

THE UNIFORM SOYBEAN TESTS

NORTHERN STATES

1966

RSLM 227

Compiled by:

R. L. Bernard, D. W. Chamberlain
and Ruth E. Lawrence

From Data Supplied by:

J. C. Anderson	R. H. Cole	O. A. Krober	A. H. Probst
L. J. Anderson	F. I. Collins	J. W. Lambert	C. O. Rydberg
G. C. Bate	L. A. Duclos	F. A. Laviolette	J. F. Shane
B. H. Beard	J. M. Dunleavy	J. R. Lawless	P. E. Smith
R. L. Bernard	J. Giesbrecht	V. D. Luedders	B. R. Stefansson
E. H. Beyer	H. Gross	A. O. Lunden	J. W. Tanner
R. E. Bothun	S. C. Hildebrand	E. L. Mader	G. H. Tenpas
D. R. Browning	J. C. Hoff	A. D. McLaren	J. H. Torrie
B. E. Caldwell	D. J. Hume	D. L. Mulvaney	C. R. Weber
D. W. Chamberlain	P. F. Knowles	V. H. Peterson	J. H. Williams

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Oilseed and Industrial Crops Research Branch, Beltsville, Maryland

R. W. Howell, Chief of Branch
B. E. Caldwell, Soybean Investigations Leader

U. S. Regional Soybean Laboratory, Urbana, Illinois

R. L. Cooper, Agronomist-in-Charge
C. J. Younger, Admin. Asst.
P. P. VanSickle, Clerk-Typist

D. W. Chamberlain, Plant Pathologist

F. I. Collins, Chemist (Oil)
V. E. Sedgwick, Phys. Sci. Technician

O. A. Krober, Chemist (Protein)
S. J. Gibbons, Phys. Sci. Technician

R. L. Bernard, Research Geneticist
R. E. Lawrence, Statistical Clerk
C. R. Cremeens, Agric. Res. Technician
D. A. Lindahl, Agric. Res. Technician
L. D. Graham, Crops Research Helper

R. E. Johnson, Plant Physiologist
W. L. Ogren, Plant Physiologist
R. W. Rinne, Plant Physiologist
R. H. Johnson, Instrument Maker
A. J. Maggio, Agric. Res. Technician

Lafayette, Indiana

A. H. Probst, Research Agronomist
P. E. Stingle, Technician*

J. R. Wilcox, Research Agronomist

Ames, Iowa

C. R. Weber, Research Agronomist
R. C. Clark, Agric. Res. Technician

J. M. Dunleavy, Plant Pathologist
J. W. Fisher, Agric. Res. Technician
D. Stritzel, Technician*

Beltsville, Maryland

B. E. Caldwell, Research Agronomist
C. E. Bass, Agric. Res. Technician
W. H. Eby, Agric. Res. Technician
J. R. Franklin, Agric. Res. Technician
V. L. Miller, Agric. Res. Technician
D. O. Pyne, Crops Research Helper
J. D. Vasvery, Agric. Res. Technician

D. F. Weber, Research Microbiologist

H. Tachibana, Plant Pathologist
A. Quinones, Technician*

Columbia, Missouri

V. D. Luedders, Research Agronomist
E. R. Smith, Agric. Res. Technician

F. L. Morgan, Plant Pathologist

Brawley, California

B. H. Beard, Research Agronomist

*Full-time state employee.

Northern State Collaborators

Delaware Agricultural Experiment Station
Agronomy and Engineering (Agr) Department: R. H. Cole

Illinois Agricultural Experiment Station
Agronomy Department: H. H. Hadley
J. L. Cartter

Iowa Agricultural Experiment Station
Agronomy Department: C. R. Weber

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

Michigan Agricultural Experiment Station
Crop Science Department: S. C. Hildebrand

Minnesota Agricultural Experiment Station
Agronomy and Plant Genetics Department: H. W. Johnson
J. W. Lambert
Plant Pathology and Physiology Department: B. W. Kennedy

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

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

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

Ohio Agricultural Experiment Station
Agronomy Department: P. E. Smith
Botany and Plant Pathology Department: A. F. Schmitthenner

Purdue Agricultural Experiment Station
Agronomy Department: F. L. Patterson

South Dakota Agricultural Experiment Station
Agronomy Department: A. O. Lunden

Wisconsin Agricultural Experiment Station
Agronomy Department: J. H. Torrie

INTRODUCTION

The U. S. Regional Soybean Laboratory conducts a research program directed toward the breeding of better varieties of soybeans in cooperation with federal and state research personnel in all important soybean producing states and with research workers in two provinces in Canada. The purpose of the Uniform Soybean Tests is to evaluate critically the best of the experimental soybean lines being developed through this cooperative breeding research program.

A test is conducted for each of ten maturity groups. Test 00 includes maturity Group 00 strains for the northern fringe of the present area of soybean production. Uniform Tests 0 through IV, respectively, include later strains adapted to locations farther south in the North Central States and areas of similar latitude.

The summary of performance of strains in Uniform Tests 00 through IV in the northern states is included in this report. Information on Uniform Tests IV through VIII in the southern states is issued separately.

Data from the Uniform Tests form the basis for decisions on the regional release of soybean varieties. Preliminary Tests are grown at a limited number of locations throughout the region to screen the experimental strains for maturity and general agronomic performance for one year before they are entered in the Uniform Tests.

Five new soybean varieties, developed through the cooperative breeding program, were released during the past year. Hark, of Group I maturity, was released in Illinois, Iowa, Michigan, Minnesota, Nebraska, and South Dakota. Disoy, a large-seeded variety of Group I maturity, was released in Illinois, Iowa, Minnesota, and Ohio. Magna and Prize, two large-seeded varieties of Group II maturity, were released in Illinois, Iowa, and Ohio. Custer, a Scott backcross (Group IV) with cyst and phytophthora resistance, was released in Illinois, Kentucky, Missouri, and Ohio. A history of the development of these varieties is included in this report. In addition, the variety Altona of Group 00 maturity was licensed in Canada after being tested in the Uniform Tests.

METHODS

Uniform Tests are planted in single rod-row plots with four replications or double-row plots with three replications. Preliminary Tests are planted in single or double rod-row plots with two replications. At some locations where growth is usually heavy or where rows are closely spaced, border rows are used between different varieties within the test. Usually 18 to 20 feet of row is planted and only 16 to 17 feet harvested. Seeds are packeted at a rate of 200 viable seeds per packet.

Parentage. Parent strains other than named varieties are identified in Table 86.

Previous Testing. The number of previous years in the same Uniform Test is given or, in the case of new entries, a reference to last year's test. The previous regional test is abbreviated: U.T. 0 for Uniform Test 0, P.T. III for Preliminary Test III, etc., and only the most recent test is listed. Any testing of similar ancestral strains is listed in footnotes.

Descriptive Traits are abbreviated as follows:

Flower Color: P = purple, W = white

Pubescence color: T = tawny, G = gray, Lt = light tawny

Pod color: Br = brown, T = tan

Seed coat luster: D = dull, S = shiny

Seed coat color: Y = yellow, G = gray, Lg = light gray

Hilum color: G = gray, Lg = light gray, T = tan, Y = yellow, Bl = black, Ib = imperfect black, Lib = light imperfect black, Br = brown, Bf = buff, Lbf = light buff

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

Maturity is the date when approximately 95% of the pods are ripe. Delayed leaf drop and green stems are not considered in assigning maturity but may be noted separately. Maturity is expressed as days earlier (-) or later (+) than the average of the reference variety. To aid in maturity group classification, one earlier and one later "tie" variety are listed on the maturity table for each Uniform Test except 00. These are not included in the regional mean since data are not available from all locations. Reference and tie varieties for 1966 and the maturity group limits relative to the reference variety are:

<u>Uniform Test</u>	<u>Reference</u>	<u>Group Range</u>	<u>Early Tie</u>	<u>Late Tie</u>
00	Portage	-2 to +6		
0	Merit	-4 to +4	Flambeau (00)	Chippewa 64 (I)
I	Chippewa 64	-2 to +6	Grant (0)	Harosoy 63 (II)
II	Harosoy 63	-3 to +5	Hark (I)	Wayne (III)
III	Shelby	-4 to +4	Amsoy (II)	Clark 63 (IV)
IV	Clark 63	-1 to +9	Wayne (III)	Hill (V)

These maturity group ranges are based on long-time means over many locations. When using data from fewer environments, the interval between reference varieties may differ from that indicated above, but the division between maturity groups can be estimated proportionately to the above figures.

Lodging is rated at maturity according to the following scores:

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

Height is the average length of plants from the ground to the tip of the main stem at the time of maturity and is reported to the nearest inch.

Seed Quality is rated according to the following scores considering the amount and degree of wrinkling, defective seed coat, greenishness, and moldy or rotten seeds. (Threshing or handling is not considered, and pigment, including mottling, is noted separately.)

- | | | | | |
|-------------|--------|--------|--------|-------------|
| 1 Very good | 2 Good | 3 Fair | 4 Poor | 5 Very poor |
|-------------|--------|--------|--------|-------------|

Weight per seed is the weight of 100 seeds in grams to the nearest tenth.

Seed Composition is measured on samples submitted to the Laboratory. A 60- to 70-gram sample of clean seeds is prepared by taking an equal volume or weight of seeds from each replication. Protein percentage is measured under the direction of Mr. O. A. Krober using the Kjeldahl method and oil percentage is measured under the direction of Mr. F. I. Collins using an extraction method. These percentages are expressed on a moisture-free basis.

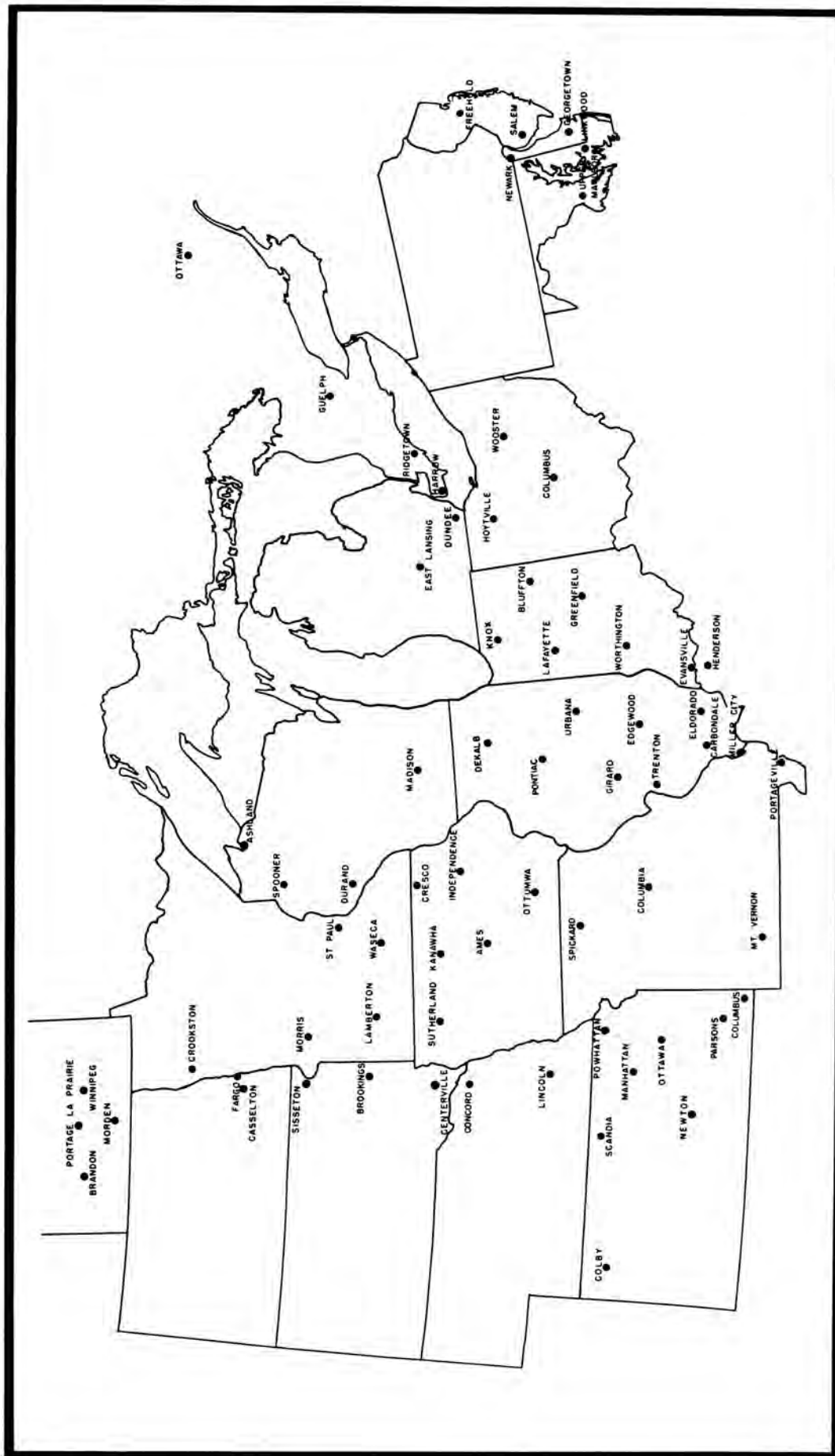
Disease Reactions are listed according to the Soybean Disease Classification Standards, March 1955, unless otherwise specified. Disease reaction is scored from 1 to 5. The state where the test was made is identified in the column heading, and a small letter "a" or "n" under the state signifies artificial or natural infection. For diseases where reaction is clearcut, strains are not retested each year and the reaction is given by letter instead of number, R signifies resistant, S stands for susceptible, and I for intermediate. Seg. indicates that a strain includes both resistant and susceptible plants.

Shattering is scored 14 days after maturity, or at another specified time if more appropriate, and is based on estimates of the percent of open pods as follows:

- | | | |
|-----------------------|------------------------|----------------------|
| 1 No shattering | 3 10% to 25% shattered | 5 Over 50% shattered |
| 2 1% to 10% shattered | 4 25% to 50% shattered | |

Strain Designation. Experimental (i.e. unreleased) strains are identified with a number and a letter prefix. These letters indicate the originating agency as follows:

<u>Code Letter</u>	<u>Agency</u>
A	Iowa A.E.S. and U.S.R.S.L.
C	Purdue A.E.S. and U.S.R.S.L.
CM	Canada Dept. of Agriculture, Morden, Manitoba
D	Mississippi A.E.S. and U.S.R.S.L.
E	Michigan A.E.S. and U.S.R.S.L.
FC	Forage and Range Research Branch, U.S.D.A.
H	Ohio A.E.S. and U.S.R.S.L.
K	Kansas A.E.S. and U.S.R.S.L.
L	Illinois A.E.S. and U.S.R.S.L.
M	Minnesota A.E.S. and U.S.R.S.L.
Md	Maryland A.E.S. and U.S.R.S.L.
ND	North Dakota A.E.S. and U.S.R.S.L.
O	Central Experiment Farm, Ottawa, or Research Station, Harrow, Ontario
OAC	University of Guelph, Guelph, Ontario
PI	Plant Introduction Investigations, New Crops Research Branch, U.S.D.A.
S	Missouri A.E.S. and U.S.R.S.L.
SD	South Dakota A.E.S. and U.S.R.S.L.
SL	Two or more state experiment stations and U.S.R.S.L.
T	Soybean Genetic Type Collection, U.S.R.S.L.
U	Nebraska A.E.S. and U.S.R.S.L.
UD	Delaware A.E.S. and U.S.R.S.L.
UM	University of Manitoba, Winnipeg
W	Wisconsin A.E.S. and U.S.R.S.L.



LOCATIONS OF UNIFORM SOYBEAN TESTS, NORTHERN STATES, 1966

UNIFORM TEST LOCATIONS - 1966

Location	Tests Conducted by	Uniform Tests						Preliminary Tests					
		00	0	I	II	III	IV	00	0	I	II	III	IV
Ottawa, Ont.	L. S. Donovan	*	*					*	*				
Guelph, Ont.	J. W. Tanner, D. J. Hume	x	x					x	x				
Ridgetown, Ont.	A. D. McLaren, G. C. Bate	x	x	x				x	x	x			
Harrow, Ont.	L. J. Anderson			x	x	x				x	x		
Freehold, N. J.	J. C. Anderson				x	x							
Salem, N. J.	"						x						
Newark, Del.	R. H. Cole					x	x						
Georgetown, Del.	"					x	x					x	x
Upper Marlboro, Md.	B. E. Caldwell						*						
Linkwood, Md.	"						x						
Hoytville, Ohio	P. E. Smith			x	x	x				x	x	x	
Wooster, Ohio	"			x	x	x				x	x	x	
Columbus, Ohio	"			x	x	x	x			x	x	x	
East Lansing, Mich.	S. C. Hildebrand	x	x	x	x			x	x	x	x		
Dundee, Mich.	"			x	x								
Knox, Ind.	A. H. Probst			*	*							*	
Bluffton, Ind.	"				x	x							
"	F. A. Laviolette	D	D	D	D	D	D	D	D	D	D	D	D
Lafayette, Ind.	A. H. Probst			x	x	x					x	x	
"	F. A. Laviolette	D	D	D	D	D	D	D	D	D	D	D	D
Greenfield, Ind.	A. H. Probst			x	x								
Worthington, Ind.	"			x	x	x						x	x
Evansville, Ind.	"					x	x						x
Henderson, Ky.	J. F. Shane						x						
Ashland, Wis.	G. H. Tenpas	x						x					
Spooner, Wis.	C. O. Rydberg			x						x			
Durand, Wis.	J. H. Torrie			x	x								
Madison, Wis.	"			x	x					x	x		
DeKalb, Ill.	D. L. Mulvaney			x	x					x			
Pontiac, Ill.	R. L. Bernard			x	x								
Urbana, Ill.	"			x	x	x	x				x	x	
"	D. W. Chamberlain	D	D	D	D	D	D	D	D	D	D	D	D
Girard, Ill.	R. L. Bernard				x	x	x						
Edgewood, Ill.	"				x	x	x						
Trenton, Ill.	"				x	x	x						x
Eldorado, Ill.	"					x	x						x
Carbondale, Ill.	D. R. Browning				x	x	x						x
Miller City, Ill.	R. L. Bernard						x						
Crookston, Minn.	J. W. Lambert	x	x					x					
Morris, Minn.	"	x	x										
St. Paul, Minn.	"	x	x	x						x			
Lamberton, Minn.	"			x	x								
Waseca, Minn.	"			x	x						x		
Cresco, Iowa	C. R. Weber			x									
Sutherland, Iowa	"				x								
Kanawha, Iowa	"			x	x					x	x		
Independence, Iowa	"				x								
Ames, Iowa	"				x	x					x	x	

UNIFORM TEST LOCATIONS - 1966 (Continued)

Location	Tests Conducted by	Uniform Tests						Preliminary Tests					
		00	0	I	II	III	IV	00	0	I	II	III	IV
Ames, Iowa	J. M. Dunleavy	D	D	D	D	D	D						
Ottumwa, Iowa	C. R. Weber					x						x	
Spickard, Mo.	V. D. Luedders				x	x				x	x		
Columbia, Mo.	"				x	x	x			x	x	x	
Mt. Vernon, Mo.	"					*	*					*	
Portageville, Mo.	L. A. Duclos					x	x						x
Portage la Prairie, Man.	J. E. Giesbrecht	x						x					
Winnipeg, Man.	B. R. Stefansson	x						x					
Brandon, Man.	H. Gross	x											
Morden, Man.	J. E. Giesbrecht	x						x					
Fargo, N. D.	R. E. Bothun		x						x				
Sisseton, S. D.	A. O. Lunden		x						x				
Brookings, S. D.	"			x	x					x	x		
Centerville, S. D.	"				x	x					x	x	
Concord, Nebr.	J. H. Williams			x	x					x			
Lincoln, Nebr.	"				x	x	x			x	x		
Scandia, Kans.	E. L. Mader					*	*						
Powhattan, Kans.	"					x	x					x	
Colby, Kans.	J. R. Lawless					x	x						x
Manhattan, Kans.	E. L. Mader					x	x					x	x
Ottawa, Kans.	"					x	x					x	x
Newton, Kans.	"					x	x						
Parsons, Kans.	V. H. Peterson					x	x						
Columbus, Kans.	"					x	x						
Fruita, Colo.	J. C. Hoff					x							
Davis, Cal.	P. F. Knowles			x	x	x	x						
Five Points, Cal.	B. H. Beard	x	x	x	x	x	x	x	x	x	x	x	x
Corcoran, Cal.	"			x	x	x	x						
Number of locations with agronomic data (x)		11	12	23	35	36	28	8	8	12	18	17	12

x Agronomic tests.

* Tests planted but failed to provide data.

D Disease tests.

UNIFORM TEST 00, 1966

Strain	Parentage	Generation Composited	Previous Testing (years)
1. Altona (UM15)	052-903 x Flambeau	F ₅	2
2. Flambeau	Introduction from Russia	--	8
3. Portage	Acme x Comet	F ₅	6
4. CM1	Crest x L48-7289	F ₅	1
5. CM9	Acme x Monroe	F ₅	P.T. 00
6. M55-30	Acme x Chippewa	F ₅	P.T. 00
7. M55-33	Acme x Chippewa	F ₅	P.T. 00
8. M384	Renville x Capital	F ₅	3
9. M393	Capital x Renville	F ₅	U.T. 0
10. M424	Acme x Hardome	F ₅	1
11. UM19	Crest x Flambeau	F ₇	P.T. 00

Altona, released in the spring of 1966, has been tested for 3 years and the means are given in Tables 8 and 9. It lies between Flambeau and Portage in maturity but has averaged almost as high in yield as Flambeau. In 1966 it matured relatively later than in previous years. M384, tested 4 years, has yielded as well as Flambeau but matured slightly later.

The top-yielding strains in this test are all on the late side. Flambeau has been considered the dividing point between Groups 00 and 0. M393, the highest in average yield, matured an average of 4 days later than Flambeau. M384 ranked third in yield but also appears to be too late for this group. M55-30 compared favorably with Flambeau but CM9 and M55-33, both of Flambeau maturity, were lower in yield.

UM19, the earliest strain in the test, was similar to Portage in maturity and performance. The remaining 2 strains, CM1 and M424, are intermediate in maturity and intermediate in yield between Flambeau and Portage.

Table 1. Descriptive data and shattering scores, Uniform Test 00, 1966.

Strain	Flower Color	Pubes- cence Color	Pod Color	Seed Coat Luster	Seed Coat Color	Hilum Color	Shattering	
							Urbana Ill. ¹	Five Points Cal. ²
Altona	P	T	Br	S	Y	Bl	3.5	3.0
Flambeau	P	T	Br	S	Y	Bl	2.5	3.8
Portage	P	G	Br	D + S	Y	Y	5.0	5.0
CM1	P	G	Br	D	Y	G	4.0	3.5
CM9	P	G	Br	S	Y	G+Bf+Ib+Y	4.0	4.0
M55-30	P	T	Br	S	Y	Br	3.0	3.5
M55-33	P	G	Br	S	Y	Lg	3.5	3.3
M384	W	G	Br	S	Y	Y	1.5	3.0
M393	P	G	Br	S	Y	Y	1.5	3.3
M424	P	G	Br	S	Y	Y	3.0	2.0
UM19	P	G ³	Br	S	Y	G	3.5	3.3

¹Mean of two replications planted May 27. Scored one month after maturity.

²Mean of four replications planted June 10. Scored 14 days after maturity.

³Appressed pubescence.

Table 2. Summary of data, Uniform Test 00, 1966.

Strain	Yield	Rank	Matu- rity ¹	Lodg- ing	Height	Seed Quality	Seed Weight	Seed Composition	
								Protein	Oil
No. of Tests	10	10	9	9	10	9	8	6	6
Altona	29.2	7	+ 8.2	2.6	28	2.5	18.6	39.7	19.1
Flambeau	31.2	4	+ 9.0	3.2	30	2.3	16.3	40.6	18.3
Portage	27.6	10	0	1.7	27	2.2	17.6	37.8	19.6
CM1	29.6	6	+ 4.9	1.8	31	2.9	16.2	37.2	18.5
CM9	29.2	7	+ 9.8	2.3	29	2.5	18.8	39.2	19.4
M55-30	32.9	2	+ 9.0	2.9	30	2.5	16.5	38.6	19.5
M55-33	28.9	9	+ 8.3	1.9	27	2.0	18.2	40.1	18.0
M384	32.3	3	+11.8	2.3	28	2.6	14.4	38.7	19.6
M393	34.3	1	+12.9	2.3	27	2.2	16.6	38.6	20.4
M424	29.7	5	+ 3.4	2.4	28	2.1	17.3	39.3	19.2
UM19	27.4	11	+ 0.2	2.1	27	2.9	16.5	40.2	19.0

¹Days earlier (-) or later (+) than Portage which matured September 22, 109 days after planting.

Table 3. Disease data, Uniform Test 00, 1966.

Strain	Bacterial Blight	Bacterial Pustule		Xantho- monas sp. ²	Choco- late Spot ³	Downy Mildew	Frogeye Race 2	Phytoph- thora Rot
	Ia.	Ill.	Ia.	Ia.	Ia.	Ind.	Ind.	Ind.
	a ¹	a	a	a	a	n ¹	a	a
Altona	3	S	4	5	4	2	S	R
Flambeau	2	S	4	4	3	1	S	S
Portage	4	S	4	3	4	1	S	S
CM1	3	S	5	3	5	1	S	S
CM9	3	S	5	2	4	2	S	Seg.
M55-30	3	S	5	2	4	2	S	S
M55-33	4	S	4	2	4	1	S	S
M384	4	S	4	2	2	1	S	S
M393	4	S	5	2	2	2	S	S
M424	4	S	4	3	3	2	S	S
UM19	4	S	3	3	4	2	S	S

1a = artificial inoculation; n = natural infection.

²An unnamed *Xanthomonas* sp.

³A bacterial leafspot that resembles brown spot.

Table 4. Yield and yield rank, Uniform Test 00, 1966.

Strain	Mean of 10 Tests	Guelph Ont. ¹	East			Morris Minn.	Portage			Winni- peg Man.	Bran- don Man.	Mor- den Man.	Five Points Cal. ¹
			Lan- sing Mich.	Ash- land Wis.	Crooks- ton Minn.		St. Paul Minn.	la Prairie Man.					
Altona	29.2	38.1	29.7	23.6	18.4	28.0	30.7	42.9	31.0	15.8	34.1	15.1	
Flambeau	31.2	37.6	30.9	22.9	23.1	32.2	34.5	40.2	33.6	17.1	40.0	14.6	
Portage	27.6	36.5	26.1	21.2	18.9	27.5	29.6	39.9	27.5	16.5	32.4	17.4	
CM1	29.6	37.2	28.7	24.4	21.8	28.5	31.4	39.6	29.6	15.3	39.9	14.8	
CM9	29.2	37.1	28.6	23.1	21.8	30.6	35.2	38.6	30.2	14.4	32.3	15.5	
M55-30	32.9	39.5	36.0	29.3	23.0	28.4	34.6	45.9	29.6	22.3	40.4	17.5	
M55-33	28.9	38.0	28.8	22.6	18.3	29.7	35.3	39.8	30.0	16.0	30.5	14.4	
M384	32.3	39.2	32.4	24.7	23.5	30.4	38.2	44.3	32.3	17.2	40.6	16.6	
M393	34.3	42.4	37.0	27.4	23.2	36.2	38.6	43.2	31.7	21.2	41.9	16.9	
M424	29.7	38.1	33.0	20.6	21.0	27.5	34.7	41.2	29.2	17.1	34.5	16.9	
UM19	27.4	36.8	24.6	17.1	19.1	29.3	25.4	40.4	32.7	17.9	30.8	14.8	
C.V.(%)		--	8.5	8.4	9.5	12.3	8.7	7.4	9.2	--	7.5	10.0	
L.S.D.(5%)		--	3.7	2.8	2.9	N.S.	4.2	4.4	4.1	3.2	3.9	1.6	
Row Sp.(In.)		24	28	24	24	40	36	36	24	36	36	30	

Yield Rank

Altona	7	4	6	5	10	9	9	4	5	9	7	7
Flambeau	4	7	5	7	3	2	7	7	1	5	4	10
Portage	10	11	10	9	9	10	10	8	11	7	8	2
CM1	6	8	8	4	5	7	8	10	8	10	5	8
CM9	7	9	9	6	5	3	4	11	6	11	9	6
M55-30	2	2	2	1	4	8	6	1	8	1	3	1
M55-33	9	6	7	8	11	5	3	9	7	8	11	11
M384	3	3	4	3	1	4	2	2	3	4	2	5
M393	1	1	1	2	2	1	1	3	4	2	1	3
M424	5	4	3	10	7	10	5	5	10	5	6	3
UM19	11	10	11	11	8	6	11	6	2	3	10	8

*Not included in the mean.

¹Irrigated.

Table 5. Maturity, days earlier (-) or later (+) than Portage, and lodging scores, Uniform Test 00, 1966.

Strain	Mean of 9 Tests	Guelph Ont. ¹	East			Morris Minn.	Portage			Winni- Man.	Bran- Man.	Mor- den Man.	Five Points Cal. ¹
			Lan- sing Mich.	Ash- land Wis.	Crooks- ton Minn.		St. Paul Minn.	la Prairie Man.					
									*				*
Altona	+ 8.2	+2	+ 6	+ 8	+4	+ 8	+2	+20	+ 5	+18	+ 6	-1	
Flambeau	+ 9.0	+2	+ 7	+10	+5	+ 7	+8	+20	+10	+11	+11	-8	
Portage	0	0	0	0	0	0	0	0	0	0	0	0	
CM1	+ 4.9	+1	+ 3	+ 7	0	+ 6	+2	+10	+ 3	+11	+ 4	0	
CM9	+ 9.8	+9	+11	+14	0	+ 8	+8	+20	+ 8	+12	+ 6	+1	
M55-30	+ 9.0	+6	+ 8	+10	+5	+ 9	+9	+18	+ 8	+11	+ 5	+1	
M55-33	+ 8.3	+7	+15	0	+3	+ 7	+7	+20	+ 3	+13	+ 3	-1	
M384	+11.8	+5	+ 7	+15	+7	+10	+9	+20	--	+18	+15	+1	
M393	+12.9	+7	+11	+19	+7	+10	+9	+20	--	+18	+15	+1	
M424	+ 3.4	+6	+ 2	+ 8	0	+ 2	+2	+ 8	+ 2	+ 1	+ 2	-1	
UM19	+ 0.2	+1	+ 2	- 3	0	0	0	+ 1	+ 1	0	+ 1	-8	
Date pltd.	5-22	5-31	5-26	5-23	5-26	5-24	5-10	5-26	6-1	5-19	5-12	6-10	
Portage mat.	9-8	9-12	9-8	9-16	9-12	8-28	9-1	9-16	9-16	9-8	8-30	9-6	
Days to mat.	109	104	105	116	109	96	114	113	107	112	110	88	
	Mean of 9 Tests												

*Not included in the mean.

¹Irrigated.

Table 6. Plant height and seed quality scores, Uniform Test 00, 1966.

Strain	Mean of 10 Tests	Guelph Ont. ¹	East	Ash- land Wis.	Crooks- ton Minn.	Morris Minn.	Portage		Winni- peg Man.	Bran- don Man.	Mor- den Man.	Five Points Cal. ¹
			Lan- sing Mich.				St. la Paul Prairie Man.					
Altona	28	30	31	17	22	33	35	31	30	19	32	29
Flambeau	30	30	30	17	25	33	40	35	31	20	39	28
Portage	27	29	29	16	21	29	35	29	26	19	32	29
CM1	31	31	33	18	26	37	39	33	29	21	38	32
CM9	29	32	31	15	26	33	38	32	27	20	34	31
M55-30	30	32	33	20	24	34	40	34	28	20	35	30
M55-33	27	28	29	16	20	31	35	31	26	22	31	26
M384	28	28	28	22	24	31	34	34	27	19	34	26
M393	27	28	27	19	23	31	32	32	29	20	33	24
M424	28	30	33	16	23	29	36	32	27	20	36	29
UM19	27	29	29	14	20	29	37	32	27	20	32	29

	Mean of 9 Tests	Seed Quality Score										*
Altona	2.5	2.0	1.8	2.0	2.2	3.0	3.5		3.0	3.0	2.0	3.0
Flambeau	2.3	2.0	2.3	1.0	2.5	2.5	3.0		2.0	3.0	2.0	4.0
Portage	2.2	2.0	2.5	1.0	2.2	2.5	3.5		2.0	3.0	1.0	2.0
CM1	2.9	2.0	2.8	2.0	3.0	3.2	4.2		3.0	3.0	3.0	3.0
CM9	2.5	2.0	3.1	2.0	2.8	2.8	4.0		3.0	2.0	1.0	2.0
M55-30	2.5	2.0	1.7	3.0	2.5	2.5	3.5		4.0	2.0	1.0	3.0
M55-33	2.0	1.0	2.2	1.0	2.5	2.2	3.5		3.0	2.0	1.0	2.0
M384	2.6	2.0	2.8	2.0	2.8	2.8	3.2		4.0	2.0	2.0	2.0
M393	2.2	2.0	2.0	2.0	2.5	2.2	3.0		2.0	3.0	1.0	2.0
M424	2.1	2.0	1.6	1.0	2.2	2.8	3.2		3.0	2.0	1.0	2.0
UM19	2.9	3.0	3.0	2.0	3.0	3.2	3.8		3.0	3.0	2.0	4.0

*Not included in the mean.

¹Irrigated.

Table 7. Percentages of protein and oil, Uniform Test 00, 1966.

Strain	Mean of 6 Tests	Guelph Ont. ¹	East Lan- sing Mich.	Ashland Wis.	Crooks- ton Minn.	Bran- don Man.	Morden Man.
Altona	39.7	40.8	40.6	43.2	34.4	40.7	38.6
Flambeau	40.6	41.9	41.0	44.3	35.6	42.4	38.2
Portage	37.8	39.0	39.4	39.6	35.2	38.4	35.4
CM1	37.2	37.9	39.0	39.9	32.7	37.9	35.6
CM9	39.2	41.5	41.0	42.1	33.6	39.4	37.5
M55-30	38.6	40.9	40.2	40.9	34.3	38.4	36.9
M55-33	40.1	42.2	42.3	41.6	36.0	40.8	37.9
M384	38.7	40.7	40.8	41.7	34.3	38.0	36.4
M393	38.6	40.6	41.0	40.2	33.9	39.3	36.3
M424	39.3	41.7	41.3	41.9	35.8	38.1	37.2
UM19	40.2	42.2	41.7	42.9	35.9	42.1	36.1
	Mean of 6 Tests	Percentage of Oil					
Altona	19.1	18.6	19.2	18.0	20.6	17.6	20.3
Flambeau	18.3	17.5	18.5	17.2	19.5	17.3	19.5
Portage	19.6	18.9	19.6	18.1	20.3	19.4	21.1
CM1	18.5	18.4	19.4	17.4	20.2	15.6	20.0
CM9	19.4	18.2	18.8	18.3	21.0	18.2	21.6
M55-30	19.5	18.9	19.8	18.5	20.7	18.8	20.3
M55-33	18.0	18.1	18.5	17.5	18.1	16.6	19.4
M384	19.6	19.3	20.3	17.9	19.6	19.2	21.5
M393	20.4	20.3	21.2	19.0	20.6	20.0	21.1
M424	19.2	17.9	20.2	16.7	20.5	19.8	19.9
UM19	19.0	18.3	18.9	19.1	20.6	17.1	19.7

¹Irrigated.

Table 8. Three-year summary of data, Uniform Test 00, 1964-1966.

Strain	Yield	Rank	Matu- rity ¹	Lodg- ing	Height	Seed Quality	Seed Weight	Seed Composition	
								Protein	Oil
No. of Tests	24	24	18	20	23	21	20	16	16
Altona	27.3	3	+4.1	2.3	27	2.8	17.4	39.7	19.3
Flambeau	27.9	2	+7.7	3.3	29	2.8	15.7	40.9	18.0
Portage	25.3	4	0	1.5	27	2.6	16.8	38.5	19.2
M384	28.2	1	+8.7	2.2	27	3.1	14.2	39.0	19.5

¹Days earlier (-) or later (+) than Portage which matured September 16, 113 days after planting.

Table 9. Three-year summary of yield and yield rank, Uniform Test 00, 1964-1966.

Strain	Mean of 24 Tests	East Lan- Guelph Ont.	sing Mich.	Ashland Wis.	Crooks- ton Minn.	St. Paul Minn.	Portage la Prairie Man.	Winni- peg Man.	Bran- don Man.	Morden Man.
Years Tested		1964, 1966	1964- 1966	1964- 1966	1964- 1966	1964- 1966	1965- 1966	1964- 1966	1964- 1966	1964- 1966
Altona	27.3	34.7	25.7	24.0	18.8	28.4	30.1	25.0	24.4	25.8
Flambeau	27.9	34.2	25.6	21.0	22.5	32.0	23.1	25.1	27.3	24.6
Portage	25.3	34.3	23.6	24.0	16.6	25.9	31.4	21.1	25.7	23.8
M384	28.2	36.1	27.7	21.2	22.9	32.1	26.5	22.9	26.9	28.5

Yield Rank										
Altona	3	2	2	1	3	3	2	2	4	2
Flambeau	2	4	3	4	2	2	4	1	1	3
Portage	4	3	4	1	4	4	1	4	3	4
M384	1	1	1	3	1	1	3	3	2	1

PRELIMINARY TEST 00, 1966

Strain	Parentage	Generation Composited
1. Flambeau		
2. Portage		
3. CM13	Acme x Monroe	F5
4. CM17	Acme x L48-7289	F6
5. CM18	Acme x L48-7289	F6
6. CM21	Acme x L48-7289	F6
7. M55-25	Acme x Chippewa	F5
8. M55-48	Acme x Chippewa	F5
9. M55-67	Grant x Acme	F5
10. M55-73	Grant x Acme	F5
11. UM20	Crest x Chippewa	F6

Flambeau had as high an average yield as any of the 9 strains in the test. UM20 was equal to it in yield, a few days earlier, and much better in lodging resistance. Early strains which yielded well for their maturity were CM13, CM21, and M55-48. M55-67 and probably M55-73 are later than Flambeau and, therefore, of Group 0 maturity. This lateness may explain their erratic performance at the various locations.

Table 10. Descriptive data and shattering scores, Preliminary Test 00, 1966.

Strain	Flower Color	Pubes- cence Color	Pod Color	Seed Coat Luster	Seed Coat Color	Hilum Color	Shattering	
							Urbana Ill. ¹	Five Points Cal. ²
Flambeau	P	T	Br	S	Y	B1	2.0	3.5
Portage	P	G	Br	D + S	Y	Y	5.0	5.0
CM13	P	G	Br	S	Y	Bf + Ib	2.0	4.0
CM17	P	G	Br	S	Y	Ib	3.5	3.0
CM18	P	G	Br	S	Y	G + Y	3.5	3.0
CM21	P	G	Br	S	Y	G + Y	4.0	5.0
M55-25	P	T	Br	D	Y	Br + Y	2.5	3.0
M55-48	P	G	Br	S	Y	Lg	2.0	3.0
M55-67	P	G	Br	S	Y	Y	1.5	2.0
M55-73	P + W	G	Br	S	Y	Y + Bf	1.5	4.0
UM20	P	T	Br	S	Lg	B1	1.0	3.5

¹Mean of two replications planted May 27. Scored one month after maturity.

²Mean of two replications planted June 10. Scored 14 days after maturity.

Table 11. Summary of data, Preliminary Test 00, 1966.

Strain	Yield	Rank	Maturity ¹	Lodging	Height	Seed Quality	Seed Weight	Seed Composition	
								Protein	Oil
No. of Tests	7	7	6	7	7	6	5	5	5
Flambeau	31.7	2	+10.8	2.8	31	2.6	16.9	40.6	18.1
Portage	27.7	9	0	1.3	27	1.7	17.8	37.5	19.9
CM13	29.1	7	+ 3.5	2.0	31	2.3	16.7	38.5	20.2
CM17	26.5	10	+ 0.2	1.4	30	2.3	13.9	37.9	20.1
CM18	24.6	11	+ 1.7	1.5	26	2.4	17.1	39.2	18.7
CM21	29.7	6	+ 4.3	1.9	32	2.7	16.4	38.2	18.8
M55-25	28.9	8	+ 4.0	1.7	27	2.3	16.3	39.1	19.5
M55-48	29.9	5	+ 1.8	1.6	28	2.0	14.8	38.9	18.5
M55-67	31.3	3	+19.2	2.1	32	2.7	18.7	40.5	18.7
M55-73	30.4	4	+12.5	1.7	29	2.3	14.2	39.8	19.5
UM20	31.8	1	+ 7.7	1.7	27	2.6	16.9	39.6	19.8

¹Days earlier (-) or later (+) than Portage which matured September 10, 109 days after planting.

Table 12. Disease data, Preliminary Test 00, 1966.

Strain	Bacterial Pustule	Downy Mildew	Frogeye Race 2	Phytophthora Rot
	Ill. a ¹	Ind. n ¹	Ind. a	Ind. a
Flambeau	S	1	S	S
Portage	S	1	S	S
CM13	S	1	S	S
CM17	S	2	S	S
CM18	S	2	S	R
CM21	S	2	S	S
M55-25	S	1	S	S
M55-48	S	1	S	S
M55-67	S	1	S	S
M55-73	S	1	S	S
UM20	S	2	S	Seg.

¹a = artificial inoculation; n = natural infection.

Table 13. Yield and yield rank, Preliminary Test 00, 1966.

Strain	Mean of 7 Tests	Guelph Ont. ¹	East Lan- sing Mich.	Ashland Wis.	Crooks- ton Minn.	Portage la Prairie Man.	Winni- peg Man.	Morden Man.	Five Points Cal. ¹ *
Flambeau	31.7	46.2	29.2	22.0	23.8	33.8	30.9	36.1	18.0
Portage	27.7	44.0	26.1	15.4	19.3	32.3	28.3	28.5	16.2
CM13	29.1	42.7	27.6	20.7	21.5	33.2	26.6	31.7	15.5
CM17	26.5	39.8	28.0	12.4	16.7	31.7	27.7	29.5	17.2
CM18	24.6	38.3	22.8	15.9	15.7	26.5	22.4	30.4	14.1
CM21	29.7	46.0	25.6	20.3	18.3	34.8	29.5	33.6	18.6
M55-25	28.9	41.5	28.7	21.0	14.7	32.9	27.8	35.6	17.7
M55-48	29.9	41.5	28.6	23.1	18.7	34.1	27.5	35.8	17.7
M55-67	31.3	43.6	37.8	24.4	23.4	37.9	17.4	34.4	22.1
M55-73	30.4	47.8	32.0	17.9	19.9	38.4	31.7	25.1	15.4
UM20	31.8	44.2	30.7	25.2	22.9	31.4	29.6	38.6	22.3
Coef. of Var. (%)		10.4	4.1	--	9.2	7.2	13.2	8.7	12.0
L.S.D. (5%)		4.6	2.4	--	4.0	5.4	8.0	6.3	N.S.
Row Spacing (In.)		24	28	24	24	36	24	36	30

	Yield Rank								
Flambeau	2	2	4	4	1	5	2	2	4
Portage	9	5	9	10	6	8	5	10	8
CM13	7	7	8	6	4	6	9	7	9
CM17	10	10	7	11	9	9	7	9	7
CM18	11	11	11	9	10	11	10	8	11
CM21	6	3	10	7	8	3	4	6	3
M55-25	8	8	5	5	11	7	6	4	5
M55-48	5	8	6	3	7	4	8	3	5
M55-67	3	6	1	2	2	2	11	5	2
M55-73	4	1	2	8	5	1	1	11	10
UM20	1	4	3	1	3	10	3	1	1

*Not included in the mean.

¹Irrigated.

Table 14. Maturity, days earlier (-) or later (+) than Portage, Preliminary Test 00, 1966.

Strain	Mean of 6 Tests	Guelph Ont. ¹	East Lan- sing Mich.	Ashland Wis.	Crooks- ton Minn.	Portage la Prairie Man.	Winni- peg Man.	Morden Man.	Five Points Cal. ¹
							*		*
Flambeau	+10.8	+ 6	+11	+11	+5	+20	+10	+12	+2
Portage	0	0	0	0	0	0	0	0	0
CM13	+ 3.5	+ 3	+ 1	+ 7	0	+ 6	+ 4	+ 4	+2
CM17	+ 0.2	0	- 2	+ 1	-1	0	+ 1	+ 3	+2
CM18	+ 1.7	+ 2	0	+ 2	0	+ 2	+ 1	+ 4	+2
CM21	+ 4.3	+ 6	+ 3	+ 8	0	+ 2	+ 2	+ 7	+2
M55-25	+ 4.0	+ 6	+ 2	+ 3	+5	+ 3	+ 1	+ 5	+2
M55-48	+ 1.8	+ 3	0	+ 1	0	+ 3	+ 1	+ 4	+2
M55-67	+19.2	+29	+14	+25	+8	+20	--	+19	+2
M55-73	+12.5	+10	+ 7	+20	+7	+12	--	+19	+2
UM20	+ 7.7	+ 7	+ 6	+11	+5	+ 9	+ 5	+ 8	+2
Date planted	5-24	5-31	5-26	5-23	5-26	5-25	6-1	5-12	6-10
Portage matured	9-10	9-13	9-8	9-14	9-12	9-14	9-16	8-29	9-6
Days to mature	109	105	105	114	109	112	107	109	88

*Not included in the mean.

¹Irrigated.

UNIFORM TEST 0, 1966

Strain	Parentage	Generation Composited	Previous Testing (years)
1. Grant	Lincoln x Seneca	F ₆	16
2. Merit	Blackhawk x Capital	F ₈	8
3. Traverse	Lincoln x Mandarin (Ottawa)	F ₅	2
4. M391-1	Capital x Renville	F ₅	1 ¹
5. M422	Renville x Capital	F ₅	2
6. OAC85	(Sel. from Lincoln x Flambeau) x Goldsoy	F ₈	1

¹Progenitor M391 in Uniform Test 0 in 1963-65.

All but one entry appear in the three-year means in Tables 21 and 22. There is a strong correlation of yield and maturity in these test results. Although Grant has the top mean yield, the two experimental lines, M391-1 and M422, are earlier and their mean yields lie close to the regression line for yield on maturity. Both have good height, standability, and seed composition but do not appear to be superior to the check varieties.

The other experimental strain, OAC85, has been in this test two years and it also has yielded about as expected for its maturity.

Table 15. Descriptive data and shattering scores, Uniform Test 0, 1966.

Strain	Flower Color	Pubes- cence Color	Pod Color	Seed Coat Luster	Seed Coat Color	Hilum Color	Shattering	
							Ur- bana Ill. ¹	Five Points Cal. ²
Grant	W	Lt	Br	S	Y	Bl	1.0	3.5
Merit	W	G	Br	D	Y	Bf	1.0	1.5
Traverse	W	G	Br	S	Y	Y	2.0	2.8
M391-1	P	T	Br	S	Y	Y	1.0	2.5
M422	W	G	Br	S	Y	Y	1.5	4.3
OAC85	W	T	Br	S	Y	Y	2.5	5.0

¹Mean of two replications planted May 27. Scored one month after maturity.

²Mean of four replications planted June 10. Scored 14 days after maturity.

Table 16. Summary of data, Uniform Test 0, 1966.

Strain	Yield	Rank	Matu- rity ¹	Lodg- ing	Height	Seed Quality	Seed Weight	Seed Composition	
								Protein	Oil
No. of Tests	11	11	9	9	10	8	7	6	6
Grant	32.8	2	+2.7	2.4	31	2.1	17.2	40.9	19.0
Merit	30.5	4	0	2.0	32	2.2	14.9	39.4	21.0
Traverse	33.2	1	+3.9	2.1	33	2.2	18.6	41.3	20.0
M391-1	31.0	3	+1.7	1.9	34	2.2	16.7	40.6	20.6
M422	28.0	6	-2.7	1.5	30	2.5	15.7	41.0	20.2
OAC85	29.1	5	-2.0	2.1	34	2.5	15.5	41.8	19.3

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

Table 17. Disease data, Uniform Test 0, 1966.

Strain	Bacterial Blight	Bacterial Pustule		Xantho- monas sp. ²	Choco- late Spot ³	Downy Mildew	Frogeye Race 2	Phytoph- thora Rot
	Ia.	Ill.	Ia.	Ia.	Ia.	Ind.	Ind.	Ind.
	a ¹	a	a	a	a	n ¹	a	a
Grant	4	S	4	2	4	2	S	S
Merit	4	S	4	1	4	1	S	R
Traverse	4	S	3	4	4	1	S	S
M391-1	4	S	4	1	3	1	S	S
M422	4	S	4	2	3	2	S	S
OAC85	4	S	4	3	3	2	S	S

¹a = artificial inoculation; n = natural infection.

²An unnamed *Xanthomonas* sp.

³A bacterial leafspot that resembles brown spot.

Table 18. Yield, yield rank, and maturity, days earlier (-) or later (+) than Merit, Uniform Test 0, 1966.

Strain	Mean of 11 Tests	Guelph Ont. ¹	Ridge- town Ont.	Colum- bus Ohio	East Lansing Mich.	Spooner Wis. ¹
Grant	32.8	39.5	54.0	20.0	38.2	35.1
Merit	30.5	37.2	47.9	16.4	32.8	29.2
Traverse	33.2	44.2	53.8	22.8	34.8	33.2
M391-1	31.0	39.9	50.2	17.9	35.2	29.6
M422	28.0	37.4	45.2	13.2	30.5	27.6
OAC85	29.1	42.1	49.3	15.7	30.2	28.8
Coef. of Var. (%)		--	6.9	--	4.6	9.4
L.S.D. (5%)		--	5.2	--	2.2	4.1
Row Spacing (In.)		24	24	28	28	36

Yield Rank						
Grant	2	4	1	2	1	1
Merit	4	6	5	4	4	4
Traverse	1	1	2	1	3	2
M391-1	3	3	3	3	2	3
M422	6	5	6	6	5	6
OAC85	5	2	4	5	6	5

	Mean of 9 Tests	Maturity				
		*				
Grant	+2.7	+ 3	+3		+ 5	+5
Merit	0	0	0		0	0
Traverse	+3.9	+ 4	+8		+ 7	+6
M391-1	+1.7	+ 1	+4		+ 4	+1
M422	-2.7	-13	-4		+ 1	-2
OAC85	-2.0	-16	-3		+ 5	+2
Flambeau (00)		-17	--		- 3	-1
Chippewa 64 (I)		--	+8		+10	--

Date planted	5-22	5-3	5-20	5-21	5-26	5-26
Merit matured	9-19	10-6	9-7	--	9-19	9-14
Days to mature	120	156	110	--	116	111

*Not included in the mean.

¹Irrigated.

Table 18. (Continued)

Strain	Durand Wis.	Crooks- ton Minn.	Morris Minn.	St. Paul Minn.	Fargo N.D.	Sisse- ton S.D.	Five Points Cal. ¹ *
Grant	22.7	18.2	34.8	45.6	31.1	21.3	19.8
Merit	20.5	22.4	33.0	46.6	30.0	19.0	19.9
Traverse	19.7	20.8	37.3	45.1	33.3	20.0	22.7
M391-1	20.4	21.7	34.7	40.9	29.1	21.6	16.9
M422	16.9	21.0	30.4	37.5	30.8	17.4	16.0
OAC85	19.6	20.5	30.8	38.1	28.2	17.0	18.8
Coef. of Var. (%)	10.9	7.6	9.1	8.4	--	--	16.0
L.S.D. (5%)	3.3	2.4	4.6	5.4	2.6	--	N.S.
Row Spacing (In.)	36	24	40	36	40	36	30

Yield Rank

Grant	1	6	2	2	2	2	3
Merit	2	1	4	1	4	4	2
Traverse	4	4	1	3	1	3	1
M391-1	3	2	3	4	5	1	5
M422	6	3	6	6	3	5	6
OAC85	5	5	5	5	6	6	4

Maturity

Grant	+1	0	+3	+ 2		+2	0
Merit	0	0	0	0		0	0
Traverse	+2	0	+3	+ 2		+3	0
M391-1	0	0	+2	+ 2		+1	0
M422	-4	-1	-3	+ 1		+1	0
OAC85	-5	0	-2	0		+1	0
Flambeau	--	-5	-7	-13		--	-19
Chippewa 64	+7	--	+7	+ 4		--	+ 5
Date planted	5-27	5-26	5-24	5-10		5-31	6-10
Merit matured	9-15	9-22	9-11	9-22		9-22	9-17
Days to mature	111	119	110	135		114	99

Table 19. Lodging scores, plant height, and seed quality scores, Uniform Test 0, 1966.

Strain	Mean of 9 Tests	Guelph Ont. ¹	Ridge- town Ont.	Colum- bus Ohio	East Lansing Mich.	Spooner Wis. ¹
Grant	2.4	4.6	1.8		2.0	1.3
Merit	2.0	3.1	1.2		1.1	1.0
Traverse	2.1	3.6	1.5		1.2	1.0
M391-1	1.9	2.9	1.0		1.4	1.0
M422	1.5	2.3	1.2		1.0	1.0
OAC85	2.1	2.0	1.2		1.0	1.3

	Mean of 10 Tests	Plant Height				
Grant	31	43	29		30	28
Merit	32	45	29		30	30
Traverse	33	42	32		32	29
M391-1	34	46	33		34	30
M422	30	40	27		27	28
OAC85	34	49	32		32	32

	Mean of 8 Tests	Seed Quality Score				
		*				*
Grant	2.1	2.0	2.0	1.2	2.0	1.0
Merit	2.2	2.0	3.0	1.5	1.2	1.0
Traverse	2.2	2.0	2.0	1.2	1.4	1.0
M391-1	2.2	2.0	2.0	1.0	1.6	1.0
M422	2.5	2.0	3.0	3.2	2.0	1.0
OAC85	2.5	2.0	3.0	2.5	1.8	1.0

*Not included in the mean.

¹Irrigated.

Table 19. (Continued)

Strain	Durand Wis.	Crooks- ton Minn.	Morris Minn.	St. Paul Minn.	Fargo N.D.	Sisse- ton S.D.	Five Points Cal. ¹ *
Grant	1.4	2.2	3.2	3.8	1.5		2.0
Merit	1.5	2.0	2.8	4.0	1.2		1.3
Traverse	1.3	2.0	3.2	3.2	2.0		2.5
M391-1	1.0	2.2	3.5	3.0	1.2		1.0
M422	1.1	1.2	2.0	3.0	1.0		1.0
OAC85	1.8	2.5	2.5	4.2	2.0		1.0

Plant Height							*
Grant	28	26	33	33	36	22	32
Merit	30	26	35	38	39	20	35
Traverse	29	28	35	36	38	26	34
M391-1	29	29	38	37	40	24	36
M422	28	24	33	33	35	22	30
OAC85	34	28	35	37	38	23	34

Seed Quality Score							*
Grant	2.0	3.2	2.5	3.0	1.0	1.0	3.0
Merit	2.0	2.8	2.5	2.2	1.0	2.0	2.0
Traverse	3.0	2.8	2.2	2.8	1.0	2.0	3.0
M391-1	2.0	3.0	2.5	3.2	1.0	2.0	2.0
M422	2.0	2.5	2.5	3.0	1.0	2.0	3.0
OAC85	2.0	3.0	2.8	3.2	1.0	2.0	2.0

Table 20. Percentages of protein and oil, Uniform Test 0, 1966.

Strain	Mean of 6 Tests	Ridge- town Ont.	Colum- bus Ohio	East Lansing Mich.	Spooner Wis. ¹	Morris Minn.	Sisse- ton S.D.
Grant	40.9	41.4	42.5	41.5	39.5	39.0	41.2
Merit	39.4	38.6	40.3	41.1	39.0	39.2	38.2
Traverse	41.3	41.8	42.1	42.3	41.0	40.0	40.4
M391-1	40.6	41.5	42.0	40.9	39.8	39.4	39.7
M422	41.0	40.3	43.0	41.8	40.9	40.5	39.5
OAC85	41.8	40.7	41.8	43.0	42.0	40.7	42.4

	Mean of 6 Tests	Percentage of Oil					
Grant	19.0	17.8	20.1	19.4	19.4	18.5	18.8
Merit	21.0	22.0	22.0	20.5	20.3	19.5	21.7
Traverse	20.0	20.5	20.9	19.8	19.1	19.5	20.0
M391-1	20.6	21.4	21.8	21.2	20.3	18.0	21.1
M422	20.2	20.8	20.3	20.1	19.3	20.0	20.4
OAC85	19.3	18.8	19.7	19.0	18.4	19.4	20.2

¹Irrigated.

Table 21. Three-year summary of data, Uniform Test 0, 1964-1966.

Strain	Yield	Rank	Matu- rity ¹	Lodg- ing	Height	Seed Quality	Seed Weight	Seed Composition	
No. of Tests	32	32	25	24	31	27	21	Protein	Oil
Grant	31.1	1	+3.2	2.5	30	2.0	17.1	40.4	19.2
Merit	28.4	4	0	1.9	31	2.0	14.8	39.3	20.7
Traverse	30.6	2	+4.8	2.2	31	2.2	18.3	40.9	20.1
M391-1 ²	29.6	3	+1.6	2.0	32	2.1	16.5	40.0	20.7
M422	27.6	5	-2.6	1.4	29	2.4	15.6	40.8	20.3

¹Days earlier (-) or later (+) than Merit which matured September 19, 118 days after planting.

²M391 in 1964.

Table 22. Three-year summary of yield and yield rank, Uniform Test 0, 1964-1966.

Strain	Mean of 32 Tests	Co- East										St.		Sisse- ton
		Guelph Ont.	Ridge-Har- town Ont.	lum- row Ont.	bus Ohio	Lan- sing Mich.	Spoon-Du- er Wis.	rand Wis.	Crooks- ton Minn.	Morris Minn.	Paul Minn.	Fargo N.D.	S.D.	
Years Tested	1964, 1966	1964- 1966	1964- 1966	1964- 1966	1964- 1966	1964- 1966	1964- 1966	1965- 1966	1965- 1966	1964- 1966	1965- 1966	1964, 1966	1965- 1966	
Grant	31.1	35.6	47.2	33.9	27.1	38.3	31.8	19.9	18.1	29.2	42.7	26.4	22.1	
Merit	28.4	32.5	42.0	27.3	21.3	31.5	29.9	17.5	20.6	28.3	42.9	26.6	20.9	
Traverse	30.6	36.2	45.3	34.8	28.3	36.2	28.3	17.8	19.8	30.3	42.5	27.8	21.9	
M391-1 ¹	29.6	35.0	42.8	30.9	25.1	34.8	28.6	17.9	19.6	29.8	42.5	24.6	22.2	
M422	27.6	35.8	40.5	24.8	20.4	30.0	30.2	15.4	21.2	27.5	38.6	26.0	19.9	

Yield Rank													
Grant	1	3	1	2	2	1	1	1	5	3	2	3	2
Merit	4	5	4	4	4	4	3	4	2	4	1	2	4
Traverse	2	1	2	1	1	2	5	3	3	1	3	1	3
M391-1	3	4	3	3	3	3	4	2	4	2	3	5	1
M422	5	2	5	5	5	5	2	5	1	5	5	4	5

¹M391 in 1964.

PRELIMINARY TEST 0, 1966

Strain	Parentage	Generation Composited
1. Grant		
2. Merit		
3. M58-12	(M10 x PI 194.633) x Chippewa	F ₅
4. M58-14	(M10 x PI 194.633) x Chippewa	F ₅
5. M58-15	(M10 x PI 194.633) x Chippewa	F ₅
6. SD641	Blackhawk x Clark ¹	F ₁₀
7. SD642	(Hawkeye x Capital) x (Blackhawk x Adams) ¹	F ₈
8. SD643	Colchicine-treated Chippewa	M ₇
9. SD6410	Blackhawk x Adams ¹	F ₁₀
10. SD6411	Harly x Clark ¹	F ₁₀
11. W3S-164	Seneca x Chippewa	F ₅
12. W3S-177	WOS-3386 x Clark	F ₅
13. W3S-199	Hardome x Chippewa	F ₅
14. W3S-236	WOS-3386 x Clark	F ₅
15. W4S-190	Seneca x Chippewa	F ₆
16. W4S-192	Seneca x Chippewa	F ₆
17. W4S-206	Seneca x WOS-3386	F ₆
18. W4S-209	Seneca x WOS-3386	F ₆

¹Colchicine-treated F₁.

Most of the 16 experimental strains ranged in yield between the late check, Grant, and the early check, Merit. W3S-236 had the best yield for its maturity since it was almost as early as Merit and less than a bushel below Grant in mean yield. Although none was outstanding, the following strains yielded above an estimated regression line for yield on maturity: M58-14, SD641, SD643, SD6411, W3S-177, and W4S-209. Several strains in this test carry phytophthora resistance, but none of these excelled in yield. Composition of the strains varied considerably but in most cases lower oil content was compensated by enough higher protein to approximately maintain the value of the grain.

Table 23. Descriptive data and shattering scores, Preliminary Test 0, 1966.

Strain	Flower Color	Pubes- cence Color	Pod Color	Seed Coat Luster	Seed Coat Color	Hilum Color	Shattering	
							Urbana Ill. ¹	Five Points Cal. ²
Grant	W	Lt	Br	S	Y	B1	2.0	2.5
Merit	W	G	Br	D	Y	Bf	1.0	2.0
M58-12	P	T	Br	S	Y + G	B1	2.0	3.0
M58-14	P	T	Br	S + D	Y	B1	2.0	2.5
M58-15	P	T	Br	S	Y	B1	1.5	1.5
SD641	P	T	Tan	D	Lg	G	1.0	1.0
SD642	P	G	Br	D	Y	Y	2.5	3.0
SD643	P	G	Br	D	Y	Y	2.0	2.0
SD6410	P	T	Br	D	Y	B1	1.0	1.5
SD6411	P	T	Tan	S	Lg	G	1.0	1.5
W3S-164	P	Lt	Br	S	Y	B1	1.5	1.0
W3S-177	P	T	Br	S	Y	B1	1.0	2.0
W3S-199	P	T + G	Br	S	Y	B1 + Ib	2.0	2.5
W3S-236	W	T	Br	S	Y	B1	1.0	1.5
W4S-190	P	Lt	Br	S	Y	B1	2.0	2.0
W4S-192	P	Lt	Br	S	Y	B1	1.5	1.0
W4S-206	W	Lt	Br	D	Y	B1	3.5	4.0
W4S-209	W	Lt	Br	D	Y	B1	4.5	2.0

¹Mean of two replications planted May 27. Scored one month after maturity.

²Mean of two replications planted June 10. Scored 14 days after maturity.

Table 24. Summary of data, Preliminary Test 0, 1966.

Strain	Yield	Rank	Matu- rity ¹	Lodg- ing	Height	Seed Quality	Seed Weight	Seed Composition	
								Protein	Oil
No. of Tests	7	7	5	6	7	6	4	5	5
Grant	37.7	1	+5.0	2.7	32	2.0	18.5	39.6	20.1
Merit	34.6	14	0	2.1	34	1.9	16.1	38.1	21.0
M58-12	36.0	6	+2.6	2.0	30	2.5	17.1	39.5	19.4
M58-14	36.6	3	+1.6	1.5	35	2.0	17.1	41.0	18.8
M58-15	33.5	16	+2.0	1.9	35	2.0	18.9	41.5	18.6
SD641	34.9	10	-1.6	1.5	32	2.8	15.8	39.4	21.0
SD642	33.0	18	-2.0	1.4	28	1.8	15.6	38.6	20.4
SD643	36.6	3	+3.6	1.5	30	2.2	21.9	41.6	19.4
SD6410	34.7	12	+0.2	1.6	29	1.9	15.9	39.2	21.0
SD6411	35.5	9	+0.8	1.7	30	2.1	15.9	40.4	20.5
W3S-164	33.3	17	+2.2	2.6	37	2.6	20.7	41.0	19.1
W3S-177	35.9	7	+0.6	2.2	36	1.8	16.0	40.7	19.9
W3S-199	35.7	8	+2.8	2.2	39	2.1	15.6	38.9	20.7
W3S-236	36.8	2	+1.2	1.7	32	2.1	17.5	41.3	19.2
W4S-190	34.7	12	+1.6	2.5	37	3.0	20.4	40.7	19.0
W4S-192	34.6	14	+2.0	3.0	38	2.6	19.9	40.0	19.5
W4S-206	34.9	10	+2.0	2.4	34	2.1	18.5	41.6	18.7
W4S-209	36.5	5	+1.0	2.4	33	1.9	18.2	41.8	18.6

¹Days earlier (-) or later (+) than Merit which matured September 17, 117 days after planting.

Table 25. Disease data, Preliminary Test 0, 1966.

Strain	Bacterial Pustule	Downy Mildew	Frogeye Race 2	Phytophthora Rot
	<u>Ill.</u> <u>al</u>	<u>Ind.</u> <u>nl</u>	<u>Ind.</u> <u>a</u>	<u>Ind.</u> <u>a</u>
Grant	S	2	S	S
Merit	S	1	S	R
M58-12	S	1	S	S
M58-14	S	2	S	S
M58-15	S	1	S	S
SD641	S	2	S	S
SD642	S	2	S	S
SD643	S	1	S	S
SD6410	S	2	S	R
SD6411	S	2	S	S
W3S-164	S	2	S	R
W3S-177	S	3	S	S
W3S-199	S	2	S	S
W3S-236	S	2	S	S
W4S-190	S	4	S	R
W4S-192	S	3	S	R
W4S-206	S	3	S	S
W4S-209	S	2	S	S

la = artificial inoculation; n = natural infection.

Table 26. Yield, Preliminary Test 0, 1966.

Strain	Mean of 7 Tests	Guelph Ont. ¹	Ridge- town Ont.	East Lan- sing Mich.	Spoon- er Wis. ¹	St. Paul Minn.	Fargo N.D.	Sisse- ton S.D.	Five Points Cal. ¹ *
Grant	37.7	43.1	53.4	37.2	34.1	46.0	31.0	19.3	19.6
Merit	34.6	32.4	46.3	35.3	34.7	43.1	30.3	20.2	17.4
M58-12	36.0	38.1	52.8	34.6	36.8	40.1	29.6	19.9	19.1
M58-14	36.6	37.7	47.7	37.6	40.8	44.5	30.1	17.7	16.5
M58-15	33.5	34.7	46.8	35.3	31.5	40.1	27.4	19.0	17.1
SD641	34.9	39.2	46.5	30.4	35.9	41.4	30.6	20.5	14.8
SD642	33.0	42.4	41.8	28.4	31.1	40.3	28.0	19.2	16.4
SD643	36.6	37.6	47.9	36.6	36.1	45.3	33.2	19.6	22.4
SD6410	34.7	39.5	47.4	35.5	31.3	38.9	31.2	18.9	14.9
SD6411	35.5	38.7	46.2	37.5	39.2	38.7	30.4	17.9	15.6
W3S-164	33.3	36.6	48.4	29.2	32.8	41.4	25.7	19.0	15.0
W3S-177	35.9	33.0	51.5	35.6	40.9	42.0	29.9	18.5	14.2
W3S-199	35.7	39.2	51.0	34.8	33.6	38.6	29.1	23.3	17.1
W3S-236	36.8	42.9	50.2	35.3	36.4	43.5	29.6	19.4	17.9
W4S-190	34.7	39.2	49.4	35.0	34.4	40.6	25.8	18.7	15.1
W4S-192	34.6	36.4	51.2	34.1	32.0	43.9	27.3	17.6	15.1
W4S-206	34.9	49.8	47.4	29.5	31.1	43.5	30.3	12.5	14.6
W4S-209	36.5	50.1	47.2	30.4	34.8	43.3	30.4	19.4	14.9
Coef. of Var. (%)	--	--	3.6	7.5	8.3	9.9	--	--	10.0
L.S.D. (5%)	--	--	3.7	5.1	6.1	N.S.	3.6	--	N.S.
Row Spacing (In.)		24	24	28	36	36	40	36	30

*Not included in the mean.

¹Irrigated.

Table 27. Yield rank, Preliminary Test 0, 1966.

Strain	Mean of 7 Tests	Guelph Ont.	Ridge- town Ont.	East Lan- sing Mich.	Spoon- er Wis.	St. Paul Minn.	Fargo N.D.	Sisse- ton S.D.	Five Points Cal.
Grant	1	3	1	3	11	1	3	8	2
Merit	14	18	16	7	9	8	7	3	5
M58-12	6	11	2	12	4	14	11	4	3
M58-14	3	12	10	1	2	3	9	16	8
M58-15	16	16	14	7	15	14	15	10	6
SD641	10	7	15	14	7	10	4	2	16
SD642	18	5	18	18	17	13	14	9	9
SD643	3	13	9	4	6	2	1	5	1
SD6410	12	6	11	6	16	16	2	12	14
SD6411	9	10	17	2	3	17	5	15	10
W3S-164	17	14	8	17	13	10	18	10	13
W3S-177	7	17	3	5	1	9	10	14	18
W3S-199	8	7	5	11	12	18	13	1	6
W3S-236	2	4	6	9	5	5	11	6	4
W4S-190	12	7	7	10	10	12	17	13	11
W4S-192	14	15	4	13	14	4	16	17	11
W4S-206	10	2	11	16	17	5	7	18	17
W4S-209	5	1	13	15	8	7	5	6	14

*Not included in the mean.

Table 28. Maturity, days earlier (-) or later (+) than Merit, Preliminary Test 0, 1966.

Strain	Mean of 5 Tests	Guelph Ont. ¹	Ridge- town Ont.	East Lan- sing Mich.	Spoon- er Wis. ¹	St. Paul Minn.	Fargo N.D.	Sisse- ton S.D.	Five Points Cal. ¹
		*					*		*
Grant	+5.0	+ 2	+ 4	+ 6	+10	+ 2		+3	0
Merit	0	0	0	0	0	0		0	0
M58-12	+2.6	+ 1	+ 4	+ 3	+ 3	0		+3	0
M58-14	+1.6	- 3	+ 2	+ 1	+ 2	+ 1		+2	0
M58-15	+2.0	0	+ 3	+ 3	+ 3	- 1		+2	0
SD641	-1.6	-15	- 2	- 3	- 2	- 1		0	0
SD642	-2.0	-14	- 1	- 5	- 2	- 1		-1	0
SD643	+3.6	- 3	+ 6	+ 6	+ 5	+ 1		0	0
SD6410	+0.2	- 2	0	+ 1	+ 1	0		-1	0
SD6411	+0.8	-14	+ 2	- 3	+ 2	+ 2		+1	0
W3S-164	+2.2	0	+ 4	+ 2	+ 6	- 2		+1	0
W3S-177	+0.6	+ 1	+ 2	- 1	+ 4	- 2		0	0
W3S-199	+2.8	- 3	+ 4	+ 3	+ 6	0		+1	0
W3S-236	+1.2	- 5	0	+ 1	+ 2	+ 1		+2	0
W4S-190	+1.6	- 3	+ 3	+ 3	+ 4	- 1		-1	0
W4S-192	+2.0	+ 3	+ 3	+ 5	+ 5	- 3		0	0
W4S-206	+2.0	- 9	0	+ 3	+ 3	+ 2		+2	0
W4S-209	+1.0	- 4	0	0	+ 3	+ 1		+1	0
Flambeau (00)		-19	--	- 3	--	-13		--	-19
Chippewa 64 (I)		--	+10	+10	--	+ 4		--	+ 5
Date planted	5-23	5-31	5-20	5-26	5-26	5-10	5-25	5-31	6-10
Merit matured	9-17	10-8	9-6	9-19	9-14	9-22	--	9-22	9-17
Days to mature	117	130	109	116	111	135	--	114	99

*Not included in the mean.

¹Irrigated.

UNIFORM TEST I, 1966

Strain	Parentage	Generation Composited	Previous Testing (years)
1. A-100	Unknown	--	4
2. Chippewa 64	Chippewa ⁸ x Blackhawk	29 F ₃ lines	4
3. Disoy (AX80-21)	[F ₆ Mandarin (Ottawa) x Kanro] x (F ₆ Richland x Jogun)	F ₆	1
4. Hark (A1-540)	Hawkeye x Harosoy	F ₉	2
5. A2-5405	Clark x Chippewa	F ₇	1 ¹
6. A2-5407	Clark x Chippewa	F ₇	1
7. A2-5440	Harosoy x Chippewa	F ₇	P.T. I
8. A2-5504	Hawkeye x Chippewa	F ₇	1 ²
9. M54-160	Korean x II-42-37	F ₅	P.T. I
10. M54-167	Grant x Harosoy	F ₅	P.T. I
11. W1-4221	Grant x Chippewa	F ₆	1

¹Progenitor A9-619 in 1963-64.

²Progenitor A9K-2558 in 1964.

A2-5405 has had the highest mean yield the past two years and its progenitor A9-619 was the top yielding strain three years ago. In test for the same length of time, A2-5504 has yielded almost as well and is a couple days earlier. Both have averaged similar to the checks in other characters measured.

Among the early strains, M54-160, -167, and W1-4221, there appears to be some increase in yield or earliness over Chippewa 64 but lodging resistance is less, height is reduced, and seed composition appears less desirable.

HARK

Hark is the progeny of an F₈ plant and was developed in Iowa by C. R. Weber. A history of its development is given below:

1952 Cross AX55, Hawkeye x Harosoy, made at Ames by C. R. Weber.

1953 F₁ Hybrid grown in field at Ames.

1954-1956 F₂-F₄ grown as bulk populations at Ames.

1957 F₅ Bulk hybrid grown and early, mid, and late plant selections made at Ames.

1958 F₆ Early plants grown in 5-foot rows at Kanawha and bulked on row basis.
A8-1334 was row that later gave rise to A1-540.

1959 F₇ Preliminary replicated test at Kanawha.

1960 F₈ Preliminary replicated tests at Kanawha and Sutherland. Selected 5 single plants from A8-1334 at Ames.

- 1961 F₉ A8-1334 in Uniform Preliminary Test I and also in 4 tests in Iowa. Plant rows grown at Ames and 2 selected and bulked separately as A1-540 and A1-541.
- 1962 F₁₀ A8-1334 in Uniform Test I. A8-1334, A1-540, and A1-541 in 2 replicated tests in Iowa. A1-540 slightly superior to progenitor, A8-1334.
- 1963 F₁₁ A8-1334, A1-540, and A1-541 in Uniform Preliminary Test I. A8-1334 in Uniform Test I. Increased remnant seed (1961) of A1-540 and A1-541 to 20 lbs. at Ames.
- 1964 F₁₂ A1-540 in Uniform Test I. Increased A1-540 to 38 bu. at Ames.
- 1965 F₁₃ A1-540 in Uniform Test I. Iowa distributed 38 bushels to following states for multiplication in 1965 on basis of 1964 acreage and percentage of Chippewa, Blackhawk, Harosoy and Lindarin: Illinois (14 bu.), Iowa (11 bu.), Minnesota (11 bu.), South Dakota (1 bu.), and Wisconsin (1 bu.). Iowa increased South Dakota and Wisconsin allocations.
- 1965 Production: Illinois, 462 bu.; Iowa, 1,150 bu.; and Minnesota, 565, with Iowa producing shares for South Dakota and Wisconsin. Wisconsin did not desire their allotment. Michigan and Nebraska obtained seed from Iowa for 1966 increase.
- 1966 A1-540 in Uniform Test I, increased, named Hark (from Harosoy and Hawkeye), and publicity released in July.

DISOY, MAGNA, AND PRIZE

Three large-seeded varieties, Disoy (Group I), Magna (Group II), and Prize (Group II), were developed by C. R. Weber at Ames, Iowa, and released this year. A history of their development is given below:

1954 Crosses were made at Ames by C. R. Weber as follows:

AX80 = A50-6838 x A50-7537

AX84 = A50-7401 x A50-6838

A50-6838 = F₆ line from Mandarin (Ottawa) x Kanro

A50-7537 = F₆ line from Richland x Jogun

A50-7401 = F₆ line from Mandarin (Ottawa) x Jogun

1955 F₁ Hybrids grown in field at Ames.

1956-

1958 F₄ Bulk populations grown at Ames and late plants rogued, remainder of population left in field to eliminate shattering susceptibility. Populations harvested and screened for larger seed in lab.

1959 F₅ Bulk populations grown at Ames and plant selections made.

1960 F₆ Plant rows grown at Ames with selection on a row basis for early, tall, lodging resistance, lack of green stems, seed size, seed color, and

shattering resistance. Bulkied on row basis, and in the laboratory selection was made for seed quality, yellow hilum, and large seed (26.0 g./100 or higher).

- 1961 F₇ Selections placed in maturity groupings and evaluated in preliminary replicated test at Ames.
- 1962 F₈ Deleted half of lines and evaluated in replicated test at Ames.
- 1963 F₉ Deleted half of 1962 lines and evaluated in replicated tests at Ames and Kanawha, Iowa.
- 1964 F₁₀ Selected 20% of the lines from 1963 tests and evaluated 14 lines in replicated tests at Ames and Kanawha, Iowa, at Dwight and Urbana, Illinois, and at Lafayette and Walkerton, Indiana. Made 100 plant selections in each of the 14 lines, typical as to plant type, hilum and seed characteristics. Six (6) pounds of seed of each produced.
- 1965 F₁₁ Evaluated Disoy (AX80-21) in Uniform Test I. Magna (AX84-90) and Prize (AX84-98) were evaluated in Uniform Test II. Increased each variety to 4 to 6 bushels at Ames. In winter, distributed as follows:

	Ill.	Iowa	Minn.	Ohio	Total
Disoy	1	1	1.5	.5	4.0 bu.
Magna	3	2		1	6.0 bu.
Prize	2	2		.5	4.5 bu.

- 1966 The varieties were grown in the same Uniform Tests as in 1965. Four states increased seed as indicated.
- 1967 February 2, 1967, publicity released on Disoy, Magna, and Prize.

Table 29. Descriptive data and shattering scores, Uniform Test I, 1966.

Strain	Flower Color	Pubes- cence Color	Pod Color	Seed Coat Luster	Seed Coat Color	Hilum Color	Shattering	
							Five Points Cal. ¹	Cor- coran Cal. ²
A-100	W	G	Br	S	Y	Bf	2.0	1.3
Chippewa 64	P	T	Br	S	Y	B1	1.3	1.5
Disoy	P	G	Tan	D	Y	Y	4.5	2.3
Hark	P	G	Br	D	Y	Y	2.0	1.3
A2-5405	P	T	Br	S	Y	B1	1.8	1.3
A2-5407	P	T	Br	S	Y	B1	2.3	1.5
A2-5440	P	T	Br	S	Y	G	2.8	1.5
A2-5504	P	T	Br	S	Y	B1	3.5	2.3
M54-160	P	T	Br	S	Y	B1	3.3	1.8
M54-167	P	G	Br	S	Y	Bf	5.0	2.0
W1-4221	P	Lt	Br	S	Y	B1	4.5	2.5

¹Mean of four replications planted June 10. Scored 14 days after maturity.

²Mean of four replications planted June 11. Scored 14 days after maturity.

Table 30. Summary of data, Uniform Test I, 1966.

Strain	Yield	Rank	Matu- rity ¹	Lodg- ing	Height	Seed Quality	Seed Weight	Seed Composition	
No. of Tests	20	20	17	14	19	18	14	Protein	Oil
								9	9
A-100	38.8	3	+6.1	1.7	33	1.8	19.9	40.6	20.9
Chippewa 64	35.7	9	0	1.5	34	1.8	16.5	41.2	20.4
Disoy	35.7	9	+3.2	2.1	36	2.8	28.3	42.6	19.8
Hark	38.0	5	+5.5	1.5	35	1.8	17.5	42.2	20.1
A2-5405	41.1	1	+4.9	1.6	33	2.0	18.1	41.1	20.6
A2-5407	37.6	6	+0.8	1.5	34	1.8	17.2	41.5	20.3
A2-5440	38.9	2	+3.2	1.9	36	2.1	19.8	41.1	20.5
A2-5504	38.4	4	+3.2	1.7	33	1.8	18.0	41.8	20.3
M54-160	37.1	7	-0.5	2.1	31	1.9	19.9	39.7	22.1
M54-167	35.2	11	-2.3	2.1	33	2.2	17.5	39.8	21.1
W1-4221	36.7	8	-0.9	1.8	32	1.7	17.7	41.3	19.9

¹Days earlier (-) or later (+) than Chippewa 64 which matured September 15, 114 days after planting.

Table 31. Disease data, Uniform Test I, 1966.

Strain	Bacterial Blight	Bacterial Pustule		Xantho- monas sp. ²	Choco- late Spot ³	Downy Mildew	Frogeye Race 2	Phytoph- thora Rot	Brown Stem Rot
	Ia.	Ill.	Ia.	Ia.	Ia.	Ind.	Ind.	Ind.	Ill.
	a ¹	a	a	a	a	n ¹	a	a	n
A-100	4	S	4	3	4	5	S	S	4
Chippewa 64	4	S	4	1	4	3	S	R	4
Disoy	4	S	5	4	4	4	R	S	4
Hark	4	S	4	2	3	3	S	S	3
A2-5405	4	S	4	1	4	5	S	S	3
A2-5407	5	S	5	1	3	4	S	S	3
A2-5440	5	S	5	1	2	3	S	S	3
A2-5504	4	S	4	1	3	3	S	S	4
M54-160	4	S	5	3	3	3	S	S	4
M54-167	4	S	4	4	4	2	S	S	3
W1-4221	5	S	5	3	4	4	S	S	4

¹a = artificial inoculation; n = natural infection.

²An unnamed *Xanthomonas* sp.

³A bacterial leafspot that resembles brown spot.

Table 32. Yield and yield rank, Uniform Test I, 1966.

Strain	Mean of 20 Tests	Ridge- town Ont.	Har- row Ont.	Hoyt- ville Ohio	Woos- ter Ohio	Co- lum- bus Ohio	East Lan- sing Mich.	Dun dee Mich.	Lafa- yette Ind.	Du- rand Wis.	Madi- son Wis.	De- Kalb Ill. ¹
A-100	38.8	52.2	49.1	42.0	22.3	25.0	45.3	47.6	41.1	28.0	42.8	46.8
Chippewa 64	35.7	49.0	39.3	41.5	24.0	21.3	38.5	43.8	39.2	27.1	38.3	43.1
Disoy	35.7	49.3	45.7	43.1	19.0	18.5	36.7	44.0	38.1	23.9	41.4	42.2
Hark	38.0	52.4	45.2	46.4	21.2	17.7	40.6	48.3	41.4	30.9	42.5	42.0
A2-5405	41.1	57.1	47.1	49.1	26.1	26.4	44.1	48.9	42.9	32.2	45.9	45.4
A2-5407	37.6	52.1	43.2	44.3	24.2	23.6	42.6	45.9	40.7	26.4	41.0	42.4
A2-5440	38.9	51.6	41.6	40.7	28.1	25.0	41.8	45.1	41.8	29.8	44.4	42.9
A2-5504	38.4	52.0	44.3	42.7	23.7	22.2	44.0	40.1	43.5	32.5	42.6	44.5
M54-160	37.1	56.8	40.8	39.9	24.4	18.5	43.5	45.3	37.1	25.5	42.6	41.0
M54-167	35.2	53.7	39.4	38.6	26.0	14.6	40.9	42.7	36.8	25.3	37.5	37.8
W1-4221	36.7	55.4	42.8	41.7	22.3	17.1	42.1	42.3	39.5	26.7	41.7	42.7
C.V.(%)		4.9	5.4	--	--	--	6.9	8.1	5.3	7.8	7.1	6.0
L.S.D.(5%)		3.7	3.4	--	--	--	4.1	5.3	3.1	4.1	4.2	4.4
Row Sp.(In.)		24	40	28	32	28	28	28	38	36	36	30

	Yield Rank											
A-100	3	6	1	6	8	2	1	3	5	5	3	1
Chippewa 64	9	11	11	8	6	6	10	8	8	6	10	4
Disoy	9	10	3	4	11	7	11	7	9	11	8	8
Hark	5	5	4	2	10	9	9	2	4	3	6	9
A2-5405	1	1	2	1	2	1	2	1	2	2	1	2
A2-5407	6	7	6	3	5	4	5	4	6	8	9	7
A2-5440	2	9	8	9	1	2	7	6	3	4	2	5
A2-5504	4	8	5	5	7	5	3	11	1	1	4	3
M54-160	7	2	9	10	4	7	4	5	10	9	4	10
M54-167	11	4	10	11	3	11	8	9	11	10	11	11
W1-4221	8	3	7	7	8	10	6	10	7	7	7	6

*Not included in the mean.

¹Three replications.

²Irrigated.

Table 32. (Continued)

Strain	Pon- tiac Ill.	Ur- bana Ill. ¹	St. Paul Minn.	Lam- ber- ton Minn.	Wa- seca Minn.	Cresco Iowa	Kana- wha Iowa	Brook- ings S.D.	Con- cord Nebr. ²	Davis Cal. ²	Five Points Cal. ²	Cor- coran Cal. ²
										*	*	*
A-100	37.5	33.1	46.0	40.7	38.9	32.8	37.8	27.2	40.0	11.9	19.7	36.7
Chippewa 64	34.0	29.0	41.0	36.6	34.7	29.7	36.5	28.9	38.5	17.6	17.1	33.3
Disoy	33.2	24.4	41.1	36.1	38.0	30.7	39.6	25.3	42.7	14.6	16.4	27.1
Hark	34.4	32.3	35.4	41.0	39.9	37.0	41.7	31.0	39.0	15.4	17.6	38.2
A2-5405	38.4	34.8	48.8	44.1	42.8	35.9	40.4	29.5	41.8	14.3	20.2	30.6
A2-5407	34.7	32.1	46.3	37.7	40.7	32.2	39.0	29.0	34.0	16.9	16.9	31.4
A2-5440	38.0	32.8	45.7	41.0	41.6	37.5	38.0	28.0	43.1	11.9	22.8	38.9
A2-5504	35.4	31.7	45.3	40.5	40.9	33.5	40.8	28.4	38.5	14.0	15.4	30.6
M54-160	33.6	29.3	43.7	38.0	40.8	35.3	35.8	29.7	40.4	14.0	20.2	32.2
M54-167	32.0	25.9	44.7	38.4	32.2	32.2	36.6	28.7	39.1	13.8	18.9	36.1
W1-4221	33.2	29.2	45.0	36.4	38.7	30.6	37.8	29.2	39.8	14.9	16.3	30.9
C.V.(%)	5.0	5.8	7.0	9.0	5.8	6.5	5.6	--	15.5	--	18.0	16.0
L.S.D.(5%)	2.5	3.0	4.5	N.S.	3.3	3.0	3.0	--	8.9	--	N.S.	N.S.
R.Sp.(In.)	38	40	36	40	40	42	40	40	40	30	30	30

	Yield Rank											
A-100	3	2	3	4	7	6	7	10	5	10	4	3
Chippewa 64	7	9	10	9	10	11	10	6	9	1	7	5
Disoy	9	11	9	11	9	9	4	11	2	5	9	11
Hark	6	4	11	2	6	2	1	1	8	3	6	2
A2-5405	1	1	1	1	1	3	3	3	3	6	2	9
A2-5407	5	5	2	8	5	7	5	5	11	2	8	7
A2-5440	2	3	4	2	2	1	6	9	1	10	1	1
A2-5504	4	6	5	5	3	5	2	8	9	7	11	9
M54-160	8	7	8	7	4	4	11	2	4	7	2	6
M54-167	11	10	7	6	11	7	9	7	7	9	5	4
W1-4221	9	8	6	10	8	10	7	4	6	4	10	8

Table 33. Maturity, days earlier (-) or later (+) than Chippewa 64, and lodging scores, Uniform Test I, 1966.

Strain	Mean of 17 Tests	Ridge- town Ont.	Har- row Ont.	Hoyt- ville Ohio	Woos- ter Ohio	Co-	East	Dun- dee Mich.	Lafa- yette Ind.	Du- rand Wis.	Madi- son Wis.	De- Kalb Ill.
						bus Ohio	lan- sing Mich.					
						*	*	*				
A-100	+6.1	+7	+11	+ 1	0		+5	+ 8	+6	+4	+8	+9
Chippewa 64	0	0	0	0	0		0	0	0	0	0	0
Disoy	+3.2	+5	+ 4	+ 2	+3		+5	+ 7	0	+5	+4	+3
Hark	+5.5	+5	+ 5	+ 1	+6		+1	+ 7	+6	+3	+8	+5
A2-5405	+4.9	+3	+ 7	+ 2	+7		0	+ 2	+5	+4	+7	+6
A2-5407	+0.8	0	0	+ 1	+5		-3	- 2	0	-1	0	0
A2-5440	+3.2	+4	+ 5	+ 1	+4		+4	+ 6	+4	+2	+2	+5
A2-5504	+3.2	+2	+ 5	+ 1	+8		-1	0	+3	+2	+4	+2
M54-160	-0.5	+3	- 1	0	+3		0	- 1	0	+1	-1	-1
M54-167	-2.3	-4	- 1	- 2	+2		-4	0	-1	-2	-3	-4
W1-4221	-0.9	+1	0	- 1	+1		-2	+ 1	+1	0	-2	-1
Grant (0)		-5	--	--	--		-4	--	--	-8	-9	-6
Harosoy 63 (II)		+4	+ 7	+13	+7		+8	+12	+5	+6	+7	+7
Date planted	5-24	5-20	5-30	6-3	5-25	5-21	5-26	5-25	5-27	5-27	5-27	5-23
Chip. 64 mat.	9-15	9-15	9-15	9-24	9-12	--	9-29	9-26	9-5	9-22	9-15	9-10
Days to mat.	114	118	108	113	110	--	126	124	101	118	111	110
Lodging Score												
	Mean of 14 Tests					*	*	*				*
A-100	1.7	1.3	1.2	1.0	1.0		1.8	1.3	1.0	1.5	2.0	1.0
Chippewa 64	1.5	1.5	1.2	1.2	1.0		1.3	1.8	1.0	1.0	1.1	1.0
Disoy	2.1	2.3	1.8	1.5	1.0		1.8	1.7	1.7	3.5	1.8	1.0
Hark	1.5	1.0	1.2	1.2	1.0		1.0	1.8	1.0	1.0	1.4	1.0
A2-5405	1.6	1.3	1.5	1.0	1.0		1.1	1.5	1.0	1.0	1.4	1.0
A2-5407	1.5	1.3	1.0	1.5	1.0		1.2	1.1	1.0	1.0	1.4	1.0
A2-5440	1.9	1.8	2.0	1.7	1.0		1.5	2.5	1.5	1.5	1.9	1.0
A2-5504	1.7	1.3	1.8	1.5	1.0		1.5	1.8	1.0	1.3	1.5	1.0
M54-160	2.1	1.8	2.5	1.7	1.0		2.0	2.2	1.5	2.3	2.3	1.0
M54-167	2.1	1.5	2.0	2.0	1.0		2.0	2.2	1.3	3.5	2.4	1.0
W1-4221	1.8	1.8	2.2	2.2	1.0		1.7	2.0	1.0	1.5	1.6	1.0

*Not included in the mean.

1Irrigated.

Table 33. (Continued)

Strain	Pon- tiac Ill.	Ur- bana Ill.	St. Paul Minn.	Lam- ber- ton Minn.	Wa- seca Minn.	Cresco Iowa	Kana- wha Iowa	Brook- ings S.D.	Con- cord Nebr. ¹	Davis Cal. ¹	Five Points Cal. ¹	Cor- coran Cal. ¹
A-100	+5	+4	+ 9	+ 5	+11	+7	+5	+5	+ 6	*	*	*
Chippewa 64	0	0	0	0	0	0	0	0	0	+ 7	0	+ 6
Disoy	0	-2	+ 8	+ 4	+ 7	+2	+1	+2	+ 6	+11	-1	+ 6
Hark	+3	+2	+11	+ 5	+ 9	+7	+5	+3	+10	+ 6	0	+ 6
A2-5405	+5	+5	+ 1	+ 4	+ 9	+6	+5	+2	+ 5	+ 5	-1	+ 6
A2-5407	0	+1	0	0	+ 3	-2	0	+1	+ 5	- 1	0	0
A2-5440	+3	+2	+ 7	+ 3	+ 5	+2	+1	0	+ 5	+ 1	0	+ 6
A2-5504	+2	+1	0	+ 3	+ 7	+3	+4	+2	+ 5	- 1	0	+ 6
M54-160	-2	-3	+ 1	- 1	+ 1	-2	-2	-1	- 4	0	0	0
M54-167	-4	-4	0	- 2	- 2	-3	-3	-1	- 5	- 1	-1	0
W1-4221	-2	-1	0	- 4	0	0	-2	-1	- 4	- 2	0	0
Grant	-3	-3	- 2	--	--	-6	-4	--	--	--	-9	- 1
Harosoy 63	+5	+3	--	+10	+14	+9	+5	+4	+ 6	--	+4	+10
Date planted	5-30	5-20	5-10	5-19	5-21	5-26	5-17	5-25	5-26	6-14	6-10	6-11
Chip. 64 mat.	9-7	8-31	9-26	9-14	9-19	9-24	9-11	9-23	9-18	10-3	9-26	9-22
Days to mat.	100	103	139	118	121	121	117	121	115	111	108	103
Lodging Score												
A-100	1.2	1.2	2.5	3.2	2.2	1.7	1.7		1.5	3.0	1.3	1.5
Chippewa 64	1.2	1.0	3.0	2.5	2.0	1.5	1.5		1.8	2.0	1.0	1.0
Disoy	1.1	1.2	4.0	3.8	2.0	1.6	1.5		1.5	4.0	1.3	1.5
Hark	1.0	1.0	2.8	2.8	2.0	1.6	1.5		2.0	3.0	1.0	1.3
A2-5405	1.2	1.0	2.2	3.5	2.2	1.6	1.5		1.8	2.0	1.5	1.0
A2-5407	1.1	1.1	3.0	2.5	2.0	1.5	1.6		1.3	2.0	1.0	1.3
A2-5440	1.2	1.1	3.8	3.2	2.0	1.7	1.6		2.0	3.0	1.5	1.8
A2-5504	1.1	1.2	3.0	4.0	2.0	1.5	1.6		1.0	2.0	1.0	1.3
M54-160	1.2	1.1	4.0	3.2	2.0	1.7	2.3		1.5	3.0	1.5	1.0
M54-167	1.1	1.1	4.0	3.0	2.2	1.7	1.8		1.8	3.0	1.5	1.3
W1-4221	1.2	1.1	3.2	2.8	2.0	1.6	1.8		1.5	2.0	1.5	1.0

Table 34. Plant height and seed quality scores, Uniform Test I, 1966.

Strain	Mean of 19 Tests	Ridge- town Ont.	Har- row Ont.	Hoyt- ville Ohio	Woos- ter Ohio	Co- East		Dun- dee Mich.	Lafa- yette Ind.	Du- rand Wis.	Madi- son Wis.	De- Kalb Ill.
						lum- bus Ohio	Lan- sing Mich.					
A-100	33	36	40	32	25		33	36	36	31	36	34
Chippewa 64	34	34	40	35	26		33	35	37	30	35	32
Disoy	36	38	42	35	26		33	40	39	36	39	35
Hark	35	36	42	36	24		34	37	39	32	38	33
A2-5405	33	34	38	34	25		32	36	36	29	36	32
A2-5407	34	34	39	32	24		32	56	36	27	37	31
A2-5440	36	36	41	35	26		35	57	39	32	38	35
A2-5504	33	32	40	32	24		32	35	37	31	37	32
M54-160	31	31	37	30	22		31	33	35	29	35	27
M54-167	33	33	40	33	23		31	35	37	34	38	29
W1-4221	32	32	38	32	24		30	34	36	30	36	28

	Mean of 18 Tests	Seed Quality Score										
A-100	1.8	2.0	1.5	1.5	2.2	1.5	1.5	1.2	1.0	2.0	2.0	1.0
Chippewa 64	1.8	2.0	1.8	1.2	2.0	1.3	2.4	1.3	1.0	2.0	2.0	1.0
Disoy	2.8	3.0	1.8	3.0	3.0	3.0	2.7	2.9	2.0	2.0	3.0	2.0
Hark	1.8	2.0	1.2	2.0	2.2	2.2	2.0	1.0	1.0	1.0	2.0	1.0
A2-5405	2.0	2.0	1.5	1.5	2.5	1.7	2.6	1.1	2.0	2.0	2.0	2.0
A2-5407	1.8	2.0	1.0	1.0	2.2	2.7	2.0	1.1	1.0	2.0	1.0	2.0
A2-5440	2.1	2.0	1.2	1.2	2.5	3.2	2.3	1.0	1.0	2.0	3.0	2.0
A2-5504	1.8	2.0	1.0	1.2	2.2	1.0	1.3	1.3	1.0	2.0	2.0	2.0
M54-160	1.9	2.0	1.0	1.5	2.2	1.5	2.5	1.1	2.0	2.0	2.0	1.0
M54-167	2.2	2.0	1.8	1.5	2.5	2.5	2.1	1.4	2.0	3.0	2.0	1.0
W1-4221	1.7	2.0	1.0	1.0	2.2	1.5	2.0	1.1	1.0	2.0	2.0	1.0

*Not included in the mean.

1Irrigated.

Table 34. (Continued)

Strain	Pon- tiac Ill.	Ur- bana Ill.	St. Paul Minn.	Lam- ber- ton Minn.	Wa- seca Minn.	Cresco Iowa	Kana- wha Iowa	Brook- ings S.D.	Con- cord Nebr. ¹	Davis Cal. ¹	Five Points Cal. ¹	Cor- coran Cal. ¹
A-100	29	27	37	34	36	33	35	28	34	*	*	*
Chippewa 64	30	29	37	36	37	34	36	26	37	43	42	36
Disoy	32	27	37	34	41	35	39	29	40	46	39	37
Hark	31	27	39	39	39	36	39	29	39	44	40	34
A2-5405	30	26	36	35	38	33	36	25	36	47	41	42
A2-5407	29	26	36	34	37	33	35	27	34	43	41	37
										47	39	38
A2-5440	31	28	37	37	38	34	36	27	39	48	41	38
A2-5504	29	25	36	37	37	34	36	25	35	42	38	37
M54-160	28	24	35	34	36	31	31	25	32	45	35	30
M54-167	27	25	37	38	38	33	36	29	35	48	39	35
W1-4221	27	25	36	33	35	32	36	26	36	43	36	32

Seed Quality Score												
						*	*			*	*	*
A-100	2.5	1.5	3.0	2.2	2.2	1.0	1.0	3.0	1.3	3.0	2.0	1.0
Chippewa 64	2.5	1.3	2.7	2.2	2.0	1.0	1.0	2.0	1.1	3.0	2.0	3.0
Disoy	4.0	2.8	3.5	3.2	3.0	1.0	1.0	4.0	2.0	4.0	1.0	2.0
Hark	2.0	1.5	3.5	2.5	2.2	1.0	1.0	1.0	1.5	3.0	3.0	1.0
A2-5405	2.5	1.5	3.0	2.5	2.2	1.0	1.0	2.0	1.9	3.0	3.0	1.0
A2-5407	2.0	1.5	2.8	2.2	2.2	1.0	1.0	2.0	1.0	3.0	2.0	2.0
A2-5440	2.5	1.5	3.8	2.5	2.5	1.0	1.0	2.0	1.5	3.0	2.0	1.0
A2-5504	2.5	1.5	2.5	2.5	2.2	1.0	1.0	2.0	1.3	3.0	3.0	1.0
M54-160	2.5	1.5	2.8	2.5	2.5	1.0	1.0	2.0	1.4	2.0	2.0	2.0
M54-167	2.5	1.5	3.2	2.8	2.5	1.0	1.0	3.0	1.6	3.0	3.0	2.0
W1-4221	2.0	1.0	2.5	2.2	2.2	1.0	1.0	2.0	1.4	2.0	3.0	1.0

Table 35. Percentages of protein and oil, Uniform Test I, 1966.

Strain	Mean of 9 Tests	Ridge- town Ont.	Co- lum- bus Ohio	East Lan- sing Mich.	Lafa- yette Ind.	Madi- son Wis.	Ur- bana Ill.	Wa- seca Minn.	Kana- wha Iowa	Brook- ings S.D.	Davis Cal. ¹ *
A-100	40.6	40.8	41.0	41.2	38.3	41.4	39.8	41.2	41.1	40.3	38.5
Chippewa 64	41.2	42.9	43.1	42.7	38.8	41.5	40.1	40.8	41.1	39.9	38.8
Disoy	42.6	42.6	44.2	42.7	41.1	43.0	42.4	42.1	42.7	42.5	41.1
Hark	42.2	42.4	41.8	43.5	40.3	44.1	40.6	42.7	42.6	42.2	39.9
A2-5405	41.1	41.6	41.4	41.9	39.3	41.8	40.8	41.7	41.1	40.2	--
A2-5407	41.5	42.5	43.1	42.5	39.7	41.9	40.8	42.2	41.3	39.8	--
A2-5440	41.1	41.6	42.5	42.3	39.9	41.7	39.6	41.6	41.5	39.6	--
A2-5504	41.8	42.0	43.9	42.6	39.9	42.3	40.0	43.0	42.5	39.8	--
M54-160	39.7	40.0	41.1	41.1	37.4	39.9	39.2	39.3	40.1	39.1	--
M54-167	39.8	39.6	42.3	41.0	39.0	40.0	39.0	39.1	38.8	39.1	--
W1-4221	41.3	42.3	42.9	42.1	38.8	43.0	39.0	41.9	41.7	39.9	--
	Mean of 9 Tests	Percentage of Oil									*
A-100	20.9	19.9	21.9	20.2	23.6	20.9	21.8	19.7	21.2	19.0	20.6
Chippewa 64	20.4	18.9	20.9	19.9	22.5	20.0	22.0	19.8	20.4	19.6	19.3
Disoy	19.8	19.7	19.7	18.5	21.6	19.1	20.9	19.3	19.2	20.3	18.6
Hark	20.1	19.3	19.2	20.1	22.8	19.4	21.8	19.1	19.7	19.3	19.9
A2-5405	20.6	20.0	20.6	20.1	22.7	20.5	21.2	19.9	20.6	20.2	--
A2-5407	20.3	19.4	19.8	19.3	22.3	20.0	21.5	19.8	20.7	20.2	--
A2-5440	20.5	19.8	20.2	19.8	22.1	20.6	22.3	19.8	20.3	19.2	--
A2-5504	20.3	20.0	20.0	19.8	22.5	20.1	21.5	19.1	19.7	20.2	--
M54-160	22.1	21.2	22.0	21.2	24.3	22.4	23.7	21.8	21.9	20.3	--
M54-167	21.1	20.5	20.8	20.5	22.2	21.2	22.2	20.7	20.6	21.0	--
W1-4221	19.9	19.3	20.4	19.1	21.4	19.7	20.9	19.5	19.3	19.8	--

*Not included in the mean.

¹Irrigated.

Table 36. Three-year summary of data, Uniform Test I, 1964-1966.

Strain	Yield	Rank	Matu- rity ¹	Lodg- ing	Height	Seed Quality	Seed Weight	Seed Composition	
								Protein	Oil
No. of Tests	59	59	50	42	57	48	44	27	27
A-100	35.5	4	+6.8	1.8	33	1.8	19.0	40.2	21.1
Chippewa 64	34.0	5	0	1.7	33	1.9	16.1	40.9	20.2
Hark	35.7	3	+5.2	1.6	34	1.7	16.9	41.9	20.1
A2-5405 ²	37.6	1	+5.0	1.8	33	1.9	17.5	40.7	20.7
A2-5504 ³	36.4	2	+3.2	1.8	33	2.0	17.6	41.7	20.1

¹Days earlier (-) or later (+) than Chippewa 64 which matured September 17, 118 days after planting.

²A9-619 in 1964.

³A9K-2558 in 1964.

Table 37. Three-year summary of yield and yield rank, Uniform Test I, 1964-1966.

Strain	Mean of 59 Tests	Ridge- town Ont.	Har- row Ont.	Hoyt- ville Ohio	Woos- ter Ohio	Co- lum- bus Ohio	East Lan- sing Mich.	Dun- dee Mich.	Knox Ind.	Lafa- yette Ind.
Years Tested		1964- 1966	1964- 1966	1964- 1966	1964- 1966	1964- 1966	1964- 1966	1964- 1966	1964- 1965	1964- 1966
A-100	35.5	48.1	43.3	40.4	25.7	33.0	43.2	41.5	35.8	42.2
Chippewa 64	34.0	46.3	39.6	37.4	26.1	28.1	38.9	37.4	33.0	41.0
Hark	35.7	49.2	38.3	37.4	24.6	24.8	40.9	43.3	38.0	46.9
A2-5405 ³	37.6	51.6	43.7	43.4	28.7	33.4	43.7	41.5	35.9	45.6
A2-5504 ⁴	36.4	48.1	43.2	37.0	28.3	30.0	41.5	38.2	36.5	47.3

Yield Rank

A-100	4	3	2	2	4	2	2	2	4	4
Chippewa 64	5	5	4	3	3	4	5	5	5	5
Hark	3	2	5	3	5	5	4	1	1	2
A2-5405	1	1	1	1	1	1	1	2	3	3
A2-5504	2	3	3	5	2	3	3	4	2	1

¹Shabbona, 1964-65 (same farm).

²Dwight, 1964-65.

³A9-619 in 1964.

⁴A9K-2558 in 1964.

Table 37. (Continued)

Strain	Du- rand Wis.	Madi- son Wis.	De- Kalb Ill. ¹	Pon- tiac Ill. ²	St. Paul Minn.	Lam- ber- ton Minn.	Wa- seca Minn.	Cresco Iowa	Kana- wha Iowa	Brook- ings S.D.
Years Tested	1965- 1966	1964- 1966	1964- 1966	1964- 1966	1964- 1966	1964- 1966	1964- 1966	1964- 1966	1964- 1966	1964- 1966
A-100	23.4	33.6	47.4	42.4	32.5	28.3	32.8	26.8	38.2	25.6
Chippewa 64	22.4	31.1	44.6	39.6	33.0	27.7	33.9	26.6	38.2	27.0
Hark	24.2	30.9	47.7	40.3	29.7	31.9	36.5	31.5	42.4	29.9
A2-5405 ³	25.1	35.7	49.5	44.4	33.3	31.6	36.8	30.0	40.9	29.3
A2-5504 ⁴	26.0	33.8	48.3	42.7	34.8	30.9	36.8	29.1	41.4	27.9

Yield Rank										
A-100	4	3	4	3	4	4	5	4	4	5
Chippewa 64	5	4	5	5	3	5	4	5	4	4
Hark	3	5	3	4	5	1	3	1	1	1
A2-5405	2	1	1	1	2	2	1	2	3	2
A2-5504	1	2	2	2	1	3	1	3	2	3

PRELIMINARY TEST I, 1966

Strain	Parentage	Generation Composited
1. Chippewa 64		
2. Hark (A1-540)		
3. SD644	Blackhawk x Capital ¹	F ₁₀
4. SD645	(Blackhawk x Clark) x (Adams x Clark) ¹	F ₈
5. SD646	(Adams x Clark) x Mandarin (Ottawa) ¹	F ₇
6. W3-1010-3	Seneca x Chippewa	F ₅
7. W3-4279	Chippewa x Seneca	F ₅
8. W3-4391	Chippewa x Seneca	F ₅
9. W3-4731	Seneca x Norchief	F ₅
10. W3-4905	Hardome x Chippewa	F ₅
11. W3-4994	Hardome x Chippewa	F ₅
12. W3-5102-20	WOS-3386 x Clark	F ₅
13. W4-3351	W9-1982-32 x Chippewa	F ₅

¹Colchicine-treated in F₁.

Among the 11 experimental strains, only 4 outyielded Chippewa 64. W3-1010-3 had the highest mean yield but averaged essentially the same as Hark and showed no advantage in other traits. W3-4731, W3-5102-20, and W4-3351 show some advantage since they are earlier although averaging below Hark in yield. All three are taller than the checks but show strong lodging tendencies and are low in composition. SD645 and SD646 performed the best of the early strains in this group (3 days earlier than Chippewa 64) but are quite short.

Table 38. Descriptive data and shattering scores, Preliminary Test I, 1966.

Strain	Flower Color	Pubes- cence Color	Pod Color	Seed Coat Luster	Seed Coat Color	Hilum Color	Shattering Five Points Cal. ¹
Chippewa 64	P	T	Br	S	Y	Bl	2.0
Hark	P	G	Br	D	Y	Y	3.5
SD644	P	T	Br	D	Y	Bl	2.0
SD645	P	T	Br	S	Y	Bl	2.5
SD646	W	Lt	Br	S	Y	Bl	5.0
W3-1010-3	W	T	Br	D	Y	Bl	2.0
W3-4279	W	T	Br	S	Y	Bl	2.5
W3-4391	W	G	Br	S	Y	Bf	2.5
W3-4731	P	Lt	Br	D	Y	Bl	3.5
W3-4905	P	T	Br	S	Y	Bl	3.0
W3-4994	P	T	Br	S	Y	G	3.5
W3-5102-20	W	T	Br	S	Y	Bl	3.5
W4-3351	P	T	Br	S	Y	Bl	2.0

¹Mean of two replications planted June 10. Scored 14 days after maturity.

Table 39. Summary of data, Preliminary Test I, 1966.

Strain	Yield	Rank	Matu- rity ¹	Lodg- ing	Height	Seed Quality	Seed Weight	Seed Composition	
								Protein	Oil
No. of Tests	11	11	10	7	10	10	9	8	8
Chippewa 64	37.4	6	0	1.5	34	1.8	17.3	41.5	20.1
Hark	40.0	2	+4.4	1.5	35	1.4	17.6	42.5	20.2
SD644	29.4	13	-4.4	1.6	26	1.9	15.9	40.4	20.1
SD645	35.8	10	-3.1	1.3	32	1.8	16.7	42.2	19.6
SD646	36.2	9	-2.7	1.9	30	1.7	17.0	41.7	19.8
W3-1010-3	40.3	1	+4.9	2.3	38	1.5	15.4	41.0	20.2
W3-4279	36.3	8	+1.7	1.9	39	1.6	16.3	39.1	21.3
W3-4391	37.3	7	-0.5	2.2	39	1.7	14.2	41.1	20.5
W3-4731	39.7	3	-0.4	2.3	37	1.6	19.0	41.4	18.9
W3-4905	34.7	11	-2.8	2.4	37	2.3	16.2	42.6	19.2
W3-4994	34.1	12	-3.8	2.7	40	2.3	15.5	42.0	19.9
W3-5102-20	39.4	4	+1.6	2.8	39	1.6	18.1	40.9	19.3
W4-3351	38.2	5	-1.2	2.4	38	1.5	17.2	40.4	20.7

¹Days earlier (-) or later (+) than Chippewa 64 which matured September 17, 115 days after planting.

Table 40. Disease data, Preliminary Test I, 1966.

Strain	Bacterial Pustule	Downy Mildew	Frogeye Race 2	Phytophthora Rot
	<u>Ill.</u> a ¹	<u>Ind.</u> n ¹	<u>Ind.</u> a	<u>Ind.</u> a
Chippewa 64	S	3	S	R
Hark	S	3	S	S
SD644	S	3	S	Seg.
SD645	S	3	S	Seg.
SD646	S	4	S	Seg.
W3-1010-3	S	5	S	R
W3-4279	S	4	S	R
W3-4391	S	5	S	Seg.
W3-4731	S	5	S	R
W3-4905	S	4	S	Seg.
W3-4994	S	3	S	Seg.
W3-5102-20	S	4	S	Seg.
W4-3351	S	4	S	S

¹a = artificial inoculation; n = natural infection.

Table 41. Yield and yield rank, Preliminary Test I, 1966.

Strain	Mean of 11 Tests	Ridge- town Ont.	Harrow Ont.	Hoyt- ville Ohio	Woos- ter Ohio	Colum- bus Ohio
Chippewa 64	37.4	51.8	46.8	41.6	28.4	18.5
Hark	40.0	49.4	46.2	42.7	27.4	26.1
SD644	29.4	41.6	32.9	31.2	17.1	13.9
SD645	35.8	49.5	38.1	41.6	27.3	18.8
SD646	36.2	56.5	42.0	39.2	26.6	22.1
W3-1010-3	40.3	51.6	48.8	41.3	30.4	29.5
W3-4279	36.3	48.6	43.8	36.3	28.1	22.7
W3-4391	37.3	51.2	41.5	38.0	33.4	21.3
W3-4731	39.7	50.9	50.8	38.7	28.9	20.7
W3-4905	34.7	46.5	35.6	30.1	29.0	25.6
W3-4994	34.1	48.7	35.7	27.3	30.8	22.7
W3-5102-20	39.4	49.8	45.0	37.9	31.2	26.2
W4-3351	38.2	50.0	40.1	41.5	27.8	23.0
Coef. of Var. (%)		4.7	7.6	--	--	--
L.S.D. (5%)		5.1	7.0	--	--	--
Row Spacing (In.)		24	40	28	32	28

	Yield Rank					
Chippewa 64	6	2	3	2	7	12
Hark	2	9	4	1	10	3
SD644	13	13	13	11	13	13
SD645	10	8	10	2	11	11
SD646	9	1	7	6	12	8
W3-1010-3	1	3	2	5	4	1
W3-4279	8	11	6	10	8	6
W3-4391	7	4	8	8	1	9
W3-4731	3	5	1	7	6	10
W3-4905	11	12	12	12	5	4
W3-4994	12	10	11	13	3	6
W3-5102-20	4	7	5	9	2	2
W4-3351	5	6	9	4	9	5

*Not included in the mean.

1Irrigated.

Table 41. (Continued)

Strain	East Lansing Mich.	Madi- son Wis.	De- Kalb Ill.	Wa- seca Minn.	Kana- wha Iowa	Brook- ings S.D.	Five Points Cal. ¹ *
Chippewa 64	40.0	38.9	43.0	34.9	39.4	28.6	12.9
Hark	40.5	46.3	46.7	40.3	44.4	29.7	10.8
SD644	32.1	33.5	34.8	33.9	30.6	21.9	13.1
SD645	41.6	38.6	39.5	38.6	34.2	26.2	13.3
SD646	36.0	35.7	40.5	37.6	34.6	27.0	10.6
W3-1010-3	42.2	42.9	45.7	41.0	40.0	30.0	12.7
W3-4279	38.0	38.7	43.8	39.3	35.2	24.3	13.9
W3-4391	35.5	43.7	39.8	39.5	37.2	29.1	14.2
W3-4731	47.5	47.3	40.8	41.4	42.8	26.7	12.6
W3-4905	39.2	37.6	41.1	36.9	34.8	25.2	12.5
W3-4994	37.9	39.9	39.6	35.8	32.2	24.0	14.1
W3-5102-20	39.9	49.8	41.9	44.5	37.4	29.8	11.2
W4-3351	40.0	45.2	47.1	39.8	38.8	27.3	15.3
Coef. of Var. (%)	6.0	4.6	4.5	4.9	3.2	--	16.0
L.S.D. (5%)	4.7	4.1	4.1	4.1	2.6	--	N.S.
Row Spacing (In.)	28	36	30	40	40	40	30

Yield Rank							
Chippewa 64	5	8	5	12	4	5	7
Hark	4	3	2	4	1	3	12
SD644	13	13	13	13	13	13	6
SD645	3	10	12	8	11	9	5
SD646	11	12	9	9	10	7	13
W3-1010-3	2	6	3	3	3	1	8
W3-4279	9	9	4	7	8	11	4
W3-4391	12	5	10	6	7	4	2
W3-4731	1	2	8	2	2	8	9
W3-4905	8	11	7	10	9	10	10
W3-4994	10	7	11	11	12	12	3
W3-5102-20	7	1	6	1	6	2	11
W4-3351	5	4	1	5	5	6	1

Table 42. Maturity, days earlier (-) or later (+) than Chippewa 64, Preliminary Test I, 1966.

Strain	Mean of 10 Tests	Ridge- town Ont.	Harrow Ont.	Hoyt- ville Ohio	Woos- ter Ohio	Colum- bus Ohio
Chippewa 64	0	0	0	0	0	
Hark	+4.4	+2	+5	+ 1	+5	
SD644	-4.4	-2	-7	- 2	+1	
SD645	-3.1	-2	-5	- 2	+1	
SD646	-2.7	-3	-6	- 2	+2	
W3-1010-3	+4.9	+2	+5	+ 3	+5	
W3-4279	+1.7	0	0	0	+4	
W3-4391	-0.5	-1	-1	- 3	+2	
W3-4731	-0.4	-2	0	0	+4	
W3-4905	-2.8	-2	-5	- 1	+3	
W3-4994	-3.8	-3	-7	- 3	+1	
W3-5102-20	+1.6	-2	0	+ 4	+3	
W4-3351	-1.2	-4	-5	- 2	+3	
Grant (0)		-5	--	--	--	
Harosoy 63 (II)		+4	+7	+17	+8	
Date planted	5-25	5-20	5-30	6-3	5-25	5-21
Chippewa 64 matured	9-17	9-15	9-15	9-20	9-11	--
Days to mature	115	118	108	109	109	--

*Not included in the mean.

¹Irrigated.

Table 42. (Continued)

Strain	East Lansing Mich.	Madi- son Wis.	De- Kalb Ill.	Wa- seca Minn.	Kana- wha Iowa	Brook- ings S.D.	Five Points Cal. ¹ *
Chippewa 64	0	0	0	0	0	0	0
Hark	+3	+ 6	+4	+ 9	+6	+3	0
SD644	-5	-10	-8	- 6	-7	+2	-5
SD645	-3	- 5	-4	- 5	-4	-2	-5
SD646	-4	- 7	-2	- 1	-4	0	-4
W3-1010-3	+3	+ 5	+6	+ 9	+6	+5	0
W3-4279	+1	+ 1	+2	+ 5	+3	+1	0
W3-4391	-1	+ 3	+1	+ 4	+2	-1	0
W3-4731	+1	- 1	0	- 2	-2	-2	0
W3-4905	+2	- 5	-7	- 6	-5	-2	-4
W3-4994	+1	- 5	-6	- 7	-6	-3	0
W3-5102-20	+2	+ 3	-1	+ 5	0	+2	-4
W4-3351	+1	+ 2	-1	- 1	-3	-2	0
Grant	-3	- 9	-6	--	-3	--	-5
Harosoy 63	+9	+11	+7	+14	+6	+3	+5
Date planted	5-26	5-27	5-23	5-21	5-17	5-25	6-10
Chippewa 64 matured	9-28	9-15	9-10	9-19	9-10	9-24	9-22
Days to mature	125	111	110	121	116	122	104

UNIFORM TEST II, 1966

Strain	Parentage	Generation Composited	Previous Testing (years)
1. Amsoy	Adams x Harosoy	F ₈	3 ¹
2. Harosoy	Mandarin (Ottawa) ² x A.K. (Harrow)	F ₅	15
3. Harosoy 63	Harosoy ⁸ x Blackhawk	3 F ₃ lines	5
4. L2A	Harosoy 63 x (Harosoy ⁶ x S54-1207)	6 F ₃ lines	1
5. L63-1397	Harosoy ⁶ x T207	F ₄	P.T. II
6. Lindarin 63	Lindarin ⁸ x Mukden	53 F ₃ lines	3 ²
7. SL6	(Lindarin ⁸ x Mukden) x (Lindarin ⁶ x L58-2080)	4 F ₃ lines	1
8. Magna (AX84-90)	[F ₆ Mandarin (Ottawa) x Jogun] x [F ₆ Mandarin (Ottawa) x Kanro]	F ₆	1
9. Prize (AX84-98)	Same as above	F ₆	1
10. A1-439	Harosoy x Capital	F ₉	2 ³
11. A1-1051	Harosoy x Clark	F ₈	2
12. C1376	CX291-42-1 x CX258-2-3-2	F ₅	P.T. II
13. W1-4243	Grant x Chippewa	F ₆	1

¹Progenitor AX56P64-1 in 1961-62.

²BC₄ Lindarin 63 in 1961 as C1294 and in 1962 as C1294R.

³Progenitor A8-932 in 1962-63.

The 5-year summaries (Tables 52 and 53) show A1-439 and Amsoy on top in yield and very similar to each other in mean yield. Amsoy has yielded relatively better in the southern part of the area and A1-439 has done better at the northern locations. A 3-year summary is presented to show data on the high-protein strain A1-1051. It yielded somewhat better than Harosoy 63 and only slightly less than Amsoy and has excellent seed quality.

The 2 large-seeded varieties, Magna and Prize, were named in February 1967 and a history of their development is given along with the large-seeded Group I variety, Disoy, under Uniform Test I in this report. Because of the export market for Kanrich in Japan, developed by Mico Inc. of Bloomington, Illinois and Farmer City Grain Company of Farmer City, Illinois, there is considerable interest in these 3 varieties which will extend the area farther north in which large-seeded types can be grown successfully.

W1-4243 has had good yield for two years in this test but appears to have no advantage over Amsoy. In the 1965 tests, L2A (a pustule- and phytophthora-resistant Harosoy backcross) showed evidence of having yield potential better than Harosoy 63 and equal to Harosoy in the absence of phytophthora. This year, although there was evidence of a yield effect from phytophthora only at Edgewood, Illinois, Harosoy 63 yielded the same as Harosoy and L2A. Only at Lincoln, Nebraska was there a big yield reduction for Harosoy 63, and here L2A yielded much better but still somewhat below Harosoy. SL6 equalled Lindarin 63 but did not exceed it in yield as it had last year.

L63-1397 is a backcross line essentially isogenic to Harosoy except for a single dominant gene making the stems more determinant. Since yield was maintained, despite the shorter height, and lodging was greatly reduced, this trait may be worth consideration in breeding programs.

Cl376 is phytophthora-resistant and high in protein content but averages below Amsoy in mean yield.

Table 43. Descriptive data and shattering scores, Uniform Test II, 1966.

Strain	Flower Color	Pubes- cence Color	Pod Color	Seed Coat Luster	Seed Coat Color	Hilum Color	Shattering			
							Carbondale		Five Points Cal. ²	Cor- coran Cal. ³
							Ill. ¹			
							1 mo.	2 mo.		
Amsoy	P	G	Tan	S	Y	Y	1.0	2.0	1.8	4.5
Harosoy	P	G	Br	D	Y	Y	1.0	2.0	1.5	3.5
Harosoy 63	P	G	Br	D	Y	Y	1.0	3.0	1.8	3.3
L2A	P	G	Br	D	Y	Y	2.0	3.0	2.3	4.0
L63-1397	P	G	Br	D	Y	Y	1.0	2.0	1.5	3.0
Lindarin 63	P	G	Br	D	Y	Bf	1.0	1.0	3.0	3.0
SL6	P	G	Br	D	Y	Bf	1.0	1.0	2.5	3.5
Magna	P	G	Br	D	Y	Y	3.0	5.0	3.3	4.3
Prize	P	G	Tan	D	Y	Y	3.0	5.0	2.0	3.5
Al-439	P	G	Br	D	Y	Y	1.0	1.0	2.0	2.8
Al-1051	P	T	Br	D	Y	Br	1.0	1.0	1.0	2.3
Cl376	P	G	Br	S	Y	Ib	1.0	2.0	2.0	3.0
W1-4243	P	Lt	Br	D	Y	Bl	1.0	1.0	2.0	2.5

¹Mean of four replications planted June 20. Scored one month and two months after maturity.

²Mean of four replications planted June 10. Scored 14 days after maturity.

³Mean of four replications planted June 11. Scored 14 days after maturity.

Table 44. Summary of data, Uniform Test II, 1966.

Strain	Yield	Rank	Matu- rity ¹	Lodg- ing	Height	Seed Quality	Seed Weight	Seed Composition	
								Protein	Oil
No. of Tests	31	31	28	26	30	26	19	15	15
Amsoy	41.0	2	+3.4	1.8	38	2.0	17.9	38.8	21.7
Harosoy	38.5	6	+0.8	2.2	38	2.1	18.5	40.7	20.5
Harosoy 63	38.3	7	0	2.2	39	2.0	18.9	40.7	20.9
L2A	38.3	7	+0.1	2.3	38	2.1	18.5	40.7	20.9
L63-1397	38.3	7	-0.2	1.6	34	1.9	18.6	40.5	20.6
Lindarin 63	38.0	10	+1.1	1.7	35	1.9	17.1	40.7	20.6
SL6	38.0	10	+0.6	1.7	34	1.9	16.2	40.7	20.5
Magna	34.9	12	+1.2	1.4	34	2.9	26.9	40.1	20.3
Prize	34.5	13	+1.5	1.3	30	2.4	26.5	40.2	20.1
Al-439	42.0	1	+1.1	2.1	36	2.0	16.5	39.6	21.2
Al-1051	38.8	4	+2.1	1.9	35	1.5	21.3	43.5	20.2
Cl376	38.7	5	+4.6	1.7	35	1.9	18.7	42.6	20.2
W1-4243	40.5	3	+2.7	2.0	36	1.7	17.1	40.6	20.6

¹Days earlier (-) or later (+) than Harosoy 63 which matured September 20, 117 days after planting.

Table 45. Disease data, Uniform Test II, 1966.

Strain	Bacte- rial Blight	Bacterial Pustule	Xantho- monas sp. ²	Choco- late Spot ³	Downy Mil- dew	Frog- eye Race 2	Phytoph- thora Rot	Brown Stem Rot	Brown Spot	Pur- ple Stain	
	<u>Ia.</u>	<u>Ill.</u>	<u>Ia.</u>	<u>Ia.</u>	<u>Ia.</u>	<u>Ind.</u>	<u>Ind.</u>	<u>Ind.</u>	<u>Ill.</u>	<u>Ill.</u>	
	a ¹	a	a	a	a	n ¹	a	a	n	n	
Amsoy	3	S	5	3	4	2.3	S	S	4	2.8	3
Harosoy	4	S	4	2	4	2.3	S	S	4	4.8	2
Harosoy 63	4	S	4	3	3	2.0	S	R	3	5.0	2
L2A	3	R	1	3	4	2.0	S	R	4	5.0	2
L63-1397	4	S	4	2	4	2.3	S	S	3	5.0	2
Lindarin 63	4	S	4	4	4	2.3	S	R	3	5.0	2
SL6	4	R	2	4	3	2.5	S	R	4	4.8	2
Magna	4	S	4	3	4	3.0	R	S	4	3.5	1
Prize	4	S	4	5	5	3.3	Seg.	S	4	4.5	1
Al-439	4	S	4	1	3	2.3	S	S	4	5.0	3
Al-1051	4	S	5	4	4	3.5	S	S	4	3.9	2
Cl376	4	S	4	3	3	2.3	S	R	3	3.9	2
Wl-4243	4	S	5	1	4	2.8	S	S	3	3.4	2

¹a = artificial inoculation; n = natural infection.

²An unnamed *Xanthomonas* sp.

³A bacterial leafspot that resembles brown spot.

Table 46. Yield and yield rank, Uniform Test II, 1966.

Strain	Yield																	
	Mean of 31 Tests	Ridge town Ont.	Har-row Ont.	Freehold N.J. ¹	Hoytville Ohio	Wooster Ohio	Co-lumbus Ohio	East-Lansing Mich.	Dundee Mich.	Bluffton Ind.	Lafayette Ind.	Greenfield Ind.	Worthfield Ind.	Madi-son Wis.	De-Kalb Ill. ²	Pon-tiac Ill.	Ur-bana Ill. ²	Gi-rard Ill. ²
Amsoy	41.0	57.7	49.1	30.3	42.2	30.1	32.7	45.7	49.9	44.1	40.8	22.3	46.4	41.3	50.7	38.7	37.9	38.7
Harosoy	38.5	52.9	46.8	26.8	32.2	29.2	29.6	43.9	50.7	41.4	39.9	19.3	43.2	38.4	46.4	35.8	35.4	36.8
Har. 63	38.3	53.1	46.0	28.8	31.2	33.9	30.6	43.6	50.3	44.3	40.7	23.9	40.4	38.5	46.4	34.9	33.3	37.7
L2A	38.3	54.6	44.4	25.8	31.9	30.5	31.2	41.1	39.8	45.5	38.0	24.8	42.8	39.2	46.6	37.0	34.1	38.9
L63-1397	38.3	52.1	44.1	26.3	40.0	28.7	28.5	41.3	44.5	42.6	37.3	21.8	44.2	40.8	46.4	35.9	36.2	37.3
Lind. 63	38.0	51.5	42.5	24.0	35.6	31.1	32.1	39.0	46.8	42.9	39.5	25.6	39.6	37.7	45.0	35.7	34.9	39.8
SL6	38.0	54.1	44.4	26.9	35.8	27.5	28.5	40.1	43.4	43.8	40.8	25.7	41.6	38.5	47.2	34.5	34.0	40.0
Magna	34.9	43.8	39.3	25.6	29.4	27.7	25.4	36.8	40.0	34.4	32.6	14.3	43.8	36.7	42.6	32.8	33.4	34.7
Prize	34.5	48.0	40.3	17.3	34.5	23.6	22.3	34.2	44.0	40.4	30.9	19.1	34.0	35.1	42.5	33.6	29.2	33.3
Al-439	42.0	62.3	44.4	28.1	42.0	32.3	27.8	48.6	52.2	52.6	47.5	22.3	43.0	42.9	48.7	39.3	36.2	37.2
Al-1051	38.8	56.7	42.4	25.7	42.2	24.3	32.2	47.4	47.9	44.4	41.1	17.6	33.4	41.0	45.3	36.1	35.0	39.3
C1376	38.7	51.2	42.0	28.0	40.2	31.9	33.5	40.3	43.2	45.0	45.7	28.2	44.1	42.0	43.9	35.6	37.6	36.9
W1-4243	40.5	58.5	43.8	29.1	48.7	30.1	26.2	47.7	46.4	47.5	46.9	21.3	38.6	44.1	49.5	36.2	39.9	39.5
C.V.(%)	4.3	9.0	13.7	--	--	--	--	8.0	8.0	8.0	6.7	19.3	8.0	7.1	5.7	5.4	4.7	7.2
L.S.D.(5%)	3.3	N.S.	5.0	--	--	--	--	4.8	5.2	5.0	3.8	6.1	4.7	3.6	4.5	2.8	2.8	N.S.
R.Sp.(In.)	24	40	30	28	32	28	28	28	28	38	38	38	38	36	30	38	40	30

Yield Rank

Strain	2	3	1	1	2	6	2	4	4	7	5	6	1	4	1	2	2	6
Amsoy	2	3	1	1	2	6	2	4	4	7	5	6	1	4	1	2	2	6
Harosoy	6	8	2	7	10	8	7	5	2	11	8	10	5	10	6	7	6	11
Har. 63	7	7	3	3	12	1	6	6	3	6	7	5	9	8	6	10	12	7
L2A	7	5	4	9	11	5	5	8	13	3	10	4	7	7	5	3	9	5
L63-1397	7	9	4	8	6	9	8	7	8	10	11	8	2	6	6	6	4	8
Lind. 63	10	10	9	12	8	4	4	11	6	9	9	3	10	11	10	8	8	2
SL6	10	6	5	6	7	11	8	10	10	8	5	2	8	8	4	11	10	1
Magna	12	13	13	11	13	10	12	12	12	13	12	13	4	12	12	13	11	12
Prize	13	12	12	13	9	13	13	13	9	12	13	11	12	13	13	12	13	10
Al-439	1	1	4	4	4	2	10	1	1	1	1	6	6	2	3	1	4	9
Al-1051	4	4	10	10	2	12	3	3	5	5	4	12	13	5	9	5	7	4
C1376	5	11	11	5	5	3	1	9	11	4	3	1	3	3	11	9	3	10
W1-4243	3	2	8	2	1	6	11	2	7	2	2	9	11	1	2	4	1	3

*Not included in the mean.

¹Irrigated.

²Three replications.

³Upland.

⁴Bottom land.

Table 46. (Continued)

Strain	Car- Tren- ton ²	Lam- bon- dale	ber- ton	Wa- seca Minn.	Suth- er- land Iowa	Kana- wha Iowa	Inde- pen- dence Iowa	Ames Iowa	Spick- ard ³	Spick- ard ⁴	Co- bia Mo.	Brook- ings S.D.	Cen- ville S.D.	Con- cord Nebr. ¹	Lin- coln Nebr. ¹	Davis Cal. ¹	Five Points Cal. ¹	Cor- coran Cal. ¹
Amsoy	38.4	32.2	40.0	46.4	42.0	36.0	42.3	45.2	43.9	42.9	43.5	31.1	44.6	45.3	55.8	15.3	23.7	41.9
Harosoy	34.8	31.4	39.4	44.0	39.0	38.0	40.0	42.8	43.4	35.1	39.1	28.0	42.9	41.5	55.8	14.1	24.5	32.3
Har. 63	35.5	30.9	38.6	44.4	39.7	35.7	40.4	42.2	40.1	34.3	37.9	27.6	43.1	44.4	41.2	14.7	23.0	45.2
L2A	36.1	31.6	37.9	44.5	39.5	36.9	39.5	42.4	40.6	33.2	40.6	27.1	43.7	37.1	50.4	17.0	22.5	38.8
L63-1397	33.8	30.2	37.7	44.9	39.4	38.0	39.5	40.4	40.9	31.7	39.1	27.8	45.2	33.4	54.8	15.0	21.8	31.3
Lind. 63	34.3	33.2	38.4	41.1	40.1	35.4	40.6	40.6	37.1	39.2	40.7	28.0	39.6	36.7	53.9	13.6	22.9	32.1
SL6	36.6	30.5	38.1	41.3	38.0	34.9	42.4	41.2	35.9	34.2	43.5	27.6	40.8	36.4	51.3	13.7	26.6	32.4
Magna	39.3	27.5	36.7	38.6	38.8	36.6	33.3	38.0	34.7	35.0	37.4	28.6	31.4	40.7	57.2	18.4	18.4	38.8
Prize	37.9	26.2	40.5	42.8	36.8	33.9	36.4	40.1	35.7	36.5	31.0	28.3	39.9	35.0	49.2	14.0	22.9	25.8
Al-439	37.2	29.8	45.8	51.6	44.3	41.0	47.4	47.3	43.5	33.4	39.7	35.1	52.8	42.4	47.4	18.5	20.9	36.6
Al-1051	37.9	33.1	39.7	47.0	42.8	36.3	39.9	41.8	38.9	33.9	42.6	30.1	40.7	36.6	51.5	9.4	21.5	35.6
Cl376	42.3	29.9	37.3	36.7	37.6	32.7	34.2	40.9	39.4	35.4	41.8	27.1	42.0	41.8	51.0	9.6	22.3	28.5
W1-4243	38.8	29.6	43.2	44.9	45.8	35.6	39.7	45.6	43.1	35.8	42.1	30.0	45.3	--	49.2	15.9	19.3	33.2
CV(%)	8.1	--	10.3	8.5	5.2	6.4	6.2	7.2	7.1	11.7	7.1	--	--	19.8	10.1	--	20.0	21.0
LSD(5%)	N.S.	--	N.S.	5.3	2.9	3.2	3.4	4.1	4.2	6.8	4.1	--	--	11.2	7.4	--	N.S.	5.1
RS(In.)	36	40	40	40	40	40	40	40	40	40	38	40	40	40	40	30	30	30

Yield Rank

Amsoy	4	3	4	3	4	7	3	3	1	1	1	2	4	1	2	5	3	2
Harosoy	11	5	6	8	9	2	6	4	3	6	8	7	7	5	2	8	2	9
Har. 63	10	6	7	7	6	8	5	6	7	8	10	10	6	2	13	7	4	1
L2A	9	4	10	6	7	4	9	5	6	12	6	12	5	7	9	3	7	3
L63-1397	13	8	11	4	8	2	9	11	5	13	8	9	3	12	4	6	9	11
Lind. 63	12	1	8	11	5	10	4	10	10	2	5	7	12	8	5	11	5	10
SL6	8	7	9	10	11	11	2	8	11	9	1	10	9	10	7	10	1	8
Magna	2	12	13	12	10	5	13	13	13	7	11	5	13	6	1	2	13	3
Prize	5	13	3	9	13	12	11	12	12	3	12	6	11	11	10	9	5	13
Al-439	7	10	1	1	2	1	1	1	2	11	7	1	1	3	12	1	11	5
Al-1051	5	2	5	2	3	6	7	7	9	10	2	3	10	9	6	13	10	6
Cl376	1	9	12	13	12	13	12	9	8	5	4	12	8	4	8	12	8	12
W1-4243	3	11	2	4	1	9	8	2	4	4	3	4	2	--	10	4	12	7

Table 47. Maturity, days earlier (-) or later (+) than Harosoy 63, and lodging scores, Uniform Test II, 1966.

Strain	Co- East						Wor-												
	Mean of 28 Tests	Ridge town Ont.	Har- row Ont.	Free- hold N.J. ¹	Hoyt- ville Ohio	Woos- ter Ohio	lum- bus Ohio	Lan- sing Mich.	Dun- dee Mich.	Bluff- ton Ind.	Lafa- yette Ind.	Green- field Ind.	thing- ton Ind.	Madi- son Wis.	De- Kalb Ill.	Pon- tiac Ill.	Ur- bana Ill.	Gi- rard Ill.	Edge- wood Ill.
							*						*						
Amsoy	+3.4	+ 2	+ 4	+ 3	+ 3	- 2		+3	+ 6	+ 4	+ 4	+ 1	0	+5	+ 6	+ 3	+ 3	+ 5	+ 1
Harosoy	+0.8	0	0	0	+ 1	+ 1		+2	+ 2	+ 2	+ 2	- 1	0	+1	+ 1	+ 2	+ 1	+ 1	+ 1
Har. 63	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0	0
L2A	+0.1	- 2	0	0	+ 1	0		+3	+ 2	- 1	+ 1	- 1	0	-1	0	+ 1	0	0	0
L63-1397	-0.2	- 1	0	+ 3	+ 1	+ 1		0	0	- 1	0	- 1	0	0	- 1	0	+ 1	0	0
Lind. 63	+1.1	+ 2	0	+ 2	+ 1	0		+4	+ 2	+ 2	+ 1	0	0	+3	+ 2	+ 1	+ 2	+ 2	0
SL6	+0.6	+ 1	0	0	+ 1	+ 2		+4	+ 2	+ 2	0	0	0	+4	- 1	0	+ 1	+ 1	0
Magna	+1.2	0	0	0	0	0		+2	- 2	- 2	+ 2	- 1	0	+3	- 2	+ 1	+ 6	+ 5	+ 1
Prize	+1.5	0	- 2	- 1	+ 2	+ 2		+6	+ 5	+ 1	- 1	- 4	0	+5	+ 4	+ 1	0	+ 3	0
Al-439	+1.1	+ 3	+ 3	- 1	+ 2	- 2		+1	+ 2	+ 3	+ 2	0	0	+1	0	+ 1	+ 2	+ 1	0
Al-1051	+2.1	- 1	+ 5	+ 3	+ 2	+ 1		+3	+ 2	+ 6	+ 4	- 1	0	+1	+ 1	+ 3	+ 5	+ 4	+ 3
Cl376	+4.6	+ 7	+ 7	+ 3	+ 4	0		+7	+ 8	+ 3	+ 5	+ 4	0	+7	+ 6	+ 4	+ 6	+ 5	+ 7
Wl-4243	+2.7	0	+ 1	+ 2	+ 3	+ 2		0	- 2	+ 3	+ 3	0	0	+5	+ 6	+ 4	+ 6	+ 4	+ 2
Hark (I)		0	- 2	--	-15	- 5	--	-4	- 5	--	+ 1	--	--	-1	- 2	- 2	- 1	+ 2	--
Wayne (III)		+10	+13	+12	+13	+15	--	--	+12	+15	+12	+11	+4	--	+13	+13	+12	+12	+10
Date pltd.	5-26	5-20	5-30	5-26	6-3	5-25	5-21	5-26	5-25	5-28	5-27	5-20	5-28	5-27	5-23	5-30	5-20	5-29	6-9
Har. 63 mat	9-20	9-19	9-22	9-10	10-6	9-23	--	10-5	10-8	9-16	9-10	9-15	9-26	9-22	9-17	9-12	9-3	9-8	9-14
Da. to mat	117	122	115	107	125	121	--	132	136	111	106	118	121	118	117	105	106	102	97
Mean of 26 Tests	Lodging Score																		
							*					*		*					
Amsoy	1.8	1.5	2.2	1.0	1.2	1.0		1.6	2.3	1.5	1.5	1.0	2.1	1.3	1.0	1.1	1.3	1.3	1.2
Harosoy	2.2	1.8	2.8	1.0	2.7	1.0		2.0	2.8	2.0	1.7	1.0	2.3	2.2	1.0	1.2	1.7	1.1	1.2
Har. 63	2.2	1.8	3.2	1.0	2.2	1.0		2.4	2.1	2.0	2.0	1.0	2.1	2.0	1.0	1.2	1.6	1.2	1.3
L2A	2.3	1.8	3.2	1.0	2.0	1.0		2.6	2.8	2.0	3.0	1.0	2.3	2.2	1.0	1.3	1.7	1.2	1.3
L63-1397	1.6	1.0	2.2	1.0	1.7	1.0		2.0	1.8	1.5	1.3	1.0	1.4	1.8	1.0	1.1	1.2	1.0	1.0
Lind. 63	1.7	1.3	1.8	1.0	1.2	1.0		1.8	1.4	1.3	1.5	1.0	1.8	1.4	1.0	1.2	1.3	1.2	1.1
SL6	1.7	1.3	1.5	1.0	1.0	1.0		1.5	2.1	1.0	1.5	1.0	1.9	1.5	1.0	1.2	1.2	1.2	1.0
Magna	1.4	1.5	1.0	1.0	1.0	1.0		1.0	1.3	1.0	1.0	1.0	1.3	1.0	1.0	1.0	1.2	1.0	1.0
Prize	1.3	1.0	1.0	1.0	1.0	1.0		1.0	1.1	1.0	1.0	1.0	1.1	1.0	1.0	1.0	1.0	1.0	1.0
Al-439	2.1	1.8	1.8	2.0	1.7	1.0		1.6	1.8	1.5	2.5	1.0	2.5	1.6	1.0	1.2	1.4	1.4	1.2
Al-1051	1.9	1.8	2.0	1.0	1.2	1.0		1.6	3.0	2.0	1.3	1.0	1.5	1.6	1.0	1.3	1.6	1.2	1.1
Cl376	1.7	1.8	2.0	1.0	2.5	1.0		2.0	3.0	1.3	1.0	1.0	1.5	1.0	1.0	1.1	1.4	1.1	1.1
Wl-4243	2.0	2.0	2.2	1.0	1.7	1.0		1.8	2.8	2.0	1.3	1.0	2.3	1.6	1.0	1.2	1.4	1.1	1.1

*Not included in the mean.

¹Irrigated.²Upland.³Bottom land.

Table 47. (Continued)

Strain	Car-	Lam-	ber-	Wa-	Suth-	Kana-	Inde-	Ames	Spick-Spick-		Co-	Cen-		Con-	Lin-	Davis	Five	Cor-
	Tren-	bon-		ton	seca		er-		pen-	ard	ard	bia	ings		ville			
	Ill.	Ill.	Minn.	Minn.	Iowa	Iowa	Iowa	Iowa	Mo. ²	Mo. ³	Mo.	S.D.	S.D.	Nebr. ¹	Nebr. ¹	Cal. ¹	Cal. ¹	Cal. ¹
									*	*				*		*	*	*
Amsoy	+ 4	+ 4	+2	+7	+ 4	+ 5	+ 2	+ 4			+4	+5	+1	+4	+ 2	0	0	-3
Harosoy	+ 1	0	0	0	+ 1	+ 1	+ 1	0			+1	+1	0	0	- 1	0	0	-3
Har. 63	0	0	0	0	0	0	0	0			0	0	0	0	0	0	0	0
L2A	0	0	0	-1	0	0	0	- 1			+1	+1	-1	0	+ 1	0	0	+1
L63-1397	- 1	+ 1	0	-1	0	- 2	0	- 1			0	+1	-1	-1	- 3	0	0	0
Lind. 63	+ 1	+ 1	0	0	+ 1	+ 1	+ 2	0			+2	+1	+1	-1	- 2	0	0	0
SL6	0	0	-1	-1	0	0	+ 2	0			0	+1	-1	-1	+ 1	+1	0	-3
Magna	0	+ 1	+1	-3	+ 4	+ 2	- 1	+ 2			+6	+5	+1	0	+ 2	+3	0	0
Prize	- 2	- 4	0	+2	+ 5	+ 7	+ 5	+ 3			+3	+5	0	-2	- 4	+4	0	-3
Al-439	0	+ 1	+1	-1	+ 2	+ 2	+ 1	0			+3	+2	0	-1	+ 1	+1	0	0
Al-1051	+ 1	+ 3	+2	+1	+ 1	+ 2	- 1	+ 2			+3	+4	+2	0	- 1	+1	0	0
C1376	+ 4	+ 2	+2	+4	+ 6	+ 8	+ 4	+ 5			+3	+6	+3	+1	0	0	0	+1
W1-4243	+ 2	- 2	+2	+4	+ 6	+ 8	+ 1	+ 4			+3	+5	+1	+2	+ 3	0	0	0
Hark	- 3	--	-5	-5	- 1	+ 2	- 2	- 1			--	0	--	+4	- 5	--	-4	-4
Wayne	+11	+10	--	--	+18	+17	+12	+12			--	--	+6	+8	+16	--	+2	+7
D. pltd. 6-4	6-20	5-19	5-21	5-18	5-17	5-16	5-21	5-19	5-19	5-23	5-25	5-27	5-26	5-16	6-14	6-10	6-11	
H. 63 mat.9-15	9-20	9-24	10-3	9-14	9-16	9-21	9-14	--	--	9-5	9-27	10-10	9-24	9-17	10-14	9-30	10-2	
D. to mat.103	92	128	135	119	122	128	116	--	--	105	125	136	121	124	122	112	113	

Lodging Score

	★											★			★	★	★
Amsoy	2.0	1.0	5.0	2.2	1.2	1.9	2.2	1.1	2.1	3.7	1.6	3.0	1.8	2.7	4.0	2.5	2.0
Harosoy	3.0	1.0	4.5	2.8	1.4	2.7	2.5	1.4	2.6	3.4	1.6	3.0	1.8	3.2	5.0	2.5	1.0
Har. 63	2.7	1.0	5.0	2.8	1.4	2.4	2.4	1.4	2.6	3.3	2.3	3.0	2.0	3.4	4.0	2.3	1.5
L2A	2.8	1.0	4.8	2.5	1.7	2.4	2.4	1.3	2.5	3.6	2.9	4.0	2.0	3.5	5.0	3.3	2.0
L63-1397	1.6	1.0	4.0	2.0	1.2	2.2	2.1	1.2	1.9	3.4	1.3	3.0	1.3	1.2	3.0	1.0	1.0
Lind. 63	1.9	1.5	4.2	2.0	1.5	1.9	2.2	1.2	2.4	3.4	1.5	2.0	1.5	2.6	4.0	2.5	1.5
SL6	1.5	1.0	4.0	2.0	1.4	1.9	2.4	1.2	2.3	3.7	1.4	3.0	1.5	2.7	3.0	2.8	1.5
Magna	1.1	1.0	3.5	1.0	1.2	1.4	1.7	1.0	1.7	2.5	1.6	3.0	1.0	2.0	3.0	2.3	1.8
Prize	1.1	1.0	4.0	1.2	1.2	1.4	1.8	1.0	1.1	2.5	1.0	2.0	1.5	1.7	3.0	2.3	1.5
Al-439	2.2	1.0	4.0	2.0	1.5	2.2	2.5	1.4	2.5	3.0	3.3	4.0	2.5	3.0	4.0	1.5	2.3
Al-1051	2.5	1.5	5.0	2.5	1.5	1.8	2.4	1.3	2.8	3.9	2.1	2.0	1.5	2.5	4.0	1.8	1.3
C1376	1.3	1.5	3.8	2.0	1.3	1.5	2.4	1.4	1.2	3.1	1.4	2.0	1.5	2.5	4.0	1.8	1.8
W1-4243	1.6	1.0	5.0	2.5	1.8	2.6	2.3	1.4	2.5	3.6	2.1	2.0	2.0	3.2	3.0	1.3	1.5

Table 48. Plant height and seed quality scores, Uniform Test II, 1966.

Strain	Mean Ridge-Har-			Free-Hoyt-Woos-lum-			Co- East			Wor-			Madi-De-			Pon- Ur- Gi- Edge-		
	of 30	town	row	hold	ville	ter	bus	Lan-	Dun-	Bluff-Lafa-Green-thing-	son	Kalb	tiac	bana	rard	wood		
	Tests	Ont.	Ont.	N.J. ¹	Ohio	Ohio	Ohio	Mich.	Mich.	Ind.	Ind.	Ind.	Wis.	Ill.	Ill.	Ill.	Ill.	Ill.
Amsoy	38	41	45	25	40	31		40	48	41	44	30	47	42	38	38	35	35
Harosoy	38	40	43	24	40	31		41	48	41	46	30	46	41	40	37	33	34
Har. 63	39	40	44	25	40	35		43	48	43	45	32	48	40	40	37	33	34
L2A	38	40	48	24	43	30		42	47	42	41	30	47	40	39	37	32	33
L63-1397	34	37	42	23	37	33		37	43	36	38	25	40	38	36	34	30	28
Lind. 63	35	39	43	22	36	31		41	44	39	39	30	42	35	36	31	30	29
SL6	34	37	42	21	36	28		38	43	37	39	29	40	34	36	30	28	29
Magna	34	36	41	23	34	27		35	38	36	41	24	40	33	33	32	30	32
Prize	30	32	36	20	42	25		31	40	32	31	23	32	27	34	27	23	25
Al-439	36	37	40	23	38	29		39	44	39	41	28	43	38	38	34	32	30
Al-1051	35	37	39	22	35	28		38	40	38	39	27	40	35	37	32	28	31
C1376	35	40	43	23	39	30		39	44	38	39	29	39	35	38	32	29	30
W1-4243	36	37	42	23	36	29		38	45	37	40	27	41	37	37	34	33	32
Seed Quality Score																		
Amsoy	2.0	1.0	1.5	2.0	2.2	3.0	2.0	1.0	1.7	1.0	2.0	2.0	4.0	2.0	1.0	1.3	2.0	2.7
Harosoy	2.1	2.0	1.2	2.0	2.0	2.5	2.5	2.0	2.3	1.0	2.0	2.0	4.0	2.0	1.0	1.5	2.5	2.7
Har. 63	2.0	1.0	1.0	3.0	2.0	3.0	2.2	1.7	1.9	1.0	2.0	2.0	4.0	1.0	1.0	1.5	2.3	2.7
L2A	2.1	1.0	1.2	3.0	1.7	3.0	2.2	1.8	1.5	1.0	2.0	1.0	4.0	2.0	1.0	1.5	2.5	2.8
L63-1397	1.9	2.0	1.2	3.0	2.2	3.0	1.7	1.5	1.4	1.0	2.0	1.0	3.0	1.0	1.0	1.6	2.5	3.0
Lind. 63	1.9	2.0	1.0	2.0	2.0	1.7	2.7	1.5	1.5	1.0	2.0	2.0	3.0	1.0	1.0	1.5	2.0	3.2
SL6	1.9	2.0	1.0	2.0	1.7	2.2	2.0	1.2	2.0	1.0	2.0	2.0	3.0	1.0	1.0	1.5	2.3	2.7
Magna	2.9	3.0	2.0	2.0	3.0	3.0	3.2	3.4	3.4	2.0	2.0	2.0	2.0	2.0	2.0	3.4	3.5	4.0
Prize	2.4	3.0	1.2	3.0	2.7	3.0	2.5	2.0	2.6	2.0	2.0	2.0	2.0	1.0	2.0	2.8	2.8	4.0
Al-439	2.0	2.0	1.5	1.0	2.5	2.5	2.2	1.8	1.4	1.0	2.0	2.0	4.0	1.0	1.0	1.1	2.7	3.2
Al-1051	1.5	1.0	1.2	1.0	1.0	1.2	1.7	1.3	1.6	1.0	1.0	1.0	3.0	1.0	1.0	1.1	1.2	1.5
C1376	1.9	2.0	2.2	1.0	1.5	2.0	1.7	1.8	1.8	1.0	2.0	2.0	3.0	1.0	1.0	2.0	2.3	2.7
W1-4243	1.7	2.0	1.0	1.0	1.0	2.0	2.2	1.3	1.4	1.0	1.0	1.0	4.0	1.0	1.0	1.5	1.7	2.2

*Not included in the mean.

¹Irrigated.

²Upland.

³Bottom land.

Table 48. (Continued)

Strain	Car- Tren- ton Ill.	Lam- bon- dale Ill.	ber- ton Minn.	Wa- seca Minn.	Suth- er- land Iowa	Kana- wha Iowa	pen- dence Iowa	Ames Iowa	Spick- ard Mo. ²	Spick- ard Mo. ³	Co- lum- bia Mo.	Brook- ings S.D.	ter- ville S.D.	Con- cord Nebr. ¹	Lin- coln Nebr. ¹	Davis Cal. ¹	Five Points Cal. ¹	Cor- corap Cal. ¹
Amsoy	38	24	42	43	42	42	42	38	41	43	34	28	41	43	45	57	45	49
Harosoy	37	22	41	45	40	42	41	41	41	40	32	31	39	41	46	56	46	47
Har. 63	36	24	44	45	40	43	42	40	38	39	32	32	39	43	47	58	45	50
L2A	37	22	44	45	42	43	41	41	39	40	33	31	38	42	45	59	46	48
L63-1397	24	21	38	39	36	36	39	33	34	37	26	29	38	31	32	48	39	39
Lind. 63	33	23	36	40	36	37	39	36	34	36	32	27	38	39	42	51	42	44
SL6	31	22	38	38	35	36	39	35	33	36	31	27	38	37	41	49	41	41
Magna	33	20	38	41	40	38	36	35	35	38	32	29	40	41	34	48	40	43
Prize	28	19	37	36	34	34	35	30	30	33	24	25	35	35	30	41	35	32
Al-439	30	22	36	44	40	42	42	38	36	38	30	28	40	40	41	50	40	44
Al-1051	33	23	38	39	38	36	38	36	34	37	31	27	43	37	43	52	41	42
Cl376	34	19	34	39	38	36	39	36	35	34	28	30	39	38	40	50	44	46
Wl-4243	35	22	37	40	40	41	40	37	36	38	32	26	40	38	43	50	42	45

Seed Quality Score																		
	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Amsoy	1.5	1.0	2.5	2.2	1.0	1.0	1.0	1.0	1.9	1.7	1.8		3.0	1.3	2.9	3.0	2.0	1.0
Harosoy	1.7	2.0	2.5	2.2	1.0	1.0	1.0	1.0	1.7	2.0	2.0		2.0	1.0	2.1	3.0	2.0	1.0
Har. 63	1.7	1.0	2.8	2.0	1.0	1.0	1.0	1.0	1.6	1.9	1.9		2.0	1.5	1.9	2.0	2.0	1.0
L2A	1.8	1.0	2.8	2.2	1.0	1.0	1.0	1.0	1.5	2.0	2.4		2.0	1.8	3.4	3.0	2.0	1.0
L63-1397	1.8	1.0	2.8	2.2	1.0	1.0	1.0	1.0	1.2	1.8	1.7		2.0	1.0	2.1	3.0	2.0	1.0
Lind. 63	1.2	1.0	2.8	2.5	1.0	1.0	1.0	1.0	1.7	1.7	1.7		2.0	1.1	2.3	2.0	2.0	1.0
SL6	1.7	1.0	2.8	2.2	1.0	1.0	1.0	1.0	1.7	1.8	1.8		2.0	1.3	2.0	3.0	2.0	1.0
Magna	3.0	2.0	3.5	3.0	1.0	1.0	1.0	1.0	2.5	2.5	2.4		4.0	1.9	3.8	4.0	1.0	1.0
Prize	2.5	1.0	3.0	2.5	1.0	1.0	1.0	1.0	2.0	1.7	2.0		3.0	1.8	2.4	4.0	1.0	1.0
Al-439	1.8	2.0	2.5	2.2	1.0	1.0	1.0	1.0	1.6	1.8	1.7		2.0	1.6	3.6	3.0	2.0	2.0
Al-1051	1.3	1.0	2.5	2.0	1.0	1.0	1.0	1.0	1.6	1.6	1.8		2.0	1.5	2.1	3.0	2.0	1.0
Cl376	1.3	1.0	2.5	2.2	1.0	1.0	1.0	1.0	1.7	1.9	1.8		2.0	1.1	2.8	3.0	3.0	2.0
Wl-4243	1.2	2.0	2.8	2.2	1.0	1.0	1.0	1.0	1.6	1.7	1.7		2.0	--	3.3	3.0	3.0	2.0

Table 49. Percentages of protein and oil, Uniform Test II, 1966.

Strain	Mean of 15 Tests	Ridge- town Ont.	Har- row Ont.	Free- hold N.J. ¹	Co- lum- bus Ohio	East Lan- sing Mich.	Bluff- ton Ind.	Lafa- yette Ind.	Madi- son Wis.
			*						
Amsoy	38.8	38.0	40.8	40.3	39.2	38.7	38.9	37.9	39.3
Harosoy	40.7	41.1	42.7	41.8	40.2	41.4	40.4	39.7	41.7
Harosoy 63	40.7	40.8	43.4	41.9	40.3	42.0	41.2	39.9	40.9
L2A	40.7	41.0	42.7	41.6	40.5	41.7	41.2	39.8	41.5
L63-1397	40.5	40.8	42.7	41.8	40.5	41.5	41.0	38.7	41.8
Lindarin 63	40.7	41.1	43.2	42.0	40.2	42.2	41.4	38.3	42.3
SL6	40.7	42.0	42.6	41.8	41.1	42.3	41.1	37.8	42.1
Magna	40.1	40.7	41.7	40.5	40.5	41.8	40.5	38.8	41.5
Prize	40.2	42.5	42.0	41.0	40.1	42.0	39.8	37.8	42.2
Al-439	39.6	39.1	41.6	39.4	39.6	40.8	40.3	38.2	40.3
Al-1051	43.5	43.9	46.0	43.8	43.5	43.7	44.0	42.2	44.0
Cl376	42.6	42.6	45.0	42.8	41.8	43.3	42.3	41.7	44.0
W1-4243	40.6	40.9	42.5	40.5	40.8	41.2	40.2	39.0	42.5
	Mean of 15 Tests				Percentage of Oil				
			*						
Amsoy	21.7	21.4	21.3	22.0	21.6	20.2	22.6	23.1	21.3
Harosoy	20.5	19.6	19.6	21.0	19.9	19.1	21.3	21.9	19.8
Harosoy 63	20.9	20.5	20.4	21.7	20.3	19.0	21.7	22.2	20.2
L2A	20.9	19.8	20.0	21.3	20.4	19.5	21.9	22.0	20.1
L63-1397	20.6	19.8	19.7	20.0	20.8	19.1	20.8	22.2	19.4
Lindarin 63	20.6	20.0	20.2	21.5	20.1	19.1	21.7	22.5	20.0
SL6	20.5	19.7	20.2	21.8	19.9	18.1	20.8	22.7	19.5
Magna	20.3	19.4	18.8	22.2	21.4	18.5	20.7	21.6	19.0
Prize	20.1	17.8	19.9	21.4	20.7	18.3	20.9	23.0	18.4
Al-439	21.2	20.2	20.2	22.5	20.6	19.5	22.2	22.9	20.3
Al-1051	20.2	19.1	18.6	21.3	20.2	19.5	21.0	21.0	19.4
Cl376	20.2	19.5	19.1	21.6	21.0	19.1	21.1	21.6	19.2
W1-4243	20.6	20.4	20.0	20.1	21.0	19.7	21.9	21.8	18.9

*Not included in the mean.

¹Irrigated.

Table 49. (Continued)

Strain	De- Kalb Ill.	Ur- bana Ill.	Lam- ber- ton Minn.	Kana- wha Iowa	Ames Iowa	Co- lum- bia Mo.	Cen- ter- ville S.D.	Lin- coln Nebr. ¹	Davis Cal. ¹
									*
Amsoy	38.5	38.9	38.3	39.4	39.3	39.8	38.6	37.6	36.5
Harosoy	40.6	40.4	39.9	41.0	41.0	41.8	41.6	37.8	--
Harosoy 63	40.9	40.1	39.6	40.6	41.4	42.5	40.8	37.4	38.4
L2A	40.5	40.8	40.1	41.2	40.9	41.9	40.7	37.6	--
L63-1397	40.7	40.1	39.1	41.0	41.5	42.5	39.9	37.0	--
Lindarin 63	40.8	40.5	39.4	40.7	41.1	41.7	40.5	37.6	38.5
SL6	40.1	40.4	40.0	40.5	41.6	42.1	40.5	37.5	--
Magna	40.0	39.9	39.9	40.3	40.5	39.6	40.3	36.0	39.6
Prize	39.7	38.5	39.8	39.6	41.0	41.2	40.5	37.4	37.5
Al-439	39.6	39.3	38.6	40.5	40.3	40.9	39.5	37.1	38.0
Al-1051	43.1	43.3	42.5	43.4	43.4	46.3	44.2	41.4	39.6
C1376	42.5	41.6	41.2	43.8	43.4	44.2	42.8	40.3	--
W1-4243	40.2	40.2	39.5	42.0	41.3	41.7	41.4	38.1	--

Percentage of Oil									*
Amsoy	21.6	22.6	21.2	21.5	21.1	21.8	20.4	22.9	20.6
Harosoy	21.1	21.8	19.2	20.8	21.0	20.2	20.0	21.3	--
Harosoy 63	21.3	22.0	20.2	20.6	21.1	20.9	20.1	21.6	20.0
L2A	21.4	21.5	21.0	21.0	21.5	21.0	19.3	21.9	--
L63-1397	21.3	21.3	19.7	21.5	20.8	20.7	20.0	21.4	--
Lindarin 63	21.0	21.5	20.3	21.1	20.5	21.9	19.7	22.2	19.8
SL6	21.4	21.7	19.6	20.7	20.6	20.9	19.0	20.6	--
Magna	20.3	21.7	18.1	19.8	20.0	21.2	17.8	22.5	18.3
Prize	20.0	21.7	19.4	19.8	19.9	20.5	18.6	21.6	19.4
Al-439	21.6	21.5	21.2	21.2	21.6	21.0	19.4	22.2	20.2
Al-1051	20.0	20.7	19.6	20.1	20.5	19.8	18.8	21.3	19.5
C1376	20.4	19.5	19.9	19.7	19.9	20.3	19.4	21.5	--
W1-4243	20.6	22.2	19.1	20.3	21.0	20.6	18.8	22.5	--

Table 50. Three-year summary of data, Uniform Test II, 1964-1966.

Strain	Yield	Rank	Matu- rity ¹	Lodg- ing	Height	Seed Quality	Seed Weight	Seed Composition	
								Protein	Oil
No. of Tests	88	88	77	74	86	76	60	43	43
Amsoy	39.9	2	+3.7	2.1	39	2.1	17.2	38.7	22.1
Harosoy	37.7	4	+0.7	2.4	39	2.0	17.7	40.4	21.0
Harosoy 63	36.6	5	0	2.5	39	2.0	17.9	40.4	21.1
Lindarin 63	36.4	6	+1.4	1.8	35	1.8	16.3	40.6	21.0
Al-439	40.3	1	+1.3	2.3	37	2.0	15.7	39.6	21.5
Al-1051	38.5	3	+1.8	2.2	35	1.6	20.6	43.2	20.5

¹Days earlier (-) or later (+) than Harosoy 63 which matured September 18, 118 days after planting.

Table 51. Three-year summary of yield and yield rank, Uniform Test II, 1964-1966.

Strain	Mean of 88 Tests	Co- East										Wor-			
		Ridge- town Ont.	Har- row Ont.	Free- hold N.J.	Hoyt- ville Ohio	Woos- ter Ohio	lum- bus Ohio	Lan- sing Mich.	Dun- dee Mich.	Knox Ind.	Bluff- ton Ind.	Lafa- yette Ind.	Green- field Ind.	thing- ton Ind.	Madi- son Wis.
Years Tested		1964- 1966	1964- 1966	1964- 1966	1964- 1966	1964- 1966	1964- 1966	1964- 1966	1964- 1966	1964- 1965	1964- 1966	1964- 1966	1964- 1966	1964- 1966	1964- 1966
Amsoy	39.9	50.0	40.0	30.0	41.3	28.8	35.3	43.0	43.6	41.2	42.8	49.2	37.1	47.0	35.2
Harosoy	37.7	46.8	40.0	27.8	37.5	28.2	37.3	41.7	41.0	41.4	39.9	45.8	32.7	41.2	33.3
Har. 63	36.6	47.9	38.3	27.4	34.2	30.1	33.8	41.2	41.8	39.4	43.3	44.0	36.6	39.1	32.8
Lind. 63	36.4	45.6	37.9	26.4	34.9	27.1	32.7	38.8	39.8	38.2	41.5	44.0	37.7	40.0	34.2
Al-439	40.3	55.2	38.1	28.0	37.6	28.8	31.5	45.1	45.6	41.5	47.6	50.0	34.9	39.0	36.8
Al-1051	38.5	49.2	41.5	25.8	43.3	25.4	38.4	45.1	39.2	38.4	41.8	46.5	29.9	34.9	35.7

Yield Rank

Amsoy	2	2	2	1	2	2	3	3	2	3	3	2	2	1	3
Harosoy	4	5	2	3	4	4	2	4	4	2	6	4	5	2	5
Har. 63	5	4	4	4	6	1	4	5	3	4	2	5	3	4	6
Lind. 63	6	6	6	5	5	5	5	6	5	6	5	5	1	3	4
Al-439	1	1	5	2	3	2	6	1	1	1	1	1	4	5	1
Al-1051	3	3	1	6	1	6	1	1	6	5	4	3	6	6	2

¹Shabbona, 1964-65.

²Dwight, 1964-65.

Table 21. (Continued)

Strain	De- Kalb Ill. ¹	Pon- tiac Ill. ²	Ur- bana Ill.	Gi- rard Ill.	Edge- wood Ill.	Car- bon- dale Ill.	Lam- ton Minn.	Wa- seca Minn.	Suth- er- Iowa	Kana- wha Iowa	Inde- pence Iowa	Ames Iowa	Co- lum- bia Mo.	Cen- ter- ville S.D.	Lin- coln Nebr.
Years Tested	1964- 1966	1964- 1966	1964- 1966	1964- 1966	1964- 1966	1964- 1966	1964- 1966	1964- 1966	1964- 1966	1964- 1966	1964- 1966	1964- 1966	1964- 1966	1964- 1966	1965- 1966
Amsoy	50.4	44.8	43.0	39.8	33.0	30.0	28.6	35.7	35.3	39.1	35.6	36.9	40.5	39.3	50.2
Harosoy	48.1	43.2	39.3	33.6	28.9	28.9	28.0	35.3	33.0	38.5	34.1	35.5	37.3	36.8	50.6
Har. 63	45.2	42.3	38.1	31.9	28.2	29.4	28.0	35.4	33.2	37.7	34.3	35.0	34.7	35.2	41.6
Lind. 63	44.1	40.5	37.3	37.0	29.8	28.7	26.9	32.6	33.1	36.4	34.1	32.6	36.0	35.2	49.6
Al-439	50.0	46.0	43.8	38.3	34.2	28.4	33.3	42.1	37.8	42.4	39.6	38.9	36.9	43.1	47.3
Al-1051	47.1	42.7	39.2	39.8	32.3	29.9	29.4	37.5	37.5	39.4	36.5	35.4	38.8	39.6	47.5

	Yield Rank														
Amsoy	1	2	2	1	2	1	3	3	3	3	3	2	1	3	2
Harosoy	3	3	3	5	5	4	4	5	6	4	5	3	3	4	1
Har. 63	5	5	5	6	6	3	4	4	4	5	4	5	6	5	6
Lind. 63	6	6	6	4	4	5	6	6	5	6	5	6	5	5	3
Al-439	2	1	1	3	1	6	1	1	1	1	1	1	4	1	5
Al-1051	4	4	4	1	3	2	2	2	2	2	2	4	2	2	4

Table 52. Five-year summary of data, Uniform Test II, 1962-1966.

Strain	Yield	Rank	Matu- rity ¹	Lodg- ing	Height	Seed Quality	Seed Weight	Seed Composition	
								Protein	Oil
No. of Tests	142	142	123	124	139	118	102	71	71
Amsoy ²	40.2	2	+3.6	2.2	40	2.1	17.0	38.8	21.9
Harosoy	37.9	3	+0.8	2.5	40	2.0	17.6	40.5	20.8
Harosoy 63	37.2	4	0	2.6	41	2.0	17.6	40.5	20.9
Lindarin 63 ³	36.7	5	+0.8	2.0	37	1.9	16.1	40.5	20.9
Al-439 ⁴	40.5	1	+1.2	2.4	38	1.9	15.6	39.6	21.3

¹Days earlier (-) or later (+) than Harosoy 63 which matured September 18, 119 days after planting.

²AX56P64-1 in 1962.

³C1294R in 1962.

⁴A8-932 in 1962-63.

Table 53. Five-year summary of yield and yield rank, Uniform Test II, 1962-1966.

Strain	Mean of 142 Tests	Ridge-Har- town Ont.	Har- row Ont.	Free- hold N.J.	Hoyt- ville Ohio	Woos- lum- Ohio	Co- bus Ohio	East Lan- sing Mich.	Dun- dee Mich.	Knox Ind.	Bluff- ton Ind.	Lafa- yette Ind.	Green- field Ind.	War- thing- ton Ind.
Years Tested	1962-1966	1962-1966	1962-1966	1962-1966	1962-1966	1962-1966	1962-1966	1962-1966	1962-1966	1962-1966	1962-1966	1962-1966	1962-1966	1962-1966
Amsoy ¹	40.2	47.3	37.4	33.8	37.4	28.7	32.6	37.9	39.6	41.7	42.5	49.7	36.6	49.0
Harosoy	37.9	43.9	35.8	32.2	34.7	28.8	35.3	36.5	38.2	40.5	40.0	47.3	33.2	43.0
Har. 63	37.2	44.9	35.6	30.5	33.0	29.9	32.9	36.3	37.7	38.2	42.3	45.8	38.1	42.8
Lind. 63 ²	36.7	42.4	35.3	29.9	33.2	27.4	31.8	35.1	36.7	37.4	40.8	44.6	39.2	42.1
Al-439 ³	40.5	52.1	35.7	33.1	35.9	29.2	31.9	39.5	41.6	40.5	46.0	49.4	34.8	40.9

Yield Rank

Amsoy	2	2	1	1	1	4	3	2	2	1	2	1	3	1
Harosoy	3	4	2	3	3	3	1	3	3	2	5	3	5	2
Har. 63	4	3	4	4	5	1	2	4	4	4	3	4	2	3
Lind. 63	5	5	5	5	4	5	5	5	5	5	4	5	1	4
Al-439	1	1	3	2	2	2	4	1	1	2	1	2	4	5

¹AX56P64-1 in 1962.

²C1294R in 1962.

³A8-932 in 1962-63.

⁴Shabbona, 1962-65.

⁵Dwight, 1962-65.

Table 53. (Continued)

Strain	Madi-son Wis.	De-Kalb Ill. ⁴	Pon-tiac Ill. ⁵	Ur-bana Ill.	Gi-rard Ill.	Edge-wood Ill.	Lam-ber-ton Minn.	Wa-seca Minn.	Suth-er-land Iowa	Kana-wha Iowa	Inde-dence Iowa	Co-lumb- Iowa	Cen-ter-ville Mo.	Lin-coln S.D.	Nebr.
Years Tested	1962-1966	1962-1966	1962-1966	1962-1966	1962-1966	1962-1966	1962-1966	1962-1966	1962-1966	1962-1966	1962-1966	1962-1966	1962-1966	1962-1966	1962-1966
Amsoy	35.9	48.8	43.3	47.9	43.5	34.9	32.0	35.9	39.2	43.8	37.2	40.2	37.7	42.8	48.5
Har.	33.5	46.1	41.3	44.4	39.8	32.8	31.3	34.7	37.2	39.8	34.9	37.2	34.9	39.0	46.4
Har. 63	32.4	45.0	39.8	43.3	37.5	33.1	31.6	34.6	36.9	38.8	34.8	36.4	32.7	38.7	43.0
Lind. 63	33.9	42.2	39.2	41.9	40.1	33.1	30.2	33.0	35.9	39.1	34.9	34.6	32.9	39.2	47.6
Al-439	38.3	48.1	43.4	47.3	43.4	36.5	36.2	41.0	42.0	43.9	40.5	39.3	34.2	45.9	46.7

Yield Rank

	2	1	2	1	1	2	2	2	2	2	2	1	1	2	1
Amsoy	2	1	2	1	1	2	2	2	2	2	2	1	1	2	1
Har.	4	3	3	3	4	5	4	3	3	3	3	3	2	4	4
Har. 63	5	4	4	4	5	3	3	4	4	5	5	4	5	5	5
Lind. 63	3	5	5	5	3	3	5	5	5	4	3	5	4	3	2
Al-439	1	2	1	2	2	1	1	1	1	1	1	2	3	1	3

PRELIMINARY TEST II, 1966

Strain	Parentage	Generation Composited
1. Amsoy		
2. Harosoy 63		
3. AX144-16-2	Lindarin x A54-3202	F ₆
4. C1402	C1128 x Mukden	F ₆
5. C1424	Kent x C1253	F ₆
6. C1425	Kent x C1253	F ₆
7. C1426	Kent x C1253	F ₆
8. C1427	Kent x C1253	F ₆
9. C1428	Kent x C1253	F ₆
10. C1429	Kent x C1253	F ₆
11. C1430	Kent x C1253	F ₆
12. C1431	Kent x C1253	F ₆
13. C1432	Kent x C1253	F ₆
14. C1433	Kent x C1253	F ₆
15. SD647	Blackhawk x Capital ¹	F ₉
16. SD649	(Grant x Adams) x (Capital x Grant) ¹	F ₆

¹Colchicine-treated in F₁.

Ten of the 14 strains in this test are phytophthora-resistant lines from one cross. Several of these were higher in protein content than the check varieties, but there appeared to be a strong negative correlation between protein content and yield. Four of these outyielded Amsoy by about 2 bushels but had normal composition.

The remaining 4 lines in the test were low in yield relative to the checks.

Table 54. Descriptive data and shattering scores, Preliminary Test II, 1966.

Strain	Flower Color	Pubes- cence Color	Pod Color	Seed Coat Luster	Seed Coat Color	Hilum Color	Shattering		
							Carbondale		Five Points Cal. ²
							Ill. ¹		
							1 mo.	2 mo.	
Amsoy	P	G	Tan	S	Y	Y	1.0	2.0	2.0
Harosoy 63	P	G	Br	D	Y	Y	2.0	3.0	2.0
AX144-16-2	P	T	Br	D	Y	Br	1.0	1.0	2.0
C1402	W	G	Br	S	Y	Bf	1.0	2.0	3.0
C1424	P	T	Br	D	Y	B1	1.0	3.0	3.5
C1425	P	T	Br	D	Y	B1	2.0	4.0	2.0
C1426	P	G	Br	S	Y	Ib	1.0	3.0	4.0
C1427	P	G	Br	S	Y	Ib	2.0	4.0	3.5
C1428	P	G	Br	S	Y	Ib	3.0	5.0	4.0
C1429	P	G	Br	S	Y	Ib	1.0	1.0	2.0
C1430	P	T	Br	D	Y	B1	2.0	2.0	2.5
C1431	P	G	Br	D	Y	Ib	1.0	1.0	3.5
C1432	P	T	Br	D	Y	B1	1.0	1.0	2.5
C1433	P	T	Br	S	Y	B1	1.0	1.0	2.0
SD647	P	G	Br	D	Y	Y	1.0	1.0	3.0
SD649	P	T	Br	S	Y	Tan + Br	1.0	3.0	3.5

¹Mean of two replications planted June 20. Scored one month and two months after maturity.

²Mean of two replications planted June 10. Scored 14 days after maturity.

Table 55. Summary of data, Preliminary Test II, 1966.

Strain	Yield	Rank	Matu- rity ¹	Lodg- ing	Height	Seed Quality	Seed Weight	Seed Composition	
								Protein	Oil
No. of Tests	16	16	14	14	14	11	9	10	10
Amsoy	42.2	5	+2.6	2.0	40	2.1	17.4	38.9	21.4
Harosoy 63	37.8	12	0	2.4	40	1.6	18.1	40.7	20.6
AX144-16-2	40.4	9	+4.5	2.1	37	1.6	18.6	41.6	21.0
C1402	34.3	15	+2.7	2.7	42	1.6	16.3	42.6	20.5
C1424	40.1	10	+3.1	1.9	39	1.9	17.1	42.0	20.2
C1425	39.7	11	+4.0	1.3	39	1.9	18.7	42.2	20.2
C1426	44.0	3	+5.9	1.9	40	1.6	20.0	41.0	21.1
C1427	40.5	8	+2.1	2.0	38	2.1	19.0	39.8	21.7
C1428	41.4	7	+3.3	1.9	41	2.2	17.6	40.3	21.9
C1429	44.5	1	+5.1	1.9	38	2.0	19.4	40.4	21.0
C1430	37.8	12	+6.6	1.8	42	2.2	19.3	43.1	20.9
C1431	43.9	4	+5.0	1.6	38	1.6	18.3	40.9	20.7
C1432	44.4	2	+6.4	2.0	37	1.9	18.7	40.1	21.3
C1433	42.0	6	+7.9	2.0	40	1.8	17.7	39.3	21.1
SD647	33.5	16	-4.1	1.7	30	1.8	14.5	39.0	20.9
SD649	34.6	14	-0.2	2.0	35	1.7	15.2	40.1	20.2

¹Days earlier (-) or later (+) than Harosoy 63 which matured September 21, 120 days after planting.

Table 56. Disease data, Preliminary Test II, 1966.

Strain	Bacterial Pustule	Downy Mildew	Frogeye Race 2	Phytophthora Rot
	<u>Ill.</u> a ¹	<u>Ind.</u> n ¹	<u>Ind.</u> a	<u>Ind.</u> a
Amsoy	S	2.3	S	S
Harosoy 63	S	2.0	S	R
AX144-16-2	S	3.0	S	S
C1402	S	4.0	R	S
C1424	S	4.0	S	R
C1425	S	3.0	S	R
C1426	S	4.0	Seg.	R
C1427	S	3.0	Seg.	R
C1428	S	3.0	Seg.	R
C1429	S	4.0	R	R
C1430	S	3.0	R	R
C1431	S	2.0	S	R
C1432	S	3.0	S	R
C1433	S	3.0	S	R
SD647	S	4.0	S	S
SD649	S	4.0	S	S

¹a = artificial inoculation; n = natural infection.

Table 57. Yield and yield rank, Preliminary Test II, 1966.

Strain	Mean of 16 Tests	Ridge- town Ont.	Har- row Ont.	Hoyt- ville Ohio	Woos- ter Ohio	Co- lum- bus Ohio	East Lan- sing Mich.	Lafa- yette Ind.	Madi- son Wis.	Ur- bana Ill.
Amsoy	42.2	56.2	47.8	47.2	27.6	29.5	48.6	36.9	48.2	38.0
Harosoy 63	37.8	55.6	41.3	28.6	30.0	33.1	41.3	34.6	37.3	35.6
AX144-16-2	40.4	51.0	47.3	43.9	30.5	28.5	42.4	37.0	45.4	40.0
C1402	34.3	46.5	41.4	28.2	27.2	22.5	41.1	35.4	36.8	33.9
C1424	40.1	53.2	43.7	39.4	30.5	30.9	41.3	34.2	41.8	37.6
C1425	39.7	52.0	48.3	41.3	27.0	34.3	40.4	36.0	43.0	35.9
C1426	44.0	59.2	44.6	44.2	32.8	38.8	48.1	39.8	51.8	41.9
C1427	40.5	58.8	41.1	34.7	28.7	30.4	44.4	39.4	47.5	39.3
C1428	41.4	52.8	42.8	38.4	33.3	49.8	50.2	36.3	40.2	37.3
C1429	44.5	52.6	50.4	44.9	32.7	37.1	46.5	44.7	51.2	41.8
C1430	37.8	51.4	43.3	31.9	28.7	34.8	38.7	38.9	42.7	36.8
C1431	43.9	59.8	50.4	51.6	29.1	28.4	45.1	40.6	45.2	39.5
C1432	44.4	60.4	51.3	46.5	25.2	29.2	46.3	43.6	51.3	40.5
C1433	42.0	55.6	47.8	38.4	24.4	37.7	39.1	48.1	42.3	41.5
SD647	33.5	47.1	36.7	26.6	21.4	23.9	38.2	31.0	31.9	31.2
SD649	34.6	48.4	41.1	27.8	22.4	26.1	39.0	31.4	32.1	32.1
Coef. of Var. (%)		3.2	6.6	--	--	--	6.7	9.8	10.6	4.3
L.S.D. (5%)		3.7	6.3	--	--	--	5.8	7.9	7.7	3.4
Row Spacing (In.)		24	40	28	32	28	28	38	36	40

	Yield Rank									
Amsoy	5	5	5	2	10	10	2	9	4	8
Harosoy 63	12	6	13	13	6	7	9	13	13	13
AX144-16-2	9	13	7	6	4	12	8	8	6	5
C1402	15	16	12	14	11	16	11	12	14	14
C1424	10	8	9	8	4	8	9	14	11	9
C1425	11	11	4	7	12	6	12	11	8	12
C1426	3	3	8	5	2	2	3	5	1	1
C1427	8	4	14	11	8	9	7	6	5	7
C1428	7	9	11	9	1	1	1	10	12	10
C1429	1	10	2	4	3	4	4	2	3	2
C1430	12	12	10	12	8	5	15	7	9	11
C1431	4	2	2	1	7	13	6	4	7	6
C1432	2	1	1	3	13	11	5	3	2	4
C1433	6	6	5	9	14	3	13	1	10	3
SD647	16	15	16	16	16	15	16	16	16	16
SD649	14	14	15	15	15	14	14	15	15	15

*Not included in the mean.

¹Upland.

²Irrigated.

Table 57. (Continued)

Strain	Kana- wha Iowa	Ames Iowa	Spick- ard Mo. ¹	Co- lum- bia Mo.	Brook- ings S.D.	Cen- ter- ville S.D.	Con- cord Nebr. ²	Lin- coln Nebr. ²	Five Points Cal. ²
							*		*
Amsoy	38.9	42.2	45.4	41.9	28.5	44.6	39.2	54.2	16.1
Harosoy 63	34.6	40.6	38.5	38.3	26.7	38.2	39.5	50.0	12.9
AX144-16-2	35.8	37.4	39.2	45.4	28.2	40.1	39.8	54.7	14.4
C1402	30.4	33.4	36.7	36.6	23.0	35.2	28.2	40.3	9.5
C1424	36.3	40.0	42.5	46.3	29.8	43.5	41.9	50.4	14.0
C1425	32.1	36.6	43.5	39.2	25.4	40.7	39.9	60.2	14.0
C1426	41.1	44.2	48.6	50.0	30.0	39.5	49.9	50.1	13.9
C1427	32.9	37.4	40.0	46.8	30.6	41.6	50.0	54.6	14.9
C1428	35.1	34.9	38.0	44.9	29.2	43.4	40.8	56.4	12.8
C1429	41.2	41.4	48.6	48.2	29.9	38.2	43.6	63.3	12.9
C1430	33.2	37.1	41.5	43.0	23.3	31.6	--	47.7	13.2
C1431	36.0	44.4	46.4	45.5	31.7	48.4	48.1	60.4	12.3
C1432	36.4	46.6	46.6	51.6	29.0	49.0	41.4	56.6	11.7
C1433	37.1	38.2	48.0	50.2	27.4	40.8	42.0	56.1	14.5
SD647	32.0	34.4	29.1	36.9	29.2	43.9	45.6	42.9	11.8
SD649	31.0	31.4	33.4	44.8	25.7	38.2	36.3	48.0	12.4
Coef. of Var. (%)	5.9	5.8	5.0	8.0	--	--	14.2	8.2	20.0
L.S.D. (5%)	4.4	4.8	4.4	3.8	--	--	12.8	4.6	N.S.
Row Spacing (In.)	40	40	40	38	40	40	40	40	30

	Yield Rank								
Amsoy	3	4	6	12	9	3	13	9	1
Harosoy 63	10	6	12	14	12	12	12	12	9
AX144-16-2	8	9	11	8	10	10	11	7	4
C1402	16	15	14	16	16	15	15	16	16
C1424	6	7	8	6	5	5	7	10	5
C1425	13	12	7	13	14	9	10	3	5
C1426	2	3	1	3	3	11	2	11	7
C1427	12	9	10	5	2	7	1	8	2
C1428	9	13	13	9	6	6	9	5	11
C1429	1	5	1	4	4	12	5	1	9
C1430	11	11	9	11	15	16	--	14	8
C1431	7	2	5	7	1	2	3	2	13
C1432	5	1	4	1	8	1	8	4	15
C1433	4	8	3	2	11	8	6	6	3
SD647	14	14	16	15	6	4	4	15	14
SD649	15	16	15	10	13	12	14	13	12

Table 58. Maturity, days earlier (-) or later (+) than Harosoy 63, Preliminary Test II, 1966.

Strain	Mean of 14 Tests	Ridge- town Ont.	Har- row Ont.	Hoyt- ville Ohio	Woos- ter Ohio	Co- lum- bus Ohio	East Lan- sing Mich.	Lafa- yette Ind.	Madi- son Wis.	Ur- bana Ill.
						*				
Amsoy	+2.6	+ 1	+ 4	0	- 2		- 3	+ 4	+ 4	+ 3
Harosoy 63	0	0	0	0	0		0	0	0	0
AX144-16-2	+4.5	+ 4	+ 6	+ 5	- 2		- 2	+ 3	+10	+ 6
C1402	+2.7	+ 8	+ 4	0	- 4		+ 7	+ 1	+ 5	+ 4
C1424	+3.1	+ 5	+ 4	+ 2	- 5		- 1	+ 2	+ 6	+ 5
C1425	+4.0	+ 4	+ 6	+ 2	- 1		+ 4	+ 5	+ 6	+ 5
C1426	+5.9	+ 6	+ 8	+ 4	- 1		+ 7	+ 8	+ 6	+ 7
C1427	+2.1	- 1	+ 2	+ 2	- 3		+ 2	+ 2	+ 8	+ 4
C1428	+3.3	+ 1	+ 4	+ 2	+ 2		+ 2	+ 3	+ 5	+ 5
C1429	+5.1	+ 6	+ 5	+ 6	0		+10	+ 4	+ 7	+ 6
C1430	+6.6	+ 5	+ 8	+ 6	0		+10	+ 5	+ 7	+ 8
C1431	+5.0	+ 5	+ 6	+ 2	- 2		+ 5	+ 5	+ 9	+ 6
C1432	+6.4	+ 7	+ 7	+ 6	+ 1		+ 7	+ 6	+ 8	+ 6
C1433	+7.9	+ 9	+ 8	+ 8	- 1		+10	+ 7	+ 8	+10
SD647	-4.1	- 5	- 7	- 6	- 4		- 6	- 6	- 4	- 2
SD649	-0.2	- 2	0	0	- 2		- 6	0	- 1	+ 1
Hark (I)		+ 2	- 2	-15	- 5	--	- 8	+ 2	- 3	- 2
Wayne (III)		+10	+13	+13	+15	--	--	+13	--	+11
Date planted	5-24	5-20	5-30	6-3	5-25	5-21	5-26	5-27	5-27	5-20
Harosoy 63 matured	9-21	9-19	9-22	10-6	9-23	--	10-9	9-9	9-26	9-4
Days to mature	120	122	115	125	121	--	136	105	122	107

*Not included in the mean.

¹Irrigated.

Table 58. (Continued)

Strain	Kana- wha Iowa	Ames Iowa	Spick- ard Mo. *	Co- lum- bia Mo.	Brook- ings S.D.	Cen- ter- ville S.D.	Con- cord Nebr. ¹ *	Lin- coln Nebr. ¹	Five Points Cal. ¹ *
Amsoy	+ 6	+ 5		+3	+ 5	+1	+ 5	+ 5	+4
Harosoy 63	0	0		0	0	0	0	0	0
AX144-16-2	+ 8	+ 4		+4	+ 6	+4	+ 6	+ 7	+4
Cl402	+ 2	+ 5		+3	+ 2	0	+ 2	+ 1	0
Cl424	+ 8	+ 4		+5	+ 4	0	+ 6	+ 4	+4
Cl425	+ 8	+ 6		+3	+ 6	+2	+ 7	0	+4
Cl426	+ 8	+ 8		+6	+ 7	+3	+ 6	+ 6	+4
Cl427	+ 6	+ 3		+3	+ 1	-2	+ 5	+ 3	+4
Cl428	+ 6	+ 6		+1	+ 4	0	+ 5	+ 5	+4
Cl429	+ 8	+ 9		+4	+ 5	0	+ 6	+ 2	+4
Cl430	+10	+10		+6	+ 8	+4	+ 9	+ 5	0
Cl431	+ 7	+ 7		+7	+ 6	+2	+ 6	+ 5	+4
Cl432	+10	+10		+5	+ 7	+2	+10	+ 8	+4
Cl433	+12	+12		+8	+10	+3	+ 9	+ 7	+4
SD647	- 3	- 4		-5	- 2	-3	- 6	0	+4
SD649	+ 2	0		+3	0	0	- 1	+ 2	+4
Hark	+ 2	- 1	--	--	- 1	--	+ 4	- 4	-5
Wayne	+17	+12	--	--	--	+7	+ 8	+18	+3
Date planted	5-17	5-21	5-19	5-23	5-25	5-27	5-26	5-16	6-10
Harosoy 63 matured	9-16	9-14	--	9-6	9-28	10-9	9-24	9-16	9-27
Days to mature	122	116	--	106	126	135	121	123	109

UNIFORM TEST III, 1966

Strain	Parentage	Generation Composited	Previous Testing (years)
1. Adelpia (C1225)	C1070 x Adams	F ₆	2 (60-61)
2. C1421	Adelpia ⁸ x Mukden	6 F ₃ lines	None
3. Shelby	Lincoln ² x Richland	F ₈	14
4. Wayne	L49-4091 x Clark	F ₅	5
5. A2-5432	Clark x Chippewa	F ₇	1
6. C1317	C1223 ⁸ x Mukden	2 F ₃ lines	3
7. C1335	Harosoy x C1069	F ₆	U.T. II
8. C1347	Lindarin x Ford (A0-8618-1)	F ₆	P.T. II
9. C1362	Lindarin x Harosoy	F ₆	P.T. II
10. C1367	Lindarin x Shelby	F ₆	P.T. III
11. C1375	[Lindarin x sel. (PI 65.338 x C1079)] x (Lindarin x L49-4196)	F ₅	P.T. II

A 4-year summary is presented to compare C1317 with Shelby and Wayne. Although C1317 is phytophthora resistant and better in lodging resistance, Wayne has shown a consistent yield advantage over the 4 years.

Only 1 other strain, A2-5432, has been in the test for more than 1 year. It is 2 days earlier than Wayne and more lodging resistant but is short and no better in yield.

Adelpia was re-entered in this test after being released in New Jersey in 1966 and it performed well this year. It showed an advantage in seed quality only at Georgetown, Delaware, but did not have much of a test in the central states since the seed quality problem was not severe this year. C1421 is similar to Adelpia but carries phytophthora resistance. It did not show a yield deficiency relative to its recurrent parent as some other phytophthora-resistant backcross strains have.

None of the strains in the test had a higher mean yield than Wayne. Among the new entries, C1362 showed most promise since it was earlier and more lodging resistant than Wayne and ranked second in mean yield.

Table 59. Descriptive data and shattering scores, Uniform Test III, 1966.

Strain	Flower Color	Pubes- cence Color	Pod Color	Seed Coat Luster	Seed Coat Color	Hilum Color	Shattering			
							New- ark Del.	Carbon- dale Ill. ¹	Five Points Cal. ²	Cor- coran Cal. ³
Adelphia	W	G	Tan	S	Y	Bf	1.0	1.0	1.0	2.0
C1421	W	G	Tan	S	Y	Bf	1.0	1.0	1.8	2.0
Shelby	P	T	Br	D	Y	B1	1.3	1.0	1.5	2.0
Wayne	W	T	Br	S	Y	B1	2.3	2.0	1.8	3.0
A2-5432	P	T	Br	S	Y	B1	1.0	1.0	1.3	1.8
C1317	W	G	Tan	S	Y	Bf	1.8	1.0	1.8	2.8
C1335	P	G	Br	D	Y	G	1.0	1.0	1.8	3.5
C1347	P	G	Br	D	Y	Ib	2.8	2.0	2.0	3.3
C1362	P	G	Br	D	Y	Dbf	1.8	2.0	2.3	3.0
C1367	P	T	Br	D	Y	B1	1.8	1.0	1.8	2.0
C1375	P	G	Br	D	Y	Bf	3.0	2.0	1.8	2.8

¹Mean of four replications planted June 20. Scored two months after maturity.

²Mean of four replications planted June 10. Scored 14 days after maturity.

³Mean of four replications planted June 11. Scored 14 days after maturity.

Table 60. Summary of data, Uniform Test III, 1966.

Strain	Yield	Rank	Matu- rity ¹	Lodg- ing	Height	Seed Quality	Seed Weight	Seed Composition	
No. of Tests	31	31	28	26	30	24	22	Protein	Oil
								14	14
Adelphia	39.2	4	+4.3	1.4	35	1.9	16.9	40.0	21.4
C1421	39.1	5	+4.0	1.4	36	1.9	17.9	39.8	21.6
Shelby	37.3	9	0	2.2	40	1.8	15.9	40.4	21.0
Wayne	40.6	1	+0.9	2.0	38	1.8	18.0	41.4	21.0
A2-5432	39.9	2	-1.3	1.5	34	1.7	15.5	40.0	21.6
C1317	38.2	7	+0.9	1.4	36	2.0	17.1	39.3	21.6
C1335	38.2	7	-2.2	1.6	34	2.2	19.1	41.2	21.3
C1347	36.3	11	-3.3	1.6	35	1.8	16.7	40.1	21.5
C1362	39.9	2	-1.9	1.5	37	1.8	17.0	40.4	21.4
C1367	38.8	6	-2.1	1.5	35	1.7	14.8	40.5	20.8
C1375	37.3	9	-2.3	2.0	33	2.2	17.0	41.2	21.8

¹Days earlier (-) or later (+) than Shelby which matured September 26, 121 days after planting.

Table 61. Disease data, Uniform Test III, 1966.

Strain	Bacterial	Bacterial	Xantho-		Choco-	Downy	Frogeye	Phytoph-	Brown	
	Blight	Pustule	monas		late	Mildew	Race 2	thora	Stem	Brown
	Ia.	Ill.	Ia.	Ia.	Spot ³	Ind.	Ind.	Rot	Rot	Spot
	al	a	a	a	a	nl	a	a	n	n
Adelphia	4	S	5	4	3	3.5	S	S	3	3.3
C1421	4	S	4	5	4	3.8	S	R	3	3.4
Shelby	4	S	4	4	4	3.0	S	S	3	3.2
Wayne	3	R	1	3	3	3.3	S	S	3	2.0
A2-5432	4	S	4	1	3	3.0	S	S	3	3.1
C1317	4	S	4	5	4	2.5	R	R	4	4.3
C1335	3	S	4	3	4	2.0	R	S	4	4.0
C1347	4	S	4	1	3	3.0	S	S	3	4.3
C1362	4	S	4	3	3	2.0	S	S	3	4.3
C1367	4	S	4	5	4	2.0	S	S	3	3.7
C1375	4	S	5	5	3	2.5	S	S	4	4.8

1a = artificial inoculation; n = natural infection.

²An unnamed *Xanthomonas* sp.

³A bacterial leafspot that resembles brown spot.

Table 62. Yield and yield rank, Uniform Test III, 1966.

Strain	Mean of 31 Tests	Har- row Ont.	Free- hold N.J. ¹	New- ark Del. ¹	George- town Del. ¹	Hoyt- ville Ohio	Woos- ter Ohio	Co- lum- bus Ohio	Bluff- ton Ind.	Lafa- yette Ind.	Green- field Ind.	Thing- ton Ind.	Evans- ville Ind.	Ur- bana Ill. ²	Gi- rard Ill. ²	Edge- wood Ill.	Tren- ton Ill. ²	Eldo- rado Ill. ²	Car- bon- dale Ill.
Adelphia	39.2	40.7	22.1	28.8	30.2	44.1	26.3	44.7	40.5	44.9	36.3	42.0	51.6	41.5	39.9	26.8	42.4	55.1	37.5
C1421	39.1	38.8	24.0	22.5	26.1	46.6	26.1	44.7	40.5	41.1	34.1	40.8	52.7	43.2	37.2	30.7	41.0	55.8	37.2
Shelby	37.3	42.8	20.1	26.1	13.1	40.6	30.5	40.2	46.2	39.8	35.7	43.4	45.4	36.4	34.6	25.1	38.8	51.5	36.2
Wayne	40.6	43.2	24.0	24.0	18.6	49.9	35.8	41.4	49.6	47.6	39.2	43.3	49.8	41.3	41.5	38.1	47.9	55.2	37.7
A2-5432	39.9	44.7	24.0	28.1	10.9	53.9	30.6	46.0	46.1	45.1	31.9	47.1	45.9	42.0	37.5	32.2	44.7	53.9	35.6
C1317	38.2	40.0	22.0	26.0	8.4	43.9	28.8	44.2	45.4	40.2	36.1	40.2	54.2	39.0	37.9	32.0	41.4	56.0	36.0
C1335	38.2	46.4	30.2	25.8	28.1	47.2	30.7	41.7	43.7	44.7	28.9	39.8	44.8	40.3	39.5	32.0	38.9	49.5	33.0
C1347	36.3	42.4	24.8	25.4	8.4	47.2	30.5	45.8	41.3	45.6	28.5	44.6	47.5	40.2	37.2	29.0	39.6	43.0	31.8
C1362	39.9	49.6	29.1	31.6	10.9	47.1	32.2	36.4	45.7	49.4	36.4	53.8	52.6	40.0	41.9	32.3	40.5	51.8	35.8
C1367	38.8	39.3	24.3	26.1	12.8	47.2	29.2	43.2	43.7	46.5	38.1	42.3	47.5	39.6	36.6	33.3	44.3	49.6	35.0
C1375	37.3	32.9	25.2	25.5	9.7	40.9	31.5	37.9	43.6	42.7	33.6	45.8	46.9	39.7	41.6	30.6	37.7	51.7	35.6
C.V.(%)		12.4	16.6	12.6	35.8	--	--	--	9.2	6.8	10.0	10.5	6.6	5.9	5.3	11.6	6.3	3.8	--
L.S.D.(5%)		7.5	5.6	4.8	8.3	--	--	--	5.7	4.3	5.1	6.8	4.7	N.S.	3.5	5.2	4.5	3.4	--
R.Sp.(In.)		40	30	36	36	28	32	28	38	38	38	38	40	40	30	38	36	36	40

Yield Rank																			
Adelphia	4	7	9	2	1	8	10	3	10	6	4	8	4	3	4	10	4	4	2
C1421	5	10	6	11	3	7	11	3	10	9	7	9	2	1	8	7	6	2	3
Shelby	9	5	11	4	5	11	6	9	2	11	6	5	10	11	11	10	8	4	
Wayne	1	4	6	10	4	2	1	8	1	2	1	6	5	4	3	1	1	3	1
A2-5432	2	3	6	3	7	1	5	1	3	5	9	2	9	2	7	4	2	5	7
C1317	7	8	10	6	10	9	9	5	5	10	5	10	1	10	6	5	5	1	5
C1335	7	2	1	7	2	3	4	7	6	7	10	11	11	5	5	5	9	10	10
C1347	11	6	4	9	10	3	6	2	9	4	11	4	6	6	8	9	8	11	11
C1362	2	1	2	1	7	6	2	11	4	1	3	1	3	7	1	3	7	6	6
C1367	6	9	5	4	6	3	8	6	6	3	2	7	6	9	10	2	3	9	9
C1375	9	11	3	8	9	10	3	10	8	8	8	3	8	8	2	8	11	7	7

*Not included in the mean.

¹Irrigated.

²Three replications.

³Upland.

⁴Bottom land.

Table 62. (Continued)

Strn.	Ames Iowa	Ot- tum- wa Iowa	Spick- ard Mo. ³	Spick- ard Mo. ⁴	Co- lumb- bia Mo.	Por- tage- ville Mo. ¹	Cen- ter- ville S.D.	Lin- coln Nebr. ¹	Pow- hatan Kans. ¹	Man- hat- Colby Kans. ¹	Man- hat- tan Kans. ¹	Ot- taw Kans. ¹	New- ton Kans.	Par- sons Kans.	Co- lumb- bus Kans.	Fruita Col. ¹	Davis Cal. ¹	Five Points Cal. ¹	Cor- coran Cal. ¹	
				*							*					*	*	*	*	
Adel.	38.9	35.8	45.0	47.8	42.0	37.9	32.9	53.3	44.7	41.6	30.0	39.8	42.5	24.9	23.0	59.0	34.6	11.0	17.2	31.7
Cl421	38.9	35.7	44.8	49.5	40.4	35.4	38.0	54.6	45.3	39.5	30.3	39.7	44.0	27.5	22.1	59.9	35.0	--	23.1	26.8
Shel.	38.0	36.5	42.6	43.0	39.6	36.6	36.5	49.7	36.4	43.0	31.2	39.5	37.6	23.6	20.1	51.9	37.9	7.1	20.2	32.9
Wayne	43.8	43.1	43.7	45.6	50.4	37.0	36.1	47.2	43.2	38.3	32.0	42.0	39.6	20.4	23.4	52.0	30.6	10.8	19.7	37.7
-5432	41.4	37.4	44.4	45.8	44.4	34.6	41.8	50.0	40.3	40.5	29.4	44.4	42.0	24.3	23.4	55.1	45.1	7.4	24.7	29.4
Cl1317	38.0	37.6	44.7	50.7	44.6	34.1	31.7	52.8	33.3	39.6	31.4	31.7	32.8	23.5	22.0	53.3	37.4	9.0	20.5	33.5
Cl1335	41.1	38.7	44.0	38.9	42.1	33.0	34.8	56.4	36.7	38.9	32.4	41.9	32.8	18.4	23.8	54.3	32.8	10.3	21.3	31.1
Cl1347	36.6	37.3	41.3	41.9	44.2	32.2	36.3	47.4	36.4	33.6	27.7	37.3	29.8	12.8	20.0	46.1	50.8	6.7	17.3	27.2
Cl1362	41.6	37.2	48.4	46.0	44.5	37.1	38.6	56.0	37.2	36.3	27.4	41.9	33.4	19.6	21.5	52.3	46.2	10.8	26.0	28.9
Cl1367	37.1	35.7	43.3	37.7	43.3	35.6	38.4	52.9	38.7	42.8	31.2	45.6	39.0	21.6	24.1	52.9	32.6	9.1	18.7	27.9
Cl1375	37.9	41.0	38.9	38.0	44.1	34.4	38.2	43.5	39.8	38.9	29.9	33.2	37.8	17.8	21.4	49.2	25.8	8.3	18.8	34.1
CV(%)	5.5	6.6	5.1	10.0	5.4	7.4	--	8.7	9.4	8.4	9.4	12.5	10.9	12.4	7.4	10.1	25.5	--	18.0	17.0
LSIX(%)	3.0	3.4	3.2	6.3	3.3	3.7	--	7.1	5.3	4.8	4.1	7.2	2.9	4.0	1.5	6.3	13.7	--	2.7	N.S.
RS(In.)	40	38	40	40	38	38	40	40	38	30	36	36	30	30	40	30	24	30	30	30

Yield Rank

Adel.	5	9	2	3	9	1	10	4	2	3	7	6	2	2	5	2	7	1	11	5
Cl421	5	10	3	2	10	6	5	3	1	6	6	7	1	1	6	1	6	--	3	11
Shel.	7	8	9	7	11	4	6	8	9	1	4	8	7	4	10	9	4	9	6	4
Wayne	1	1	7	6	1	3	8	10	3	9	2	3	4	7	3	8	10	2	7	1
-5432	3	5	5	5	4	7	1	7	4	4	9	2	3	3	3	3	3	8	2	7
Cl1317	7	4	4	1	2	9	11	6	11	5	3	11	9	5	7	5	5	6	5	3
Cl1335	4	3	6	9	8	10	9	1	8	7	1	4	9	9	2	4	8	4	4	6
Cl1347	11	6	10	8	5	11	7	9	9	11	10	9	11	11	11	11	1	10	10	10
Cl1362	2	7	1	4	3	2	2	2	7	10	11	4	8	8	8	7	2	2	1	8
Cl1367	10	10	8	11	7	5	3	5	6	2	4	1	5	6	1	6	9	5	9	9
Cl1375	9	2	11	10	6	8	4	11	5	7	8	10	6	10	9	10	11	7	8	2

Table 63. Maturity, days earlier (-) or later (+) than Shelby, and lodging scores, Uniform Test III, 1966.

Strain	Mean of 28 Tests	Har- row Ont.	Free- hold N.J. ¹	New- ark Del. ¹	George- town Del. ¹	Hoyt- ville Ohio	Woos- ter Ohio	lum- bus Ohio	Bluff- ton Ind.	Lafa- yette Ind.	Green- field Ind.	Wor- thing ton Ind.	Evans- ville Ind.	Ur- bana Ill.	Gi- rard Ill.	Edge- wood Ill.	Tren- ton Ill.	Eldo- rado Ill.	Car- bon- dale Ill.
Adelphia	+4.3	+7	+6	+6	0	0	0		+2	+5	+12	+4	+4	+6	+5	+4	+6	+3	+4
Cl421	+4.0	+7	+5	+6	+1	-1	0		+4	+4	+10	+4	+5	+7	+5	+4	+6	+2	+4
Shelby	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0
Wayne	+0.9	+2	+1	0	+2	+1	-4		-1	+1	+3	+3	+1	+1	0	+1	-1	0	0
A2-5432	-1.3	-2	0	-1	+1	-2	-2		-4	-2	+1	0	+1	0	-3	+1	-3	-7	0
Cl317	+0.9	+3	+1	+3	-1	0	-2		-1	+1	+8	+2	+2	0	0	-1	-1	0	+1
Cl335	-2.2	+3	+1	-3	-1	-1	-2		-2	-1	+3	+1	0	-4	-7	-2	-4	-8	-4
Cl347	-3.3	0	-2	-6	-4	-1	-4		-2	-3	-2	-2	-3	-2	-5	-3	-4	-9	-5
Cl362	-1.9	+2	+2	-3	0	0	-2		-2	-3	-1	+1	-3	-2	-5	-3	-5	-8	-4
Cl367	-2.1	-2	0	-4	-3	+1	-2		-2	-3	-1	-1	-3	0	-4	-2	-2	-7	-5
Cl375	-2.3	-1	-1	-3	-3	0	-2		-2	-4	-3	+1	-6	-3	-4	-3	-3	-7	0
Amsoy (II)	-7	-8	--	--	--	-12	-21		-12	-7	-7	--	--	-8	-7	-8	-8	-10	-6
Clark 63 (IV)	--	+14	+11	+7	--	--	--		+7	+7	+10	+9	+4	+12	+10	+13	+8	+9	+8
Date pltd.	5-28	5-30	5-26	6-6	6-7	6-3	5-25	5-21	5-28	5-27	5-20	5-28	6-3	5-20	5-29	6-9	6-4	5-31	6-20
Shelby mat.	9-26	10-3	9-21	9-28	10-2	10-18	10-12	--	10-2	9-21	9-23	9-27	10-4	9-14	9-20	9-23	9-27	9-22	9-30
Da. to mat.	121	126	118	114	117	137	140	--	127	117	126	122	123	117	114	106	115	114	102
Mean of 26 Tests	Lodging Score																		
Adelphia	1.4	1.2	1.0	2.0	1.3	1.0	1.0		1.0	1.3	1.3	1.5	1.5	1.1	1.1	1.0	1.7	1.9	1.0
Cl421	1.4	1.0	1.0	1.9	1.3	1.0	1.0		1.5	1.0	1.0	1.5	1.0	1.1	1.1	1.1	1.7	1.8	1.5
Shelby	2.2	2.2	2.0	2.3	2.6	2.2	1.0		2.0	2.0	1.3	2.3	2.8	1.5	2.7	1.3	1.8	2.7	1.5
Wayne	2.0	2.0	2.0	1.6	2.0	2.0	1.0		2.0	2.0	1.3	1.8	2.0	1.5	1.6	1.2	1.4	2.7	1.5
A2-5432	1.5	1.0	1.0	1.5	2.4	1.5	1.0		1.3	1.5	1.0	1.8	1.8	1.2	1.0	1.3	1.3	1.9	1.5
Cl317	1.4	1.8	1.0	1.9	1.9	1.0	1.0		1.0	1.0	1.0	2.0	1.8	1.1	1.0	1.0	1.4	1.8	1.5
Cl335	1.6	1.8	1.0	1.5	1.1	1.5	1.0		1.0	1.7	1.3	1.8	2.5	1.2	1.1	1.1	1.7	2.0	1.0
Cl347	1.6	1.5	1.0	1.6	2.8	1.2	1.0		1.3	1.3	1.0	2.0	2.3	1.3	1.1	1.1	1.4	1.9	1.0
Cl362	1.5	1.8	1.0	1.4	2.4	1.5	1.0		1.3	1.3	1.0	1.5	1.8	1.2	1.1	1.1	1.4	2.2	1.0
Cl367	1.5	1.2	1.0	1.8	2.3	1.5	1.0		1.3	1.0	1.0	1.8	2.0	1.3	1.3	1.1	1.5	1.8	1.0
Cl375	2.0	2.5	2.0	2.0	2.1	2.5	1.0		1.8	2.0	1.3	2.5	2.8	1.3	1.3	1.1	1.7	1.8	1.5

*Not included in the mean.

¹Irrigated.

²Upland.

³Bottom land.

Table 63. (Continued)

Strn.	Ames Iowa	Ot- tum- Iowa	Spick- ard Mo. ²	Spick- ard Mo. ³	Co- lumb- bia Mo.	Por- tage- ville Mo. ¹	Cen- ter- ville S.D.	Lin- coln Nebr. ¹	Pow- hat- tan Kans. ¹	Man- hat- tan Kans. ¹	Man- hat- tan Kans. ¹	Ot- tawa Kans. ¹	New- ton Kans.	Par- sons Kans.	Co- lumb- bus Kans.	Fruita Col. ¹	Davis Cal. ¹	Five Points Cal. ¹	Cor- coran Cal. ¹	
			*	*					*	*	*					*	*	*	*	
Adel.	+5	+9			+2	+3	+6	+5	+3	+2	+2	+5	+3	0	+3	+17	+2	+12	0	
Cl421	+4	+7			+2	+3	+6	+4	+3	+2	+2	+5	+3	0	+2	+15	--	+12	0	
Shel.	0	0			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Wayne	+2	+1			+2	+2	+3	+3	+1	+1	0	+1	+1	+1	-1	+2	0	+1	0	
-5432	-4	-3			-1	0	-1	0	0	-2	0	+1	0	-2	-2	+7	-1	+1	0	
Cl1317	0	+2			-1	+1	+3	+2	+1	0	-1	+1	+1	-3	+1	+14	0	+6	0	
Cl335	-6	-7			-2	-1	-1	-3	+1	-2	-2	-1	-1	-6	-3	+9	+1	+1	0	
Cl347	-5	-7			-4	-2	-2	-4	0	-1	-1	-2	-2	-6	-4	+10	+2	0	0	
Cl362	-2	-5			-2	+1	0	0	0	-1	-2	-1	-1	-4	-1	+6	+2	+1	0	
Cl367	-5	-2			-2	-1	+1	-2	0	-2	-2	-1	-1	-4	-3	+1	-2	0	0	
Cl375	-5	-6			-3	0	+1	0	+1	-1	-1	-2	-2	-5	0	+3	+1	+4	0	
Amsoy	-7	-9	--	--	--	--	-3	-13	--	-1	--	--	--	--	--	--	--	-1	-9	
Clk.63	+6	+9	--	--	--	+12	--	+5	+3	+12	+11	+6	+7	+3	+6	+4	--	+9	--	
D.pltd.	5-21	5-25	5-19	5-19	5-23	5-21	5-27	5-16	5-15	5-19	5-27	5-27	5-14	5-13	6-16	6-21	6-1	6-14	6-10	6-11
S.mat.	9-28	9-21	--	--	9-14	9-12	10-13	9-30	10-3	9-29	9-21	9-27	9-28	9-18	9-22	9-26	9-26	10-17	10-1	10-9
D.tom.	130	119	--	--	114	114	139	137	141	133	117	123	137	128	98	97	117	125	113	120

Lodging Score

	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Adel.	1.2	1.1	1.4	1.8	1.4	1.8	2.0	2.1	1.3	1.0	1.1	2.2	1.2	1.0	1.0	1.8	1.0	2.0	1.3	1.5
Cl421	1.2	1.2	1.5	1.6	1.8	1.8	2.0	2.3	1.4	1.0	1.1	2.4	1.2	1.0	1.0	1.8	1.0	--	1.8	1.5
Shel.	1.8	1.4	2.8	2.9	3.4	2.5	3.0	3.2	1.4	1.0	1.3	4.3	2.1	1.0	1.0	3.0	1.0	2.0	2.3	2.3
Wayne	1.5	1.2	2.2	2.3	2.9	3.0	3.0	3.6	1.4	1.0	1.4	3.3	1.6	1.0	1.0	2.3	1.0	3.0	1.5	2.5
-5432	1.3	1.2	1.7	2.3	1.3	2.0	3.0	3.0	1.3	1.0	1.1	3.0	1.5	1.0	1.0	1.8	1.0	1.0	1.8	1.3
Cl317	1.2	1.2	1.4	1.7	1.3	1.8	2.0	2.1	1.3	1.0	1.2	3.5	1.3	1.0	1.0	1.8	1.0	1.0	1.5	1.0
Cl335	1.2	1.3	1.9	2.7	1.3	1.3	4.0	2.7	1.3	1.0	1.0	1.7	1.3	1.0	1.0	2.0	1.0	3.0	1.5	2.0
Cl347	1.4	1.3	1.8	2.2	1.1	2.5	3.0	2.7	1.3	1.0	1.2	3.1	1.5	1.0	1.0	1.8	1.0	4.0	1.5	1.8
Cl362	1.2	1.1	1.4	2.3	1.4	2.0	3.0	2.9	1.3	1.0	1.0	3.2	1.5	1.0	1.0	1.8	1.0	4.0	1.8	1.3
Cl367	1.4	1.1	2.1	2.6	1.6	2.5	2.0	2.3	1.4	1.0	1.1	2.6	1.3	1.0	1.0	1.5	1.0	2.0	1.0	1.5
Cl375	2.0	1.3	2.7	3.0	1.4	3.3	3.0	3.7	1.5	1.0	1.1	3.9	1.8	1.0	1.0	2.5	1.0	4.0	1.8	3.8

Table 64. Plant height and seed quality scores, Uniform Test III, 1966.

Strain	Co-										Mor-					Car-				
	Mean	Har-	Free-New-George-Hoyt-Woos-lum-	Bluff-Lafa-Green-thing-Evans-Ur-	Gi-	Edge-Tren-Eldo-bon-														
	of 30	row	hold	ark	town	ville	ter	bus	ton	yette	field	ton	ville	bana	rard	wood	ton	rado	dale	
	Tests	Ont.	N.J. ¹	Del.	Del. ¹	Ohio	Ohio	Ohio	Ind.	Ind.	Ind.	Ind.	Ind.	Ill.	Ill.	Ill.	Ill.	Ill.	Ill.	
					*															
Adelphia	35	47	26	30	24	40	31		40	46	37	40	39	34	35	33	36	41	26	
C1421	36	49	26	30	23	42	35		41	47	35	42	42	36	35	37	38	44	26	
Shelby	40	50	29	37	23	44	35		47	48	42	46	43	38	42	39	43	47	30	
Wayne	38	48	30	33	23	42	34		43	49	40	45	40	37	41	40	41	45	29	
A2-5432	34	45	26	28	20	39	30		38	42	31	42	36	33	33	33	35	39	25	
C1317	36	46	27	29	20	41	32		41	46	36	43	41	34	34	35	37	46	26	
C1335	34	47	28	29	23	40	31		41	44	35	43	38	33	31	33	37	37	21	
C1347	35	45	30	30	20	39	30		40	44	35	42	41	35	32	35	37	39	24	
C1362	37	48	27	33	22	41	32		44	48	36	48	41	36	35	35	39	46	25	
C1367	35	44	26	32	21	41	33		39	44	36	40	37	35	34	36	36	38	26	
C1375	33	42	26	27	19	39	31		38	40	33	39	36	31	32	33	35	37	24	

	Mean of 24 Tests		Seed Quality Score																		*
			*	*					*												
Adelphia	1.9	2.0	2.0	3.8	1.8	1.0	2.0	1.5	1.0	1.0	2.0	4.0	2.0	2.0	2.2	2.3	1.7	2.2	1.0		
C1421	1.9	2.0	2.0	3.8	2.8	1.2	2.0	1.2	1.0	1.0	2.0	4.0	2.0	1.7	2.5	2.1	2.0	2.3	1.0		
Shelby	1.8	1.0	2.0	2.8	4.5	1.0	2.0	1.2	1.0	1.0	2.0	4.0	3.0	1.2	1.8	1.9	1.7	1.5	1.0		
Wayne	1.8	1.0	2.0	3.3	4.5	1.0	2.0	1.0	1.0	2.0	2.0	4.0	3.0	1.5	1.2	2.0	1.7	1.5	1.0		
A2-5432	1.7	1.0	2.0	3.0	4.3	1.0	2.0	1.2	1.0	1.0	2.0	4.0	3.0	1.5	1.8	2.3	1.3	2.0	1.0		
C1317	2.0	1.0	2.0	4.0	4.3	1.0	2.0	1.5	1.0	1.0	1.0	4.0	2.0	2.3	2.5	2.1	2.0	2.5	1.0		
C1335	2.2	2.0	2.0	4.0	3.0	1.7	3.0	1.7	1.0	1.0	2.0	4.0	1.0	2.5	2.7	2.8	2.3	2.3	1.0		
C1347	1.8	1.0	2.0	3.0	4.0	1.0	2.0	1.0	1.0	1.0	2.0	3.0	3.0	1.5	2.5	2.5	1.8	1.5	1.0		
C1362	1.8	1.2	2.0	3.3	4.5	1.0	2.0	1.2	1.0	1.0	2.0	4.0	2.0	1.7	2.0	2.0	1.7	1.7	1.0		
C1367	1.7	1.0	2.0	3.0	2.8	1.0	2.0	1.0	1.0	1.0	1.0	3.0	2.0	1.7	1.7	2.0	1.7	1.5	1.0		
C1375	2.2	1.2	2.0	3.8	4.0	2.0	2.0	1.0	1.0	2.0	2.0	3.0	2.0	2.8	3.0	2.5	1.7	2.8	1.0		

*Not included in the mean.

¹Irrigated.

²Upland.

³Bottom land.

Table 64. (Continued)

Strn.	Ames Iowa	Ot- tum- wa Iowa	Spick- ard Mo. ²	Spick- ard Mo. ³	Co- lumbia Mo.	Por- tage- ville Mo. ¹	Cen- ter- ville S.D.	Lin- coln Nebr. ¹	Pow- hatan Kans. ¹	Man- hatan Colby Kans. ¹	Man- hatan Kans. ¹	Ot- tawa Kans. ¹	New- ton Kans.	Par- sons Kans.	Co- lumbus Kans.	Fruit- Col. ¹	Davis Cal. ¹	Five Points Cal. ¹	Cor- coran Cal. ¹	
				*							*					*	*	*	*	
Adel.	40	36	40	43	36	37	36	49	27	35	25	42	28	21	28	40	24	42	45	49
Cl421	40	37	40	44	35	36	39	51	27	35	25	42	30	22	27	40	22	--	46	46
Shel.	46	42	43	46	40	40	39	53	29	35	29	44	31	25	30	44	29	48	50	50
Wayne	45	42	41	45	39	38	40	51	29	33	27	42	33	24	31	40	28	47	50	48
-5432	41	36	37	39	33	36	36	46	26	33	24	41	29	21	27	35	28	39	44	42
Cl317	41	38	40	42	35	38	38	53	27	35	26	43	30	21	28	38	29	46	46	52
Cl335	43	37	37	37	32	36	35	47	27	34	25	41	30	20	28	33	30	41	44	41
Cl347	40	38	38	40	34	36	38	48	26	33	25	42	31	20	29	36	31	45	44	46
Cl362	46	40	42	43	38	37	40	54	29	35	25	46	34	21	30	39	30	45	51	48
Cl367	40	36	38	43	36	37	39	46	27	34	26	41	31	21	29	35	28	39	44	42
Cl375	39	36	35	36	32	34	35	40	28	33	26	38	33	19	27	35	27	41	43	43

Seed Quality Score																			
	*	*		*						*			*	*	*	*	*	*	*
Adel.	1.0	1.0	1.8	2.1	1.5	3.0	1.0	1.2	1.3	1.2	1.2	2.0	1.1	1.0	1.3	2.0	2.0	2.0	1.0
Cl421	1.0	1.0	1.6	2.3	1.5	2.3	2.0	1.0	1.2	1.3	1.2	1.8	1.1	1.0	1.3	1.0	--	1.0	2.0
Shel.	1.0	1.0	1.9	2.5	1.7	3.0	2.0	1.5	1.1	1.1	1.2	1.5	1.2	1.0	1.5	3.0	2.0	2.0	2.0
Wayne	1.0	1.0	1.8	2.2	1.8	2.0	2.0	1.6	1.4	1.1	1.6	1.5	1.6	1.0	2.0	2.0	3.0	2.0	2.0
-5432	1.0	1.0	1.5	2.1	1.9	2.0	2.0	1.0	1.3	1.2	1.6	1.3	1.3	1.0	1.3	2.0	3.0	2.0	2.0
Cl317	1.0	1.0	1.5	1.9	1.6	3.0	2.0	1.5	1.6	1.6	1.2	2.0	1.3	1.0	2.0	2.0	2.0	2.0	2.0
Cl335	1.0	1.0	2.0	1.8	1.6	3.0	2.0	2.1	1.4	1.5	2.0	1.8	1.4	1.0	1.8	2.0	3.0	2.0	2.0
Cl347	1.0	1.0	1.7	2.2	1.7	2.0	2.0	1.4	1.3	1.5	1.2	2.2	1.5	1.0	1.5	2.0	2.0	2.0	2.0
Cl362	1.0	1.0	1.7	1.7	1.7	2.5	2.0	1.6	1.4	1.3	2.5	2.3	1.2	1.0	1.8	2.0	2.0	2.0	1.0
Cl367	1.0	1.0	1.8	2.5	1.6	3.5	2.0	1.4	1.2	1.5	1.2	1.5	1.3	1.0	1.0	2.0	2.0	2.0	2.0
Cl375	1.0	1.0	1.5	2.4	1.7	2.8	4.0	2.0	1.6	1.4	1.4	2.0	1.5	1.0	2.0	2.0	2.0	1.0	1.0

Table 65. Percentages of protein and oil, Uniform Test III, 1966.

Strain	Mean of 14 Tests	Free- hold N.J. ¹	Co- lum- bus Ohio	Lafa- yette Ind.	Wor- thing- ton Ind.	Ur- bana Ill.	Eldo- rado Ill.	Ames Iowa
Adelphia	40.0	39.9	40.2	41.3	40.7	41.2	40.3	38.9
C1421	39.8	39.6	39.5	40.7	40.7	40.4	40.4	38.9
Shelby	40.4	41.3	39.9	39.4	41.9	41.3	41.4	39.0
Wayne	41.4	42.4	41.1	41.6	42.8	41.6	42.5	39.7
A2-5432	40.0	42.5	39.6	40.0	42.9	39.2	40.3	38.6
C1317	39.3	40.1	39.2	39.8	39.9	39.6	40.4	38.1
C1335	41.2	42.6	41.3	41.9	43.1	42.2	42.1	39.3
C1347	40.1	42.7	40.0	40.4	40.9	39.4	40.6	38.8
C1362	40.4	42.6	39.6	40.1	42.7	41.7	40.9	39.3
C1367	40.5	42.3	40.2	39.7	41.0	40.8	41.7	39.2
C1375	41.2	42.9	40.6	41.9	42.6	42.1	41.7	40.2
	Mean of 14 Tests	Percentage of Oil						
Adelphia	21.4	21.6	19.7	22.2	20.5	22.1	21.8	21.7
C1421	21.6	21.1	20.3	21.6	20.9	22.0	21.8	22.0
Shelby	21.0	18.5	20.3	22.0	19.7	21.6	20.9	21.7
Wayne	21.0	20.0	20.7	21.6	20.0	21.5	20.0	21.1
A2-5432	21.6	20.6	21.0	22.4	20.1	22.5	21.5	22.7
C1317	21.6	21.0	20.5	22.4	20.6	22.5	21.9	22.5
C1335	21.3	20.7	19.9	21.8	20.1	21.6	21.2	22.5
C1347	21.5	19.4	21.0	21.6	20.7	22.1	22.6	22.7
C1362	21.4	20.1	20.3	22.2	19.8	22.3	22.0	22.5
C1367	20.8	20.0	20.1	21.9	19.5	21.0	21.5	21.6
C1375	21.8	19.8	20.8	22.5	20.1	22.5	22.4	22.6

*Not included in the mean.

¹Irrigated.

Table 65. (Continued)

Strain	Co-lum-bia Mo.	Por-tage-ville Mo. ¹	Cen-ter-ville S.D.	Lin-coln Nebr. ¹	Pow-hat-tan Kans.	Man-hat-tan Kans.	Ot-tawa Kans.	Fruita Col. ¹ *
Adelphia	40.9	38.9	39.5	38.5	40.0	38.3	40.7	39.4
C1421	40.9	39.0	40.4	38.4	39.7	38.4	40.8	39.9
Shelby	42.7	39.5	39.7	38.2	40.0	38.8	42.4	38.8
Wayne	41.8	40.0	41.8	40.9	40.3	39.2	43.4	40.3
A2-5432	42.0	38.1	40.5	38.9	39.5	37.9	40.5	41.2
C1317	40.0	39.0	39.2	37.6	39.7	36.8	40.3	40.7
C1335	42.3	39.2	41.8	39.8	40.4	38.5	41.6	43.6
C1347	42.3	38.9	40.7	37.1	39.3	38.5	41.3	41.2
C1362	42.2	39.3	40.9	38.3	39.4	37.6	41.4	40.6
C1367	41.9	38.4	41.4	39.9	40.5	38.9	41.0	39.7
C1375	42.0	40.3	41.3	39.3	40.2	39.0	42.1	40.1

Percentage of Oil

Adelphia	21.6	21.2	19.5	21.7	21.5	23.4	21.7	17.5
C1421	21.2	22.2	20.0	21.6	21.3	23.7	22.3	17.6
Shelby	20.8	22.0	19.1	20.6	21.1	23.1	21.9	17.2
Wayne	21.4	21.9	18.9	21.1	21.4	22.9	22.0	18.2
A2-5432	21.0	22.6	19.1	21.9	21.3	22.9	22.3	17.8
C1317	21.2	21.5	19.5	21.7	22.0	23.6	22.1	16.6
C1335	20.8	21.9	19.1	21.7	22.1	23.5	21.5	17.1
C1347	20.9	22.3	18.8	22.3	22.3	22.9	21.6	17.1
C1362	20.8	21.8	18.7	21.2	22.3	23.4	21.5	18.5
C1367	20.0	21.6	18.7	19.9	21.3	22.7	21.8	18.1
C1375	21.6	22.0	19.6	22.3	23.2	23.8	22.2	19.2

Table 66. Four-year summary of data, Uniform Test III, 1963-1966.

Strain	Yield	Rank	Maturity ¹	Lodging	Height	Seed Quality	Seed Weight	Seed Composition	
No. of Tests	98	98	90	85	96	80	71	Protein	Oil
Shelby	37.8	3	0	2.1	40	2.0	16.1	40.0	21.5
Wayne	40.9	1	+1.7	2.0	40	2.0	17.8	40.9	21.2
C1317	38.7	2	+1.1	1.6	38	2.2	16.9	39.0	21.9

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

Table 67. Four-year summary of yield and yield rank, Uniform Test III, 1963-1966.

Strain	Mean of 98 Tests	Har-row Ont.	Freehold N.J.	Newark Del.	George-town Del.	Hoyt-ville Ohio	Wooster Ohio	Co-lumbus Ohio	Bluff-ton Ind.	Lafayette Ind.	Green-field Ind.	Worthing-ton Ind.
Years Tested	1964-1966	1963-1966	1963-1966	1963-1966	1963-1966	1963-1966	1963-1966	1963-1966	1963-1966	1963-1966	1963-1966	1963-1966
Shelby	37.8	41.4	19.6	35.9	18.1	40.9	29.4	36.1	39.5	47.7	42.8	44.4
Wayne	40.9	43.9	25.5	33.8	20.3	44.5	35.4	38.3	43.8	53.6	45.1	46.2
C1317	38.7	43.4	24.5	38.0	15.8	39.6	29.3	35.5	42.0	47.3	38.2	40.8

Yield Rank												
Shelby	3	3	3	2	2	2	2	2	3	2	2	2
Wayne	1	1	1	3	1	1	1	1	1	1	1	1
C1317	2	2	2	1	3	3	3	3	2	3	3	3

¹Irrigated.

Table 67. (Continued)

Strain	Evans-ville Ind.	Ur-bana Ill.	Gi-rard Ill.	Edge-wood Ill.	Eldo-rado Ill.	Car-bon-dale Ill.	Ames Iowa	Ot-tum-wa Iowa	Co-lumbia Mo.	Lin-coln Nebr.	Pow-hat-tan Kans.	Man-hat-tan Kans.	Man-har-tan Kans. ¹
Years Tested	1963-1966	1963-1966	1963-1966	1963-1966	1963-1966	1963-1966	1963-1966	1963-1966	1963-1966	1963, 1965-66	1963-1966	1963-1966	1963-1966
Shelby	39.8	42.9	40.1	33.8	46.7	32.2	34.7	40.9	35.0	47.4	30.4	37.7	41.1
Wayne	43.4	46.2	45.6	40.1	51.2	34.2	39.8	44.9	41.7	48.7	32.9	39.1	47.3
Cl317	42.2	46.4	43.8	32.8	47.8	31.9	34.9	41.7	39.8	50.7	31.8	37.5	39.9

	Yield Rank												
Shelby	3	3	3	2	3	2	3	3	3	3	3	2	2
Wayne	1	2	1	1	1	1	1	1	1	2	1	1	1
Cl317	2	1	2	3	2	3	2	2	2	1	2	3	3

PRELIMINARY TEST III, 1966

Strain	Parentage	Generation Composited
1. Shelby		
2. Wayne		
3. L15	Wayne ⁶ x Clark 63	8 F ₃ lines
4. C1379	Lindarin ² x L49-4196-12	F ₆
5. C1387	C1223 ³ x Mukden	F ₅
6. C1390	C1223 ³ x Mukden	F ₅
7. C1434	Kent x C1253	F ₆
8. C1435	Kent x C1253	F ₆
9. C1436	Kent x C1253	F ₆
10. C1437	Kent x C1253	F ₆
11. UD3210-31-14	Aoda x A50-7445	--

L15 performed very much like Wayne and is apparently almost isogenic except for phytophthora resistance. Phytophthora rot was not known to be a factor at these test locations. C1437, also phytophthora resistant, had the most outstanding performance in the test, averaging almost 4 bushels above Wayne in yield and equal in other traits except composition, where it is a little deficient. The remaining strains failed to show much advantage over the checks. UD3210-31-14 had extremely low yield, partly due to its short determinate growth which put it at a disadvantage in 1-row plots. It was developed for a special demand by food processors for a green cotyledon type soybean.

Table 68. Descriptive data and shattering scores, Preliminary Test III, 1966.

Strain	Flower Color	Pubes- cence Color	Pod Color	Seed Coat Luster	Seed Coat Color	Hilum Color	Shattering	
							Carbondale Ill. ¹ 1 mo.	Five Points Cal. ²
Shelby	P	T	Br	D	Y	Bl	1.0	2.0
Wayne	W	T	Br	S	Y	Bl	1.0	2.0
L15	W	T	Br	S	Y	Bl	1.0	2.0
C1379	P	G	Br	D	Y	Bf	1.0	1.5
C1387	W	G	Tan	S	Y	Bf	1.0	1.5
C1390	W	G	Tan	S	Y	Bf	1.0	1.5
C1434	P	G	Br	D	Y	Ib + G	1.0	2.0
C1435	P	G	Br	S	Y	Ib	1.0	2.0
C1436	P	T	Br	S	Y	Bl	1.0	2.0
C1437	P	T	Br	D	Y	Bl	1.0	1.5
UD3210-31-14	P	T	Br	D	Gn ³	Lbf	5.0	5.0

¹Mean of two replications planted June 20. Scored one month after maturity.

²Mean of two replications planted June 10. Scored 14 days after maturity.

³Green cotyledon.

Table 69. Summary of data, Preliminary Test III, 1966.

Strain	Yield	Rank	Matu- rity ¹	Lodg- ing	Height	Seed Quality	Seed Weight	Seed Composition	
No. of Tests	16	16	13	15	15	14	12	Protein	Oil
Shelby	37.6	8	0	2.1	40	1.9	15.9	40.1	20.8
Wayne	40.7	4	+1.8	2.0	38	1.9	18.2	40.7	20.7
L15	42.0	2	+1.9	2.0	39	2.0	18.2	40.4	20.5
C1379	37.3	9	+1.6	1.6	39	1.7	16.9	43.1	20.2
C1387	38.6	5	+3.2	1.4	39	1.8	17.1	39.8	21.0
C1390	35.4	10	+0.3	1.4	36	1.7	16.7	40.3	20.7
C1434	40.9	3	+4.3	1.8	42	1.7	17.3	39.2	21.1
C1435	38.0	6	+0.7	1.3	36	1.9	20.2	41.9	21.0
C1436	38.0	6	+5.6	1.7	39	2.2	17.8	41.3	20.7
C1437	44.5	1	+4.4	1.8	40	2.0	19.5	38.5	21.2
UD3210-31-14	19.7	11	+2.8	2.4	29	2.5	32.2	40.9	19.2

¹Days earlier (-) or later (+) than Shelby which matured September 28, 127 days after planting.

Table 70. Disease data, Preliminary Test III, 1966.

Strain	Bacterial Pustule	Downy Mildew	Frogeye Race 2	Phytophthora Rot
	<u>Ill.</u> <u>al</u>	<u>Ind.</u> <u>nl</u>	<u>Ind.</u> <u>a</u>	<u>Ind.</u> <u>a</u>
Shelby	S	3.5	S	S
Wayne	R	3.0	S	S
L15	R	3.0	S	R
C1379	S	2.5	S	S
C1387	S	3.5	R	R
C1390	S	3.5	S	R
C1434	S	2.0	S	R
C1435	S	2.5	S	R
C1436	S	3.5	S	R
C1437	S	2.5	S	R
UD3210-31-14	S	2.0	S	S

¹a = artificial inoculation; n = natural infection.

Table 71. Yield and yield rank, Preliminary Test III, 1966.

Strain	Mean of 16 Tests	George- town Del. ¹	Hoyt- ville Ohio	Woos- ter Ohio	Colum- bus Ohio	Lafa- yette Ind.	Wor- thing- ton Ind.	Ur- bana Ill.	Ames Iowa	Ottum- wa Iowa
Shelby	37.6	27.4	42.8	33.3	41.7	42.7	40.0	43.2	36.0	35.4
Wayne	40.7	29.4	53.1	29.2	44.0	51.8	42.5	42.3	41.2	40.8
L15	42.0	31.7	45.2	32.3	52.6	48.4	40.9	42.7	39.9	40.6
C1379	37.3	26.7	45.0	29.5	40.3	42.7	46.0	37.3	35.2	34.9
C1387	38.6	27.3	40.0	26.6	42.0	43.8	40.1	43.4	35.8	37.8
C1390	35.4	23.7	40.6	25.9	33.9	36.9	33.3	42.6	36.8	36.9
C1434	40.9	26.9	45.3	24.4	40.3	46.3	44.4	42.0	36.6	38.8
C1435	38.0	27.5	46.6	22.4	39.4	42.3	46.3	40.2	36.4	37.0
C1436	38.0	30.4	37.3	24.6	42.9	40.7	35.3	42.3	37.0	37.8
C1437	44.5	32.8	49.1	33.8	53.7	50.1	46.8	46.5	37.4	38.9
UD3210-31-14	19.7	20.1	28.3	18.4	12.3	27.5	22.4	23.8	15.4	21.8
Coef. of Var. (%)		8.0	--	--	--	10.1	6.1	7.7	8.4	6.9
L.S.D. (5%)		4.9	--	--	--	9.7	5.4	6.9	6.4	5.2
Row Spacing (In.)		36	28	32	28	38	38	40	40	38

	Yield Rank									
Shelby	8	6	7	2	6	6	8	3	8	9
Wayne	4	4	1	5	3	1	5	6	1	1
L15	2	2	5	3	2	3	6	4	2	2
C1379	9	9	6	4	7	6	3	10	10	10
C1387	5	7	9	6	5	5	7	2	9	5
C1390	10	10	8	7	10	10	10	5	5	8
C1434	3	8	4	9	7	4	4	8	6	4
C1435	6	5	3	10	9	8	2	9	7	7
C1436	6	3	10	8	4	9	9	6	4	5
C1437	1	1	2	1	1	2	1	1	3	3
UD3210-31-14	11	11	11	11	11	11	11	11	11	11

*Not included in the mean.

¹Irrigated.

²Upland.

Table 71. (Continued)

Strain	Spickard Mo. ²	Columbia Mo.	Center- ville S.D.	Lincoln Nebr. ¹	Pow- hat- tan Kans.	Man- hat- tan Kans.	Man- hat- tan Kans. ¹	Ottawa Kans.	Five Points Cal. ¹
							*		*
Shelby	35.2	37.3	33.9	50.1	37.5	23.9	29.8	41.2	11.8
Wayne	43.9	43.9	40.3	48.2	37.0	29.2	41.2	34.3	13.8
L15	43.0	49.1	39.2	51.6	38.5	32.7	44.2	43.0	16.1
C1379	39.1	41.8	34.7	45.3	33.5	28.7	41.8	35.8	17.7
C1387	38.6	43.1	38.9	46.4	40.7	34.3	34.6	38.3	13.0
C1390	35.6	38.8	33.4	44.4	38.0	32.6	32.2	32.5	12.8
C1434	35.6	42.6	39.1	56.1	54.0	39.2	43.6	42.3	12.3
C1435	43.6	41.3	33.8	54.3	38.6	29.2	35.8	29.1	11.4
C1436	32.2	47.8	27.6	54.6	44.8	36.3	50.1	36.5	14.1
C1437	45.6	47.1	38.4	54.7	47.0	40.3	45.0	49.6	18.5
UD3210-31-14	22.7	20.9	19.6	39.8	4.2	9.0	1.5	8.2	12.7
Coef. of Var. (%)	9.8	7.1	--	9.1	5.5	10.8	8.8	11.3	15.0
L.S.D. (5%)	8.2	6.5	--	5.1	4.6	7.3	7.2	4.5	N.S.
Row Spacing (In.)	40	38	40	40	38	36	36	30	30

[illegible]

Table 72. Maturity, days earlier (-) or later (+) than Shelby, Preliminary Test III, 1966.

Strain	Mean of 13 Tests	George- town Del. ¹	Hoyt- ville Ohio	Woos- ter Ohio	Colum- bus Ohio	Lafa- yette Ind.	Wor- thing- ton Ind.	Ur- bana Ill.	Ames Iowa	Ottum- wa Iowa
				*	*					
Shelby	0	0	0	0		0	0	0	0	0
Wayne	+1.8	+2	0	- 2		+2	+ 2	+ 1	+2	+3
L15	+1.9	+2	+ 1	- 2		+2	+ 4	+ 1	+2	+2
C1379	+1.6	+2	+ 3	- 8		0	+ 3	+ 1	+3	0
C1387	+3.2	+5	+ 4	- 6		+2	+ 3	+ 1	+5	+3
C1390	+0.3	+4	+ 3	- 9		-5	+ 2	- 2	0	-3
C1434	+4.3	+4	+ 4	- 4		+2	+ 5	+ 8	+4	+5
C1435	+0.7	+5	+ 2	- 1		-4	+ 2	- 1	-2	-3
C1436	+5.6	+5	+ 2	- 4		+7	+11	+ 5	+7	+7
C1437	+4.4	+5	+ 3	- 4		+3	+ 6	+ 4	+4	+4
UD3210-31-14	+2.8	+6	+ 4	- 8		-1	+ 3	+ 1	0	+1
Amsoy (II)		--	-11	-19	--	-7	--	- 9	-5	-9
Clark 63 (IV)		+8	--	--	--	+7	+10	+11	+8	+9
Date planted	5-24	6-7	6-3	5-25	5-21	5-27	5-28	5-20	5-21	5-25
Shelby matured	9-28	10-1	10-17	10-10	--	9-21	9-28	9-15	9-26	9-21
Days to mature	127	116	136	138	--	117	123	118	128	119

*Not included in the mean.

¹Irrigated.

Table 72. (Continued)

Strain	Spick- ard Mo. *	Co- lum- bia Mo.	Center- ville S.D.	Lin- coln Nebr. ¹	Pow- hat- tan Kans.	Man- hat- tan Kans.	Man- hat- tan Kans. ¹ *	Ottawa Kans.	Five Points Cal. ¹ *
Shelby		0	0	0	0	0	0	0	0
Wayne		+6	+2	+ 2	+1	+ 1	+2	0	0
L15		+7	+2	- 1	+1	+ 1	0	+1	0
C1379		+2	+4	0	+1	+ 2	+2	0	+11
C1387		+2	+6	+ 2	+2	+ 4	+1	+2	+11
C1390		-1	+1	- 1	0	+ 4	0	+2	0
C1434		+6	+7	+ 2	+3	+ 4	+2	+2	+11
C1435		+2	+1	- 1	+1	+ 4	0	+3	0
C1436		+8	+8	+ 4	+2	+ 3	+2	+4	+11
C1437		+6	+3	+ 5	+4	+ 6	+1	+4	+11
UD3210-31-14		+8	+8	0	-1	+ 7	+3	0	+ 7
Amsoy	--	--	-5	-14	--	--	--	--	0
Clark 63	--	--	--	+10	+3	+11	+5	+7	+10
Date planted	5-19	5-23	5-27	5-16	5-15	5-27	5-27	5-14	6-10
Shelby matured	--	9-13	10-15	10-1	10-3	9-21	9-28	9-28	9-30
Days to mature	--	113	141	138	141	117	124	137	112

UNIFORM TEST IV, 1966

Strain	Parentage	Generation Composited	Previous Testing (years)
1. Clark 63	(Clark ⁵ x L49-4091) x (Clark ⁶ x Blackhawk)	13 F ₃ lines	4
2. L12A	L6 x L11	8 F ₄ lines	1 as L12
3. Delmar	C799 x FC 33.243	F ₆	P.T. IV in 59, 61 ¹
4. Kent	Lincoln x Ogden	F ₇	12
5. Scott	D49-2525 x L46-5679	F ₄	3 (57-59) ²
6. Custer (S5)	[((Peking x Scott ⁴) ³ x (<u>i</u> ¹ Rhg ₄ line from Peking x Scott ²)) x (Scott ⁹ x Black- hawk)] x (Peking x Scott ⁵)	23 F ₃ lines	None
7. C1278	Clark x C1069	F ₆	3
8. C1311	Wabash x C1069	F ₆	2

¹Also in U.T. IVS since 1960.

²Also in U.T. IVS since 1957.

The 3-year summary shows C1278 slightly ahead of Kent and 10 percent above Clark 63 in yield. It is almost as early as Clark 63 and similar to it and Kent in plant and seed characteristics. It is also similar to Clark and Kent in susceptibility to rotten seed development. C1311 was somewhat lower in yield, although still above Clark 63, but has showed distinct superiority in seed quality. Although it develops poor seed under disease conditions it has been better than Clark 63 or Kent and about equal to Delmar in seed quality.

L12A is similar to Clark 63 in pustule and phytophthora resistance and agronomic performance except that it averaged a day or two later. The same was true for L12 in 1965. (L12A consists of 8 lines selected from the 30 composited as L12). The yellow hilum of L12 is due to the genes I from T201 and r from T145. The glabrous gene P₁ in T145 is linked with r and was used in backcrossing as a marker for the recessive seed trait r. Yellow hilum is desirable for some export and domestic food uses, but it is still debatable whether a release is justified solely to change the hilum color of a black hilum variety.

Delmar was entered in this test because of the interest in finding a variety with improved seed quality. It had distinctly low yield at most Midwest locations. Scott was reentered for somewhat the same reasons and also to compare with Custer, the closely related backcross strain.

Custer did not yield quite as well as Scott at most locations and was slightly earlier, taller, and more lodging prone. At Portageville and Miller City in the cyst-infested area it performed relatively well. A history of its development follows.

CUSTER

Custer was developed by the late Dr. Leonard F. Williams, ARS, USDA, working at the University of Missouri, Columbia, and Dr. Arnold L. Matson, Missouri AES, working at the University of Missouri Delta Center, Portageville. It is a composite of 23 F₃ lines developed by backcrossing to transfer cyst-nematode resistance (three recessive genes rhg₁ rhg₂ rhg₃ and one dominant gene Rhg₄ linked to i, dark seed coat) from Peking to Scott and phytophthora resistance (one dominant gene, Rps) from Blackhawk to Scott. The steps of development were as follows:

The cross Peking x D53-354 was made and advanced to the F₃. Peking is black-seeded and cyst-resistant. D53-354 is a sister line of Scott.

The cross, (F₃ Peking x D53-354) x Scott, or approximately Peking x Scott², was made and advanced to the F₅. The F₅ plants were screened for cyst resistance in early 1962 at Jackson, Tennessee, by J. M. Epps, and resistant yellow-seeded F₆, F₇, and F₈ were screened at Portageville in late 1962 and early 1963 where the true-breeding yellow-seeded, cyst-resistant line was discovered. Large populations were required to find this since a crossover was necessary to bring together on the same chromosome the two closely linked genes Rhg₄ (cyst resistance) and i¹ (yellow seed coat).

While generations were being advanced as indicated above, backcrosses were also made:

1962	Peking x Scott ³
Late 1962	Peking x Scott ⁴
Early 1963	Peking x Scott ⁵

A BC₃ black-seeded, cyst-resistant line had been obtained by the time the crossover was proved, and 3 crosses were made as follows:

May 1963	(resistant Peking x Scott ⁴) x <u>i</u> ¹ <u>Rhg</u> ₄ line from (Peking x Scott ²)
September 1963	(resistant Peking x Scott ⁴) ² x <u>i</u> ¹ <u>Rhg</u> ₄ line from (Peking x Scott ²)
December 1963	(resistant Peking x Scott ⁴) ³ x <u>i</u> ¹ <u>Rhg</u> ₄ line from (Peking x Scott ²)

This cross was selected in selfed generations for cyst resistance and yellow seed.

Through a series of backcrosses the gene for phytophthora resistant (Rps) was transferred from Blackhawk to Scott with the final BC₈ cross in 1963.

1963	Scott ⁹ x Blackhawk, selected for resistance in subsequent generations.
March 1964	Cyst-resistant, yellow-seeded [(Peking x Scott ⁴) ³ x (Peking x Scott ²)] x phytophthora resistant (Scott ⁹ x Blackhawk).
July 1964	F ₁ [(Peking x Scott ⁴) ³ x (Peking x Scott ²)] x (Scott ⁹ x Blackhawk) x cyst resistant (Scott ⁵ x Peking).
Fall 1964	Over 2,000 F ₁ plants screened for cyst resistance and yellow seed.
Winter 1964-65	F ₂ screened for cyst and phytophthora resistance and seedlings from each F ₂ plant tested for phytophthora resistance.

- Summer 1965 F₃ of cyst and phytophthora resistant lines in plant rows. Selected only homozygous yellow lines at harvest.
- Winter 1965-66 Compositied 23 F₃ lines and increased F₄ in Puerto Rico (to 11.5 bushels) and Chile (to 57 bushels).
- 1966 Increased to 2,062 bushels in Missouri and tested in Uniform Test IV and IVS as S5.
- February 1967 Named Custer and publicity released. Participating states are Missouri, Illinois, Kentucky, and Ohio.

Table 73. Descriptive data and shattering scores, Uniform Test IV, 1966.

Strain	Flower Color	Pubescence Color	Pod Color	Seed Coat Luster	Seed Coat Color	Hilum Color	Shattering	
							Five Points Cal. ¹	Corcoran Cal. ²
Clark 63	P	T	Br	D	Y	B1	2.3	2.0
L12A	P	T	Br	D	Y	Y	2.0	2.0
Delmar	W	G	Br	D	Y	Y	2.0	2.0
Kent	P	T	Br	D	Y	B1	2.3	2.0
Scott	P	G ³	Br	S	Y	Ib	2.5	2.0
Custer	P	G ³	Br	S	Y	Ib	4.0	2.8
Cl278	P	T	Br	S	Y	B1	2.3	2.0
Cl311	W	G	Tan	S	Y	Bf	2.0	2.0

¹Mean of four replications planted June 10. Scored 14 days after maturity.

²Mean of four replications planted June 11. Scored 14 days after maturity.

³Semi-appressed pubescence.

Table 74. Summary of data, Uniform Test IV, 1966.

Strain	Yield	Rank	Matu- rity ¹	Lodg- ing	Height	Seed Quality	Seed Weight	Seed Composition	
No. of Tests	24	24	22	21	22	21	18	Protein	Oil
Clark 63	37.8	5	0	1.9	40	1.8	16.0	40.4	21.1
L12A	37.9	4	+ 1.5	2.0	40	2.0	16.2	40.6	20.6
Delmar	34.5	8	+11.0	1.8	42	1.7	15.8	40.1	20.7
Kent	40.6	2	+ 7.6	1.7	39	1.8	17.9	40.3	21.5
Scott	36.7	6	+ 9.9	2.2	42	1.7	14.7	37.9	20.1
Custer	35.1	7	+ 7.0	2.5	44	1.7	15.0	37.1	20.7
C1278	41.4	1	+ 2.8	1.7	40	1.8	18.1	40.9	20.8
C1311	40.1	3	+ 5.4	1.6	42	1.5	15.9	40.9	20.9

¹Days earlier (-) or later (+) than Clark 63 which matured October 2, 124 days after planting.

Table 75. Disease data, Uniform Test IV, 1966.

Strain	Bacterial	Bacterial	Xantho-		Choco-	Downy	Frogeye	Phytoph-	Brown	Brown
	Blight	Pustule	monas		late	Mildew	Race 2	thora	Stem	
	Ia. al	Ill. a	Ia. a	Ia. a	Ia. a	Ind. nl	Ind. a	Ind. a	Ill. n	Spot Ill. n
Clark 63	3	R	1	4	3	4.0	S	R	3	2.9
L12A	4	R	2	3	4	3.0	S	R	3	3.4
Delmar	4	S	4	4	4	3.0	R	S	3	1.8
Kent	4	S	5	5	3	2.0	R	S	3	2.2
Scott	5	R?	2	4	3	3.8	S	S	3	2.0
Custer	5	R	2	4	3	3.8	S	R	3	2.0
C1278	4	S	4	1	3	3.3	R	S	3	2.2
C1311	4	S	4	2	3	4.0	R	S	3	1.3

Ia = artificial inoculation; n = natural infection.

²An unnamed *Xanthomonas* sp.

³A bacterial leafspot that resembles brown spot.

Table 76. Yield, yield rank, and maturity, days earlier (-) or later (+) than Clark 63, Uniform Test IV, 1966.

Strain	Mean of 24 Tests	Salem N.J.	Newark Del.	Georgetown Del. ¹	Linkwood Md.	Co-lumbus Ohio	Worthington Ind.	Evansville Ind.	Hen-derson Ky. ²	Ur-bana Ill. ²	Gi-rard Ill. ²	Edge-wood Ill.	Tren-ton Ill. ²	Eldorado Ill. ²	Car-bondale Ill.
Clark 63	37.8	28.2	22.5	18.8	27.2	34.2	40.6	50.0	53.0	40.0	37.5	29.3	41.1	54.2	39.3
L12A	37.9	30.0	19.4	11.9	28.7	37.4	36.2	48.1	52.7	38.3	35.4	31.2	39.4	55.6	39.7
Delmar	34.5	24.4	18.5	43.6	29.6	37.6	36.2	48.4	48.2	33.4	25.7	19.9	42.5	49.7	38.5
Kent	40.6	29.9	24.4	42.7	32.1	44.8	48.2	58.1	53.0	41.6	36.8	31.2	45.2	59.4	45.1
Scott	36.7	27.4	21.5	11.7	32.6	36.6	36.6	45.3	41.7	39.6	32.5	26.0	44.0	53.4	39.1
Custer	35.1	27.9	21.1	10.6	31.8	33.7	36.1	42.3	44.1	34.9	31.9	24.8	40.6	51.4	38.8
Cl278	41.4	28.5	26.6	11.0	36.0	42.0	50.1	55.8	50.6	43.7	36.8	34.1	49.2	60.0	39.8
Cl311	40.1	30.4	22.9	15.8	34.6	46.1	46.4	56.1	50.3	42.6	34.4	31.6	46.8	55.8	40.5
C.V.(%)		16.4	16.8	32.3	--	--	9.3	7.9	9.1	9.6	4.6	13.7	9.0	3.3	--
L.S.D.(5%)		N.S.	4.0	9.9	--	--	5.7	5.9	6.3	N.S.	2.7	5.7	N.S.	3.2	--
R.S.(In.)		36	36	36	38	28	38	40	40	40	30	38	36	36	40

Yield Rank

Clark 63	5	5	4	3	8	7	4	4	1	4	1	5	6	5	5
L12A	4	2	7	5	7	5	6	6	3	6	4	3	8	4	4
Delmar	8	8	8	1	6	4	6	5	6	8	8	8	5	8	8
Kent	2	3	2	2	4	2	2	1	1	3	2	3	3	2	1
Scott	6	7	5	6	3	6	5	7	8	5	6	6	4	6	6
Custer	7	6	6	8	5	8	8	8	7	7	7	7	7	7	7
Cl278	1	4	1	7	1	3	1	3	4	1	2	1	1	1	3
Cl311	3	1	3	4	2	1	3	2	5	2	5	2	2	3	2

Mean of 22 Tests

Maturity

	*					*									
Clark 63	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
L12A	+ 1.5	+4	+ 2	+ 2	+ 3	+ 3	+ 2	0	+ 2	+ 2	+ 2	+ 2	+ 2	+ 2	+1
Delmar	+11.0	+8	+11	+ 4	+18	+11	+10	+14	+16	+10	+14	+15	+11	+11	+7
Kent	+ 7.6	+7	+ 9	+ 3	+16	+ 6	+ 6	+ 5	+10	+ 6	+ 7	+ 8	+ 8	+ 8	+4
Scott	+ 9.9	+6	+13	+ 2	+18	+10	+ 9	+14	+13	+ 9	+ 7	+12	+10	+10	+5
Custer	+ 7.0	+2	+ 9	+ 2	+10	+ 5	+ 5	0	+12	+ 4	+ 7	+ 7	+ 8	+ 8	+3
Cl278	+ 2.8	+5	+ 8	+ 2	+ 2	+ 1	+ 3	0	+ 7	+ 3	+ 2	+ 4	+ 3	+ 3	+1
Cl311	+ 5.4	+5	+11	+ 2	+19	+ 3	+ 2	+14	+ 7	+ 2	+ 5	+ 6	+ 3	+ 3	+4
Wayne (III)	--	-11	- 4	--	--	--	- 8	- 4	- 6	-11	-10	-12	- 9	- 9	-8
Hill (V)	--	--	+16	--	--	--	--	--	+21	+28	--	--	+26	+23	--
Date pltd.	5-31	5-30	6-6	6-7	6-2	5-21	5-28	6-3	6-2	5-20	5-29	6-9	6-4	5-31	6-20
Clk.63 mat.	10-2	10-3	10-9	10-8	9-19	--	10-8	10-9	10-12	9-26	9-30	10-6	10-5	10-1	10-8
Da. to mat.	124	126	125	124	109	--	133	128	132	129	124	119	123	123	110

*Not included in the mean.

¹Irrigated.

²Three replications.

Table 76. (Continued)

Strain	Miller City Ill. ²	Co- lumbia Mo.	Por- tage- ville Mo. ¹	Lin- coln Nebr. ¹	Pow- hatan Kans. ¹	Colby Kans. ¹	Man- hatan Kans. ¹	Man- hatan Kans. ¹	Ot- tawa Kans. ¹	New- ton Kans.	Par- sons Kans.	Co- lumbus Kans.	Davis Cal. ¹	Five Points Cal. ¹	Cor- coran Cal. ¹
							*	*	*	*	*	*	*	*	*
Clk. 63	38.4	43.6	40.4	43.8	41.9	38.1	39.0	50.8	36.2	23.2	20.9	45.2	9.5	18.2	37.9
L12A	34.5	42.0	41.5	49.8	42.2	38.8	38.3	44.1	33.2	27.7	20.5	49.1	8.4	19.4	42.4
Delmar	32.7	39.3	45.9	35.7	39.7	35.0	33.9	44.7	30.2	21.6	15.1	45.2	--	21.4	29.2
Kent	37.8	44.0	42.9	55.0	45.2	39.8	37.4	50.1	30.2	19.1	20.8	52.5	9.3	25.2	39.1
Scott	38.6	39.3	39.1	31.3	43.5	40.8	41.2	48.5	33.4	21.8	21.3	54.8	7.1	17.5	36.4
Custer	40.3	35.0	45.2	41.1	37.3	36.5	35.8	39.8	26.6	22.2	18.5	43.4	5.7	12.3	29.8
Cl278	38.6	45.4	42.2	54.5	45.2	43.4	40.0	53.6	31.7	26.7	20.4	52.5	10.1	19.1	37.6
Cl311	41.0	44.3	41.5	50.3	39.2	40.6	37.4	49.6	35.6	21.3	19.0	53.8	8.4	25.3	39.2
CV(%)	8.4	6.6	10.7	16.8	6.9	7.4	9.5	13.8	8.0	16.5	12.1	10.8	--	40.0	12.0
LSD(5%)	N.S.	4.1	6.7	11.2	4.3	4.2	N.S.	9.7	3.8	N.S.	1.9	4.5	--	N.S.	3.9
RS(In.)	38	38	38	40	38	30	36	36	30	36	40	30	30	30	30

Yield Rank

Clk. 63	5	4	7	5	5	6	3	2	1	3	2	6	2	6	4
L12A	7	5	5	4	4	5	4	7	4	1	4	5	4	4	1
Delmar	8	6	1	7	6	8	8	6	6	6	8	6	--	3	8
Kent	6	3	3	1	1	4	5	3	6	8	3	3	3	2	3
Scott	3	6	8	8	3	2	1	5	3	5	1	1	6	7	6
Custer	2	8	2	6	8	7	7	8	8	4	7	8	7	8	7
Cl278	3	1	4	2	1	1	2	1	5	2	5	3	1	5	5
Cl311	1	2	5	3	7	3	5	4	2	7	6	2	4	1	2

Maturity

				*		*							*	*	*
Clk. 63	0	0	0	0	0		0	0	0	0	0	0	0	0	
L12A	0	+ 1	+ 2	0	+ 1		0	+ 1	+1	0	+ 2	+ 1	+ 1	+ 4	
Delmar	+ 9	+16	+11	--	+ 9		+ 2	+ 8	+6	+10	+12	+13	+12	+11	
Kent	+ 8	+12	+ 9	+3	+ 5		+ 6	+ 6	+5	+ 3	+10	+11	0	+ 6	
Scott	+10	+15	+10	--	+ 6		+ 7	+ 9	+6	+ 8	+ 9	+11	+ 3	+ 6	
Custer	+ 6	+14	+ 5	+2	+ 6		+ 7	+ 9	+6	+ 8	+ 9	+11	+ 2	+ 4	
Cl278	+ 5	+ 3	+ 3	0	+ 1		+ 1	+ 1	+2	+ 1	+ 2	+ 4	+ 2	0	
Cl311	+ 5	+ 8	+ 4	0	+ 3		+ 1	+ 2	+2	+ 1	+ 5	+ 6	+ 3	+ 6	
Wayne	- 8	--	- 7	-7	- 2	-12	-10	- 5	-6	- 2	- 5	- 5	--	- 8	--
Hill	+13	--	+12	--	+15	--	+12	+14	+9	+12	--	--	--	--	--
D. pltd.	6-4	5-23	5-21	5-16	5-15	5-19	5-27	5-27	5-14	5-13	6-16	6-21	6-14	6-10	6-11
C. 63 mat.	9-30	9-21	9-24	10-11	10-6	10-11	10-2	10-2	10-5	9-21	9-28	9-30	10-24	10-10	--
D. to mat.	118	121	126	148	144	145	128	128	144	131	104	101	132	122	--

Table 77. Lodging scores, plant height, and seed quality scores, Uniform Test IV, 1966.

Strain	Mean of 21 Tests	Sa- lem N.J.	New-George-Link-lum- ark town wood bus			Co- lorado Ohio	Wor- thing- ton Ind.	Evans- ville Ind.	Hen- der- son Ky.	Ur- bana Ill.	Gi- rard Ill.	Edge- wood Ill.	Tren- ton Ill.	Eldo- rado Ill.	Car- bondale Ill.
			Del.	Del. ¹	Md.										
			*												
Clark 63	1.9		1.5	3.0	1.1		2.3	2.0	2.0	1.5	1.3	1.6	2.5	2.4	1.5
L12A	2.0		1.6	3.3	1.1		2.5	2.3	3.0	1.5	1.5	1.8	2.8	2.1	1.5
Delmar	1.8		1.9	2.0	1.1		2.5	2.0	1.0	1.7	1.6	1.5	3.0	1.5	2.0
Kent	1.7		1.5	1.3	1.1		2.5	2.0	1.7	1.4	1.6	1.4	2.6	1.7	1.5
Scott	2.2		2.4	3.5	1.4		3.0	2.5	2.0	2.2	2.6	2.4	3.4	2.0	2.0
Custer	2.5		2.4	3.8	1.4		3.0	2.5	3.7	2.6	2.7	3.1	3.6	2.4	2.0
C1278	1.7		1.6	3.0	1.0		2.0	2.0	1.7	1.3	1.5	1.3	2.8	1.4	1.5
C1311	1.6		1.6	3.3	1.2		2.3	2.0	1.7	1.3	1.4	1.2	2.9	2.7	1.0

	Mean of 22 Tests	Plant Height													
		*													
Clark 63	40	34	27	39		47	47	45	40	43	42	42	46	33	
L12A	40	30	25	37		47	47	44	40	44	43	42	48	33	
Delmar	42	35	36	41		48	47	48	44	43	41	46	49	35	
Kent	39	32	30	36		45	45	44	38	40	39	42	47	34	
Scott	42	34	25	39		48	46	45	43	47	43	42	51	34	
Custer	44	35	26	47		51	51	43	45	49	45	47	52	39	
C1278	40	34	23	38		49	46	44	40	41	41	44	47	33	
C1311	42	34	27	39		53	49	50	42	43	42	46	50	35	

	Mean of 21 Tests	Seed Quality Score													
		*		*											
Clark 63	1.8	2.0	3.8	4.5	3.0	1.0	4.0	2.0	1.5	1.2	1.0	1.6	1.5	2.2	1.0
L12A	2.0	2.0	4.3	4.3	3.0	1.7	4.0	2.0	1.8	1.5	1.5	2.4	1.5	2.5	1.0
Delmar	1.7	2.0	2.5	1.3	3.0	2.0	2.0	2.0	1.0	1.5	2.0	2.3	1.5	1.3	1.0
Kent	1.8	2.0	2.3	1.8	3.0	1.0	3.0	1.0	2.2	1.3	2.3	2.4	1.5	2.0	1.0
Scott	1.7	2.0	2.8	3.8	3.0	1.5	2.0	1.0	1.2	1.5	2.3	2.0	1.7	1.8	1.0
Custer	1.7	1.0	3.0	5.0	3.0	1.5	2.0	1.0	1.3	1.7	2.0	2.0	1.5	2.2	1.0
C1278	1.8	2.0	3.3	4.5	3.0	1.0	4.0	1.0	1.8	1.5	1.5	1.8	1.5	2.2	1.0
C1311	1.5	2.0	3.0	4.3	3.0	1.5	2.0	1.0	1.0	1.7	1.7	1.9	1.5	1.2	1.0

*Not included in the mean.

¹Irrigated.

Table 77. (Continued)

Strain	Co- Miller City Ill.	Por- lumbia Mo.	Lin- tage- ville Mo. ¹	Lin- coln Nebr. ¹	Pow- hatan Kans. ¹	Man- Colby tan Kans. ¹	Man- hatan tan Kans. ¹	Man- hatan tan Kans. ¹	Ot- tawa tan Kans. ¹	New- ton Kans.	Par- sons Kans.	Co- lumbus Kans.	Davis Cal. ¹	Five Points Cal. ¹	Cor- coran Cal. ¹
								*	*				*	*	*
Clark 63	2.6	1.8	2.0	4.2	1.4	2.5	1.3	2.5	1.6	1.0	1.8	1.3	2.0	1.0	2.5
L12A	2.7	1.8	2.5	4.1	1.3	2.3	1.3	3.1	1.6	1.0	1.3	1.5	2.0	1.5	2.3
Delmar	2.9	1.2	1.8	3.5	1.5	2.3	1.7	2.2	1.4	1.0	1.0	1.3	2.0	1.0	3.0
Kent	1.8	1.3	1.5	3.5	1.4	3.0	1.4	2.0	1.4	1.0	1.0	1.3	1.0	1.3	1.8
Scott	2.1	1.7	2.3	4.2	1.4	3.0	1.6	2.4	1.5	1.0	1.0	2.3	3.0	1.0	3.8
Custer	3.4	2.1	2.5	4.4	1.4	3.5	1.5	2.9	1.7	1.0	1.3	2.3	5.0	1.0	4.0
C1278	2.1	1.3	1.8	3.0	1.3	2.8	1.5	2.1	1.4	1.0	1.0	1.3	2.0	1.0	2.0
C1311	2.5	1.2	1.0	2.2	1.2	1.8	1.1	1.8	1.3	1.0	1.3	1.0	2.0	1.3	1.8

Plant Height

								*					*	*	*
Clark 63	46	43	44	52	29	36	33	43	35	26	35	40	47	48	51
L12A	45	42	44	52	29	37	35	43	35	28	35	40	47	49	52
Delmar	48	42	48	52	35	39	35	45	37	29	36	40	45	48	48
Kent	44	41	44	52	30	36	32	43	33	26	35	40	43	44	50
Scott	48	42	47	52	34	38	36	43	37	29	39	43	46	49	52
Custer	52	44	51	54	36	38	37	44	40	31	40	44	57	53	52
C1278	43	40	45	52	31	35	33	44	32	28	33	40	44	48	52
C1311	48	48	48	56	32	40	34	46	35	28	34	42	46	51	54

Seed Quality Score

								*					*	*	*
Clark 63	2.8	1.6	2.5	1.2	1.2		1.3	1.3	2.0	1.3	1.0	1.0	2.0	2.0	2.0
L12A	2.7	1.5	2.8	1.7	1.3		1.1	1.5	1.7	1.2	1.0	1.0	3.0	2.0	2.0
Delmar	1.7	1.8	1.0	2.2	1.2		1.3	1.2	2.3	1.3	1.0	1.3	--	2.0	1.0
Kent	2.2	1.7	2.0	1.5	1.4		1.3	1.3	2.6	1.2	1.0	1.0	2.0	1.0	2.0
Scott	2.3	2.0	2.0	2.5	1.3		1.2	1.2	1.7	1.1	1.0	1.0	3.0	3.0	2.0
Custer	2.3	2.0	2.3	2.0	1.3		1.2	1.2	2.1	1.2	1.0	1.0	3.0	3.0	2.0
C1278	2.7	1.6	2.8	1.1	1.2		1.1	1.3	2.5	1.1	1.0	1.0	2.0	2.0	2.0
C1311	1.7	1.5	1.5	1.5	1.3		1.2	1.5	1.3	1.3	1.3	1.0	3.0	3.0	1.0

Table 78. Percentages of protein and oil, Uniform Test IV, 1966.

Strain	Mean of 13 Tests	Salem N.J.	Link- wood Md.	Colum- bus Ohio	Evans- ville Ind.	Hender- son Ky.	Ur- bana Ill.	Eldo- rado Ill.
Clark 63	40.4	43.3	40.5	39.7	40.3	39.6	40.5	41.0
L12A	40.6	44.2	40.0	39.5	40.5	40.1	40.7	41.4
Delmar	40.1	42.6	40.0	39.7	39.7	40.4	40.1	41.0
Kent	40.3	43.1	39.5	39.0	40.2	39.5	39.3	41.4
Scott	37.9	40.0	35.8	36.5	37.9	37.2	40.0	38.4
Custer	37.1	38.7	36.6	37.9	36.1	36.2	38.7	38.3
C1278	40.9	43.1	40.3	39.4	41.7	40.0	39.7	41.0
C1311	40.9	43.7	39.7	40.6	40.5	39.3	40.5	42.0

	Mean of 13 Tests	Percentage of Oil						
Clark 63	21.1	21.0	21.9	19.3	20.1	20.9	21.2	20.9
L12A	20.6	19.2	22.1	19.0	20.0	19.4	20.7	20.9
Delmar	20.7	21.1	22.3	19.3	20.2	20.0	20.5	20.5
Kent	21.5	21.1	21.3	20.2	21.0	21.7	22.2	21.1
Scott	20.1	20.5	21.5	18.6	19.1	19.9	20.2	20.7
Custer	20.7	21.6	23.1	19.6	20.6	20.9	20.4	20.4
C1278	20.8	20.4	22.7	19.7	20.8	20.6	20.9	19.9
C1311	20.9	19.8	22.8	19.9	20.2	21.0	21.0	20.5

*Not included in the mean.

¹Irrigated.

Table 78. (Continued)

Strain	Miller City Ill.	Portage- ville Mo. ¹	Lin- coln Nebr.	Pow- hattan Kans.	Man- hattan Kans.	Ot- tawa Kans.	Davis Cal. ¹
Clark 63	43.5	38.6	37.8	40.6	37.6	42.5	*
L12A	43.7	39.1	38.1	40.4	37.8	42.5	41.4
Delmar	42.6	38.6	38.5	39.7	37.6	41.3	--
Kent	43.1	39.4	38.4	39.9	38.0	42.8	--
							40.9
Scott	40.0	37.7	35.3	38.1	35.7	40.1	38.4
Custer	37.5	35.9	35.3	37.5	34.3	39.9	38.5
C1278	45.5	40.2	39.3	41.1	37.9	42.9	--
C1311	45.5	40.1	38.9	40.1	38.4	42.7	--

Percentage of Oil							*
Clark 63	20.2	21.8	21.4	21.2	22.5	21.7	17.8
L12A	19.8	21.5	21.0	21.1	21.8	20.7	--
Delmar	19.2	22.2	20.3	21.2	21.4	20.6	--
Kent	21.1	21.5	22.3	21.2	23.2	21.0	18.6
Scott	19.0	20.6	18.8	19.6	21.9	20.6	17.9
Custer	20.0	21.9	19.7	19.3	22.3	19.9	18.5
C1278	18.4	21.9	21.3	20.3	22.5	20.6	--
C1311	19.5	22.1	21.1	20.7	20.8	21.7	--

Table 79. Three-year summary of data, Uniform Test IV, 1964-1966.

Strain	Yield	Rank	Maturity ¹	Lodging	Height	Seed Quality	Seed Weight	Seed Composition	
No. of Tests	56	56	52	49	54	52	41	Protein	Oil
Clark 63	37.2	4	0	2.0	39	2.3	16.3	40.4	21.7
Kent	40.2	2	+7.4	1.7	38	2.2	18.2	40.4	22.0
C1278	40.7	1	+2.5	1.7	39	2.3	18.3	40.8	21.6
C1311	38.9	3	+6.2	1.7	42	1.9	16.2	41.1	21.5

¹Days earlier (-) or later (+) than Clark 63 which matured September 29, 126 days after planting.

Table 80. Three-year summary of yield and yield rank, Uniform Test IV, 1964-1966.

Strain	Mean of 56 Tests	Newark Del.	Georgetown Del.	Upper Marlboro Md.	Co-lumbus Ohio	Worthington Ind.	Evansville Ind.	Urbana Ill.	Girard Ill.	Edgewood Ill.	Eldorado Ill.
Years Tested		1964-1966	1964-1966	1964-1965	1964-1966	1964-1966	1964-1966	1965-1966	1965-1966	1964-1966	1964-1966
Clark 63	37.2	32.4	21.9	37.4	35.0	40.0	42.0	47.3	42.8	32.2	49.6
Kent	40.2	32.9	36.8	35.0	35.1	50.5	48.8	49.6	42.8	32.3	54.8
C1278	40.7	35.0	22.0	35.2	40.3	53.8	47.8	49.3	44.3	36.3	56.0
C1311	38.9	30.7	25.4	36.6	41.1	51.4	47.7	48.5	41.3	33.3	50.2

Yield Rank											
Clark 63	4	3	4	1	4	4	4	4	2	4	4
Kent	2	2	1	4	3	3	1	1	2	3	2
C1278	1	1	3	3	2	1	2	2	1	1	1
C1311	3	4	2	2	1	2	3	3	4	2	3

¹Irrigated.

Table 80. (Continued)

Strain	Car- bon- dale Ill.	Miller City Ill.	Co- lum- bia Mo.	Por- tage- ville Mo.	Pow- hat- tan Kans.	Colby Kans.	Man- hat- tan Kans.	Man- hat- tan Kans. ¹	New- ton Kans.	Mound Valley Kans.
Years Tested	1964- 1966	1964- 1966	1964- 1966	1964- 1966	1964- 1966	1965- 1966	1964- 1966	1964- 1966	1965- 1966	1964- 1965
Clark 63	32.5	41.5	38.1	44.1	37.9	32.4	42.8	46.9	27.7	23.7
Kent	36.7	45.9	37.9	46.1	40.5	34.4	43.9	45.7	28.1	25.2
Cl278	34.4	43.6	39.4	46.8	40.1	35.1	44.5	47.5	30.1	24.6
Cl311	36.4	44.3	36.5	44.8	36.4	33.7	40.5	45.1	27.4	22.9

	Yield Rank									
Clark 63	4	4	2	4	3	4	3	2	3	3
Kent	1	1	3	2	1	2	2	3	2	1
Cl278	3	3	1	1	2	1	1	1	1	2
Cl311	2	2	4	3	4	3	4	4	4	4

PRELIMINARY TEST IV, 1966

Strain	Parentage	Generation Composited
1. Clark 63		
2. Kent		
3. C1423	C1266R ⁸ x C1253	F ₃
4. C1438	Kent x C1253	F ₆
5. C1439	Kent x C1253	F ₆
6. C1440	Kent x C1253	F ₆
7. C1441	Kent x C1253	F ₆
8. L63-0113	Clark ⁴ x PI 84.946-2	F ₃ -F ₅
9. L63-0123	Clark ⁴ x PI 84.946-2	F ₃ -F ₅

Kent had a higher mean yield than any of the experimental strains, but some of them are earlier and disease resistant. The 5 C strains are all phytophthora resistant and showed excellent lodging resistance even though tall. C1423 had the best average yield, was almost as early as Clark 63, and had good seed composition. C1439 might merit further testing because of its high seed quality.

The 2 L strains have shown reduced incidence of brown stem rot in replicated disease tests at Urbana and Lafayette. In the Preliminary Test they performed similar to Clark 63, and brown stem rot was probably not an important factor in any of these fields.

Table 81. Descriptive data and shattering scores, Preliminary Test IV, 1966.

Strain	Flower Color	Pubes- cence Color	Pod Color	Seed Coat Luster	Seed Coat Color	Hilum Color	Shattering Five Points Cal. ¹
Clark 63	P	T	Br	D	Y	B1	2.0
Kent	P	T	Br	D	Y	B1	2.5
C1423	P	G	Br	D	Y	Bf	2.5
C1438	P	G	Br	D	Y	Ib	2.5
C1439	P	G	Br	S	Y	Lib	2.0
C1440	P	T	Br	D	Y	B1	3.0
C1441	P	G	Br	D	Y	Ib	2.5
L63-0113	P	T	Br	D	Y	B1 + Br	2.0
L63-0123	P	T	Br	D	Y	Br	2.0

¹Mean of two replications planted June 10. Scored 14 days after maturity.

Table 82. Summary of data, Preliminary Test IV, 1966.

Strain	Yield	Rank	Matu- rity ¹	Lodg- ing	Height	Seed Quality	Seed Weight	Seed Composition	
No. of Tests	10	10	10	10	10	9	7	Protein	Oil
								4	4
Clark 63	42.6	8	0	2.1	39	1.9	16.8	40.0	21.7
Kent	47.6	1	+5.6	1.9	39	1.6	19.1	39.7	22.3
C1423	46.2	2	+0.6	1.7	43	2.0	18.2	41.4	21.5
C1438	43.1	5	+4.1	1.7	40	1.9	18.6	39.0	22.6
C1439	44.6	4	+2.1	1.7	45	1.4	17.5	38.7	22.3
C1440	45.8	3	+4.3	1.8	42	2.2	19.2	41.3	21.1
C1441	43.1	5	+4.7	1.7	39	1.6	16.6	38.6	22.1
L63-0113	43.0	7	+0.3	2.0	37	1.6	17.3	39.8	21.7
L63-0123	41.6	9	+0.9	2.2	38	1.6	17.5	40.7	21.1

¹Days earlier (-) or later (+) than Clark 63 which matured October 4, 129 days after planting.

Table 83. Disease data, Preliminary Test IV, 1966.

Strain	Bacterial Pustule	Downy Mildew	Frogeye Race 2	Phytophthora Rot
	<u>Ill.</u> <u>al</u>	<u>Ind.</u> <u>nl</u>	<u>Ind.</u> <u>a</u>	<u>Ind.</u> <u>a</u>
Clark 63	R	3.0	S	R
Kent	S	2.0	R	S
C1423	S	3.5	R	R
C1438	S	3.5	S	R
C1439	S	3.5	S	R
C1440	S	3.0	S	R
C1441	S	3.0	S	R
L63-0113	S	3.5	S	S
L63-0123	S	4.0	S	S

¹a = artificial inoculation; n = natural infection.

Table 84. Yield and yield rank, Preliminary Test IV, 1966.

Strain	Mean of 10 Tests	George- town Del. ¹	Worthing- ton Ind.	Evans- ville Ind.	Tren- ton Ill.	Eldo- rado Ill.	Carbon- dale Ill.
		*					
Clark 63	42.6	19.0	32.6	51.7	45.7	54.4	38.7
Kent	47.6	41.5	41.8	58.3	56.4	61.7	42.9
C1423	46.2	26.2	40.7	57.1	58.3	56.4	41.9
C1438	43.1	42.3	33.9	54.5	45.3	59.0	36.9
C1439	44.6	39.1	41.7	57.3	51.0	54.8	43.5
C1440	45.8	37.8	35.4	56.9	53.4	55.2	37.2
C1441	43.1	37.2	31.1	53.3	43.4	56.4	42.4
L63-0113	43.0	18.5	38.8	51.3	44.5	53.1	41.7
L63-0123	41.6	30.5	33.9	49.5	46.0	51.2	39.5
Coef. of Var. (%)		29.1	11.4	6.0	7.7	4.1	--
L.S.D. (5%)		11.0	N.S.	N.S.	8.7	5.2	--
Row Spacing (In.)		36	38	40	36	36	40

	Yield Rank						
Clark 63	8	8	8	7	6	7	7
Kent	1	2	1	1	2	1	2
C1423	2	7	3	3	1	3	4
C1438	5	1	6	5	7	2	9
C1439	4	3	2	2	4	6	1
C1440	3	4	5	4	3	5	8
C1441	5	5	9	6	9	3	3
L63-0113	7	9	4	8	8	8	5
L63-0123	9	6	6	9	5	9	6

*Not included in the mean.

¹Irrigated.

Table 84. (Continued)

Strain	Colum- bia Mo.	Portage- ville Mo. ¹	Pow- hattan Kans.	Man- hattan Kans.	Man- hattan Kans. ¹	Ottawa Kans.	Five Points Cal. ¹
					*		*
Clark 63	46.3	39.8	42.6	35.0	43.6	38.9	15.0
Kent	49.0	41.0	49.2	39.9	54.0	36.2	16.5
C1423	48.9	38.3	46.6	40.3	39.0	33.9	16.4
C1438	46.5	36.5	47.3	40.7	50.6	30.6	13.0
C1439	48.8	33.8	42.7	36.5	34.1	36.1	13.5
C1440	55.7	38.0	49.4	44.2	50.4	32.7	18.7
C1441	44.5	36.1	52.6	37.1	53.9	33.8	13.3
L63-0113	48.3	36.4	43.7	34.2	42.7	37.8	16.9
L63-0123	41.9	34.1	44.6	35.5	42.0	39.4	14.0
Coef. of Var. (%)	5.7	8.5	8.1	5.6	9.2	6.8	15.0
L.S.D. (5%)	3.1	7.3	8.7	N.S.	9.7	N.S.	N.S.
Row Spacing (In.)	38	38	38	36	36	30	30

	Yield Rank						
Clark 63	7	2	9	8	5	2	5
Kent	2	1	3	4	1	4	3
C1423	3	3	5	3	8	6	4
C1438	6	5	4	2	3	9	9
C1439	4	9	8	6	9	5	7
C1440	1	4	2	1	4	8	1
C1441	8	7	1	5	2	7	8
L63-0113	5	6	7	9	6	3	2
L63-0123	9	8	6	7	7	1	6

Table 85. Maturity, days earlier (-) or later (+) than Clark 63, Preliminary Test IV, 1966.

Strain	Mean of 10 Tests	George- town Del.	Worthing- ton Ind.	Evans- ville Ind.	Tren- ton Ill.	Eldo- rado Ill.	Carbon- dale Ill.
		*					
Clark 63	0	0	0	0	0	0	0
Kent	+5.6	+ 2	+5	+5	+ 5	+ 9	+5
C1423	+0.6	- 3	+3	0	- 2	- 2	+2
C1438	+4.1	+ 2	+5	+5	+ 4	+ 4	+4
C1439	+2.1	+ 3	+2	+2	+ 1	+ 2	+3
C1440	+4.3	+ 3	+5	+5	+ 5	+ 5	+5
C1441	+4.7	+ 1	+6	+5	+ 6	+ 5	+6
L63-0113	+0.3	+ 1	-1	0	0	+ 1	+2
L63-0123	+0.9	+ 2	+1	+1	0	+ 2	+2
Wayne (III)		- 5	-9	-4	-13	- 9	-8
Hill (V)		+15	--	--	+22	+23	--
Date planted	5-28	6-7	5-28	6-3	6-4	5-31	6-20
Clark 63 matured	10-4	10-9	10-9	10-9	10-9	10-1	10-8
Days to mature	129	124	134	128	125	123	110

*Not included in the mean.

¹Irrigated.

Table 85. (Continued)

Strain	Colum- bia Mo.	Portage- ville Mo.	Pow- hattan Kans.	Man- hattan Kans.	Man- hattan Kans. ¹	Ottawa Kans.	Five Points Cal.
					*		*
Clark 63	0	0	0	0	0	0	0
Kent	+9	+ 3	+ 5	+ 4	+ 5	+6	+ 4
C1423	-1	0	+ 3	+ 3	+ 1	0	+ 1
C1438	+6	+ 4	+ 4	+ 4	+ 2	+1	+ 4
C1439	+3	0	+ 3	+ 3	+ 4	+2	+ 1
C1440	+6	+ 3	+ 2	+ 5	+ 4	+2	+ 1
C1441	+8	+ 5	+ 1	+ 5	+ 2	0	+ 4
L63-0113	0	0	0	+ 1	0	0	+ 1
L63-0123	0	0	+ 1	+ 2	0	0	+ 1
Wayne	--	- 7	- 2	--	- 6	-7	-10
Hill	--	+12	+15	+13	+13	+8	--
Date planted	5-23	5-21	5-15	5-27	5-27	5-14	6-10
Clark 63 matured	9-24	9-24	10-6	10-1	10-3	10-6	10-10
Days to mature	124	126	144	127	129	145	122

Table 86. Identification of parent strains not in current tests.

Strain	Parentage	Generation Composited	Regional Testing
II-42-37	Lincoln ² x Richland	--	--
A50-7445	Richland x Jogun	--	--
A54-3202	Hawkeye x Capital	--	--
Cl43	Same as PI 70.218-2-6-7, original from Manchuria in 1926 (Patoka = PI 70.218-2-19-3)	--	39-40 Late
C799	Cl43 x Lincoln	--	50 P.T. IV
Cl069	Lincoln x Ogden. From same F ₃ plant as Kent.	F ₇	54-58 U.T. IV
Cl070	Lincoln x Ogden. From same F ₃ plant as Kent.	F ₇	--
Cl079	Lincoln x Ogden. From same F ₃ plant as Kent.	F ₇	54-56 U.T. IV
Cl128	Wabash x Hawkeye	--	54-58 U.T. II, 58 U.T. III
Cl223	Cl070 x Adams. Sib of Adelphia.	F ₆	60-61 U.T. III
Cl253	Blackhawk x Harosoy. Phytophthora resistant.	F ₆	64 P.T. II
Cl266R	Harosoy x Cl079	F ₆	62-63 U.T. IV
CX258-2-3-2	PI 65.338 x Cl079	--	--
CX291-42-1	Mukden x Cl069	--	--
D49-2525	S100 x CNS. Sib of Lee.	F ₆	--
FC 33.243	Rogue in Lincoln, sel. by H. J. Anderson of Calamus, Iowa. Root-knot resistant.	--	49 U.T. III, 50 U.T. IV
L6	(Clark ⁶ x L49-4091) x (Clark ⁸ x Blackhawk). Pustule and phytophthora resistant.	7 F ₃ lines	62 U.T. IV
L11	(Clark ⁶ x T201) x (Clark ⁶ x T145). Yellow hilum (<u>I</u> r).	27 F ₄ lines	65 U.T. IV
L46-5679	Lincoln x Richland	F ₅	49-50 U.T. IV
L48-7289	Seneca x Richland	--	50-51 U.T. II
L49-4091	(F ₃ Lincoln ² x Richland) x (F ₁ Lincoln x CNS). Pustule resistant.	F ₄	51 U.T. IV, 52-53 U.T. III
L49-4196	(F ₃ Lincoln ² x Richland) x (F ₁ Lincoln x CNS). Pustule resistant.	F ₄	51 U.T. IV
L58-2080	Hawkeye x Lee. Pustule resistant.	F ₇	--
M10	Lincoln ² x Richland	--	49-51 U.T. I
052-903	Sel. 753-1 by Sven A. Holmberg, Norrkoping, Sweden = PI 194.654	--	60-61 U.T. 00
PI 65.338	Introduced from Manchuria in 1925	--	--
PI 84.946-2	Rogue in PI 84.946 introduced from Korea in 1930. Somewhat resistant to brown stem rot.	--	--
PI 194.633	Sel. 733-4 by Sven A. Holmberg, Norrkoping, Sweden	--	--
S54-1207	Hawkeye x (L49-4091 x sib of Clark)	--	57 U.T. III
T145	Origin unknown. Brown seed (<u>r</u>), glabrous pubescence (<u>P</u> ₁).	--	--
T201	Gray hilum (<u>I</u>), Lincoln ² x Richland	--	--
T207	Pure line of PI 80.837-1, a rogue in PI 80.837 introduced from Japan in 1929. Determinate stem (<u>Dt</u> ₂).	--	--
WOS-3386	Lincoln x Flambeau	--	53-56 U.T. 0
W9-1982-32	Hawkeye x Wis. Manchu 3	F ₈	57-59 U.T. I

SOYBEAN DISEASE INVESTIGATIONS IN 1966

Data were furnished by J. M. Dunleavy, D. W. Chamberlain, and F. A. Laviolette

Disease survey data are listed in the following table for each state in which a disease survey was made. The disease data are calculated as follows: severity index is determined on a 1 (no disease) to 5 (very severe infection) basis; prevalence index is based on the percent of the field infected on a 1 (1-25%), 2 (26-50%), 3 (51-75%), and 4 (76-100%) basis. The disease index = percent of fields showing infection x average severity x average prevalence. Averages are based on infected fields only.

Four diseases, namely, Phytophthora rot, stem canker, purple stain, and pod and stem blight are rated in a separate category because of either their destructive potential or their effect on the value of the seed. The severity classes for these diseases are determined as follows: 1 (no diseased plants in the field or no diseased seed in the sample); 2 (1-3% of the plants or the seed diseased); 3 (4-8% of the plants or seed diseased); 4 (9-19% of the plants or seed diseased); and 5 (20-100% of the plants or seed diseased). Prevalence rating is determined by the same method for all diseases.

SUMMARY OF DISEASE SURVEY DATA - 1966

Disease	Percent of Fields Infected		Average Severity	Average Prevalence	Disease Index
<u>Illinois</u> - August 15-16					
Bacterial Blight	38	+20*	2.2	3.8	3.2
Brown Spot	20	+28*	2.0	3.3	1.3
Brown Stem Rot	17	+ 2*	2.3	1.9	0.7
Bacterial Pustule	11	+20*	2.0	3.2	0.7
Downy Mildew	4	--	2.0	4.0	0.3
Yellow Mosaic	--	33*	--	--	--
Bud Blight	--	7*	--	--	--
<u>Indiana</u> - July 25, August 2-10					
Bacterial Blight	75		2.5	2.6	4.8
Brown Spot	47		3.2	1.8	2.7
Bud Blight	24		2.0	1.2	0.6
Phytophthora Rot	22		2.4	1.8	1.0
Downy Mildew	7		2.7	3.0	0.5
Bacterial Pustule	6		2.0	2.0	0.2
Brown Stem Rot	4		2.7	2.0	0.2

*Percent of fields infected with only trace amounts of disease.

SUMMARY OF DISEASE SURVEY DATA - 1966 (Continued)

Disease	Percent of Fields Infected	Average Severity	Average Prevalence	Disease Index
<u>Iowa</u> - July 12-13, September 15-16				
Bacterial Blight	86	2.6	2.4	5.4
Brown Spot	74	2.4	2.5	4.4
Root Rot	71	2.0	2.8	4.0
Brown Stem Rot	56	3.0	2.6	4.4
Downy Mildew	50	2.2	1.5	1.6
Bacterial Pustule	46	2.4	1.4	1.5
Stem Canker	33	2.3	1.6	1.2
Bud Blight	25	2.0	1.0	0.5
Rhizoctonia Rot	8	2.0	1.2	0.2
Wildfire	4	2.7	1.3	0.1
Yellow Mosaic	4	2.0	1.0	0.1

GROWING CONDITIONS AT TEST LOCATIONS IN 1966

The following notes supplied by the cooperators provide information useful in interpreting strain performance at the individual test locations.

Temperature and rainfall maps for the 1966 season are included at the end of this report. The maps are taken from the Monthly Climatological Data National Summary Bulletins published by the U. S. Weather Bureau.

Ottawa, Ontario, Canada. Atrazine carry-over damaged tests to the point where they were considered not worth harvesting.

Cooperator: L. S. Donovan, Central Experimental Farm.

Guelph, Ontario, Canada. The summer of 1966 was hot and dry until mid-July and normal thereafter. In June and July there was a prolonged drouth (43 days). As a result the tests were irrigated twice, June 4 (3/8") and July 27 (1"). The first frost occurred on September 18 and most varieties reached maturity without serious frost damage.

Cooperator: Crop Science Department, University of Guelph.

Soil Type: Guelph Loam.

Fertilizer Application: 400 lbs. 0-20-20, 25 lbs. N in fall.

Soil Analysis: pH, 6.8; OM, M; N, MH; P, H; K, MH; Ca, H; Mg, H.

Ridgetown, Ontario, Canada. Amiben was sprayed at the recommended rate. Soil moisture conditions were excellent at time of planting, resulting in excellent emergence. There was less than 1/4" precipitation between June 15 and July 18. There was no significant rainfall until July 26-27 (.9"). Maturity dates on some earlier varieties were difficult to determine since growth and pod setting were variable.

Cooperator: Western Ontario Agricultural School.

Soil Type: Brookston Clay Loam.

Fertilizer Application: 1475 lbs./A. 3-11-11.

Harrow, Ontario, Canada. Excellent stands were obtained but growth was retarded due to hot dry weather during the last two weeks of June. Nearly 5 inches of rain with some hail on July 2 injured top leaves and temporarily flooded the test area. Plants recovered rapidly and made excellent growth during the remainder of the season. All tests were harvested prior to the first killing frost which occurred on October 30. Yields averaged about 43 bushels per acre, being considerably higher than in 1965.

Cooperator: Canada Department of Agriculture Research Station.

Soil Type: Brady Sandy Loam.

Fertilizer Application: 500 lbs./A. 5-10-15.

Freehold, New Jersey. Soil moisture was ample at planting time but maximum temperatures were in the upper 60's the week following. Emergence was good for nearly all plots. June had normal temperature but rainfall was 3.25" below normal. July temperatures were well above normal and rainfall about 2.50" below normal. However, two irrigations of 1 inch each were applied in July. August was normal in

temperature but 2.25 inches deficient in rain. Abundant moisture and slightly below normal temperatures prevailed from September 15 on into October. Treflan was applied and incorporated before planting, supplemented as needed by hand hoeing for good weed control. The previous crop was soybeans.

Cooperator: New Jersey Agricultural Experiment Station.

Soil Type: Sassafras Sandy Loam.

Fertilizer Application: 200 lbs. of 0-20-20 before planting.

Soil Analysis: pH, 6.0; P, 13, Medium; K, 162, Medium; Mg, 115, Medium.

Salem, New Jersey. A good stand was obtained on all plots. Normal temperatures and well distributed but only half of normal rainfall kept the crop growing normally during June. Weeds were cleared out by hand in mid-July. Adequate rainfall and temperatures slightly above normal prevailed in July and August. Heavy rains and cool temperatures prevailed from September 15 on into October.

Cooperator: Frank Powell.

Soil Type: Greenwich Loam.

Fertilizer Application: None.

Newark, Delaware. During June, July, and August, temperatures were above normal and rainfall was approximately 8 inches below normal. Soil moisture was extremely deficient in June, contributing to reduced plant growth, and in August, when needed for adequate pod development. During September and October temperatures were below normal and rainfall above normal. This contributed to the excessive weathering evidenced and the low seed quality scores.

Cooperator: Delaware Agricultural Experiment Station.

Soil Type: Matapeake Silt Loam.

Fertilizer Application: 0-38-76.

Soil Analysis: pH, 5.6; OM, 2.0; P, High +; K, High +; Mg, High +; Mn, High.

Georgetown, Delaware. Temperatures were near normal in June, above normal in July and August, and below normal in September and October. All the rainfall in June was obtained before June 21. Rainfall during July and August was approximately 7 inches less than normal, but was above normal during September and October. Four sprinkler irrigations of 2 inches each were applied at two-week intervals during July and August. Seedling diseases were responsible for reducing soybean stands in all tests except Uniform Preliminary Test III. Numerous other diseases were prevalent later in the season including brown stem rot, pod and stem blight, and purple stain.

Cooperator: University Substation Division.

Soil Type: Norfolk Sandy Loam.

Fertilizer Application: 0-30-60.

Soil Analysis: pH, 6.3; OM, 1.4%; P, High; K, Medium; Mg, Medium; Mn, Low.

Hoytville, Ohio. Rainfall was adequate for normal plant growth from May through November and was excessive during July. Temperatures were below normal for all months except June and July which were near normal.

Soil Type: Hoytville Clay.

Fertilizer Application: None.

Soil Analysis: pH, 6.0; OM, 3.0; P, 122 lbs./A.; K, 372 lbs./A.; Ca, 4065 lbs./A.; Mg, 514 lbs./A.; Mn, 18 lbs./A.; Boron, 1.0 lbs./A.

Wooster, Ohio. Temperatures in early spring (May) and late fall (September, October, and November) were considerably below normal while June, July, and August were near normal. Rainfall was above normal throughout the growing season, ranging from +1.85 inches in June to +4.74 inches in November.

Soil Type: Wooster Silt Loam.

Fertilizer Application: None.

Soil Analysis: pH, 7.1; OM, 2.0; P, 145 lbs./A.; K, 206 lbs./A.; Ca, 2310 lbs./A.; Mg, 359 lbs./A.; Mn, 69 lbs./A.; Boron, 0.75 lbs./A.

Columbus, Ohio. Rainfall from May through November was above normal, ranging from +5.91 inches in July to +1.25 inches in October. Temperatures, generally, were slightly below normal during the entire growing season.

Soil Type: Miami-Brookston Silt Loam.

Fertilizer Application: None.

Soil Analysis: pH, 6.5; OM, 2.5; P, 49 lbs./A.; K, 164 lbs./A.; Mg, 394 lbs./A.; Mn, 120 lbs./A.; Boron, 0.50 lbs./A.

East Lansing, Michigan. Soil tilth was very good at planting time but the top two inches of soil dried quickly, resulting in poor emergence. Seventy-five percent of the plants emerged after a rain on June 10, two weeks after planting. The percent of early emergence varied with the strains. Planter difficulties resulted in uneven seed spacing in the row--short skips and bunches. These difficulties affected both maturity and lodging scores and some of these do not agree with three years of previous data. Except for 0.21 inches of rain on June 21, there was no rainfall from June 16 to July 10. The third week of July was dry as were the middle two weeks of August. In general, in spite of temporary water shortages, the crop did very well after the first two weeks following planting.

Cooperator: Michigan State University.

Soil Type: Conover Silt Loam.

Fertilizer Application: 200 lbs./A. 5-20-20.

Soil Analysis: pH, 6.8; P, 35; K, 114; Ca, 2649; Mg, 346.

Dundee, Michigan. Soil tilth was very good at planting but the top two inches of soil dried out quickly, resulting in poor emergence. Some seed did not sprout until a rain occurred two weeks after planting. Planter difficulty resulted in uneven seed spacing in the row--short skips and bunches. These difficulties affected both lodging and maturity. Except for the first 10 days of the season, rainfall was very good from both the amount and frequency aspects.

Cooperator: Russell Houpt and Son.

Soil Type: Lenawee Silty Clay Loam.

Fertilizer Application: None.

Soil Analysis: pH, 6.3; P, 114; K, 299; Ca, 4904; Mg, 463.

Knox, Indiana. Planting was very late on June 24. The soil was plowed and worked somewhat wet with a resulting poor seed bed. Planting was difficult and not to a uniform depth. In some cases seed had to be covered with a hand hoe. Emergence was poor and very spotty. Precipitation was well above normal in late April and

through late May, with continuous light rains through June 18. Total June rainfall was 1.47 inches, which was 3.06 inches below normal. There were 21 days with temperatures of 90° and above from date of planting on June 24 through July 25. The test was abandoned July 25 due to very spotty emergence and poor and uneven growth.

Cooperator: Frank Pulver.

Soil Type: Maumee Loam.

Fertilizer Application: 250 lbs./A. 4-10-10 liquid.

Soil Analysis: pH, 6.1; P, 103; K, 90.

Bluffton, Indiana. Planting was somewhat later than normal on May 28. Soil and moisture conditions were good for rapid emergence. Precipitation was 2.08 inches below normal in June with an accumulated shortage of 3 inches for May through September. There were 23 summer days of 90° F. and above with 11 of these high-temperature days up to 96° F. occurring in late June and early July. Diseases were of little consequence except the presence of some bud blight and some effects from Phytophthora, but no killed plants. There was some foliar damage due to a foliar application of manganese sulfate. Harvest conditions were good, but somewhat late on October 10. Yields were about average for this location.

Cooperator: Gerald Bayless and Sons.

Soil Type: Nappanee Silt Loam.

Fertilizer Application: 115 lbs./A. 5-20-20 with 5% Mn applied in the row.

Foliar application of manganese sulfate.

Herbicide: 9 lbs./A. granular Amiben over the row.

Soil Analysis: pH, 6.6; P, 164 lbs./A.; K, 165 lbs./A.

Lafayette, Indiana. Planting was somewhat later than normal on May 27 in an excellent seed bed. Soil and moisture conditions were excellent for rapid emergence. Precipitation was 1.06, 2.53, 0.67, 1.47, and 0.41 inches below normal for the respective months of May through September. There were 27 summer days with temperatures of 90° F. or above with 24 of these occurring in the 36-day period of June 24 to July 29. On six days the temperatures were 95° F. and above and reached 99° F. twice in a three-day period. Bacterial blight was the most common and extensive disease even though hot weather prevailed. Brown stem rot was common among varieties maturing as late, or later than, Wayne. Minor damage was observed from Phytophthora in intermittent places of the test plot area. Harvest conditions were good following a 16-day interruption by precipitation beginning September 15. Yields were surprisingly good, considering the drouth, and about average for the location.

Cooperator: O. W. Luetkemeier, Purdue Agronomy Farm.

Soil Type: Chalmers Silty Clay Loam.

Fertilizer Application: 782 lbs./A. 0-25-25 disced in; 125 lbs./A. 5-20-20 with 4% Mn applied in the row.

Herbicide: 0.52 gal./A. Amiben in 14" bands.

Soil Analysis: pH, 6.8; P, 169 lbs./A.; K, 240 lbs./A.

Greenfield, Indiana. Planting was timely on May 20. Emergence conditions were fair to good but some stands were spotty, especially in Group II, due mainly to Phytophthora. Precipitation was 3.32 inches below normal for the months of May through August with 1.37 inches above normal rainfall in September. Growth was unusually poor in the Group II test and fair in Group III. Later maturing varieties

benefitted materially from August rains. There were 31 summer days with temperatures of 90° F. and above with 23 of these occurring in the 27-day period from June 23 to July 19. On seven days, temperatures reached 95° F. and above with 99° F. July 13 and 14. Phytophthora caused marked damage in Group II and some damage in Group III. There was also some bud blight and a trace of brown spot. Group II yields averaged the lowest ever at this location. Harvest conditions were good and timely on October 7. Group III yields were somewhat below average.

Cooperator: Mrs. Raymond Roney.

Soil Type: Brookston-Crosby Complex.

Fertilizer Application: 300 lbs./A. 6-24-24 in the row to the side and below the seed.

Herbicide: None.

Soil Analysis: pH, 6.2; P, 72 lbs./A.; K, 135 lbs./A.

Worthington, Indiana. Planting was somewhat late, May 28, but emergence and growth conditions were ideal. Precipitation was 1.27, 2.90 and 0.63 below average for May, June, and August but very abundant in July with 5 inches above normal. Vegetative growth was unusually good and prospects for exceptional yields very evident when the plot was observed August 8. Final yields were somewhat below average and not in keeping with vegetative growth. There were 28 summer days of 90° F. or above with 19 of these in the 22-day period from June 24 to July 15. On nine days of this period the temperature was 95° F. or above with consecutive days of 100°, 98°, and 99° F. in mid-July. Temperatures were again in the 90's on four consecutive days in the last week of July. Maturity was uneven as marked by many green-stemmed plants. Pod and stem blight and purple stain were very pronounced on the seed giving a marked poor-quality seed rating for this location. Harvest conditions were fairly good but harvest was delayed due to green stems.

Cooperator: Frederic Sloan.

Soil Type: Genesee Silt Loam.

Fertilizer Application: 500 lbs./A 6-12-18 (liquid) disced in; 100 lbs./A. 6-24-24 in the row.

Herbicide: None.

Soil Analysis: pH, 7.6; P, 149 lbs./A.; K, 120 lbs./A.

Evansville, Indiana. Planting was late on June 3 but emergence and stands were very good. Early growth through August 9 was rather short due to lack of precipitation and extended high temperatures. Rainfall of 3.41 inches in the 11-day period of August 10 through 20 had a very marked effect on growth and yield, especially on varieties of Kent maturity or later. Precipitation was 0.71, 2.00, 1.36, and 0.83 below normal for the respective months of May through August. There were 48 summer days of 90° F. or above with 43 of these occurring in the 52-day period from June 20 to August 20. On 19 of these days the temperature was 95° F. or above and in the period of July 9 to 14 the consecutive high temperatures were 98°, 101°, 99°, 104°, 103°, and 104° F. There were no diseases of consequence. Harvest was late, October 24 to 26, but with fairly good harvest conditions. Yields were all surprisingly high with the mean of complete tests ranging from 50.5 bushels per acre for Uniform Test III to 56.3 for IV Tests. Four experimental entries averaged above 60 bushels per acre. Seed quality was good at this location.

Cooperator: Bernard Wagner.

Soil Type: Montgomery Silty Clay Loam.

Fertilizer Application: 500 lbs./A. of 4-10-10 liquid in the row.
Herbicide: Treflan over the row at manufacturer's recommended rate.
Soil Analysis: pH, 6.1; P, 262 lbs./A.; K, 203 lbs./A.

Ashland, Wisconsin. Temperatures were below normal during May, August, and September and above normal during June and July. Precipitation was 2.3, 2.0, and 2.1 inches below normal during May, June, and September, respectively, and 1.2 and 2.1 inches above normal during July and August, respectively. The season, in general, was good. This nursery was planted May 23. Killing frost arrived October 1 after all but the latest varieties had matured. Diseases were not a problem.

Spooner, Wisconsin. The growing season in 1966 was generally good for soybean production. Rainfall was below normal and good weed control was an absolute necessity for a profitable yield. A few weedy fields in this area were not worth combining. Temperatures were considerably above normal from mid-June to early August. The nursery was planted May 26, and soil conditions were favorable. Temperatures were 1.5 degrees above normal in June, 1.9 degrees above normal in July, 3.3 degrees below normal in August, and .9 degrees below normal in September. Rainfall was 1.37 inches below normal in June, 5 inches below normal in July, 2.06 inches above normal in August, and very near normal in September. The distribution of rainfall was very good the last two weeks of June and first half of July. The nursery was irrigated only once, on July 23, when moisture shortage became critical.

Cooperator: University of Wisconsin.
Soil Type: Pence Loamy Sand.
Fertilizer Application: None.

Durand, Wisconsin. The nursery was planted May 27. Stands were good. Rainfall was below normal during April, May, June, and September but above normal during July and August. In general, temperatures averaged below normal except during the last week in June and the first two in July. Growth was moderate, and considering the sandy soil, yields were good. Later varieties gave better yields than early varieties due to rain occurring at times more favorable for the late varieties. Forst and disease were not problems.

Cooperator: Wisconsin Agricultural Experiment Station.

Madison, Wisconsin. The nursery was planted May 27, about one week later than normal. Stands were good. Spring and summer rainfall was about two-thirds of normal; however, the distribution was good and run off was low. Temperatures were below normal except during the period from the last week in June to the middle of July when above normal temperatures prevailed. Due to good rainfall distribution and moderate temperatures during most of the season, growth was normal and yields were good. Frost did not occur until after maturity. Diseases were minor.

Cooperator: Wisconsin Agricultural Experiment Station.
Soil Type: Miami Silt Loam.
Fertilizer Application: 200 lbs. 0-20-20.

DeKalb, Illinois. Planting was delayed somewhat due to wet soil conditions in early May. A period of reduced rainfall with temperatures higher than normal occurred in late June and July. Total rainfall was slightly less than normal. Plant growth

from emergence to harvest was about normal. No excessive insect infestations nor diseases were noted during the growing season.

Cooperator: Richard R. Bell, Northern Illinois Agronomy Research Center.
Soil Type: Drummer Silty Clay Loam.
Fertilizer Application: None.
Soil Analysis: pH, 6.7; P, 25 (Bray's P₁); K, 280.

Pontiac, Illinois. The Pontiac location replaces Dwight in the north-central part of Illinois. Planting was on May 30 in a soft uneven seed bed. Four replications of single rod-row plots were harvested. There was an inadequate amount of moisture most of the season. A light epiphytotic of bacterial blight and rhizoctonia were the only diseases noticed.

Cooperator: Donald Alltop.
Fertilizer Application: None.
Soil Analysis: pH, 6.6; P₁, 13 lbs./A.; P₂, 42 lbs./A.; K, 238 lbs./A.

Urbana, Illinois. Planting was on May 20 in a smooth moist seed bed. The center two rows of four-row plots were harvested from three replications for each strain. Moisture was inadequate most of the season and very short in July and early August. Bacterial pustule and bacterial blight were general and slight to severe on susceptible varieties.

Cooperator: M. G. Oldham, Illinois Agricultural Experiment Station.
Soil Type: Flanagan Silt Loam.
Fertilizer Application: None.
Soil Analysis: pH, 6.6; P₁, 34 lbs./A.; P₂, 135+ lbs./A.; K, 292 lbs./A.

Girard, Illinois. Planting was on May 29 in a cloddy, slightly tight seed bed. The two center rows of four-row plots were harvested from three replications for each strain. Moisture was very inadequate all season. Downy mildew was slight on a few varieties. Spider mites were moderate to severe during most of the season. Crickets, leaf beetles, green stinkbugs, and colaspis were feeding on the plants toward the end of the growing season.

Cooperator: Lloyd Brothers.
Fertilizer Application: None.
Soil Analysis: pH, 6.8; P₁, 39 lbs./A.; P₂, 135+ lbs./A.; K, 214 lbs./A.

Edgewood, Illinois. Planting was on June 9 in a good, level, fairly firm seed bed. Emergence was good. Four replications of single rod-row plots were harvested. Moisture was in short supply most of the growing season. This test location was attacked by a variety of diseases including severe charcoal rot and bud blight, moderate Phytophthora rot, and slight bacterial pustule. Over 90 percent of the plants were infected with brown stem rot. Growth, maturity, and yields were very uneven, presumably due to one or more of these diseases.

Cooperator: John Wilson.
Fertilizer Application: None.
Soil Analysis: pH, 6.1; P₁, 47 lbs./A.; P₂, 135+ lbs./A.; K, 166 lbs./A.

Trenton, Illinois. Planting was on June 4 in a loose to tightly structured seed bed which was topographically uneven from row to row. Emergence and stands were not very good. Growth was poor through late July due to a very short supply of moisture. Late season growth was excellent. Uniform Tests II and III were grown in two-row plots and both were harvested. Uniform Tests IV and IVS were grown in four-row plots and the center two rows were harvested. Moderate bud blight and downy mildew, slight to severe bacterial pustule, and a trace of bacterial blight were observed in the test plots. In late August a severe epiphytotic of brown spot moved up the plants, defoliating prematurely many Group II strains and causing lower leaves to drop on some of the later strains.

Cooperator: Fred Bergmann.

Fertilizer Application: None.

Soil Analysis: pH, 6.8; P₁, 45 lbs./A.; P₂, 135+ lbs./A.; K, 280 lbs./A.

Eldorado, Illinois. Planting was on May 31 in a smooth, fairly tight seed bed. The center two rows of four-row plots were harvested from three replications. Moisture was short all season but growth and yields were excellent. Diseases observed include scattered moderate to heavy bacterial blight and slight to severe downy mildew and bacterial pustule. There was what appeared to be locally severe wildfire on pustule-resistant as well as susceptible strains.

Cooperator: Marshall Grisham.

Fertilizer Application: 200 lbs. 7-21-7.

Soil Analysis: pH, 7.0; P₁, 37 lbs./A.; P₂, 135+ lbs./A.; K, 241 lbs./A.

Miller City, Illinois. Planting was on June 4 in a smooth, soft seed bed. Emergence was good to poor. The Uniform Test IV strains were good but the Uniform Test IVS and V entries did not emerge very well. There was considerable difference in growth from one side of the field to the other. The center two rows of four-row plots were harvested from three replications for each strain. Downy mildew was moderate to slight, bacterial pustule was severe to slight, and brown spot was severe to moderate. Green stinkbugs were abundant through most of the season. All varieties were mature before frost. This field has been in continuous soybeans since 1954.

Cooperator: Malcolm Patton.

Fertilizer Application: None.

Soil Analysis: pH, 6.6; P₁, 58 lbs./A.; P₂, 112 lbs./A.; K, 178 lbs./A.

Crookston, Minnesota. Planting was timely and stands were good. Growing conditions were relatively good for this latitude. Weed control was good and growth normal for this location. The first killing frost occurred September 25.

Cooperator: O. C. Soine.

Soil Type: Bearden Silt Loam.

Fertilizer Application: 1966 = 100 lbs./A. 20-40-0; 1965: 100 lbs./A. 5-42-0;
1964: heavy crops of sweet clover plowed down with 250
lbs./A. 0-46-0.

Soil Analysis: pH, 8.0; OM, 5.6 (very high); P, 12 lbs./A. extractable (medium); K, 330 lbs./A. exchangeable (very high).

Morris, Minnesota. Planting was timely and stands fair to good. Growth was fairly good with favorable growing conditions most of the year. There were some weed problems and some lodging. There was more block-variety interaction than usual at this location. The first killing frost was on October 1.

Cooperator: Roy L. Thompson.

Soil Type: Tara Silt Loam.

Fertilizer Application: 300 lbs. 6-24-24 broadcast in spring and worked into fall plowing.

Soil Analysis: pH, 7.0; OM, 6.0 (very high); P, 70 lbs./A. extractable (very high); K, 460 lbs./A. exchangeable (very high).

St. Paul, Minnesota. Stands were good and growing conditions excellent for the entire season. As usual at St. Paul, lodging was rather severe and virus infected plants very common, making maturity notes difficult. The first killing frost was on October 16.

Cooperator: J. W. Lambert, University of Minnesota.

Soil Type: Waukegan Silt Loam.

Fertilizer Application: Over the years heavily manured.

Soil Analysis: pH, 6.7; OM, 4.3% (medium level); P, 200 lbs./A. extractable (very high); K, 600 lbs./A. exchangeable (very high).

Lamberton, Minnesota. Planting was timely and stands fair to good. There was some drouth stress in late July and early August, but otherwise growing conditions were good. Weeds were kept under good control.

Cooperator: W. W. Nelson.

Soil Type: Webster Silty Clay Loam.

Soil Analysis: pH, 6.9; OM, 5.0 (high); P, 24 lbs./A. extractable (high); K, 250 lbs./A. exchangeable (high).

Waseca, Minnesota. Planting was timely and stands were good. Growing conditions were very good and weeds were kept under good control. Lodging was moderate. This was considered good test data. The first killing frost occurred October 1.

Cooperator: John R. Thompson.

Soil Type: Nicollet Silty Clay Loam.

Fertilizer Application: None.

Soil Analysis: pH, 7.4; OM, 7.0 (very high); P, 14 lbs./A. extractable (medium); K, 275 lbs./A. (high).

Cresco, Iowa. This nursery is located in northeast Iowa on Cresco loam soil which is tight, cold, wet, slowly drained, and low in productivity. The nursery was planted on May 26 on corn land. Temperatures were below normal for May, August, and September, averaging -1.6° below normal. Precipitation averaged -5.1 inches below normal. Growth response and yields averaged above normal. Light frost singed a few later maturing strains in late September. This nursery was considered good for making strain comparisons.

Cooperator: Howard County Experimental Association.

Soil Type: Cresco Loam.

Fertilizer Application: 40 lbs. K/A.

Soil Analysis: pH, 6.5; OM, Medium; N, 44 lbs./A.; P, 26.0 lbs./A.; K, 159 lbs./A.

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 18. Stands were excellent and plots were kept weed-free. Precipitation was below normal for each month, May thru September, giving a season's average nearly six inches below normal. Temperatures for May through September averaged -0.7° below normal with June and July $+0.7$ and $+2.5^{\circ}$ above normal, respectively. All other months were below normal. Light frost occurred in early October without damage to soybeans. Growth response and yield were above average in spite of drouth. Disease was of little consequence throughout the season. This nursery was considered good for making strain comparisons.

Cooperator: Northwest Iowa Experimental Association.

Soil Type: Primghar Silt Loam.

Fertilizer Application: None.

Soil Analysis: pH, 7.2; OM, Medium to high; N, 52 lbs./A.; P, 17.5 lbs./A.; K, 184 lbs./A.

Kanawha, Iowa. This nursery is located in north central Iowa on level, productive Webster silty clay loam. Planting was completed May 17 on land previously grown to oats. Stands were generally excellent and plots were kept weed-free. There was a heavy bacterial blight in the nursery. During the growing season temperatures averaged -1.7° below normal with most of the cool temperatures occurring in every month from May thru September. Precipitation was above normal in June and deficient (-3.4 inches) for all other months. Yields were considerably above normal. A later than normal frost permitted all strains to mature. Harvesting was completed under good conditions. This nursery was considered very good for making strain comparisons.

Cooperator: Northern Iowa Experimental Association.

Soil Type: Webster Silty Clay Loam.

Fertilizer Application: None.

Soil Analysis: pH, 6.8; OM, High; N, 45.5 lbs./A.; P, 29.0 lbs./A.; K, 101 lbs./A.

Independence, Iowa. This nursery is located in northeast central Iowa on well-drained Kenyon loam, medium in productivity. Planting was completed on May 16. Stands were good and plots were kept weed-free. Temperatures averaged -2.8° below normal for every month except July. Precipitation was above normal ($+1.9$ inches) for all growing months except September (-3.4 inches). Growth, yield, and general response were above normal. Strains were not injured by frost. This nursery was considered good for making strain comparisons.

Cooperator: Carrington-Clyde Experimental Association.

Soil Type: Kenyon Loam.

Fertilizer Application: 40 lbs. K/A.

Soil Analysis: pH, 6.3; OM, Medium; N, 34 lbs./A.; P, 15.5 lbs./A.; K, 103 lbs./A.

Ames, Iowa. This nursery is centrally located on level, medium-productive Nicollet loam. Planting was completed on May 21 with subsequent stands excellent. Temperatures averaged below normal for the growing season (-1.7°), with every month below normal except July. Precipitation for May through September was -3.0 inches below normal with July, August, and September all below normal. Growth, yield, and general response were much above normal due to fertilization and a sunny September. There was a low incidence of diseases. Later than normal frost permitted all strains to mature. Strain comparisons are believed to be good.

Cooperator: Agronomy Farm, Ames, Iowa Agricultural Experiment Station.

Soil Type: Nicollet Loam.

Fertilizer Application: 400 lbs. 0-20-20 fall 1965 plowed under.

Soil Analysis: pH, 5.8; OM, High; N, 45.5 lbs./A.; P, 37.5 lbs./A.; K, 160 lbs./A.

Ottumwa, Iowa. This nursery is in southeastern Iowa on flat, very productive Haig silty clay loam. The nursery was planted May 25. Transplanting resulted in excellent stands and weeds were controlled. Temperatures averaged below normal (-2.4°), with every month except July below normal. Precipitation averaged below normal for every month except May and averaged -5.6 inches below normal for the season. Growth and yield response were near normal even though moisture was deficient. Seed quality was much better than in other years. Killing frost occurred late. Strain comparisons are believed to be good to excellent.

Cooperator: A. E. Newquist.

Soil Type: Haig Silty Clay Loam.

Fertilizer Application: None.

Soil Analysis: pH, 5.9; OM, Medium to High; N, 37.0 lbs./A.; P, 45.0 lbs./A.; K, 184 lbs./A.

Spickard, Missouri. Planting was on May 19. The weather during the growing season was similar to that at Columbia. Stands were not good in one part of the bottom land field and the preliminary tests were abandoned. Giant foxtail was a problem in the bottom land but not on the upland, where there were some broadleaved weeds.

Columbia, Missouri. Date of planting was May 23. Stands were excellent, although a few of the larger seeded lines were a bit thin. Weed control was good. Rainfall was slightly less than normal which was particularly evident during the extremely hot and dry period in July. The soybeans made almost no growth for about two weeks but responded admirably when it finally did rain. Final height was slightly less than normal.

Portageville, Missouri. The Uniform and Preliminary Tests were planted on May 21. The above normal precipitation for May was followed by below normal rainfall in June. Supplemental flood irrigation was applied as necessary to maintain adequate moisture for optimum plant growth. Disease and insect infestations were average for the area. No control measures were required. September was relatively dry and permitted normal maturity before a killing frost occurred.

Cooperator: Delta Research Center.

Soil Type: Salix Silt Loam.

Fertilizer Application: 200 lbs./A. 0-25-25.

Soil Analysis: pH, 5.8 (Mod. Acid); OM, 1.3% (Low); P, 339 (Very high); K, 430 (Very high); Ca, 2800 (High); Mg, 380 (High).

Portage la Prairie, Manitoba, Canada. Above normal temperatures prevailed throughout most of the growing season. Adequate moisture was available at all times resulting in very good yields. Disease and insects were of no significance.

Cooperator: Portage la Prairie Substation.

Soil Type: Riverdale Silty Clay Loam.

Fertilizer Application: None.

Winnipeg, Manitoba, Canada. Monthly precipitation for June and September was below normal while precipitation for July and August was above normal (.67" and 1.38", respectively). The temperature was below normal during the first two weeks of June, slightly above normal in July (1°), below normal in August (1.8°), and above normal in September (1.3°). The preceding crop was barley. Emergence and early growth were reasonably uniform. The distribution of rainfall and the unusually long frost-free period probably favored the later maturing varieties.

Cooperator: University of Manitoba.
Soil Type: Riverdale Silty Clay.
Fertilizer Application: None.

Brandon, Manitoba, Canada. There was good soil moisture in the spring. Weather was cool until the latter part of June and well above average temperatures were recorded throughout the remainder of the season; hence, temperatures were not normal. Precipitation was less than 30 percent of normal in 1966. Rainfall was less than one inch for the April to mid-June period, two inches fell from June 20-23, a dry period extended until the end of July when a further inch was received, and from then until mid-October, sporadic showers totalling one inch were received. In spite of poor weather, the soybeans developed remarkably well.

Cooperator: H. Gross, Experimental Farm.
Soil Type: Assiniboine Clay Loam--Alluvial deposit.

Morden, Manitoba, Canada. These tests were grown on land which had been in brome-grass continuously for the past 10 years. Above normal temperatures prevailed throughout the season starting on May 20, with the exception of about two weeks in mid-August. Moisture was adequate with a total of 13.8 inches for the growing season compared to 14.2 inches as an average for a long-term period. A good portion of this rain fell during July and August when the plants were in greatest need of it. Plant emergence was slow due to cold weather for about 10 days after planting. After the warmer weather came, the crop grew rapidly. Plants were very tall and vigorous and yielded well but not quite as well as anticipated on the basis of plant size. No serious disease or insect problems were encountered.

Cooperator: Morden Experimental Farm.
Soil Type: Altona Light Very Fine Sandy Loam.
Fertilizer Application: None.

Fargo, North Dakota. The two tests at Fargo were considered satisfactory for strain comparisons. The planting on May 25 was somewhat late and emergence was delayed until June. Temperatures at Fargo were below average for May, August, and September but above average for June and July. Precipitation was below average for May, June, and September but slightly above average during July and August. Disease was not a factor affecting the tests. A killing frost occurred September 25 when the strains were essentially mature.

Sisseton, South Dakota. Moisture and temperature conditions were quite favorable with no frost until maturity. Severe infestation of wild mustard in late spring caused some injury but a preemergence application of 3/4 lbs. of Treflan gave excellent control of all other weeds.

Cooperator: A. C. Lunden, South Dakota Agricultural Experiment Station.
Soil Type: Sandy Loam.
Fertilizer Application: None.

Brookings, South Dakota. Moisture conditions were quite favorable during most of the season although drouth stress was evident for two short periods in the summer. Yields were slightly below average for the area but gave good relative comparisons of strains.

Cooperator: South Dakota State University Agricultural Experiment Station.
Soil Type: Vienna Loam.
Fertilizer Application: 100-50-0 lbs./A. fall application on bromegrass sod.

Centerville, South Dakota. Temperature and moisture conditions were quite favorable although cool fall weather delayed maturity. Yields were well above average in spite of weed problems from excessive early summer moisture. Considerable lodging was evident.

Cooperator: Southeast South Dakota Experimental Farm.
Soil Type: Poinsett Sandy Loam.
Fertilizer Application: 40-40-0 lbs./A.

Concord, Nebraska. This test was irrigated (4") on July 15, 1966. Due to dry seed bed conditions at planting time, stands were thinner than desired. No insect nor disease problems were observed.

Cooperator: U. U. Alexander, University of Nebraska Northeast Station.
Soil Type: Judson-Wabash Silty Clay Loam.
Fertilizer Application: None (Corn in 1965 received 120 lbs./A. N and 40 lbs./A. P_2O_5).
Soil Analysis: pH, 6.8; N, 15 ppm (Medium); P, 8 ppm (Low); K, 195 (High).

Lincoln, Nebraska. The tests were planted in a good seed bed on May 16. Excellent stands and early growth were obtained. The early season was marked by deficiencies in precipitation and lower than normal temperatures. Because of periodic drouth and hot weather in late June and July, two irrigations were applied, July 9 and July 22. Poor pod set was noted until August. Normal rainfall and much cooler temperatures prevailed during the remainder of the season. Excellent yields were obtained. Light frost occurred in early October and a freeze on October 16 after most entries, except those of Group IV maturity, had matured.

Cooperator: Nebraska Agricultural Experiment Station.
Soil Type: Colo Silty Clay Loam.
Fertilizer Application: No fertilizer, 2 lbs./A. Amiben preplanted.
Soil Analysis: pH, 5.8; N, Low; P, Very high; K, High.

Powhattan, Kansas. Moisture at planting time was adequate for good stand establishment. A severe hail storm on June 10 caused some damage to all plantings but recovery was excellent. Growing conditions during the remainder of the season were ideal.

Cooperator: Kansas Cornbelt Experiment Field.
Soil Type: Grundy Silty Clay Loam.

Fertilizer Application: None.

Soil Analysis: pH, 5.7; OM, 2.3%; P, 14 lbs./A.; K, 310 lbs./A.

Colby, Kansas. The area used for the Uniform Tests was in soybeans in 1965. Moisture was good at planting time and stands were good in all plots. Rainfall during the 1966 growing season totaled 12.36 inches. Irrigation was applied on July 9, August 5, and September 1. Approximately 15 inches of water was applied. Summer temperatures except for August were near average. August averaged five degrees cooler than normal. The first freeze occurred on October 1. A snow and windstorm on October 14 caused considerable lodging on all soybeans not harvested.

Cooperator: Colby Branch Experiment Station.

Soil Type: Keith Silt Loam.

Fertilizer Application: 100 lbs./A. N.

Manhattan, Kansas. Extremely strong winds (tornado) accompanied by a light rain shower June 8 caused some damage to the Uniform and Preliminary Tests. Only 7.5 inches of precipitation fell from planting time to maturity, but effective rains in late July and August were favorable for plant development. July temperatures were extremely high (average maximum high 95.9°) followed by a cool August (Maximum high average 84.7°). A long dry fall was favorable for harvest. Treflan was applied as a preemergence herbicide and gave good weed control.

Cooperator: Kansas Agricultural Experiment Station.

Soil Type: Unnamed Silt Loam.

Fertilizer Application: None.

Soil Analysis: pH, 6.8; OM, 2.4%; P, 59 lbs./A.; K, 500+ lbs./A.; Ca, Adequate; Mg, Adequate.

Manhattan, Kansas (Irrigated). Soil was dry at planting time, and it was necessary to use sprinkler irrigation to supply moisture for germination. Rainfall during the growing season was less than seven inches; consequently, supplemental irrigation water was applied to produce satisfactory growth. It is possible the irrigation made in early June could have caused severe lodging among some strains. Irrigation dates and amounts follow: June 3, three inches; July 5 and July 15, four inches each--a total of 13 inches. Treflan was used as a preemergence herbicide on all plots and gave good weed control.

Cooperator: Kansas Agricultural Experiment Station.

Soil Type: Sarpy Fine Sandy Loam.

Fertilizer Application: None.

Soil Analysis: pH, 7.0; OM, 1.2%; P, 45 lbs./A.; K, 256 lbs./A.; Ca, Adequate; Mg, Adequate.

Ottawa, Kansas. Moisture was limited in May at time of planting but not sufficient to prevent establishment of good stands for each test. Rainfall in June was ideal for plant growth, but July was hot and dry. Environmental conditions were favorable in August for plant development. Fall rains after plant maturity caused poor quality seed among some strains. The application of Treflan as a preemergence herbicide failed to give good weed control.

Cooperator: Ottawa Experiment Field.

Soil Type: Woodson Silt Loam.

Fertilizer Application: None.

Soil Analysis: pH, 5.8; OM, 2.6%; P, 23 lbs./A.; K, 134 lbs./A.; Ca, Adequate; Mg, Adequate.

Newton, Kansas. Limited moisture at planting time in May caused some reduction in stand. High temperatures, limited precipitation, and low humidity during the entire growing season were unfavorable for plant development. Subsoil moisture was instrumental in plant development. Low humidity and high temperatures in September caused some shattering of early maturing strains.

Cooperator: Newton Experiment Field.

Soil Type: Goessel Silty Clay Loam.

Soil Analysis: pH, 6.0; OM, 2.0%; P, 20 lbs./A.; K, 387 lbs./A.; Ca, Adequate; Mg, Adequate.

Parsons, Kansas. The Uniform Tests were planted on June 16 under favorable weather conditions. Germination was rapid and excellent stands were obtained. Total precipitation during the growing season was about average; however, a period of drouth and high temperatures in late August and early September reduced yields. Growing conditions previously had been ideal. Insects and diseases were not a problem in this test.

Cooperator: Southeast Kansas Branch Experiment Station.

Soil Type: Parsons Silt Loam.

Fertilizer Application: 200 lbs./A. 0-20-20 banded near seed.

Soil Analysis: pH, 6.8; OM, 1.3%; P, 17 lbs./A.; K, 30 lbs./A.

Columbus, Kansas. The Uniform Tests were planted on June 21 under favorable weather conditions. Germination was rapid and excellent stands were secured. Growth during the summer was not interrupted by climatic stress. Precipitation during the growing season was average; however, timely rainfall in August and early September was one of the factors responsible for high yields. Insects and diseases were not a problem in this test.

Cooperator: Southeast Kansas Branch Experiment Station.

Soil Type: Cherokee Silt Loam.

Fertilizer Application: 200 lbs./A. 0-20-20 banded near seed.

Soil Analysis: pH, 6.2; OM, 1.4%; P, 42 lbs./A.; K, 140 lbs./A.

Fruita, Colorado. Environmental conditions on the Western Slope of Colorado were near normal in 1966 and crops made excellent growth. July and August temperatures were high. The soybean plots were irrigated on June 6. The plots received six irrigations (every two weeks) throughout the remaining part of the growing season. Insect and disease infestation were of no consequence in the plots.

Cooperator: C. W. Robinson, Western Slope Branch Station.

Soil Type: Ravalo Fine Sandy Loam.

Fertilizer Application: Residual from previous year.

Soil Analysis: pH, 8.2; OM, 1.2%; P, 123 lbs. P_2O_5 /A. 6 in.; K, 310 lbs. K_2O /A. 6 in.; Soluble Salts: 1.1 Conductivity.

Davis, California. Seed was inoculated with Rhizobium at planting time but nodulation was poor, a probable consequence of about 80 pounds of N being applied to the

experimental area before planting. Plant growth was normal until the latter part of September. At this time severe red spider infestation in Uniform Test I was noted. It is believed that this hastened defoliation and an early maturity in this test. The other tests were infested as well, but not to the same extent. The tests were irrigated on June 24, July 12, July 29, August 12, and September 12. An unusually long, dry season enabled Tests III and IV to reach maturity. Under normal conditions wet, cold weather would not have allowed this.

Cooperator: P. F. Knowles, California Agricultural Experiment Station.

Soil Type: Yolo Silty Clay Loam.

Fertilizer Application: 80 lbs. of N before planting.

Five Points, California. Plant development was affected by a high level of boron in the irrigation water and soil, which caused chlorosis of the leaves. Cabbage loopers, army worms, and red spider mites were controlled by airplane applications of D.D.T., Tepp, and Toxaphene on August 9, August 21, and September 7. The plots were irrigated before seeding and on July 5 (4.5 inches), August 20 (2.4 inches), September 10 (3.0 inches), and September 30 (2.7 inches).

Cooperator: Richard M. Hoover.

Soil Type: Pinoche Clay Loam.

Corcoran, California. The plants grew extremely well and there were no insect nor disease problems. The plots were pre-irrigated and irrigated during the growing season on July 3 and every 14 days thereafter for a total of five irrigations. About 4 inches of water was applied each irrigation.

Cooperator: Audy Bell.

Soil Type: Chino Clay.

Fertilizer Application: None.

