 13 and September 30. This had the most influence upon the Group I strains since the remaining groups were either harvested or in the process of being harvested. The average first killing frost in this area is October 5, but this year the first killing frost occurred on October 26.

Fertilizer Treatment: 80 lbs. P + 60 lbs. N.

Medford, Oregon. The weather conditions during the growing season in 1959 were hot and dry. A new record was set when maximum temperatures exceeded 100° F. at least eight consecutive days in July. There was no effective rainfall from June until about September 15. During this period a total of 11 inches of water was applied by sprinklers. The vegetative growth was moderate with much unshaded ground between the 30" rows.

Fertilizer Treatment: 30-60-60. Fertility Level: pH, 6.1; OM, 3.24; P, 7.6; K, 0.31; Ca, 13.2; Mg, 2.5.

