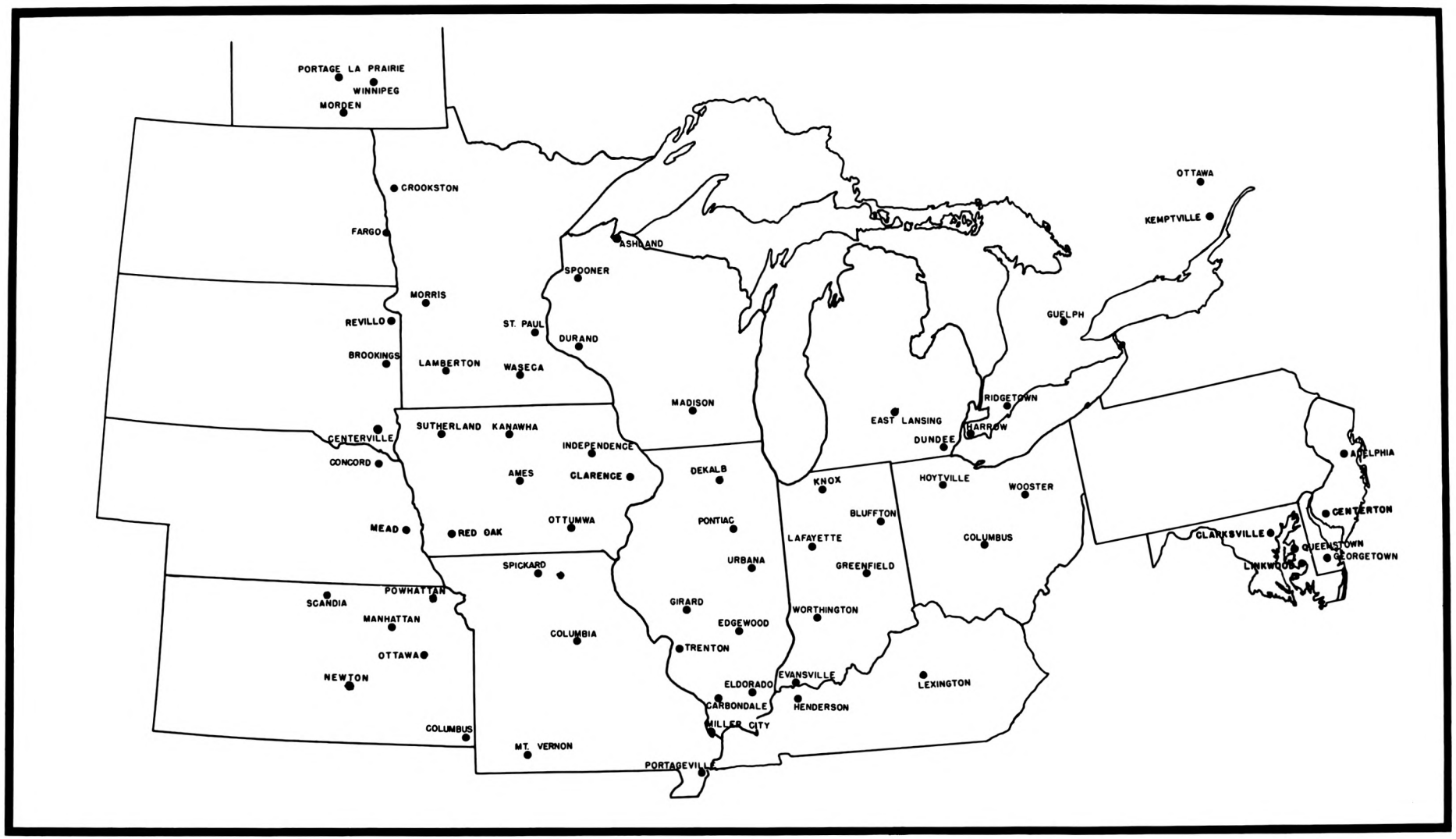

LOCATIONS OF UNIFORM SOYBEAN TESTS, NORTHERN STATES, 1968

THE UNIFORM SOYBEAN TESTS

NORTHERN STATES

1968

RSLM 236

Compiled by:
R. L. Bernard and Ruth E. Lawrence

TABLE OF CONTENTS

Soybean Investigations Personnel 2
Uniform Test Participants 3
Introduction 5
Methods 6
Uniform Test Locations 10
Uniform Test 00 12
Preliminary Test 00 24
Uniform Test 0 29
Preliminary Test 0 42
Uniform Test I 46
Preliminary Test I 62
Uniform Test II 73
Preliminary Test II 96
Uniform Test III 103
Preliminary Test III 114
Uniform Test IV 122
Preliminary Test IV 144
Identification of Parent Strains 152
Growing Conditions 154

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INTRODUCTION

The U. S. Regional Soybean Laboratory conducts research directed toward breeding 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 developed by these researchers.

A test is established 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 include later strains adapted to locations progressively farther south in the North Central States and areas of similar latitude. Each year new selections are added and others that have been sufficiently tested are dropped. The summary of performance of strains in Uniform Tests 00 through IV in the northern states is included in this report. The report on Uniform Tests IVS 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.

METHODS

Uniform Tests are planted in single-row plots with four replications or double-row plots with three replications, either with or without border rows. Preliminary Tests are planted in single or double rod-row plots with two replications. Usually 18 to 20 feet of row are planted and 16 to 17 feet harvested to eliminate end of row effects. Seeds are packeted at a rate of 180 viable seeds per packet.

Parentage. Parent strains other than named varieties are identified in Table 84.

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. 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, Tan = tan
Seed Coat Luster: D = dull, S = shiny, I = intermediate
Seed Coat Color: Y = yellow, G = gray, Lg = light gray
Hilum Color: Bl = black, Ib = imperfect black, Br = brown, Bf = buff, G = gray, Tan = tan, Y = yellow, prefixes indicate light or dark shades as, for example, Lbf = light buff
Peroxidase Activity: H = high, L = low. Classified by R. I. Buzzell, Harrow, Ontario.
Fluorescent Light Response: E = early flowering (about 35 days), L = late flowering (about 70 days) under 20-hour cool white fluorescent photoperiod. Classified by R. I. Buzzell.

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		

Yield is measured after the seeds have been dried to a uniform moisture content and is recorded in bushels (60 pounds) per acre to the nearest tenth. To convert to kilograms per are (or quintals per hectare) multiply by .6725 (1 kg/are = 1.487 bu/acre).

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 date 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 and Preliminary Test except 00. These are not included in the regional mean since data are not available from all locations. Reference and tie varieties for 1968 and the maturity group limits relative to the reference variety are:

Maturity Group	Reference	Group Range	Early Tie	Late Tie
00	Portage	-2 to +6		
0	Merit	-4 to +4	Flambeau (00)	Chippewa 64 (I)
I	Chippewa 64	-2 to +6	Traverse (0)	Harosoy 63 (II)
II	Harosoy 63	-3 to +5	Hark (I)	Wayne (III)
III	Wayne	-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 implied above, but the division between maturity groups can be estimated in proportion 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 (45°), 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 (1 inch equals 2.54 centimeters).

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 damage 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 using the Kjeldahl method and oil percentage is measured using nuclear magnetic resonance. These percentages are expressed on a moisture-free basis.

Disease Reactions are listed according to "Soybean Disease Classification Standards", March 1955, unless otherwise specified. Disease reaction is scored from 1 (healthy) to 5 (heavily infected). 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. Natural infection ratings are from agronomic tests in some instances and from special disease plantings in others. For diseases where it is clearcut, the reaction is given by letter instead of number: R signifies resistant, S stands for susceptible, and I for intermediate, and strains may not be retested each year.

Abbreviation	Disease	Organism
BB	Bacterial blight	*Pseudomonas glycinea*
BBV	Bud blight	Tobacco ringspot virus
BP	Bacterial pustule	*Xanthomonas phaseoli* var. *sojensis*
BS	Brown spot	*Septoria glycines*
BSR	Brown stem rot	*Cephalosporium gregatum*
CN	Cyst nematode	*Heterodora glycines*
DM	Downy mildew	*Peronospora manshurica*
FE_1, FE_2	Frogeye race 1, 2	*Cercospora sojina*
PR	Phytophthora rot	*Phytophthora sojae*
PS	Purple stain	*Cercospora kikuchii*
PSB	Pod and stem blight	*Diaporthe phaseolorum* var. *sojae*
Pyd	Pythium root rot	*Pythium debaryanum*
Pyu	Pythium root rot	*Pythium ultimum*
RK (followed by the initial of the specific nematode)	Root knot nematode	*Meloidogyne* spp.
RR	Rhizoctonia root rot	*Rhizoctonia solani*
SB	Sclerotial blight	*Sclerotium rolfsii*
SC	Stem canker	*Diaporthe phaseolorum* var. *caulivora*
SMV	Soybean mosaic	*Soja* virus 1
TS	Target spot	*Corynespora cassiicola*
WF	Wildfire	*Pseudomonas tabaci*
YMV	Yellow mosaic	*Phaseolus* virus 2

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

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, Ontario
O	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, Manitoba
W	Wisconsin A.E.S. and U.S.R.S.L.

UNIFORM TEST LOCATIONS - 1968

Location	Tests Conducted by	Uniform Tests						Preliminary Tests					
		00	0	I	II	III	IV	00	0	I	II	III	IV
Ont., Ottawa	L. S. Donovan	x						x					
Kemptville	J. D. Curtis	x	x					x	x				
Guelph	D. J. Hume, J. W. Tanner	x	x					x	x				
Ridgetown	A. D. McLaren		x	x	x				x	x	x		
Harrow	L. J. Anderson			x	x	x				x	x		
N. J., Adelphia	J. R. Justin				o	x							
Centerton	"						x						
Del., Georgetown	H. W. Crittenden, R. H. Cole					o	o					o	o
Md., Clarksville	J. A. Schillinger					x	x					x	x
Queenstown	H. G. Vest						x						x
Linkwood	"						x						x
Ohio, Hoytville	P. E. Smith			x	x	x				x	x	x	
Wooster	"			x	x	x				x	x	x	
Columbus	"		x	x	x	x	x			x	x	x	x
Mich., East Lansing	T. J. Johnston		x	x	x				o	x	x		
Dundee	"			x	x								
Ind., Knox	A. H. Probst, J. R. Wilcox			x	x						x		
Bluffton	" "				x	x					o	o	
Lafayette	" "			x	x	x	x				x	x	
Greenfield	" "				x	x							
Worthington	J. R. Wilcox, A. H. Probst				x	x	x					x	x
Evansville	" "					x	x						x
Ky., Lexington	J. F. Shane					x	x						
Henderson	" , S. Brabant					x	x						
Wis., Ashland	G. H. Tenpas	x						x					
Spooner	C. O. Rydberg		x						x				
Durand	J. H. Torrie		x	x									
Madison	"			x	x					x	x		
Ill., DeKalb	R. L. Cooper			x	x					x			
Pontiac	"			x	x						x		
Urbana	R. L. Bernard			x	x	x	x				x	x	
Girard	"				x	x	x				x		
Edgewood	"				x	x	x						
Trenton	"				x	x	x					x	
Eldorado	"				x	x	x					x	x
Carbondale	D. R. Browning				x	x	x						x
Miller City	R. L. Bernard					x	x						
Minn., Crookston	J. W. Lambert	x	x					x					
Morris	"	x	x										
St. Paul	"	x	x	x					x				
Lamberton	"			x	x								
Waseca	"			x	x					x			
Iowa, Sutherland	R. C. Clark, W. R. Fehr			x	x					x			
Kanawha	" "			o	o					o	o		
Clarence	" "				x								
Ames	" "				x	x					x	x	
Ottumwa	" "					x						x	
Red Oak	" "					x						x	
Mo., Spickard (Upland)	V. D. Luedders			x	x	x				x	x	x	
Spickard (Bottomland)	"			o	o	o				o	o	o	

UNIFORM TEST LOCATIONS - 1968 (Continued)

Location	Tests	Conducted by	Uniform Tests 00	0	I	II	III	IV	Preliminary Tests 00	0	I	II	III	IV
Mo., Columbia		V. D. Luedders			x	x	x	x			x	x	x	x
Mt. Vernon		"				x	x	x				x	x	x
Portageville (Loam)		L. A. Duclos					x	x						x
Portageville (Clay)		"					o	x						o
Man., Portage la Prairie		J. E. Giesbrecht	x						x					
Winnipeg		B. R. Stefansson	o						o					
Morden		J. E. Giesbrecht	x						x					
N. D., Fargo		R. E. Bothun	o	o					o	o				
S. D., Revillo		A. O. Lunden		x	x					x	x			
Brookings		"			x	x					x	x		
Centerville		"				x	x					x	x	
Nebr., Concord		J. H. Williams			x	x	x					x	x	
Mead		"			x	x	x	x				x	x	
Kans., Scandia		C. D. Nickell					o	o						
Powhattan		"					x	x					x	x
Manhattan		"					x	x					x	x
Manhattan (Irrig.)		"					x	x					x	x
Ottawa		"					x	x					x	x
Newton		"					x	x						
Columbus		G. L. Kilgore					x	x					x	x
Texas, Lubbock		R. D. Brigham						o						
Cal., Davis		P. F. Knowles, J. E. Dille	x	x	x	x								
Five Points		B. H. Beard	x			x	x	x						
Shafter		"				x	x	x						
Number of locations with agronomic data (x)			11	12	25	36	38	30	7	6	14	20	23	16

Disease and Shattering Tests

Ohio, Castalia		A. F. Schmitthenner			o	o	o	o			o	o	o	o
Hoytville		"			o	o	o	o			o	o	o	o
Wooster		"			o	o	o	o			o	o	o	o
Ind., Lafayette	FE_2,PR	F. A. Laviolette	D	D	D	D	D	D	D	D	D	D	D	D
Worthington	DM	"	D	D	D	D	D	D	D	D	D	D	D	D
Ill., Urbana	BB,BP,BSR	D. W. Chamberlain	D	D	D	D	D	D	D	D	D	D	D	D
Ia., Ames	BB,BP,BSR	J. M. Dunleavy	D	D	D	D	D	D						
Kanawha	BSR	"	D	D	D	D	D	D						
Shipley	BSR	"	D	D	D	D	D	D						
Ames	BB,Py	H. Tachibana	D	D	D	D	D	D	D	D	D	D	D	D
Miss., Stoneville	PR	E. E. Hartwig				D	D	D				D	D	D
"	Shattering	"					S	S					S	S
Ill., Urbana	"	R. L. Bernard	S	o	o	o			S	o	o	o		
Kans., Manhattan	"	C. D. Nickell	S	S	S	S	S	S	S	S	S	S	S	S

x Agronomic test.
o Test failed or data not reported.
D Disease test.
S Shattering test.

UNIFORM TEST 00, 1968

Strain	Parentage	Generation Composited	Previous Testing (years)
1. Altona	052-903 x Flambeau	F_5	4
2. Flambeau	Introduction from Russia	--	10
3. Portage	Acme x Comet	F_5	8
4. CM21	Acme x L48-7289	F_6	P.T. 00
5. CM30	Acme x L48-7289	F_7	P.T. 00
6. CM31	Acme x Monroe	F_7	P.T. 00
7. CM61	Acme x L48-7289	F_9	P.T. 00
8. M55-59	Acme x Chippewa	F_5	P.T. 00
9. M424	Acme x Hardome	F_5	3

Interest in this group has decreased from 1960 when it was grown at twenty locations. This year there were successful tests at nine locations in the north central area, plus two in California. Flambeau is proving to be a difficult variety to beat in average yield, although Altona has nearly equalled it (see four-year summary) and is earlier. M424 has been in the test for four years and has averaged slightly less yield than Altona, but is also slightly earlier. CM30 was the highest strain in yield this year but was only slightly above Altona and Flambeau.

Table 1. Descriptive data and shattering scores, Uniform Test 00, 1968.

Strain	Flower Color	Pubescence Color	Pod Color	Seed Coat Luster	Seed Coat Color	Hilum Color	Peroxidase	Fluor. Light	Shattering: Urbana Ill. 4 weeks	Shattering: Manhattan Kans. 2 wks.	Shattering: Manhattan Kans. 4 wks.
Altona	P	T	Br	S	Y	Bl	H	E	3	1.0	3.8
Flambeau	P	T	Br	S	Y	Bl	H	E	2.5	1.0	4.1
Portage	P	G	Br	D+S	Y	Y	H	E	3.7	3.5	5.0
CM21	P	G	Br	S	Y	G	H+L	E	2	1.0	5.0
CM30	P	G	Br	D	Y	Lib	L	E	2	1.0	5.0
CM31	W	G	Br	D	Y	Y	H	E	1.5	1.0	5.0
CM61	P	G	Br	S	Y	G	H	E	2.2	1.0	5.0
M55-59	P	T	Br	D	Y	Br	L	E	3	1.0	5.0
M424	P	G	Br	S	Y	Y	H	E	1	1.0	3.5

Table 2. Summary of data, Uniform Test 00, 1968.

Strain	Yield	Rank	Maturity[1]	Lodging	Height	Seed Quality	Seed Weight	Seed Composition Protein	Seed Composition Oil
No. of Tests	9	9	7	6	9	8	8	5	5
Altona	27.8	2	+1.9	2.8	26	2.0	19.8	39.3	19.3
Flambeau	27.5	3	+4.7	3.7	28	1.8	17.3	40.3	17.5
Portage	26.9	7	0	1.7	25	2.4	19.0	38.7	19.0
CM21	27.1	6	+4.6	3.0	29	2.8	16.4	38.3	18.0
CM30	28.6	1	+5.7	3.1	28	2.4	19.6	37.5	20.7
CM31	25.0	9	+5.1	2.4	26	2.2	19.1	39.0	19.7
CM61	27.5	3	+5.0	3.0	30	3.0	16.4	38.6	17.9
M55-59	25.4	8	+1.0	3.2	25	1.6	17.3	38.3	19.0
M424	27.2	5	+3.0	2.3	27	1.8	18.3	39.8	19.2

[1]Days earlier (-) or later (+) than Portage which matured September 13, 116 days after planting.

Table 3. Disease data, Uniform Test 00, 1968.

Strain	BB Urbana Ill. n	BB Ames Ia. n-D	BB Ames Ia. n-T	BP Ill. a	BP Ia. a	BSR Urbana Ill. n	BSR Ames Ia. n[1]	BSR Kanawha Ia. n[1]	DM Worthington Ind. n	FE_2 Ind. a	PR Ind. a	Pyd Ia. a	Pyu Ia. a
Altona	3	4	3	1	3	2	85	78	1	3	R	R	S
Flambeau	2	3.5	3	1	4	2	70	63	1	5	S	R	I
Portage	3	4	4	2	3	2	80	73	1	5	S	R	S
CM21	2	4.5	4	2	3	2	70	78	2	5	S	I	S
CM30	3	4.5	3	2	3	2	75	73	2	5	R	I	I
CM31	4	4	3	2	3	2	60	58	1	3	R	S	S
CM61	2	4.5	3	3	3.5	2	70	73	1	5	Seg	S	S
M55-59	3	4	3	1	3	2	55	65	3	4	S	I	S
M424	3	4	4	3	3.5	2	35	43	2	5	S	S	S

[1]Percent infected plants.

Table 4. Yield and yield rank, Uniform Test 00, 1968.

Strain	Mean of 9 Tests	Ontario			Wisconsin	Minnesota
		Ottawa	Kempt-ville	Guelph	Ashland	Crookston
Altona	27.8	32.4	32.8	28.6	21.4	19.3
Flambeau	27.5	33.1	37.2	30.0	23.0	22.9
Portage	26.9	31.5	35.5	29.1	19.7	18.9
CM21	27.1	31.7	35.0	28.5	18.9	17.3
CM30	28.6	34.6	34.7	29.6	20.4	20.5
CM31	25.0	31.3	31.8	25.4	17.9	16.0
CM61	27.5	33.5	35.7	30.8	18.8	20.8
M55-59	25.4	33.3	30.4	26.5	18.6	17.4
M424	27.2	34.4	39.8	28.3	19.5	15.7
Coef. of Var. (%)		8.2	12.3	9.7	16.2	12.9
L.S.D. (5%)		N.S.	6.2	4.0	N.S.	3.5
Row Spacing (In.)		36	14	24	24	24

	Yield Rank					
Altona	2	6	7	5	2	4
Flambeau	3	5	2	2	1	1
Portage	7	8	4	4	4	5
CM21	6	7	5	6	6	7
CM30	1	1	6	3	3	3
CM31	9	9	8	9	9	8
CM61	3	3	3	1	7	2
M55-59	8	4	9	8	8	6
M424	5	2	1	7	5	9

*Not included in the mean.
[1]Irrigated.

Table 4. (Continued)

Strain	Minnesota		Manitoba		California[1]	
	Morris	St. Paul	Portage la Prairie	Morden	Davis *	Five Points *
Altona	21.3	40.5	27.3	26.4	20.8	15.8
Flambeau	22.2	41.0	15.4	22.3	21.9	15.2
Portage	19.6	40.0	23.7	24.0	23.1	16.7
CM21	22.2	41.6	21.3	27.5	26.5	17.4
CM30	20.6	40.1	28.7	28.3	26.8	19.2
CM31	17.2	38.0	23.5	24.2	28.2	17.7
CM61	20.0	39.9	22.1	26.0	28.2	17.9
M55-59	17.5	38.7	20.8	25.5	25.1	17.5
M424	18.1	37.2	24.0	28.1	20.5	16.4
Coef. of Var. (%)	11.3	7.0	17.9	9.8	--	14.0
L.S.D. (5%)	3.3	4.1	6.9	3.7	--	N.S.
Row Spacing (In.)	30	30	36	30	30	30

	Yield Rank					
Altona	3	3	2	4	8	8
Flambeau	1	2	9	9	7	9
Portage	6	5	4	8	6	6
CM21	1	1	7	3	4	5
CM30	4	4	1	1	3	1
CM31	9	8	5	7	1	3
CM61	5	6	6	5	1	2
M55-59	8	7	8	6	5	4
M424	7	9	3	2	9	7

Table 5. Maturity dates, Uniform Test 00, 1968.

Strain	Mean of 7 Tests	Ontario			Wisconsin
		Ottawa	Kempt-ville	Guelph	Ashland
Altona	+1.9	+1	0	- 2	+5
Flambeau	+4.7	+3	+ 6	+ 4	+5
Portage	0	0	0	0	0
CM21	+4.6	+3	0	+14	+4
CM30	+5.7	+4	+ 8	+ 4	+9
CM31	+5.1	+3	+10	+ 5	+4
CM61	+5.0	+3	+ 1	+15	+5
M55-59	+1.0	+1	0	- 4	+3
M424	+3.0	+2	+ 4	0	+5
Date planted	5-20	5-15	5-23	5-31	5-23
Portage matured	9-13	9-10	9-10	9-24	9-19
Days to mature	116	118	110	116	119

*Not included in the mean.
[1]Irrigated.

Table 5. (Continued)

Strain	Minnesota			Manitoba	California[1]
	Crookston	Morris	St. Paul	Morden	Davis
				*	*
Altona	+2	+5	+2	+10	0
Flambeau	+6	+5	+4	--	0
Portage	0	0	0	0	0
CM21	+3	+5	+3	+11	0
CM30	+7	+5	+3	+ 7	0
CM31	+3	+7	+4	+ 8	0
CM61	+2	+5	+4	+11	+3
M55-59	+2	+4	+1	+ 7	0
M424	+3	+5	+2	+ 3	0
Date planted	5-28	5-20	5-1	5-13	6-18
Portage matured	9-25	8-30	9-2	9-21	9-20
Days to mature	120	102	124	131	94

Table 6. Lodging scores and plant height, Uniform Test 00, 1968.

Strain	Mean of 6 Tests	Ontario			Wisconsin	Minnesota
		Ottawa	Kempt-ville	Guelph	Ashland	Crookston
					*	*
Altona	2.8	1.0	1.5	2.0	1.0	1.0
Flambeau	3.7	2.0	2.3	2.8	1.0	1.0
Portage	1.7	1.0	1.3	1.8	1.0	1.0
CM21	3.0	1.0	2.8	2.8	1.0	1.0
CM30	3.1	2.0	2.5	3.0	1.0	1.0
CM31	2.4	1.0	1.5	2.0	1.0	1.0
CM61	3.0	1.0	3.0	2.8	1.0	1.0
M55-59	3.2	1.0	3.0	4.0	1.0	1.0
M424	2.3	1.0	2.5	1.3	1.0	1.0
	Mean of 9 Tests	Plant Height				
Altona	26	24	32	27	18	24
Flambeau	28	25	32	27	20	27
Portage	25	24	32	25	19	21
CM21	29	29	37	29	19	24
CM30	28	27	33	29	20	25
CM31	26	25	34	26	18	22
CM61	30	31	37	30	19	27
M55-59	25	24	30	25	18	24
M424	27	27	35	28	17	23

*Not included in the mean.
[1]Irrigated.

Table 6. (Continued)

Strain	Minnesota		Manitoba		California[1]	
	Morris	St. Paul	Portage la Prairie	Morden	Davis	Five Points
	*				*	*
Altona	1.0	4.0	4.3	3.8	2.0	3.0
Flambeau	1.0	4.8	5.0	5.0	3.0	3.0
Portage	1.0	2.2	2.5	1.5	1.0	1.0
CM21	1.0	4.0	4.5	2.8	2.0	2.0
CM30	1.0	3.2	4.3	3.3	3.0	2.0
CM31	1.0	3.2	4.3	2.3	2.0	3.0
CM61	1.0	4.0	4.0	3.0	2.0	2.0
M55-59	1.0	3.5	4.3	3.3	2.0	1.0
M424	1.0	3.5	3.0	2.5	2.0	3.0
	Plant Height					
					*	*
Altona	19	31	34	27	33	32
Flambeau	21	34	35	34	32	29
Portage	18	29	29	27	34	33
CM21	20	38	34	33	34	36
CM30	19	34	33	30	34	37
CM31	19	32	34	28	35	39
CM61	21	39	36	34	37	37
M55-59	18	30	32	28	34	32
M424	19	32	30	28	30	33

Table 7. Seed quality scores and seed weight, Uniform Test 00, 1968.

Strain	Mean of 8 Tests	Ontario			Wisconsin	Minnesota
		Ottawa	Kempt-ville	Guelph	Ashland	Crookston
Altona	2.0	2.0	2.0	2.0	1.0	2.5
Flambeau	1.8	2.0	1.0	2.0	1.0	2.5
Portage	2.4	2.0	4.0	3.0	2.0	2.0
CM21	2.8	3.0	2.0	3.0	3.0	3.0
CM30	2.4	2.0	3.0	2.0	2.0	2.8
CM31	2.2	1.0	3.0	3.0	2.0	2.0
CM61	3.0	4.0	3.0	3.0	2.0	2.5
M55-59	1.6	1.0	1.0	2.0	1.0	1.5
M424	1.8	2.0	2.0	2.0	1.0	2.2
	Mean of 8 Tests	Seed Weight				
Altona	19.8	22.4	22.9	18.8		19.5
Flambeau	17.3	20.9	19.4	16.7		16.0
Portage	19.0	22.4	21.3	18.8		19.1
CM21	16.4	21.4	16.9	16.6		15.0
CM30	19.6	24.7	23.5	17.7		21.0
CM31	19.1	23.1	21.8	19.0		18.3
CM61	16.4	20.7	16.8	17.2		15.4
M55-59	17.3	20.9	19.0	16.4		18.0
M424	18.3	22.4	20.7	17.4		17.4

*Not included in the mean.
[1]Irrigated.

Table 7. (Continued)

Strain	Minnesota		Manitoba		California[1]	
	Morris	St. Paul	Portage la Prairie	Morden	Davis	Five Points
					*	*
Altona	1.8	2.5		2.3	2.0	4.0
Flambeau	1.5	2.5		2.0	2.0	4.0
Portage	1.8	2.2		2.5	2.0	3.0
CM21	2.2	2.5		3.8	4.0	3.0
CM30	3.2	2.5		2.0	3.0	5.0
CM31	2.5	2.2		2.0	2.0	3.0
CM61	3.0	2.5		4.0	3.0	3.0
M55-59	1.5	2.5		2.0	2.0	3.0
M424	1.8	2.2		1.5	3.0	4.0
	Seed Weight					
					*	*
Altona	17.7	19.4	19.0	18.4	21.5	16.4
Flambeau	16.6	17.3	15.0	16.7	15.5	15.4
Portage	17.2	18.1	17.0	18.1	13.5	17.5
CM21	16.5	16.4	12.0	16.1	13.2	16.4
CM30	16.7	18.9	16.0	18.4	17.5	18.6
CM31	18.0	18.2	16.0	18.5	14.7	17.3
CM61	15.9	16.6	12.0	16.2	10.9	17.2
M55-59	16.7	18.6	12.0	17.0	13.6	15.9
M424	16.7	18.3	16.0	17.4	12.2	16.3

Table 8. Percentages of protein and oil, Uniform Test 00, 1968.

Strain	Mean of 5 Tests	Ontario		Wisconsin	Minnesota	Manitoba
		Ottawa	Guelph	Ashland	Crookston	Morden
Altona	39.3	41.9	39.3	40.6	37.0	37.6
Flambeau	40.3	43.6	40.9	41.7	35.6	39.9
Portage	38.7	42.0	40.0	39.1	35.6	36.9
CM21	38.3	41.6	39.2	39.5	33.4	37.8
CM30	37.5	41.4	36.3	37.1	34.1	38.6
CM31	39.0	41.4	40.0	39.6	36.4	37.6
CM61	38.6	41.6	40.7	38.5	34.4	38.0
M55-59	38.3	41.5	38.1	39.7	34.4	37.9
M424	39.8	42.5	41.1	39.7	36.9	38.6
	Mean of 5 Tests	Percentage of Oil				
Altona	19.3	19.7	20.1	18.5	19.6	18.6
Flambeau	17.5	17.9	17.8	17.0	18.6	16.2
Portage	19.0	19.7	18.4	18.4	19.6	19.0
CM21	18.0	18.8	17.6	18.0	18.9	16.9
CM30	20.7	21.2	20.5	20.6	20.8	20.5
CM31	19.7	19.8	19.2	18.9	20.4	20.1
CM61	17.9	18.3	17.2	18.0	18.4	17.4
M55-59	19.0	19.3	19.5	18.6	19.4	18.2
M424	19.2	19.8	18.8	19.0	19.6	18.6

Table 9. Four-year summary of data, Uniform Test 00, 1965-1968.

Strain	Yield	Rank	Maturity[1]	Lodging	Height	Seed Quality	Seed Weight	Seed Composition Protein	Seed Composition Oil
No. of Tests	35	35	28	25	35	30	30	20	20
Altona	28.0	2	+4.3	2.4	28	2.5	18.0	39.6	19.7
Flambeau	28.6	1	+7.1	3.3	30	2.4	16.1	40.7	18.3
Portage	26.4	4	0	1.6	27	2.3	17.6	38.6	19.6
M424	27.5	3	+2.9	2.2	28	2.2	16.7	39.2	19.8

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

Table 10. Four-year summary of yield and yield rank, Uniform Test 00, 1965-1968.

Strain	Mean of 35 Tests	Ontario			Wis.	Minnesota			Manitoba		
		Ottawa	Kemptville	Guelph	Ashland	Crookston	Morris	St. Paul	Portage la Prairie	Winnipeg	Morden
Years Tested		1967-1968	1967-1968	1966-1968	1965-1968	1965-1968	1966-1968	1965-66, 1968	1965-1968	1965-1967	1965-1968
Altona	28.0	30.6	41.1	32.9	24.6	17.4	23.7	36.4	29.0	25.2	27.4
Flambeau	28.6	31.9	39.3	33.9	21.2	21.0	25.7	40.3	21.9	25.8	27.6
Portage	26.4	28.4	40.0	32.0	21.6	16.4	22.3	34.3	28.5	22.4	25.6
M424	27.5	31.1	42.6	33.0	20.9	18.4	21.8	35.7	27.9	22.9	27.2
	Yield Rank										
Altona	2	3	2	3	1	3	2	2	1	2	2
Flambeau	1	1	4	1	3	1	1	1	4	1	1
Portage	4	4	3	4	2	4	3	4	2	4	4
M424	3	2	1	2	4	2	4	3	3	3	3

PRELIMINARY TEST 00, 1968

Strain	Parentage	Generation Composited	Previous Testing
1. Flambeau			
2. Portage			
3. CM28	Acme x L48-7289	F_7	
4. CM29	Acme x L48-7289	F_7	P.T. 00
5. CM53	Acme x L48-7289	F_6	
6. CM54	UM3 x 057-2921	F_7	P.T. 0
7. CM57	Acme x Monroe	F_8	P.T. 0
8. CM59	PI 257.438 selection	--	P.T. 0
9. CM70	Crest x L48-7289	F_9	P.T. 0
10. CM72	H24088 x Crest	F_9	P.T. 0
11. CM79	Acme x L48-7289	F_9	

This test consists of nine selections from the breeding program at Morden, plus Flambeau and Portage as check varieties. CM53 was the outstanding strain in yield, ranking well at all locations, but it averaged less than a bushel better than Flambeau. CM29 also performed well for its maturity. The remaining strains showed no advantage over the checks in yield, and several were quite late for this group and should probably be classified as Group 0.

Table 11. Descriptive data and shattering scores, Preliminary Test 00, 1968.

Strain	Flower Color	Pubescence Color	Pod Color	Seed Coat Luster	Seed Coat Color	Hilum Color	Shattering: Urbana Ill. 4 weeks	Shattering: Manhattan Kans. 2 wks.	Shattering: Manhattan Kans. 4 wks.
Flambeau	P	T	Br	S	Y	Bl	2	1.0	3.0
Portage	P	G	Br	D+S	Y	Y	5	2.8	5.0
CM28	P	G	Br	S	Y	Ib	2	1.0	4.8
CM29	P	G	Br	S	Y	Y	2	2.2	4.6
CM53	P	G	Br	S	Y	G	2.5	1.0	5.0
CM54	P	G	Br+Tan	I	Y	Bf+Y[1]	1.5	1.0	5.0
CM57	P	G	Br	S	Y	Bf[2]+Y	1	1.0	4.2
CM59	W	T	Br	S	Y	Br	1	1.0	4.0
CM70	W	T	Br	S	G	G	1	1.0	2.8
CM72	W	T	Br	S	G	G	1	1.0	3.0
CM79	P	G	Br	D	Y	Ib	3	1.0	5.0

[1]Segregating hilum with imperfect abscission.
[2]Minute hilum.

Table 12. Summary of data, Preliminary Test 00, 1968.

Strain	Yield	Rank	Maturity[1]	Lodging	Height	Seed Quality	Seed Weight	Seed Composition Protein	Seed Composition Oil
No. of Tests	6	6	3	4	6	5	5	4	4
Flambeau	27.5	2	+ 6.7	3.1	29	2.1	16.9	40.3	18.4
Portage	26.5	4	0	1.4	26	1.8	19.1	38.5	19.4
CM28	20.5	11	+ 4.3	3.1	28	2.3	15.2	38.6	19.8
CM29	26.4	5	+ 5.0	3.3	29	2.7	19.2	39.4	19.6
CM53	28.2	1	+ 4.0	2.6	30	2.2	16.3	38.9	18.7
CM54	25.4	6	+10.0	3.0	29	1.8	15.4	39.5	18.6
CM57	22.8	9	+15.7	2.3	28	1.8	21.5	39.9	19.6
CM59	24.3	8	+11.3	1.6	27	2.1	17.1	40.7	18.8
CM70	22.1	10	+ 9.0	2.3	29	3.0	19.0	40.8	19.1
CM72	25.1	7	+ 8.3	2.3	28	3.1	18.4	39.9	19.6
CM79	26.6	3	+ 8.3	2.8	28	1.6	17.6	37.7	20.5

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

Table 13. Disease data, Preliminary Test 00, 1968.

Strain	BB Urbana Ill. n	BB Ames Ia. n-T	BP Ill. a	BSR Urbana Ill. n	DM Worthington Ind. n	FE_2 Ind. a	PR Ind. a	Pyd Ia. a	Pyu Ia. a
Flambeau	2	3	2	2	1	5	S	I	I
Portage	3	4	2	2	1	5	S	I	S
CM28	3	4	3	2	2	5	S	S	I
CM29	2	3	3	2	1	5	S	R	I
CM53	2	3	3	2	2	5	S	I	S
CM54	2	3	3	2	1	2	R	I	I
CM57	4	3	3	2	3	5	R	R	R
CM59	3	3	1	2	2	4	S	I	I
CM70	3	4	1	2	2	3	Seg	R	--
CM72	4	3	1	2	1	4	Seg	I	I
CM79	3	4	2	2	4	4	S	I	R

Table 14. Yield and yield rank, Preliminary Test 00, 1968.

Strain	Mean of 6 Tests	Ontario			Wisconsin	Minnesota	Manitoba	
		Ottawa	Kempt-ville	Guelph	Ashland	Crookston	Portage la Prairie	Morden *
Flambeau	27.5	39.1	34.1	29.2	21.2	20.9	20.5	20.6
Portage	26.5	36.3	38.1	28.1	14.3	17.1	25.1	28.0
CM28	20.5	34.7	32.5	20.4	8.8	7.8	19.0	8.3
CM29	26.4	32.3	34.1	30.9	16.1	19.6	25.4	21.7
CM53	28.2	40.5	38.1	27.5	19.0	19.8	24.5	26.5
CM54	25.4	38.9	39.6	27.4	9.7	19.1	17.7	15.9
CM57	22.8	32.9	26.7	27.3	14.1	17.3	16.5	11.1
CM59	24.3	32.5	35.9	26.6	14.5	17.7	16.4	14.9
CM70	22.1	35.1	24.6	26.3	14.3	12.4	20.1	16.1
CM72	25.1	34.9	38.9	26.2	14.9	17.7	17.7	20.6
CM79	26.6	39.0	33.4	25.5	15.6	18.7	27.4	22.6
Coef. of Var. (%)		11.9	6.4	10.0	12.0	17.6	13.6	20.5
L.S.D. (5%)		N.S.	4.8	6.9	3.9	6.2	2.2	8.6
Row Spacing (In.)		36	14	24	24	24	36	30

	Yield Rank							
Flambeau	2	2	6	2	1	1	5	5
Portage	4	5	3	3	7	9	3	1
CM28	11	8	9	11	11	11	7	11
CM29	5	11	6	1	3	3	2	4
CM53	1	1	3	4	2	2	4	2
CM54	6	4	1	5	10	4	10	8
CM57	9	9	10	6	9	8	8	10
CM59	8	10	5	7	6	6	9	9
CM70	10	6	11	8	7	10	6	7
CM72	7	7	2	9	5	6	10	5
CM79	3	3	8	10	4	5	1	3

*Not included in the mean.

Table 15. Maturity dates, Preliminary Test 00, 1968.

Strain	Mean of 3 Tests	Ontario Kempt-ville	Ontario Guelph	Wisconsin Ashland	Minnesota Crookston *	Manitoba Morden *
Flambeau	+ 6.7	+ 7	+ 8	+ 5	+7	--
Portage	0	0	0	0	0	0
CM28	+ 4.3	+ 7	+ 6	0	+5	--
CM29	+ 5.0	+ 7	+ 4	+ 4	+8	--
CM53	+ 4.0	+ 5	+ 4	+ 3	--	--
CM54	+10.0	+11	+10	+ 9	--	--
CM57	+15.7	+14	+23	+10	--	--
CM59	+11.3	+ 8	+14	+12	--	--
CM70	+ 9.0	+ 9	+10	+ 8	--	--
CM72	+ 8.3	+ 6	+11	+ 8	--	--
CM79	+ 8.3	+10	+ 9	+ 6	--	+8
Date planted	5-28	5-23	5-31	5-23	5-28	5-13
Portage matured	9-16	9-10	9-19	9-18	9-24	9-24
Days to mature	113	110	111	118	119	134

*Not included in the mean. Missing dates due to frost before maturity.

UNIFORM TEST C, 1968

Strain	Parentage	Generation Composited	Previous Testing (years)
1. Clay (M393)	Capital x Renville	F_5	1
2. Grant	Lincoln x Seneca	F_6	18
3. Merit	Blackhawk x Capital	F_8	10
4. Traverse	Lincoln x Mandarin (Ottawa)	F_5	4
5. M55-130	Acme x Chippewa	F_5	P.T. 0
6. M58-14	(M10 x PI 194633) x Chippewa	F_5	1
7. M59-100	II-54-139 x II-54-232	F_5	P.T. 00
8. M59-109	II-54-139 x II-54-232	F_5	P.T. 0
9. M59-121	II-54-240 x II-54-139	F_5	P.T. 0
10. M391-4	Capital x Renville	F_5	1
11. W3S-177	WCS-3386 x Clark	F_5	1
12. W3S-179	WCS-3386 x Clark	F_5	P.T. 0
13. W3S-184	WCS-3386 x Clark	F_5	P.T. 0
14. W3S-236	WCS-3386 x Clark	F_5	1
15. W4S-202	Hardome x Chippewa	F_5	P.T. 0
16. W4S-209	Seneca x WCS-3386	F_6	1

Of the twelve entries in this test, five are in for the second year and the remaining seven were advanced from last year's Preliminary Test C or CC. Two of the new entries, W3S-184 and M59-121, yielded appreciably higher than Grant and Traverse. These also are among the tallest growing varieties in this group, which should be advantageous in the northern areas where this group is grown. Among the earlier strains, M55-130 and M58-14 were the best in regional performance, outyielding the early check, Clay, but averaging somewhat later in maturity. M58-14 was also in Uniform Test C last year but performed relatively better this year. This is the first year that the new variety, Clay, has been tested under its variety name.

CLAY

Clay is an F_4 plant progeny selected by J. W. Lambert in Minnesota. A detailed outline of its origin and development is given below:

1953 - Cross Renville x Capital made at St. Paul by J. W. Lambert.

1954 - F_1 hybrid grown in field at St. Paul.

1955 - F_2 population grown in field at St. Paul, individual plant selections made.

1956 & 1957 - F_3 and F_4 plant rows grown at Rosemount. Selection on row and plant basis.

1958 - F_5 plant rows grown at Rosemount. Whole rows selected and bulked. Row 2793 was designated II-54-53.

1959 & 1960 - F_6 and F_7 - II-54-53 tested in replicated rod rows at St. Paul and Morris.

1961 - II-54-53 tested in "Combine" plots at Morris. Several individual plants harvested.

1962 - II-54-53 tested in replicated rod rows at Morris and Crookston. Eleven plant progenies grown in 10-foot rows at Rosemount. Eight uniform-appearing rows bulked to provide seed for increase.

1963 - II-54-53 tested in "Combine" plots at Morris and Crookston. Increase of bulked progenies at Rosemount.

1964 - II-54-53 designated as M393 and entered in Uniform Preliminary Test 0. Also tested in "Combine" plots at Morris and Crookston.

1965 - M393 in Uniform Test 0 and in replicated "Combine" tests at Morris and Crookston.

1966 - M393 switched to Uniform Test 00 and tested in "Combine" plots at Rosemount, Morris, Moorhead, and Crookston. Seed supply increased to 32 bushels by the Agronomy Seedstocks Organization. Seven bushels of seed allotted to North Dakota, 3 bushels to South Dakota.

1967 - M393 returned to Uniform Test 0. Also tested in "Combine" plots at Rosemount, Morris, Moorhead, and Crookston. Seed increased by Agronomy Seedstocks and by other states.

1968 - M393 named Clay and released to registered and certified seed growers in three states.

Table 16. Descriptive data and shattering scores, Uniform Test 0, 1968.

Strain	Flower Color	Pubescence Color	Pod Color	Seed Coat Luster	Seed Coat Color	Hilum Color	Peroxidase	Fluor. Light	Shattering Manhattan Kans. 2 wks.	Shattering Manhattan Kans. 4 wks.
Clay	P	G	Br	S	Y	Y	H+L	E	3.0	3.7
Grant	W	Lt	Br	S	Y	Bl	L	L	4.6	5.0
Merit	W	G	Br	D	Y	Bf	L	E	3.3	4.2
Traverse	W	G	Br	S	Y	Y	H	L	4.4	5.0
M55-130	P	G	Br	S	Y	G	H+L	E	4.0	5.0
M58-14	P	T	Br	S+D	Y	Bl	L	E	5.0	5.0
M59-100	W	G	Br	D	Y	Y	H	E	2.2	3.4
M59-109	W	G	Br	D	Y	Y	H	E	3.0	3.4
M59-121	W	T	Br	D	Y	Bl[1]	H	E	4.6	5.0
M391-4	P	T	Br	D	Y	Y	H	E	3.8	4.6
W3S-177	P	T	Br	S	Y	Bl	H	E	2.7	4.8
W3S-179	P	T	Br	D	G	Bl	H+L	L	1.0	3.7
W3S-184	P	T	Br	D	G	Bl	H+L	L	3.0	3.4
W3S-236	W	T	Br	S	Y	Bl	L	L	3.6	5.0
W4S-202	P	T	Br	S+D	Y	Bl	H+L	E	1.0	4.0
W4S-209	W	Lt	Br	D	Y	Bl	L	L	4.4	5.0

[1]Oval hilum.

Table 17. Summary of data, Uniform Test 0, 1968.

Strain	Yield	Rank	Maturity[1]	Lodging	Height	Seed Quality	Seed Weight	Seed Composition Protein	Seed Composition Oil
No. of Tests	8	8	8	6	7	6	4	4	4
Clay	33.6	13	-4.4	1.6	26	1.9	17.0	40.2	21.1
Grant	36.1	5	+1.1	2.4	30	1.6	16.7	40.0	19.7
Merit	35.0	10	0	2.0	32	2.0	14.6	39.4	20.6
Traverse	36.2	4	+2.9	2.4	31	1.9	18.0	40.7	19.8
M55-130	35.4	6	-2.4	2.1	31	1.7	15.0	41.4	18.9
M58-14	35.4	6	-2.6	1.6	31	1.4	15.6	40.7	19.2
M59-100	30.4	16	-2.3	1.5	27	1.4	16.6	39.0	21.1
M59-109	36.6	3	+3.6	2.7	31	1.6	16.1	37.6	21.6
M59-121	38.0	2	+0.8	2.4	33	1.6	16.3	38.2	20.8
M391-4	34.5	11	-0.3	1.8	30	1.8	17.1	39.7	20.8
W3S-177	33.6	13	0	2.2	33	1.7	15.1	40.5	19.7
W3S-179	35.3	8	+3.3	2.3	33	1.6	15.2	40.1	19.5
W3S-184	38.7	1	+3.6	2.1	34	1.8	15.2	40.6	19.7
W3S-236	33.7	12	-2.3	2.2	31	1.7	15.4	41.4	19.1
W4S-202	35.1	9	+1.3	1.9	33	1.7	14.6	40.0	19.9
W4S-209	33.3	15	-1.9	2.8	30	1.3	16.4	41.1	19.5

[1]Days earlier (-) or later (+) than Merit which matured September 21, 124 days after planting.

Table 18. Disease data, Uniform Test 0, 1968.

Strain	BB			BP		BSR			DM	FE2	PR	Pyd	Pyu
	Urbana	Ames				Urbana	Ames	Kanawha	Worthington				
	Ill.	Ia.	Ia.	Ill.	Ia.	Ill.	Ia.	Ia.	Ind.	Ind.	Ind.	Ia.	Ia.
	n	n-D	n-T	a	a	n	n[1]	n[1]	n	a	a	a	a
Clay	3	3.5	3	3	3.5	2	60	65	3	5	S	I	S
Grant	3	3.5	3	2	4.5	3	70	85	2	5	S	S	S
Merit	2	3.5	3	2	4	3	50	68	4	5	R	S	S
Traverse	2	4.5	3	2	4	2	80	78	1	4	S	S	S
M55-130	2	4.5	3	4	4.5	2	65	80	2	5	Seg	S	S
M58-14	1	4.5	3	2	4	3	75	85	1	4	S	I	S
M59-100	2	4.5	3	1	3	2	65	75	3	5	S	S	S
M59-109	1	4.5	3	3	3.5	2	60	75	3	3	S	S	S
M59-121	1	4.5	3	4	4	2	55	75	2	5	S	I	I
M391-4	2	4.5	3	3	4	2	75	78	3	5	S	I	S
W3S-177	2	3.5	2	2	4	3	70	60	3	5	S	S	S
W3S-179	2	4.5	2	2	4	2	30	63	3	4	S	S	S
W3S-184	1	4.5	3	3	4	3	80	88	3	5	S	S	S
W3S-236	2	4	3	2	4	4	55	68	1	5	S	I	S
W4S-202	1	4	2	2	4.5	2	70	73	2	5	S	I	S
W4S-209	1	4	2	2	4	3	25	60	3	5	S	I	S

[1]Percent infected plants.

Table 19. Yield and yield rank, Uniform Test 0, 1968.

Strain	Mean of 8 Tests	Ontario			Ohio	Michigan
		Kemptville	Guelph	Ridgetown	Columbus	East Lansing
					*	*
Clay	33.6	36.4	27.1	48.4	2.9	30.4
Grant	36.1	47.1	32.6	56.2	3.9	31.0
Merit	35.0	45.3	28.0	51.5	2.9	23.5
Traverse	36.2	47.3	33.4	53.5	11.4	32.4
M55-130	35.4	42.6	32.0	49.5	12.5	30.4
M58-14	35.4	44.1	33.2	48.6	4.9	27.0
M59-100	30.4	32.6	24.2	46.1	3.5	17.0
M59-109	36.6	49.1	27.2	54.7	3.5	29.0
M59-121	38.0	49.6	28.2	57.8	12.1	32.5
M391-4	34.5	38.7	27.6	52.0	4.0	26.4
W3S-177	33.6	40.3	31.2	52.5	9.8	32.0
W3S-179	35.3	43.6	28.8	55.0	8.5	32.0
W3S-184	38.7	48.2	33.8	55.1	11.7	31.0
W3S-236	33.7	40.3	30.8	49.1	6.0	29.5
W4S-202	35.1	43.8	29.8	50.8	9.4	30.0
W4S-209	33.3	39.2	27.7	54.6	2.9	23.0
Coef. of Var. (%)		13.0	11.2	6.8	--	19.0
L.S.D. (5%)		8.0	4.8	5.1	--	7.6
Row Spacing (In.)		14	24	24	28	28
	Yield Rank					
Clay	13	15	15	15	14	7
Grant	5	5	4	2	11	5
Merit	10	6	11	10	14	14
Traverse	4	4	2	7	4	2
M55-130	6	10	5	12	1	7
M58-14	6	7	3	14	9	12
M59-100	16	16	16	16	12	16
M59-109	3	2	14	5	12	11
M59-121	2	1	10	1	2	1
M391-4	11	14	13	9	10	13
W3S-177	13	11	6	8	5	3
W3S-179	8	9	9	4	7	3
W3S-184	1	3	1	3	3	5
W3S-236	12	11	7	13	8	10
W4S-202	9	8	8	11	6	9
W4S-209	15	13	12	6	14	15

*Not included in the mean.
[1]Irrigated.

Table 19. (Continued)

Strain	Wisconsin		Minnesota			South Dakota	California[1]
	Spooner	Durand	Crookston	Morris	St. Paul	Revillo	Davis
			*				*
Clay	28.7	26.4	23.3	24.5	38.9	38.0	23.6
Grant	32.1	25.4	17.9	23.9	32.1	39.4	23.4
Merit	29.8	26.8	18.0	25.2	37.5	35.6	36.7
Traverse	31.0	26.6	16.9	23.7	37.8	36.2	25.7
M55-130	27.6	26.8	17.7	25.5	39.6	39.7	31.5
M58-14	31.6	25.4	20.1	21.8	40.3	38.1	23.3
M59-100	25.0	24.9	20.0	20.2	36.0	33.9	19.8
M59-109	32.9	25.0	10.8	25.8	36.9	41.5	27.4
M59-121	32.2	28.8	19.1	25.5	41.3	40.6	24.5
M391-4	30.9	24.1	17.7	24.4	38.2	40.1	14.9
W3S-177	31.0	23.6	15.9	21.4	34.4	34.3	29.8
W3S-179	35.7	23.3	6.6	23.5	34.7	37.5	29.9
W3S-184	36.9	26.3	5.3	26.4	41.5	41.0	22.1
W3S-236	30.3	23.7	17.6	23.6	37.1	34.7	25.8
W4S-202	33.3	26.0	13.6	22.2	35.4	39.2	21.6
W4S-209	29.1	24.7	18.8	19.2	37.9	33.7	27.3
Coef. of Var. (%)	11.1	7.5	13.6	11.3	9.4	11.6	--
L.S.D. (5%)	5.0	2.7	3.1	3.8	5.0	N.S.	--
Row Spacing (In.)	36	36	24	30	30	42	30
	Yield Rank						
Clay	14	5	1	6	5	9	10
Grant	6	8	7	8	16	6	11
Merit	12	2	6	5	9	12	1
Traverse	8	4	11	9	8	11	8
M55-130	15	2	8	3	4	5	2
M58-14	7	8	2	13	3	8	12
M59-100	16	11	3	15	12	15	15
M59-109	4	10	14	2	11	1	5
M59-121	5	1	4	3	2	3	9
M391-4	10	13	8	7	6	4	16
W3S-177	8	15	12	14	15	14	4
W3S-179	2	16	15	11	14	10	3
W3S-184	1	6	16	1	1	2	13
W3S-236	11	14	10	10	10	13	7
W4S-202	3	7	13	12	13	7	14
W4S-209	13	12	5	16	7	16	6

Table 20. Maturity dates, Uniform Test 0, 1968.

Strain	Mean of 8 Tests	Ontario			Ohio	Michigan
		Kempt-ville	Guelph	Ridge-town	Colum-bus	East Lansing
					*	*
Clay	-4.4	- 1	+ 3	-6	-3	- 3
Grant	+1.1	+ 5	+ 2	-1	0	+ 2
Merit	0	0	0	0	0	0
Traverse	+2.9	+15	+ 4	0	-2	+ 3
M55-130	-2.4	- 2	- 2	-5	0	- 3
M58-14	-2.6	- 3	- 7	-5	+3	0
M59-100	-2.3	+ 5	- 8	-2	-3	- 3
M59-109	+3.6	+18	0	+4	-3	- 1
M59-121	+0.8	+ 3	+ 1	0	-3	+ 1
M391-4	-0.3	+ 8	- 1	-2	-1	+ 1
W3S-177	0	+ 4	0	-2	-3	+ 2
W3S-179	+3.3	+12	+ 3	+1	0	+ 3
W3S-184	+3.6	+12	+ 3	+1	-1	+ 2
W3S-236	-2.3	- 2	- 2	-4	-2	- 3
W4S-202	+1.3	+ 7	+ 1	-2	+2	+ 2
W4S-209	-1.9	- 1	- 3	-1	+1	- 1
Flambeau (00)		- 1	-11	--	--	--
Chippewa 64 (I)		--	--	+2	+3	+11
Date planted	5-20	5-23	5-31	5-24	6-1	5-17
Merit matured	9-21	9-17	10-8	9-20	9-7	9-17
Days to mature	124	117	130	119	98	123

*Not included in the mean.
[1]Irrigated.

Table 20. (Continued)

Strain	Wisconsin		Minnesota		South Dakota	California[1]
	Spoon-er	Durand	Morris	St. Paul	Revillo	Davis *
Clay	-10	-11	- 6	- 2	-2	+1
Grant	0	0	0	+ 1	+2	+1
Merit	0	0	0	0	0	0
Traverse	+ 1	+ 1	- 1	+ 1	+2	+2
M55-130	- 7	- 3	- 3	0	+3	+1
M58-14	- 4	- 4	- 1	0	+3	+2
M59-100	- 7	- 6	- 1	0	+1	+1
M59-109	+ 3	0	+ 1	- 1	+4	-1
M59-121	- 3	0	- 1	+ 1	+5	+2
M391-4	- 4	- 3	0	0	0	+2
W3S-177	- 4	0	- 1	+ 1	+2	+1
W3S-179	+ 3	- 3	+ 2	+ 4	+4	+2
W3S-184	+ 4	- 2	+ 2	+ 4	+5	+2
W3S-236	- 6	- 5	- 1	+ 1	+1	+1
W4S-202	+ 1	- 2	+ 1	+ 1	+3	+1
W4S-209	- 6	- 6	- 3	+ 3	+2	+1
Flambeau (00)	--	--	-11	-11	--	-2
Chippewa 64 (I)	+ 4	--	+ 5	+ 7	+5	+8
Date planted	5-24	5-21	5-20	5-1	5-17	6-18
Merit matured	9-22	9-9	9-15	9-17	10-3	9-22
Days to mature	121	111	118	139	139	96

Table 21. Lodging scores and plant height, Uniform Test 0, 1968.

Strain	Mean of 6 Tests	Ontario			Ohio	Michigan
		Kempt-ville	Guelph	Ridge-town	Colum-bus	East Lansing
					*	*
Clay	1.6	1.3	2.5	1.8	1.0	1.0
Grant	2.4	1.5	2.8	2.5	1.0	1.0
Merit	2.0	1.3	2.5	1.8	1.0	1.0
Traverse	2.4	2.0	2.5	2.3	1.0	1.0
M55-130	2.1	1.3	2.5	2.3	1.0	1.0
M58-14	1.6	1.0	2.0	1.5	1.0	1.0
M59-100	1.5	1.0	2.0	1.0	1.0	1.0
M59-109	2.7	2.5	3.0	2.8	1.0	1.0
M59-121	2.4	1.5	3.0	2.5	1.0	1.0
M391-4	1.8	1.3	2.8	1.5	1.0	1.0
W3S-177	2.2	2.3	2.3	2.3	1.0	1.0
W3S-179	2.3	2.3	2.5	2.5	1.0	1.0
W3S-184	2.1	1.8	2.8	2.3	1.0	1.0
W3S-236	2.2	1.8	2.5	2.3	1.0	1.0
W4S-202	1.9	1.3	2.5	2.0	1.0	1.0
W4S-209	2.8	1.0	2.8	3.3	1.0	1.0
	Mean of 7 Tests	Plant Height				
					*	*
Clay	26	28	26	24	11	17
Grant	30	35	28	31	15	24
Merit	32	36	31	33	12	22
Traverse	31	32	30	31	16	25
M55-130	31	32	30	32	12	25
M58-14	31	33	30	31	12	24
M59-100	27	28	24	27	10	17
M59-109	31	35	29	32	13	19
M59-121	33	34	30	34	17	23
M391-4	30	33	29	29	16	24
W3S-177	33	35	31	35	16	25
W3S-179	33	35	32	34	16	26
W3S-184	34	37	34	31	14	28
W3S-236	31	34	30	30	13	22
W4S-202	33	34	31	34	12	24
W4S-209	30	32	29	33	13	22

*Not included in the mean.
[1]Irrigated.

Table 21. (Continued)

Strain	Wisconsin		Minnesota			California[1]
	Spoon-er	Durand	Crooks-ton	Morris	St. Paul	Davis
			*	*		*
Clay	1.0	1.0	1.0	1.0	2.0	1.0
Grant	2.0	1.8	1.0	1.0	3.8	2.0
Merit	2.0	1.0	1.0	1.0	3.5	2.0
Traverse	2.0	1.6	1.0	1.0	3.8	2.0
M55-130	1.3	1.3	1.0	1.0	3.8	1.0
M58-14	1.0	1.0	1.0	1.0	2.8	1.0
M59-100	1.0	1.0	1.0	1.0	2.8	2.0
M59-109	2.5	1.4	1.0	1.0	3.8	2.0
M59-121	1.8	1.5	1.0	1.0	3.8	2.0
M391-4	1.0	1.1	1.0	1.0	3.0	2.0
W3S-177	1.3	1.0	1.0	1.0	3.8	3.0
W3S-179	1.0	1.0	1.0	1.0	4.5	1.0
W3S-184	1.3	1.0	1.0	1.0	3.5	1.0
W3S-236	2.2	1.2	1.0	1.0	3.3	2.0
W4S-202	1.3	1.3	1.0	1.0	3.0	1.0
W4S-209	3.0	1.8	1.0	1.0	4.8	1.0

	Plant Height					
			*			*
Clay	26	26	25	19	31	30
Grant	31	29	28	22	36	31
Merit	35	33	31	22	37	35
Traverse	32	31	29	24	37	33
M55-130	31	30	28	24	36	33
M58-14	34	31	29	19	38	34
M59-100	27	28	26	18	35	30
M59-109	32	30	28	22	39	31
M59-121	36	32	31	24	40	33
M391-4	30	31	28	22	37	30
W3S-177	34	34	29	23	40	37
W3S-179	35	33	31	24	39	33
W3S-184	35	33	32	26	41	33
W3S-236	31	30	28	23	38	31
W4S-202	36	34	30	25	39	34
W4S-209	30	29	30	20	36	35

Table 22. Seed quality scores and seed weight, Uniform Test 0, 1968.

Strain	Mean of 6 Tests	Ontario			Ohio	Mich. East	Wisconsin		Minnesota		Cal.[1]
		Kempt-ville	Guelph	Ridge-town	Colum-bus	Lan-sing	Spoon-er	Durand	Crooks-ton	Morris	Davis
					*				*		*
Clay	1.9	3.0	2.0	2.0	3.0		1.3	1.3	2.8	1.5	2.0
Grant	1.6	1.0	2.0	2.0	2.0		1.5	1.8	3.2	1.5	2.0
Merit	2.0	3.0	2.0	2.0	2.0		2.0	1.0	3.2	1.8	2.0
Traverse	1.9	2.0	2.0	2.0	3.0		2.0	1.8	3.2	1.5	2.0
M55-130	1.7	1.0	2.0	2.0	2.0		1.5	1.8	2.8	1.8	2.0
M58-14	1.4	1.0	1.0	2.0	2.0		1.0	1.8	2.5	1.5	2.0
M59-100	1.4	1.0	1.0	2.0	3.0		1.6	1.5	2.8	1.3	2.0
M59-109	1.6	1.0	1.0	2.0	2.0		1.9	1.8	3.5	1.8	3.0
M59-121	1.6	1.0	2.0	2.0	3.0		1.5	1.5	3.2	1.8	2.0
M391-4	1.8	1.0	2.0	3.0	3.0		2.0	1.8	3.2	1.2	2.0
W3S-177	1.7	1.0	2.0	2.0	2.0		1.6	1.8	3.8	1.8	3.0
W3S-179	1.6	1.0	2.0	3.0	3.0		1.0	1.3	4.5	1.5	2.0
W3S-184	1.8	2.0	2.0	2.0	3.0		1.0	1.8	4.8	1.8	2.0
W3S-236	1.7	2.0	2.0	2.0	2.0		1.0	1.8	3.5	1.2	2.0
W4S-202	1.7	2.0	2.0	2.0	2.0		1.0	1.3	3.8	2.0	2.0
W4S-209	1.3	1.0	1.0	2.0	4.0		1.0	1.0	3.0	2.0	2.0
	Mean of 4 Tests					Seed Weight					
					*	*			*		*
Clay	17.0	18.8	16.5	17.2	16.0	18.0			13.3	15.5	18.7
Grant	16.7	19.0	15.4	17.5	15.3	17.5			12.9	14.8	13.3
Merit	14.6	17.4	13.5	13.8	13.0	13.7			11.7	13.8	15.0
Traverse	18.0	21.5	16.8	18.1	15.6	19.9			13.3	15.5	13.9
M55-130	15.0	17.0	12.9	15.8	14.0	14.8			11.2	14.4	12.4
M58-14	15.6	18.2	13.4	15.7	13.5	18.6			12.2	14.9	13.4
M59-100	16.6	18.9	14.2	17.6	15.4	16.6			14.7	15.7	18.4
M59-109	16.1	17.8	14.8	16.2	15.0	16.5			10.3	15.5	14.2
M59-121	16.3	18.5	14.9	16.7	14.8	16.2			12.1	15.0	14.1
M391-4	17.1	21.1	15.0	18.0	15.2	16.0			13.2	14.1	16.2
W3S-177	15.1	17.9	13.0	15.2	13.4	15.8			11.1	14.2	13.1
W3S-179	15.2	17.9	13.5	15.2	14.2	17.5			10.4	14.0	13.9
W3S-184	15.2	18.2	13.7	15.1	13.6	16.7			11.7	13.6	15.1
W3S-236	15.4	18.2	14.4	14.5	13.8	17.4			12.9	14.5	11.5
W4S-202	14.6	17.5	13.3	14.5	12.3	15.3			11.3	13.0	13.2
W4S-209	16.4	19.3	14.0	17.3	14.6	15.5			12.4	15.1	13.1

*Not included in the mean.
[1]Irrigated.

Table 23. Percentages of protein and oil, Uniform Test 0, 1968.

Strain	Mean of 4 Tests	Ontario Guelph	Michigan East Lansing	Wisconsin Spooner	Minnesota St. Paul	South Dakota Revillo
			*			
Clay	40.2	39.6	41.3	40.7	40.0	40.4
Grant	40.0	37.9	42.0	40.5	41.1	40.5
Merit	39.4	38.0	41.4	39.7	40.2	39.8
Traverse	40.7	39.9	42.6	41.4	39.6	41.9
M55-130	41.4	39.4	42.2	42.5	42.0	41.7
M58-14	40.7	37.7	42.6	41.4	42.6	41.2
M59-100	39.0	36.9	40.6	39.8	40.2	39.1
M59-109	37.6	36.5	38.4	37.2	38.5	38.3
M59-121	38.2	36.5	40.5	38.6	39.3	38.2
M391-4	39.7	37.6	40.7	40.7	40.4	40.2
W3S-177	40.5	38.1	42.7	41.1	43.1	39.8
W3S-179	40.1	37.1	41.4	41.5	41.1	40.5
W3S-184	40.6	39.5	41.4	41.3	40.9	40.6
W3S-236	41.4	38.7	42.9	42.6	43.1	41.2
W4S-202	40.0	37.1	43.3	40.3	42.4	40.3
W4S-209	41.1	38.7	44.4	41.2	42.7	41.8
	Mean of 4 Tests	Percentage of Oil				
			*			
Clay	21.1	19.8	22.0	19.9	22.8	21.7
Grant	19.7	19.8	20.8	19.2	19.9	19.9
Merit	20.6	19.7	22.1	19.6	21.4	21.6
Traverse	19.8	19.4	21.0	19.0	20.3	20.6
M55-130	18.9	18.3	20.5	17.7	19.9	19.5
M58-14	19.2	18.5	20.8	18.9	19.9	19.5
M59-100	21.1	20.4	22.6	20.3	21.9	21.9
M59-109	21.6	21.0	23.3	21.5	22.0	21.9
M59-121	20.8	19.4	22.1	20.2	21.6	21.8
M391-4	20.8	19.4	22.3	20.2	21.7	21.9
W3S-177	19.7	19.8	20.7	19.0	19.2	20.9
W3S-179	19.5	19.2	20.6	19.0	19.7	20.0
W3S-184	19.7	19.5	20.9	19.0	20.3	19.9
W3S-236	19.1	18.8	19.9	18.2	19.2	20.1
W4S-202	19.9	19.8	20.7	19.2	20.2	20.2
W4S-209	19.5	18.8	20.0	18.9	20.3	19.9

*Not included in the mean.

PRELIMINARY TEST 0, 1968

Strain	Parentage	Generation Composited
1. Merit		
2. Traverse		
3. M60-39	II-42-4-6 x II-44-46	F_5
4. M60-89	Comet x M319	F_5
5. M60-92	Comet x M319	F_5
6. M60-169	M319 x Comet	F_5
7. M60-380	Lindarin x Harosoy	F_5
8. M60-400	Blackhawk x Harosoy	F_5
9. M60-425	Blackhawk x Harosoy	F_5
10. M61-33	Merit x Comet	F_5

This test consists of eight selections from the Minnesota breeding program, plus Merit and Traverse as check varieties. Only M60-400 outyielded the check varieties on a regional basis, with yields equal to or above Traverse at all locations. M60-92 and M60-380 also performed well, especially at the United States locations. M60-400 and M60-380 grow appreciably taller than Traverse or Merit, which should be an advantage in combine harvesting.

Table 24. Descriptive data and shattering scores, Preliminary Test 0, 1968.

Strain	Flower Color	Pubescence Color	Pod Color	Seed Coat Luster	Seed Coat Color	Hilum Color	Shattering Manhattan Kans. 2 wks.	Shattering Manhattan Kans. 4 wks.
Merit	W	G	Br	D	Y	Bf	2.8	4.0
Traverse	W	G	Br	S	Y	Y	2.8	5.0
M60-39	W	G	Br	D	Y	Y	4.3	5.0
M60-89	P	G	Br	S	Y	Y	1.0	4.0
M60-92	P	G	Br	S	Y	Y	3.0	4.3
M60-169	W	T	Br	S	Y	Y	4.0	5.0
M60-380	P	G	Br	D	Y	Y	4.2	5.0
M60-400	W	G	Br	D	Y	Y	4.5	5.0
M60-425	W	G	Br	D+S	Y	Y	3.0	5.0
M61-33	W	G	Br	S	Y	Y	4.6	5.0

Table 25. Summary of data, Preliminary Test 0, 1968.

Strain	Yield	Rank	Maturity[1]	Lodging	Height	Seed Quality	Seed Weight	Seed Composition Protein	Seed Composition Oil
No. of Tests	6	6	6	5	5	4	3	4	4
Merit	37.9	6	0	2.1	34	1.5	14.9	39.3	20.8
Traverse	38.4	4	+2.8	2.2	33	1.7	18.6	39.9	19.9
M60-39	38.2	5	+3.7	2.0	32	1.8	15.6	39.7	20.7
M60-89	34.5	10	+3.7	2.0	35	2.1	18.0	38.0	20.8
M60-92	38.8	2	+3.5	1.7	31	1.3	18.6	39.6	19.9
M60-169	36.9	8	+1.0	2.2	33	1.5	18.1	40.8	18.8
M60-380	38.7	3	+2.8	2.0	37	1.7	18.6	41.1	19.9
M60-400	41.1	1	+3.0	2.3	36	2.1	18.0	38.2	20.9
M60-425	37.0	7	+5.7	1.9	36	1.8	19.1	40.3	19.7
M61-33	35.9	9	-1.5	1.9	32	2.2	15.8	39.1	20.6

[1]Days earlier (-) or later (+) than Merit which matured September 26, 129 days after planting.

Table 26. Disease data, Preliminary Test 0, 1968.

Strain	BB Urbana Ill. n	BB Ames Ia. n-T	BP Ill. a	BSR Urbana Ill. n	DM Worthington Ind. n	FE_2 Ind. a	PR Ind. a	Pyd Ia. a	Pyu Ia. a
Merit	1	3	4	3	4	5	R	R	I
Traverse	3	3	2	2	1	4	S	I	I
M60-39	4	3	2	2	2	5	S	R	I
M60-89	3	3	1	2	4	4	S	R	I
M60-92	3	2	4	2	3	4	S	R	I
M60-169	2	3	3	2	2	5	S	R	I
M60-380	3	2	4	2	2	5	S	I	I
M60-400	3	2	1	2	2	5	R	I	I
M60-425	3	3	1	2	3	5	R	I	I
M61-33	2	3	3	2	4	5	Seg	I	I

Table 27. Yield and yield rank, Preliminary Test 0, 1968.

Strain	Mean of 6 Tests	Ontario Kempt-ville	Ontario Guelph	Ontario Ridge-town	Wisconsin Spooner	Minnesota St. Paul	South Dakota Revillo
Merit	37.9	44.6	31.4	53.6	27.8	35.6	34.2
Traverse	38.4	50.7	31.4	50.3	23.6	37.5	36.9
M60-39	38.2	41.0	30.0	53.6	25.8	43.9	34.8
M60-89	34.5	31.0	29.5	55.4	27.2	32.5	31.3
M60-92	38.8	45.4	29.8	50.5	28.3	41.5	37.5
M60-169	36.9	37.3	33.6	55.5	22.8	33.6	38.4
M60-380	38.7	40.4	28.8	59.4	28.3	38.7	36.8
M60-400	41.1	51.8	32.2	60.2	25.8	39.8	36.6
M60-425	37.0	34.7	32.4	54.8	24.5	38.3	37.4
M61-33	35.9	43.4	28.5	48.6	21.4	36.4	37.0
Coef. of Var. (%)		6.6	4.9	4.0	16.8	6.7	9.4
L.S.D. (5%)		6.3	5.9	4.8	N.S.	5.2	N.S.
Row Spacing (In.)		14	24	24	36	30	42

	Yield Rank						
Merit	6	4	4	6	3	8	9
Traverse	4	2	4	9	8	6	5
M60-39	5	6	6	6	5	1	8
M60-89	10	10	8	4	4	10	10
M60-92	2	3	7	8	1	2	2
M60-169	8	8	1	3	9	9	1
M60-380	3	7	9	2	1	4	6
M60-400	1	1	3	1	5	3	7
M60-425	7	9	2	5	7	5	3
M61-33	9	5	10	10	10	7	4

Table 28. Maturity dates, Preliminary Test 0, 1968.

Strain	Mean of 6 Tests	Ontario			Wisconsin	Minnesota	South Dakota
		Kempt-ville	Guelph	Ridge-town	Spooner	St. Paul	Revillo
Merit	0	0	0	0	0	0	0
Traverse	+2.8	+ 9	+ 6	-1	-1	+ 2	+2
M60-39	+3.7	+ 4	+ 2	+2	+4	+ 6	+4
M60-89	+3.7	+ 9	+ 4	+1	+3	+ 4	+1
M60-92	+3.5	+ 6	+ 4	0	+2	+ 6	+3
M60-169	+1.0	+ 3	0	0	-3	+ 4	+2
M60-380	+2.8	+ 6	+ 5	-1	+1	+ 3	+3
M60-400	+3.0	0	+ 3	+4	+4	+ 4	+3
M60-425	+5.7	+ 9	+ 5	+3	+6	+ 6	+5
M61-33	-1.5	0	- 2	-2	-6	+ 1	0
Flambeau (00)		-14	-11	--	--	-10	--
Chippewa 64 (I)		--	--	+3	--	+ 8	+5
Date planted	5-20	5-23	5-31	5-24	5-24	5-1	5-17
Merit matured	9-26	9-30	10-8	9-19	9-17	9-16	10-3
Days to mature	129	130	130	118	116	138	139

UNIFORM TEST I, 1968

Strain	Parentage	Generation Composited	Previous Testing (years)
1. Chippewa 64	Chippewa[8] x Blackhawk	29 F_3 lines	6
2. Hark	Hawkeye x Harosoy	F_9	4
3. A2-5405	Clark x Chippewa	F_7	3
4. A2-5407	Clark x Chippewa	F_7	3
5. M54-160	Korean x II-42-37	F_5	2
6. M57-69	5-1 x M10	F_5	P.T. I
7. M59-120	II-54-240 x II-54-139	F_5	P.T. I
8. M59-213	Blackhawk x Harosoy	F_5	P.T. I
9. W1-4221	Grant x Chippewa	F_6	3
10. W3-4445	Chippewa x Seneca	F_5	P.T. I
11. W4-3656	C1128 x Hardome	F_5	P.T. I

The four re-entries in this test, A2-5405, A2-5407, M54-160, and W1-4221, are all in various stages proceeding toward commercial release. The three-year summary provides a comparison of these with Chippewa 64 and Hark. The late I selection, A2-5405, slightly outyielded Hark (by 1.6 bushels) and was similar in other respects except that it was not so shattering susceptible. The three early I strains similarly outyielded Chippewa 64 slightly (by 1.1 to 1.4 bushels) and were similar to it in maturity. No important differences appear to exist among the three but W1-4221 averaged slightly ahead in yield and earliness, A2-5407 was best in shattering and lodging resistance, and M54-160 had a distinctly higher seed oil content.

Among the five new entries, M59-120 compared favorably to the late strains, but averaged only slightly more yield than A2-5405, was a day later, and showed greater lodging. M59-213 compared favorably to the earlier strains but showed no significant advantages.

Table 29. Descriptive data and shattering scores, Uniform Test I, 1968.

Strain	Flower Color	Pubescence Color	Pod Color	Seed Coat Luster	Seed Coat Color	Hilum Color	Peroxidase	Fluor. Light	Shattering Manhattan Kans. 2 wks.	Shattering Manhattan Kans. 4 wks.
Chippewa 64	P	T	Br	S	Y	Bl	L	E	3.2	3.6
Hark	P	G	Br	D	Y	Y	H	L	2.5	5.0
A2-5405	P	T	Br	S	Y	Bl	L	E	2.0	2.0
A2-5407	P	T	Br	S	Y	Bl	L	E	2.5	3.6
M54-160	P	T	Br	S	Y	Bl	L	E	3.2	5.0
M57-69	P	G	Br	D	Y	Ib	L	L	2.7	3.2
M59-120	W	T	Br	D	Y	Br	L	L	2.7	3.6
M59-213	P	G	Br	D	Y	Y	L	E	1.0	4.4
W1-4221	P	Lt	Br	S	Y	Bl	L	L	3.4	5.0
W3-4445	P	G	Br	D	Y	Y	H	L	1.8	1.8
W4-3656	P	G	Tan	S	Y	G	H	E	1.8	2.2

Table 30. Summary of data, Uniform Test I, 1968.

Strain	Yield	Rank	Maturity[1]	Lodging	Height	Seed Quality	Seed Weight	Seed Composition Protein	Seed Composition Oil
No. of Tests	24	24	23	18	22	17	17	12	12
Chippewa 64	35.4	11	0	1.8	32	1.9	15.3	40.6	21.3
Hark	38.6	4	+3.5	1.7	34	1.8	15.7	40.7	21.0
A2-5405	39.6	2	+3.7	1.8	32	1.7	16.6	39.9	21.7
A2-5407	37.1	9	+0.6	1.6	32	1.9	15.7	40.9	21.2
M54-160	37.1	9	+1.7	2.0	30	2.0	19.1	39.7	23.1
M57-69	38.9	3	+2.0	1.6	30	2.1	15.6	39.7	21.5
M59-120	40.4	1	+4.7	2.4	34	2.0	17.6	39.3	22.0
M59-213	38.3	6	+1.0	1.6	32	1.9	16.9	39.8	21.3
W1-4221	37.7	7	+1.1	2.0	31	1.8	16.7	40.6	21.4
W3-4445	37.5	8	+3.1	2.3	34	1.7	15.2	39.6	21.2
W4-3656	38.6	4	+2.8	2.4	35	2.5	16.9	38.6	22.5

[1]Days earlier (-) or later (+) than Chippewa 64 which matured September 18, 115 days after planting.

Table 31. Disease data, Uniform Test I, 1968.

Strain	BB			BP		BSR			DM		FE2	PR	Pyd	Pyu
	Urbana Ill. n	Ames Ia. n-D	Ames Ia. n-T	Ill. a	Ia. a	Urbana Ill. n	Ames Ia. n[1]	Kanawha Ia. n[1]	Knox Ind. n	Worthington Ind. n	Ind. a	Ind. a	Ia. a	Ia. a
Chippewa 64	2	4.5	2	3	4	2	50	68	3	3	4	R	S	S
Hark	2	4.5	3	1	4	2	45	63	2.8	2	4	S	S	S
A2-5405	2	4	2	3	4	4	10	45	3	2	4	S	R	S
A2-5407	3	3.5	2	3	4	2	90	75	2.5	--	4	S	R	S
M54-160	2	4	2	4	5	2	75	80	1.3	2	3	S	I	S
M57-69	2	4	2	3	5	2	100	90	2.5	--	4	S	I	I
M59-120	3	4.5	2	4	4	4	95	90	2.3	3	5	S	R	S
M59-213	3	4	3	3	4.5	2	90	90	5	--	5	R	R	S
W1-4221	3	4	3	1	4	2	70	85	2.8	--	5	S	I	R
W3-4445	3	4.5	3	4	4	3	90	78	3	2	4	S	I	S
W4-3656	3	3.5	2	4	4	2	60	75	2.3	2	5	S	R	S

[1]Percent infected plants.

Table 32. Yield and yield rank, Uniform Test I, 1968.

Strain	Mean of 24 Tests	Ontario		Ohio			Michigan		Indiana		Wisconsin		Ill.
		Ridge-town	Har-row	Hoyt-ville	Woos-ter	Co-lum-bus	East Lan-sing	Dun-dee	Knox	Lafa-yette	Du-rand	Madi-son	De-Kalb
Chippewa 64	35.4	53.2	30.9	28.6	25.0	25.4	33.4	33.0	36.8	41.5	16.8	41.3	46.3
Hark	38.6	55.8	39.5	32.8	27.2	21.1	35.0	41.0	38.1	44.8	17.0	44.0	51.1
A2-5405	39.6	58.0	37.3	31.8	32.1	31.9	36.4	41.4	39.5	45.1	16.5	49.2	47.6
A2-5407	37.1	56.2	32.6	31.5	29.0	16.2	30.3	38.0	36.3	40.3	21.1	46.4	48.0
M54-160	37.1	54.1	30.7	29.8	30.4	23.8	32.3	40.0	36.6	40.0	20.3	44.9	46.3
M57-69	38.9	58.8	38.4	30.2	25.9	26.2	31.0	44.5	41.8	40.9	20.0	48.7	47.9
M59-120	40.4	59.6	35.8	33.2	34.9	26.1	36.1	42.1	41.4	46.5	19.1	48.5	47.8
M59-213	38.3	60.1	35.6	31.5	26.0	20.4	34.0	41.6	38.3	43.3	19.0	46.0	48.4
W1-4221	37.7	61.2	34.6	31.2	28.5	19.0	34.0	42.5	39.7	42.9	19.3	48.7	46.2
W3-4445	37.5	52.6	35.9	33.8	28.9	16.5	30.0	37.6	41.7	45.2	18.1	42.7	48.0
W4-3656	38.6	58.6	33.1	36.9	32.6	14.3	37.0	40.5	43.4	40.1	21.0	42.9	48.9
C.V.(%)		5.5	6.5	--	--	--	11.7	12.5	7.9	7.3	7.9	6.8	7.7
L.S.D.(5%)		4.5	3.2	--	--	--	5.6	7.2	4.5	4.5	2.0	4.4	N.S.
Row Sp.(In.)		24	40	32	32	28	28	28	40	38	36	36	30

Yield Rank

Chippewa 64	11	10	10	11	11	4	7	11	9	7	10	11	9
Hark	4	8	1	4	8	6	4	6	8	4	9	8	1
A2-5405	2	6	3	5	3	1	2	5	6	3	11	1	8
A2-5407	9	7	9	6	5	10	10	9	11	9	1	5	4
M54-160	9	9	11	10	4	5	8	8	10	11	3	7	9
M57-69	3	4	2	9	10	2	9	1	2	8	4	2	6
M59-120	1	3	5	3	1	3	3	3	4	1	6	4	7
M59-213	6	2	6	6	9	7	5	4	7	5	7	6	3
W1-4221	7	1	7	8	7	8	5	2	5	6	5	2	11
W3-4445	8	11	4	2	6	9	11	10	3	2	8	10	4
W4-3656	4	5	8	1	2	11	1	7	1	10	2	9	2

*Not included in the mean.
[1]Irrigated.

Table 32. (Continued)

Strain	Illinois Pontiac	Illinois Urbana	Minnesota St. Paul	Minnesota Lamberton	Minnesota Waseca	Iowa Sutherland	Missouri Spickard	Missouri Columbia	South Dakota Revillo	South Dakota Brookings	Nebraska[1] Concord	Nebraska[1] Mead	Cal.[1] Davis *
Chippewa 64	27.7	47.1	33.6	33.3	41.8	20.8	44.1	29.6	33.2	28.5	46.8	49.7	12.3
Hark	28.1	55.2	37.7	36.0	40.8	22.9	47.6	39.4	38.3	30.7	50.1	52.3	24.3
A2-5405	34.2	52.9	39.5	37.2	46.1	22.2	46.7	34.0	41.2	32.2	47.4	50.3	21.6
A2-5407	31.1	50.1	40.6	33.1	44.9	21.2	48.1	33.7	35.1	29.5	48.2	49.1	23.2
M54-160	26.7	51.4	42.1	33.0	42.3	20.2	46.6	33.3	35.9	31.0	49.8	49.2	18.3
M57-69	26.3	51.8	42.0	37.1	44.6	24.6	49.9	31.3	40.4	33.3	48.2	50.3	15.8
M59-120	29.7	56.3	40.2	38.2	47.7	23.6	50.0	36.4	34.1	35.5	50.9	55.1	18.0
M59-213	31.2	54.6	40.6	36.1	41.8	22.3	48.5	34.5	34.2	30.1	51.4	49.4	25.3
W1-4221	28.8	50.1	39.8	35.8	43.5	22.8	43.5	32.1	33.1	30.7	48.0	47.7	16.3
W3-4445	31.5	52.5	41.3	32.4	39.7	20.5	47.7	37.4	36.8	33.8	47.2	48.3	24.1
W4-3656	34.1	54.9	39.3	33.7	38.9	23.2	46.9	34.0	38.4	34.0	49.4	49.1	23.2
C.V.(%)	9.4	4.5	8.1	6.3	6.3	13.6	7.0	11.8	9.2	9.5	6.3	7.6	--
L.S.D.(5%)	4.8	4.0	4.6	3.2	3.9	4.4	4.8	5.8	4.9	N.S.	4.0	5.6	--
R.Sp.(In.)	38	30	30	30	30	27	15	15	42	40	30	30	30

Yield Rank

Chippewa 64	9	11	11	8	7	9	10	11	10	11	11	5	11
Hark	8	2	10	5	9	4	6	1	4	7	3	2	2
A2-5405	1	5	8	2	2	7	8	5	1	5	9	3	6
A2-5407	5	9	4	9	3	8	4	7	7	10	6	8	4
M54-160	10	8	1	10	6	11	9	8	6	6	4	7	7
M57-69	11	7	2	3	4	1	2	10	2	4	6	3	10
M59-120	6	1	6	1	1	2	1	3	9	1	2	1	8
M59-213	4	4	4	4	7	6	3	4	8	9	1	6	1
W1-4221	7	9	7	6	5	5	11	9	11	7	8	11	9
W3-4445	3	6	3	11	10	10	5	2	5	3	10	10	3
W4-3656	2	3	9	7	11	3	7	5	3	2	5	8	4

Table 33. Maturity dates, Uniform Test I, 1968.

Strain	Mean of 23 Tests	Ontario		Ohio			Michigan		Indiana		Wis.	Ill.
		Ridge-town	Har-row	Hoyt-ville	Woos-ter	Co-lum-bus	East Lan-sing	Dun-dee	Knox	Lafa-yette	Madi-son	De-Kalb
Chippewa 64	0	0	0	0	0	0	0	0	0	0	0	0
Hark	+3.5	+3	+6	+ 6	+ 5	+1	0	0	+ 5	0	+5	+8
A2-5405	+3.7	+3	+6	+ 7	+ 3	+2	+1	+1	+ 5	+3	+4	+6
A2-5407	+0.6	0	+1	+ 2	+ 1	+5	+2	0	+ 1	-1	0	-1
M54-160	+1.7	+1	+1	+ 3	+ 2	+7	+2	-1	+ 6	0	+3	0
M57-69	+2.0	+3	+5	+ 1	+ 2	+6	-2	+3	+ 4	0	+2	+3
M59-120	+4.7	+5	+7	+ 7	+ 5	+5	+3	0	+ 9	+3	+4	+7
M59-213	+1.0	+1	+2	+ 3	+ 3	+7	0	+2	- 2	-1	0	-3
W1-4221	+1.1	+1	+4	+ 2	+ 1	+8	+3	+1	0	-2	0	-2
W3-4445	+3.1	+3	+4	+ 6	+ 4	+1	+3	+1	+ 4	+2	+2	+5
W4-3656	+2.8	+5	+3	+ 5	+ 4	+3	+3	+2	+ 7	+2	+3	+4
Traverse (0)		-2	--	--	--	-4	-8	--	--	--	0	-1
Harosoy 63 (II)	+6.8	+5	+9	+13	+12	+9	+3	+2	+10	+4	+7	+9
Date planted	5-26	5-24	6-5	6-4	6-5	6-1	5-17	5-18	6-8	6-12	5-21	5-24
Chippewa 64 mat.	9-18	9-22	9-13	9-15	9-16	9-9	9-28	10-1	9-15	9-21	9-21	9-16
Days to mature	115	121	100	103	103	100	134	136	99	101	123	115

*Not included in the mean.
[1]Irrigated.

Table 33. (Continued)

Strain	Illinois		Minnesota			Iowa	Missouri		South Dakota		Nebraska[1]		Cal.[1]
	Pon-tiac	Ur-bana	St. Paul	Lam-ber-ton	Wa-seca	Suth-er-land	Spick-ard	Co-lum-bia	Re-villo	Brook-ings	Con-cord	Mead	Davis *
Chippewa 64	0	0	0	0	0	0	0	0	0	0	0	0	0
Hark	+1	+4	+4	+5	+5	+4	0	+3	0	+3	+ 6	+7	0
A2-5405	+4	+4	+2	+4	+4	+6	+1	+2	+1	+2	+ 6	+7	0
A2-5407	+1	0	0	+1	-1	+2	0	0	-1	0	+ 1	0	0
M54-160	+2	+3	+2	0	+1	0	-1	+3	0	+1	+ 3	+2	0
M57-69	+3	+3	+1	+2	+1	+3	+1	0	0	+2	+ 2	+1	0
M59-120	+5	+7	+5	+4	+5	+6	+1	+3	+2	+2	+ 6	+8	+1
M59-213	+4	+2	+2	0	0	-2	0	+1	+1	-1	+ 3	0	0
W1-4221	+3	0	+1	+1	0	0	0	+1	0	+1	+ 1	+1	0
W3-4445	+2	+5	+4	+3	+3	+6	+1	+2	0	+1	+ 6	+4	+1
W4-3656	+3	+4	+2	+2	0	+1	+1	+2	0	+1	+ 6	+1	0
Traverse (0)	-2	-4	-6	-2	-5	-3	--	--	-2	-2	--	--	-6
Har. 63 (II)	+3	+8	+6	+7	+8	+4	+4	+5	+3	+5	+12	+8	+5
Date pltd.	6-6	6-5	5-1	5-14	5-24	5-23	6-5	5-13	5-17	5-21	5-24	5-21	6-18
Chip. 64 mat.	9-8	9-12	9-24	9-23	9-22	9-8	9-15	8-21	10-8	10-10	9-19	9-12	9-30
Da. to mat.	94	99	146	132	121	108	102	100	144	142	118	114	104

Table 34. Lodging scores and plant height, Uniform Test I, 1968.

Strain	Mean of 18 Tests	Ontario		Ohio			Michigan		Indiana		Wisconsin	
		Ridge-town	Har-row	Hoyt-ville *	Woos-ter *	Colum-bus *	East Lan-sing	Dundee	Knox	Lafa-yette	Du-rand	Madi-son
Chippewa 64	1.8	2.0	1.0	1.0	1.0	1.0	1.0	3.0	1.1	2.5	1.3	2.4
Hark	1.7	2.3	1.0	1.0	1.0	1.0	2.0	1.0	1.0	1.0	1.0	2.4
A2-5405	1.8	2.3	1.0	1.0	1.0	1.0	2.0	2.0	1.0	1.8	1.0	2.8
A2-5407	1.6	2.3	1.2	1.0	1.0	1.0	1.0	1.0	1.0	2.3	1.0	2.5
M54-160	2.0	2.5	1.0	1.0	1.0	1.0	2.0	2.0	1.4	2.8	1.9	2.9
M57-69	1.6	2.3	1.0	1.0	1.0	1.0	1.0	2.0	1.0	1.0	1.0	2.3
M59-120	2.4	3.3	1.5	1.0	1.0	1.0	2.0	2.0	1.4	3.0	1.5	3.4
M59-213	1.6	2.5	1.0	1.0	1.0	1.0	1.0	2.0	1.0	1.5	1.0	2.4
W1-4221	2.0	2.8	1.2	1.0	1.0	1.0	2.0	3.0	1.0	2.3	1.1	3.0
W3-4445	2.3	2.8	1.5	1.0	1.0	1.0	2.0	4.0	1.0	2.8	1.5	2.8
W4-3656	2.4	4.0	2.2	1.0	1.0	1.0	1.0	3.0	1.4	2.8	2.5	3.3
	Mean of 22 Tests	Plant Height										
Chippewa 64	32	37	31	33	23	21	32	31	31	40	35	36
Hark	34	37	34	33	24	23	35	33	31	41	37	38
A2-5405	32	36	32	33	25	24	32	33	30	35	34	35
A2-5407	32	36	30	32	25	22	28	31	29	36	36	34
M54-160	30	32	29	30	25	20	29	29	28	33	33	32
M57-69	30	35	32	31	21	23	26	31	29	35	33	35
M59-120	34	40	35	36	28	24	31	32	31	39	34	38
M59-213	32	37	35	33	25	20	29	32	33	36	35	35
W1-4221	31	35	30	31	24	20	27	30	29	35	34	34
W3-4445	34	39	35	36	29	25	29	33	32	41	37	37
W4-3656	35	40	36	36	28	24	29	38	37	41	41	40

*Not included in the mean.
[1]Irrigated.

Table 34. (Continued)

Strain	Illinois			Minnesota			Iowa	Missouri		South Dakota	Nebraska[1]		Cal.[1]
	De-Kalb	Pon-tiac *	Ur-bana	St. Paul	Lam-ber-ton	Wa-seca	Suth-er-land	Spick-ard	Co-lum-bia	Brook-ings	Con-cord	Mead	Davis *
Chippewa 64	3.0	1.0	1.3	3.2	1.7	1.7	1.1	1.8	1.5		1.2	1.1	2.0
Hark	2.3	1.0	1.1	2.8	2.5	2.2	1.0	1.3	1.0		1.8	2.1	2.0
A2-5405	3.0	1.0	1.2	2.8	2.5	1.7	1.1	1.8	1.0		1.5	1.5	3.0
A2-5407	3.3	1.0	1.2	2.5	2.0	1.2	1.1	2.0	1.0		1.2	1.4	3.0
M54-160	2.7	1.0	1.2	3.8	2.0	1.7	1.2	2.0	1.5		1.2	1.8	2.0
M57-69	3.3	1.0	1.1	2.2	1.7	1.2	1.1	1.3	1.3		1.5	1.6	3.0
M59-120	3.7	1.0	1.9	3.8	3.5	2.7	1.3	2.0	1.3		2.0	2.6	2.0
M59-213	2.7	1.0	1.2	2.8	1.7	1.0	1.0	1.3	1.0		1.8	1.1	3.0
W1-4221	3.3	1.0	1.3	3.8	2.5	1.5	1.2	2.0	1.5		1.8	1.5	2.0
W3-4445	3.0	1.0	1.7	3.0	2.7	2.0	1.3	2.5	2.0		2.2	2.4	3.0
W4-3656	3.7	1.0	2.5	3.8	3.0	1.5	1.6	3.0	1.5		1.8	1.3	1.0

	Plant Height											
												*
Chippewa 64	42	27	35	33	36	25	32	26	30	40	35	36
Hark	44	28	38	36	36	24	35	25	31	43	39	35
A2-5405	40	29	37	34	36	23	33	27	31	40	34	35
A2-5407	40	27	35	35	36	24	33	26	28	38	34	36
M54-160	38	25	32	30	34	23	30	22	28	36	32	32
M57-69	39	23	30	31	34	24	29	24	28	36	32	34
M59-120	41	28	37	34	37	25	35	26	31	40	36	36
M59-213	40	29	35	33	35	25	30	25	30	38	36	37
W1-4221	38	26	32	35	36	24	31	25	28	36	34	34
W3-4445	43	30	36	35	36	25	35	27	30	42	38	36
W4-3656	42	32	40	37	37	29	32	25	32	42	42	35

Table 35. Seed quality scores and seed weight, Uniform Test I, 1968.

Strain	Mean of 17 Tests	Ontario		Ohio			Michigan		Indiana		Wis.
		Ridge-town	Har-row	Hoyt-ville	Woos-ter	Co-lum-bus	East Lan-sing	Dun-dee	Knox	Lafa-yette	Du-rand
Chippewa 64	1.9	2.0	1.2	2.5	1.2	2.0			2.0	2.0	1.3
Hark	1.8	2.0	1.2	2.5	1.2	2.5			1.5	1.5	1.5
A2-5405	1.7	2.0	1.2	2.5	1.2	2.0			2.5	2.5	1.0
A2-5407	1.9	2.0	1.0	2.2	1.0	2.7			2.0	2.5	1.8
M54-160	2.0	2.0	1.8	2.2	1.2	2.5			2.0	1.5	1.8
M57-69	2.1	2.0	1.2	2.5	1.0	2.2			2.5	2.0	1.8
M59-120	2.0	2.0	1.2	2.2	1.2	2.5			2.0	2.0	1.5
M59-213	1.9	2.0	1.0	2.2	1.0	2.2			2.0	2.0	1.5
W1-4221	1.8	2.0	1.0	2.2	1.0	2.2			1.5	2.0	1.3
W3-4445	1.7	2.0	1.2	2.2	1.5	2.6			1.5	1.0	1.8
W4-3656	2.5	3.0	2.2	2.7	1.7	2.3			3.0	3.0	2.3
	Mean of 17 Tests	Seed Weight									
Chippewa 64	15.3	14.6	14.7	16.0	15.7	15.6	14.9	17.8	17.2	15.8	
Hark	15.7	16.0	16.4	16.1	15.1	13.4	15.1	16.8	16.7	17.3	
A2-5405	16.6	16.5	16.4	17.1	16.3	15.9	15.9	19.4	18.4	16.0	
A2-5407	15.7	14.9	15.7	15.4	15.2	16.0	16.7	18.1	17.4	15.4	
M54-160	19.1	20.0	19.0	19.5	18.2	16.9	17.2	21.0	23.0	19.7	
M57-69	15.6	16.0	15.5	15.8	15.7	15.1	15.1	19.0	17.5	16.5	
M59-120	17.6	18.5	17.6	18.8	17.2	15.8	18.0	18.7	20.7	17.9	
M59-213	16.9	17.0	16.4	17.3	16.2	15.4	18.5	20.2	19.0	19.4	
W1-4221	16.7	18.2	17.1	17.1	16.3	15.0	15.4	20.4	18.2	17.8	
W3-4445	15.2	15.2	15.2	15.6	14.7	15.3	14.2	19.3	17.3	16.1	
W4-3656	16.9	18.4	16.7	17.4	16.9	14.1	17.4	18.0	19.4	17.5	

*Not included in the mean.
[1]Irrigated.

Table 35. (Continued)

Strain	Wis. Madison	Illinois De-Kalb	Illinois Pontiac	Illinois Urbana	Minnesota Lamberton	Minnesota Waseca	Iowa Sutherland	Missouri Spickard	Missouri Columbia	Nebraska[1] Concord	Nebraska[1] Mead	Cal.[1] Davis
							*					*
Chippewa 64	2.0	1.2	1.3	2.0		2.7	1.0	2.5	3.0	1.8	1.5	2.0
Hark	2.0	1.2	1.0	1.3		2.5	1.0	1.7	2.3	2.5	1.8	3.0
A2-5405	1.0	1.0	1.2	1.8		2.2	1.0	2.0	2.5	1.5	1.5	3.0
A2-5407	2.0	1.3	1.5	2.0		2.2	1.0	1.8	2.5	1.6	1.4	3.0
M54-160	2.0	1.7	2.0	2.5		2.7	1.0	2.0	3.0	1.0	1.6	3.0
M57-69	3.0	1.5	1.5	1.8		3.0	1.0	2.0	3.5	1.8	2.0	1.0
M59-120	3.0	1.3	1.3	2.3		3.0	1.0	2.0	2.3	1.8	1.8	2.0
M59-213	2.0	1.2	1.5	1.5		2.5	1.0	2.5	3.5	1.1	2.0	2.0
W1-4221	2.0	1.0	1.8	1.8		2.7	1.0	2.0	3.5	1.2	1.5	2.0
W3-4445	2.0	1.0	1.2	1.7		2.7	1.0	1.5	2.0	2.0	1.8	2.0
W4-3656	3.0	2.3	1.8	3.0		3.0	1.0	2.0	3.3	2.0	2.2	2.0
	Seed Weight											
												*
Chippewa 64		14.5	13.0	15.9	14.6	14.0	11.8			16.4	18.4	15.6
Hark		17.4	12.4	16.1	15.1	15.1	13.2			17.8	17.2	10.3
A2-5405		16.3	13.7	16.2	15.9	16.3	13.4			18.1	19.9	14.0
A2-5407		15.5	13.0	16.4	14.4	15.2	12.0			17.2	19.2	14.7
M54-160		19.2	14.9	18.9	19.6	18.9	14.5			21.9	22.8	16.5
M57-69		15.1	11.8	16.0	14.4	15.1	12.3			16.5	18.0	16.8
M59-120		17.7	13.4	17.9	15.9	16.5	14.8			19.6	21.0	14.6
M59-213		16.5	13.1	18.1	14.4	15.3	13.9			17.7	19.0	13.9
W1-4221		16.1	13.1	17.5	16.5	16.1	13.0			17.7	19.2	16.5
W3-4445		15.9	11.3	14.6	14.3	13.4	11.9			16.6	16.7	16.3
W4-3656		17.6	13.3	19.3	15.5	16.0	13.3			19.0	17.6	14.5

Table 36. Percentages of protein and oil, Uniform Test I, 1968.

Strain	Mean of 12 Tests	Ontario Ridge-town	Ohio Colum-bus	Michigan East Lansing	Indiana Knox	Wisconsin Madison	Illinois DeKalb
Chippewa 64	40.6	39.2	40.7	40.5	42.8	40.0	40.0
Hark	40.7	40.3	40.8	40.9	42.4	40.0	40.2
A2-5405	39.9	39.0	38.7	40.1	42.7	40.4	39.5
A2-5407	40.9	40.1	40.6	41.5	43.1	39.9	40.7
M54-160	39.0	39.3	38.6	40.1	41.0	38.6	40.1
M57-69	39.7	39.1	40.1	40.1	41.0	39.1	38.7
M59-120	39.3	39.3	39.3	41.1	40.8	39.8	38.9
M59-213	39.8	39.3	39.9	40.7	42.0	40.4	39.2
W1-4221	40.6	40.4	40.3	41.7	42.7	39.7	38.9
W3-4445	39.6	39.1	39.2	40.4	41.6	37.4	38.1
W4-3656	38.6	37.8	37.4	38.5	40.3	39.8	37.9
	Mean of 12 Tests			Percentage of Oil			
Chippewa 64	21.3	21.2	21.2	23.5	20.7	19.9	21.1
Hark	21.0	20.8	20.8	21.2	20.8	19.1	21.3
A2-5405	21.7	21.5	22.4	21.9	21.1	20.7	21.6
A2-5407	21.2	20.9	21.4	21.6	20.1	20.0	21.9
M54-160	23.1	23.0	23.4	23.8	22.7	22.3	23.2
M57-69	21.5	21.1	21.3	21.7	21.1	20.1	21.7
M59-120	22.0	21.5	22.3	22.0	21.7	21.0	22.1
M59-213	21.3	20.2	21.1	21.2	20.8	19.5	21.7
W1-4221	21.4	20.8	21.6	21.6	20.8	20.5	21.8
W3-4445	21.2	21.4	22.1	21.1	21.4	19.6	21.7
W4-3656	22.5	21.0	24.0	22.7	21.9	21.3	22.3

[1]Irrigated.

Table 36. (Continued)

Strain	Illinois Urbana	Minnesota Waseca	Iowa Sutherland	Missouri Columbia	South Dakota Brookings	Nebraska[1] Mead
Chippewa 64	40.5	40.9	42.3	41.6	38.2	40.0
Hark	39.0	41.7	41.8	41.6	38.8	40.6
A2-5405	40.0	41.2	40.2	41.2	36.3	39.1
A2-5407	41.4	41.5	40.9	41.6	38.2	41.4
M54-160	40.3	40.1	41.4	40.0	37.7	39.5
M57-69	39.2	39.6	41.2	40.5	37.4	40.1
M59-120	38.6	39.3	38.6	40.5	36.6	38.7
M59-213	40.1	39.2	40.4	40.4	35.6	40.0
W1-4221	40.6	41.6	41.4	40.7	38.0	41.5
W3-4445	38.6	39.9	41.3	40.5	38.6	39.9
W4-3656	39.0	39.8	39.2	38.5	36.7	38.1
	Percentage of Oil					
Chippewa 64	21.2	20.0	21.2	21.7	21.7	21.7
Hark	22.3	20.0	21.9	21.3	21.0	20.9
A2-5405	22.0	20.8	22.2	22.1	21.7	21.9
A2-5407	21.6	20.8	20.6	22.2	21.6	21.5
M54-160	23.8	23.2	22.9	22.1	23.5	23.4
M57-69	22.0	20.9	22.4	22.1	21.9	21.8
M59-120	21.9	21.5	23.1	22.7	22.2	22.4
M59-213	21.3	20.6	23.1	21.7	22.1	22.0
W1-4221	21.6	20.6	22.6	21.7	21.7	20.9
W3-4445	21.6	20.5	21.0	21.2	20.8	21.4
W4-3656	22.9	21.4	23.1	23.4	21.9	24.0

Table 37. Three-year summary of data, Uniform Test I, 1966-1968.

Strain	Yield	Rank	Maturity[1]	Lodging	Height	Seed Quality	Seed Weight	Seed Composition Protein	Seed Composition Oil
No. of Tests	64	64	57	47	61	50	47	30	30
Chippewa 64	35.2	6	0	1.6	32	1.9	16.0	41.0	20.5
Hark	37.8	2	+4.2	1.5	33	1.7	16.6	41.8	20.4
A2-5405	39.4	1	+4.4	1.7	32	1.8	17.4	40.7	20.9
A2-5407	36.4	4	+0.6	1.6	32	1.8	16.4	41.3	20.6
M54-160	36.3	5	+0.5	2.0	29	1.9	19.5	39.9	22.3
W1-4221	36.6	3	-0.1	1.9	31	1.7	17.1	41.2	20.4

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

Table 38. Three-year summary of yield and yield rank, Uniform Test I, 1966-1968.

Strain	Mean of 64 Tests	Ontario Ridgetown	Ontario Harrow	Ohio Hoytville	Ohio Wooster	Ohio Columbus	Michigan East Lansing	Michigan Dundee	Indiana Knox	Indiana Lafayette	Wisconsin Durand	Wisconsin Madison
Years Tested		1966-1968	1966-1968	1966-1968	1966-1968	1966-1968	1966-1968	1966-1968	1967-1968	1966-1968	1966-1968	1966-1968
Chippewa 64	35.2	52.5	32.9	30.5	18.7	20.3	37.5	38.3	31.7	40.1	22.8	38.6
Hark	37.8	56.7	37.7	32.4	17.6	18.2	39.5	44.7	34.4	43.2	24.5	41.4
A2-5405	39.4	57.5	39.5	35.0	22.1	25.1	41.6	43.6	35.2	45.4	25.7	45.0
A2-5407	36.4	52.2	35.4	31.6	20.0	17.1	39.0	39.5	31.3	41.1	24.6	42.1
M54-160	36.3	53.2	33.1	30.1	20.1	19.1	40.3	41.3	31.0	38.6	24.4	42.3
W1-4221	36.6	57.9	36.4	31.8	18.9	15.6	40.8	41.1	33.6	42.4	22.8	44.3
	Yield Rank											
Chippewa 64	6	5	6	5	5	2	6	6	4	5	5	6
Hark	2	3	2	2	6	4	4	1	2	2	3	5
A2-5405	1	2	1	1	1	1	1	2	1	1	1	1
A2-5407	4	6	4	4	3	5	5	5	5	4	2	4
M54-160	5	4	5	6	2	3	3	3	6	6	4	3
W1-4221	3	1	3	3	4	6	2	4	3	3	5	2

[1]Irrigated.

Table 38. (Continued)

Strain	Illinois			Minnesota			Iowa		South Dakota		Nebr.[1]
	De-Kalb	Pon-tiac	Ur-bana	St. Paul	Lam-ber-ton	Wa-seca	Suth-er-land	Kana-wha	Re-villo	Brook-ings	Con-cord
Years Tested	1966-1968	1966-1968	1966-1968	1966, 1968	1966-1968	1966-1968	1967-1968	1966-1967	1967-1968	1966-1968	1966-1968
Chippewa 64	45.5	37.7	39.5	37.3	32.5	38.2	25.5	32.7	31.4	25.4	40.1
Hark	48.0	39.0	44.0	36.6	35.6	39.4	27.3	37.2	34.1	27.0	43.2
A2-5405	47.6	41.9	43.9	44.2	37.3	42.8	27.4	36.5	35.6	27.1	43.3
A2-5407	46.3	38.2	41.2	43.5	32.2	41.0	26.6	35.3	31.8	26.8	40.2
M54-160	46.0	36.1	40.9	42.9	32.8	40.9	25.3	33.2	30.9	27.7	42.8
W1-4221	46.1	37.5	40.8	42.4	33.3	40.1	27.2	34.2	30.2	26.7	39.3
	Yield Rank										
Chippewa 64	6	4	6	5	5	6	5	6	4	6	5
Hark	1	2	1	6	2	5	2	1	2	3	2
A2-5405	2	1	2	1	1	1	1	2	1	2	1
A2-5407	3	3	3	2	6	2	4	3	3	4	4
M54-160	5	6	4	3	4	3	6	5	5	1	3
W1-4221	4	5	5	4	3	4	3	4	6	5	6

PRELIMINARY TEST I, 1968

Strain	Parentage	Generation Composited
1. Chippewa 64		
2. Hark		
3. L65-1342	$Wayne^2$ x L62-1926	F_3
4. L66-867	$L10^6$ x L11	F_4
5. L66-892	$L10^6$ x L11	F_4
6. L66-932	$L10^6$ x L11	F_4
7. M60-90	Comet x M319	F_5
8. M60-164	M319 x Comet	F_5
9. M60-217	II-42-4-6 x II-44-46	F_5
10. M60-219	II-42-4-6 x II-44-46	F_5
11. M60-221	II-42-4-6 x II-44-46	F_5
12. M60-222	II-42-4-6 x II-44-46	F_5
13. M60-266	II-42-4-6 x Pridesoy II	F_5
14. M60-313	Wabash x Harosoy	F_5
15. M60-326	Wabash x Harosoy	F_5
16. M60-385	Lindarin x Harosoy	F_5
17. M60-399	Blackhawk x Harosoy	F_5
18. M60-404	Blackhawk x Harosoy	F_5
19. M60-405	Blackhawk x Harosoy	F_5
20. M60-406	Blackhawk x Harosoy	F_5
21. M60-411	Blackhawk x Harosoy	F_5
22. M60-424	Blackhawk x Harosoy	F_5
23. OX1-310	3-11-50 x Blackhawk	F_8
24. SD6412	Blackhawk x Capital	F_9

The fact that Hark ranked first in mean regional yield is not a very favorable indication for this rather large group of experimental strains. M60-222 ranked second in yield but was slightly later and more lodging susceptible. M60-406, which was almost as early as Chippewa 64, yielded well for its maturity, averaging 1.7 bushels above Chippewa 64. M60-399 yielded near the top at several locations but yielded poorly at others.

L65-1342 is a selection from $Wayne^2$ x L62-1926. Since L62-1926 is a BC_5 Clark isoline with the gene m_2 for earliness, and since Wayne is closely related to Clark, L65-1342 is probably nearly isogenic to Wayne except for gene m_2. This gene apparently has shifted Wayne's maturity from Group III to Group I. It performed well compared to many of the other strains but was outyielded by Hark.

The three strains, L66-867, -892, and -932, are sister lines from a BC_5 made to transfer yellow hilum (genes I and r) to a BC Chippewa carrying phytophthora and pustule resistance (L10). Performance was similar to Chippewa 64 although yield and possibly seed quality may be slightly inferior in the first two lines and the third was one day later in maturity.

Table 39. Descriptive data and shattering scores, Preliminary Test I, 1968.

Strain	Flower Color	Pubes-cence Color	Pod Color	Seed Coat Luster	Seed Coat Color	Hilum Color	Shattering Manhattan Kans. 2 wks.	Shattering Manhattan Kans. 4 wks.
Chippewa 64	P	T	Br	S	Y	Bl	1.8	3.0
Hark	P	G	Br	D	Y	Y	1.0	5.0
L65-1342	W+P	T	Br	S	Y	Bl	1.5	4.0
L66-867	P	T	Br	S	Y	Y	1.4	1.8
L66-892	P	T	Br	S	Y	Y	1.0	4.0
L66-932	P	T	Br	S	Y	Y	1.0	3.5
M60-90	P	G	Br	D	Y	Y	2.5	5.0
M60-164	W+P	G	Br	S	Y	Y	2.5	5.0
M60-217	W	G	Br	D	Y	Y	3.0	4.2
M60-219	W	G	Br	D	Y	Y	2.5	5.0
M60-221	W	G	Br	S	Y	Y	1.0	4.1
M60-222	W	G	Br	D	Y	Y	1.0	3.5
M60-266	W	G	Br	S	Y	Y	1.0	3.5
M60-313	P+W	G	Br	D	Y	Y	1.4	3.5
M60-326	P	G	Br+Tan	D	Y	Y	2.5	5.0
M60-385	P	G	Br	D	Y	Y	1.0	4.6
M60-399	W	G	Br	D	Y	Y	1.8	5.0
M60-404	W	G	Br	D+S	Y	Y	1.0	2.0
M60-405	W	G	Br	S	Y	Y	1.0	5.0
M60-406	W	G	Br	S	Y	Y	1.8	4.6
M60-411	W	G	Br	D	Y	Y	3.0	5.0
M60-424	W	G	Br	D	Y	Y	2.8	5.0
OX1-310	W	G	Br	D	Y	Bf	2.4	5.0
SD6412	P	G	Br	D	Y	Y	1.0	2.4

Table 40. Summary of data, Preliminary Test I, 1968.

Strain	Yield	Rank	Maturity[1]	Lodging	Height	Seed Quality	Seed Weight	Seed Composition Protein	Seed Composition Oil
No. of Tests	13	13	13	8	12	9	8	8	8
Chippewa 64	36.6	13	0	1.8	32	2.0	14.9	40.7	21.0
Hark	40.3	1	+3.5	1.8	33	1.7	15.9	40.9	21.0
L65-1342	38.4	3	+2.4	2.2	32	1.9	18.4	41.7	20.9
L66-867	35.4	18	+0.2	2.0	31	2.6	14.7	40.8	20.7
L66-892	35.2	19	-0.4	2.0	33	2.3	14.8	40.8	20.9
L66-932	36.9	10	+1.1	1.9	33	2.1	14.8	40.4	20.5
M60-90	33.4	24	-0.5	1.4	27	1.7	17.0	39.7	20.2
M60-164	34.3	23	+0.8	1.2	29	1.9	18.2	40.0	21.0
M60-217	35.9	16	-0.7	1.5	29	1.7	15.6	39.5	21.2
M60-219	36.8	11	+1.4	1.6	26	2.0	16.2	39.6	21.8
M60-221	36.5	14	+3.0	1.4	27	1.7	16.9	39.4	22.3
M60-222	39.5	2	+4.3	2.3	31	1.7	15.6	39.5	21.8
M60-266	36.7	12	+4.5	1.5	29	1.8	18.0	41.9	20.9
M60-313	37.5	6	+2.3	1.5	30	1.8	17.3	40.1	21.2
M60-326	34.7	21	+0.4	1.3	31	1.7	15.1	39.5	21.8
M60-385	34.6	22	+0.2	2.0	29	1.7	16.2	40.4	21.1
M60-399	37.1	9	+0.1	1.3	30	1.8	15.0	38.7	21.9
M60-404	37.2	7	+1.3	1.8	31	1.7	16.0	39.2	21.5
M60-405	37.2	7	+0.8	1.6	30	1.8	15.9	39.6	21.8
M60-406	38.3	4	+0.7	1.7	30	1.8	16.2	39.7	21.8
M60-411	37.7	5	+0.8	1.5	32	1.7	16.4	41.5	20.9
M60-424	35.5	17	+2.1	1.4	31	1.7	17.4	40.8	20.8
OX1-310	36.1	15	+3.0	1.8	32	1.9	15.6	41.6	20.2
SD6412	34.8	20	+2.7	1.5	28	2.0	13.7	38.8	21.6

[1]Days earlier (-) or later (+) than Chippewa 64 which matured September 19, 117 days after planting.

Table 41. Disease data, Preliminary Test I, 1968.

Strain	BB Urbana Ill. n	BB Ames Ia. n-T	BP Ill. a	BSR Urbana Ill. n	DM Worthington Ind. n	FE2 Ind. a	PR Ind. a	Pyd Ia. a	Pyu Ia. a
Chippewa 64	2	3	2	2	3	4	R	R	I
Hark	3	3	1	2	2	4	S	I	I
L65-1342	2	3	1	2	2	2	Seg	I	R
L66-867	3	3	2	2	2	5	R	I	S
L66-892	2	3	1	2	--	4	R	S	S
L66-932	3	3	2	2	--	4	R	R	I
M60-90	3	2	4	2	3	5	S	R	R
M60-164	2	3	3	2	--	5	Seg	R	R
M60-217	3	2	3	2	--	4	S	R	I
M60-219	3	2	2	2	2	4	S	I	I
M60-221	3	2	3	2	2	4	S	I	R
M60-222	2	3	1	2	3	4	S	I	I
M60-266	3	3	4	3	2	5	S	R	I
M60-313	2	3	4	3	--	5	S	I	I
M60-326	2	3	2	3	--	5	S	R	I
M60-385	3	3	2	2	--	4	S	R	I
M60-399	2	2	3	2	--	4	R	R	R
M60-404	2	3	3	2	--	5	R	I	S
M60-405	2	2	3	2	2	5	R	R	R
M60-406	2	2	4	2	2	4	R	S	I
M60-411	2	3	2	2	3	5	R	I	I
M60-424	2	2	4	2	3	4	R	I	R
OX1-310	2	3	4	2	3	4	R	I	I
SD6412	2	2	4	2	3	3	S	R	R

Table 42. Yield, Preliminary Test I, 1968.

Strain	Mean of 13 Tests	Ontario		Ohio			Michigan	Wisconsin
		Ridge-town	Harrow	Hoyt-ville	Woos-ter	Colum-bus *	East Lansing	Madison
Chippewa 64	36.6	57.4	30.2	38.2	29.0	23.4	22.9	44.2
Hark	40.3	59.9	35.2	41.9	31.2	23.6	25.5	45.4
L65-1342	38.4	60.0	29.7	41.8	28.4	27.8	24.1	45.2
L66-867	35.4	54.0	23.0	32.5	31.0	21.3	28.1	41.7
L66-892	35.2	54.9	32.7	31.9	31.4	17.0	26.2	45.0
L66-932	36.9	55.1	32.0	32.7	32.1	21.5	25.5	47.8
M60-90	33.4	53.3	30.1	33.3	23.3	10.0	21.2	40.2
M60-164	34.3	50.5	29.7	30.4	32.4	14.6	26.1	43.5
M60-217	35.9	57.7	38.5	30.0	24.8	13.5	25.2	46.1
M60-219	36.8	58.5	36.0	38.5	30.3	8.6	29.0	43.6
M60-221	36.5	57.5	35.0	34.5	25.2	17.8	17.5	46.7
M60-222	39.5	63.9	39.5	39.2	31.8	17.1	27.0	46.7
M60-266	36.7	53.3	33.5	36.3	27.1	17.8	31.0	48.0
M60-313	37.5	57.0	30.7	32.1	25.8	23.3	30.4	48.7
M60-326	34.7	48.7	30.1	30.2	17.8	21.4	22.5	47.7
M60-385	34.6	52.1	32.1	33.4	24.1	13.9	22.1	41.4
M60-399	37.1	55.6	35.1	28.8	21.6	15.7	31.5	48.5
M60-404	37.2	59.3	30.6	31.3	26.4	16.6	23.5	44.9
M60-405	37.2	55.2	26.2	31.4	24.2	18.4	24.9	45.4
M60-406	38.3	61.9	31.3	28.9	28.5	16.0	25.6	46.0
M60-411	37.7	59.3	31.1	34.0	31.1	15.5	25.3	45.6
M60-424	35.5	54.3	27.8	30.6	28.5	10.8	25.0	41.0
OX1-310	36.1	57.1	34.4	33.2	31.6	11.4	29.0	38.6
SD6412	34.8	49.3	28.8	32.2	19.8	9.1	27.5	44.0
Coef. of Var. (%)		6.8	6.8	--	--	--	13.0	6.2
L.S.D. (5%)		N.S.	4.5	--	--	--	7.0	5.8
Row Spacing (In.)		24	40	32	32	28	28	36

*Not included in the mean.

Table 42. (Continued)

Strain	Illinois	Minnesota	Iowa	Missouri		South Dakota	
	DeKalb	Waseca	Sutherland	Spickard	Columbia	Revillo	Brookings
Chippewa 64	49.8	43.0	19.8	42.5	34.9	33.0	30.9
Hark	54.9	41.7	22.6	46.1	48.2	38.5	33.3
L65-1342	48.7	43.0	20.6	44.5	41.7	39.3	32.1
L66-867	44.8	39.4	16.8	41.4	40.7	34.4	32.6
L66-892	43.7	37.0	20.6	39.3	35.4	32.7	26.5
L66-932	47.3	43.3	19.2	41.3	41.3	32.5	29.1
M60-90	43.4	36.2	22.0	39.1	31.1	33.8	27.5
M60-164	44.9	38.0	19.3	42.7	34.3	30.8	23.8
M60-217	51.1	35.4	20.8	45.6	27.5	31.4	32.4
M60-219	46.0	33.6	22.9	47.2	30.9	34.8	26.9
M60-221	49.8	38.6	20.9	44.2	30.2	39.2	34.8
M60-222	51.9	35.8	22.0	45.3	45.2	34.8	30.4
M60-266	50.6	34.0	18.8	40.4	35.5	35.5	33.2
M60-313	49.3	36.8	23.3	46.8	38.5	36.1	32.4
M60-326	47.5	37.8	25.6	42.7	34.1	35.6	30.2
M60-385	46.7	34.8	19.5	43.9	34.3	37.5	28.0
M60-399	44.2	43.0	21.5	45.5	33.6	39.5	33.3
M60-404	51.2	39.3	24.5	42.5	39.2	38.1	32.3
M60-405	53.8	39.9	22.6	48.4	40.7	40.8	29.9
M60-406	53.2	42.5	22.5	49.5	37.2	37.3	33.1
M60-411	49.7	39.8	17.5	43.2	42.4	36.7	34.2
M60-424	42.6	41.4	21.4	43.0	42.1	37.0	27.4
OX1-310	46.0	42.0	18.2	44.9	36.5	29.0	28.5
SD6412	44.1	38.2	18.2	41.4	39.6	36.0	33.1
Coef. of Var. (%)	5.2	8.5	11.6	7.0	11.1	10.8	8.2
L.S.D. (5%)	5.2	6.7	5.0	6.3	8.8	N.S.	5.2
Row Spacing (In.)	30	30	27	15	15	42	40

Table 43. Yield rank, Preliminary Test I, 1968.

Strain	Mean of 13 Tests	Ontario		Ohio			Michigan	Wisconsin
		Ridge-town	Harrow	Hoyt-ville	Woos-ter	Colum-bus	East Lansing	Madison
Chippewa 64	13	10	16	5	10	3	20	16
Hark	1	4	4	1	6	2	12	11
L65-1342	3	3	19	2	13	1	18	13
L66-867	18	18	24	13	8	7	6	20
L66-892	19	16	9	16	5	12	9	14
L66-932	10	15	11	12	2	5	12	4
M60-90	24	19	17	10	21	22	23	23
M60-164	23	22	19	20	1	17	10	19
M60-217	16	8	2	22	18	19	15	8
M60-219	11	7	3	4	9	24	4	18
M60-221	14	9	6	7	17	9	24	6
M60-222	2	1	1	3	3	11	8	6
M60-266	12	19	8	6	14	9	2	3
M60-313	6	12	14	15	16	4	3	1
M60-326	21	24	17	21	24	6	21	5
M60-385	22	21	10	9	20	18	22	21
M60-399	9	13	5	24	22	15	1	2
M60-404	7	5	15	18	15	13	19	15
M60-405	7	14	23	17	19	8	17	11
M60-406	4	2	12	23	11	14	11	9
M60-411	5	5	13	8	7	16	14	10
M60-424	17	17	22	19	11	21	16	22
OX1-310	15	11	7	11	4	20	4	24
SD6412	20	23	21	14	23	23	7	17

Table 43. (Continued)

Strain	Illinois	Minnesota	Iowa	Missouri		South Dakota	
	DeKalb	Waseca	Suther-land	Spick-ard	Colum-bia	Re-villo	Brook-ings
Chippewa 64	8	2	16	17	16	19	13
Hark	1	7	5	5	1	5	3
L65-1342	12	2	14	10	5	3	12
L66-867	19	11	24	19	7	17	8
L66-892	22	17	14	23	15	20	23
L66-932	14	1	19	21	6	21	17
M60-90	23	19	8	24	21	18	20
M60-164	18	15	18	15	17	23	24
M60-217	6	21	13	6	24	22	9
M60-219	16	24	4	3	22	15	22
M60-221	8	13	12	11	23	4	1
M60-222	4	20	8	8	2	15	14
M60-266	7	23	20	22	14	14	5
M60-313	11	18	3	4	11	11	9
M60-326	13	16	1	15	19	13	15
M60-385	15	22	17	12	17	7	19
M60-399	20	2	10	7	20	2	3
M60-404	5	12	2	17	10	6	11
M60-405	2	9	5	2	7	1	16
M60-406	3	5	7	1	12	8	6
M60-411	10	10	23	13	3	10	2
M60-424	24	8	11	14	4	9	21
OX1-310	16	6	21	9	13	24	18
SD6412	21	14	22	19	9	12	6

Table 44. Maturity dates, Preliminary Test I, 1968.

Strain	Mean of 13 Tests	Ontario Ridge-town	Ontario Harrow	Ohio Hoyt-ville	Ohio Woos-ter	Ohio Colum-bus	Michigan East Lansing	Wisconsin Madison
Chippewa 64	0	0	0	0	0	0*	0	0
Hark	+3.5	+4	+2	+ 6	+ 3	0	- 1	+5
L65-1342	+2.4	+5	0	+ 3	+ 5	+1	- 1	+3
L66-867	+0.2	+2	+1	- 1	+ 1	+1	- 1	+1
L66-892	-0.4	0	-4	0	+ 2	+1	+ 1	0
L66-932	+1.1	+2	+2	0	+ 3	0	+ 1	+2
M60-90	-0.5	+1	-4	+ 1	+ 3	+1	- 2	+1
M60-164	+0.8	+3	-2	+ 4	+ 6	0	- 1	0
M60-217	-0.7	+5	0	+ 1	+ 4	+1	- 1	+3
M60-219	+1.4	+3	+2	+ 3	+ 4	+1	0	+4
M60-221	+3.0	+4	+4	+ 4	+ 6	+2	0	+5
M60-222	+4.3	+6	+6	+ 6	+ 7	+3	- 1	+8
M60-266	+4.5	+8	+3	+ 7	+ 6	+3	0	+4
M60-313	+2.3	+4	-2	+ 4	+ 3	+1	0	+4
M60-326	+0.4	+2	-2	+ 3	+ 2	+1	0	+1
M60-385	+0.2	+2	0	+ 1	+ 2	0	0	+1
M60-399	+0.1	+3	0	+ 2	+ 4	+1	- 1	+1
M60-404	+1.3	+4	-2	+ 4	+ 3	+2	- 2	+2
M60-405	+0.8	+4	-1	+ 3	+ 3	+2	0	+1
M60-406	+0.7	+4	-1	+ 3	+ 2	0	0	+1
M60-411	+0.8	+3	0	+ 4	+ 4	0	0	+2
M60-424	+2.1	+7	0	+ 3	+ 5	0	+ 1	+4
OX1-310	+3.0	+8	+4	+ 3	+ 4	0	+ 1	+7
SD6412	+2.7	+4	+2	+ 5	+ 4	0	+ 1	+2
Traverse (0)		-4	--	--	--	-5	-10	0
Harosoy 63 (II)	+6.4	+4	+6	+12	+12	+8	+ 1	+8
Date planted	5-25	5-24	6-5	6-4	6-5	6-1	5-17	5-21
Chippewa 64 matured	9-19	9-22	9-16	9-16	9-16	9-10	9-30	9-21
Days to mature	117	121	103	104	103	101	136	123

*Not included in the mean.

Table 44. (Continued)

Strain	Illinois	Minnesota	Iowa	Missouri		South Dakota	
	DeKalb	Waseca	Suther-land	Spick-ard	Colum-bia	Re-villo	Brook-ings
Chippewa 64	0	0	0	0	0	0	0
Hark	+ 8	+6	+4	+2	+4	+1	+1
L65-1342	+ 6	+3	+2	+1	+2	0	+2
L66-867	- 1	0	-2	+1	+1	+1	0
L66-892	0	-1	-4	+2	-2	0	+1
L66-932	+ 1	0	0	+3	+1	-1	0
M60-90	- 1	-2	-3	+3	+1	-3	-1
M60-164	+ 1	-1	-1	+4	0	-2	0
M60-217	+ 3	-2	-4	+3	-2	0	-1
M60-219	+ 4	0	-3	+2	-1	-1	+1
M60-221	+ 6	+2	+2	+3	+1	+1	+1
M60-222	+ 8	+4	+3	+4	+3	0	+2
M60-266	+10	+4	+4	+5	+3	+2	+2
M60-313	+ 9	+1	+2	+3	+2	0	0
M60-326	+ 2	0	-2	+4	-1	-3	-1
M60-385	+ 2	-2	-4	+2	0	-1	-1
M60-399	+ 1	-3	-4	+4	-1	-2	-3
M60-404	+ 4	0	0	+5	+2	-2	-1
M60-405	+ 3	-1	-2	+3	0	-2	-1
M60-406	+ 3	0	-4	+4	-1	-2	0
M60-411	+ 4	-2	0	+1	-2	-3	-1
M60-424	+ 5	0	-4	+5	+1	+1	-1
OX1-310	+ 6	+2	-2	+4	+1	0	+1
SD6412	+ 5	+2	+6	+4	+2	-2	0
Traverse (0)	- 1	-5	-3	--	--	-2	-2
Harosoy 63 (II)	+ 9	+8	+4	+7	+4	+3	+5
Date planted	5-24	5-24	5-23	6-5	5-13	5-17	5-21
Chippewa 64 matured	9-16	9-22	9-8	9-12	8-22	10-8	10-10
Days to mature	115	121	108	99	101	144	142

UNIFORM TEST II, 1968

Strain	Parentage	Generation Composited	Previous Testing (years)
1. Amsoy	Adams x Harosoy	F_8	5
2. C1477	Amsoy^8 x C1253	3 F_3 lines	0
3. Beeson (C1429)	C1253 x Kent	F_7	1
4. Corsoy	Harosoy x Capital	F_9	4
5. Harosoy 63	Harosoy^8 x Blackhawk	3 F_3 lines	7
6. C1426	C1253 x Kent	F_7	1
7. C1431	C1253 x Kent	F_7	1
8. C1447	C1253 x Kent	F_7	P.T. II
9. C1453	C1266R x C1253	F_7	P.T. II
10. 0-378-28	Harosoy 63 x C1270	F_4	P.T. II

A five-year summary for the varieties Amsoy, Corsoy, and Harosoy 63 is given in Tables 53 and 54. Corsoy has an edge over Amsoy in mean yield but it is small (.9 bushel). Amsoy may have a small advantage in lodging resistance and Corsoy a small advantage in seed quality. Corsoy also has a distinct advantage in shattering resistance over both Amsoy and Harosoy 63.

C1477, which is BC_7 Amsoy with phytophthora resistance, yielded well on the average compared to Amsoy and was very similar in other traits. Beeson, which has been in the test two years, did not yield above Amsoy as it had in 1967, although phytophthora rot was observed at a few locations and Beeson is highly resistant. C1426 and C1431, also phytophthora resistant, averaged slightly above Beeson in yield on a regional basis in both 1967 and 1968 but no better than C1477. The three new entries in the test were not equal to Amsoy, Corsoy, or Beeson in regional performance.

Beeson in this test, and Calland in Uniform Test III, were released this past summer and an outline of their development is given below.

BEESON, Group II, and CALLAND, Group III

Beeson and Calland were developed concurrently from the same cross and by the same method at Purdue Agricultural Experiment Station by A. H. Probst, F. A. Laviolette, and K. L. Athow. Each is an F_6 plant progeny developed by the Modified Pedigree Method of Selection in Soybeans (sometimes referred to as Single Seed Descent) described by C. A. Brim, 1966. Crop Sci. 6:220. A detailed outline of the origin and development follows:

1960 - Cross CX368 (C1253 x Kent) made by A. H. Probst in the field at Purdue A.E.S. C1253 is an Indiana phytophthora root-rot resistant selection from Blackhawk x Harosoy. Kent is Indiana selection C1068 from Lincoln x Ogden and is phytophthora root-rot susceptible.

1961 - 10 F_1 plants grown in the field at Lafayette, Indiana.

1961 Fall, F_2 - Seed from 10 F_1 plants composited and 4,800 seeds planted 12 per 6-inch pot in the greenhouse to produce at least one 2-seeded pod per plant. One 2-seeded pod harvested per plant, pods bulked and designated only by cross number and generation. (Two 1-seeded pods were harvested and placed in an unmarked envelope when two-seeded pods were not available.) Overplanting and possibly poor growth conditions resulted in many barren plants and only about 2,300 productive plants resulted.

1962 Spring, F_3 - Two seeds from each F_2 plant planted per hill in 9 spaced-hills per 6-inch pot. Thinned to one plant per hill. One 2-seeded pod per plant harvested as in F_2.

1962 Summer, F_4 - Two seeds from each F_3 plant planted per hill in hills spaced two inches apart in rows across the field. Thinned to one plant per hill. Harvested the same as in F_2. There was no selection among plants.

1962 Fall, F_5 - Planted as in F_3; 9 hills per pot, thinned to one plant per hill. Inoculated each plant with phytophthora by "needle" method. Homozygous phytophthora susceptibles, rps rps, died (theoretically 15/32 of population). Remaining population was theoretically 15/32 Rps Rps and 1/16 Rps rps. Population was reduced to about 700 plants due to killing by phytophthora and the usual losses due to poor germination and barrenness, especially in the crowded populations in the greenhouse. Harvested the same as in F_2.

1963 Spring, F_6 - Two seeds from each F_5 plant planted per hill with 2 hills per 6-inch pot in the greenhouse. Thinned to one plant per hill with the hope of getting 20 to 30 seeds per plant. Seed from each plant threshed and placed in a separate, unmarked envelope. Seed in excess of 30 per plant was discarded.

1963 Summer, F_7 - 641 F_6, 3-foot, plant-rows planted consecutively and serpentine in field rows with 3-foot alleys between the ends of each plot. Planted July 2. Only maturity data taken. Due to late planting no selection was attempted among progenies.

1964 Summer, F_8 - 633 progenies, with appropriate checks, were planted in a two-replication, 16-foot, single-row yield trial at Lafayette. Entries were grouped within maturity Groups II, III, and IV. Beeson (CX368-339) was highest yielding among the Group II progenies and Calland (CX368-536) was the highest yielding among all 633 entries and checks.

1965, F_9 - 218 entries were sorted by maturity and entered in five yield trials at Lafayette and one at Evansville. Beeson (CX368-339) averaged 61.6 bus./A. and ranked second highest in yield among 112 Group II entries. Calland (CX368-536) averaged 65.0 bus./A. and ranked second highest in yield among 76 Group III entries. Entries retained on a yield basis were tested for phytophthora.

1966, F_{10} - CX368-339 assigned C1429 (Beeson) and entered in Uniform Preliminary Test II. It ranked first in yield in 16 tests. Also, first

in CX368 IIB-1 test at Lafayette. Produced 22.5 pounds of "breeder" seed from a rogued seed-plot from seed originating from an F_6 plant.

CX368-536 assigned C1437 (Calland) and entered in Uniform Preliminary Test III. It ranked first in yield in 16 tests. Also, entered as "extra" variety in five Indiana Uniform Group III Tests and in CX368B Test at two Indiana locations. Performed well. Produced 23 pounds of "breeder" seed from a rogued seed-plot from seed originating from an F_6 plant.

1967, F_{11} - Beeson (C1429) tested in Uniform Test II. Multiplied 22.5 pounds of breeder seed on 6.85 acres at Lafayette with a production of 215.4 bushels of cleaned seed.

Calland (C1437) tested in Uniform Test III. Multiplied 23 pounds of breeder seed on 1.37 acres at Lafayette with a production of 60.2 bushels of cleaned seed. Seed of Beeson and Calland divided among releasing states as shown below.

44 F_{10} plant-rows each of Beeson and Calland grown at Lafayette to produce elite breeder's seed. Seed composited from plant rows after checking. 150 and 152 pounds of elite breeder's seed of Beeson and Calland allotted to Agricultural Alumni Seed Improvement Association, Lafayette, for multiplication and a continuing source of foundation seed for Indiana and other states following 1969 harvest. Ten pounds of each variety retained in cold storage at Lafayette.

1968, F_{12} - Beeson (C1429) in Uniform Test II and Calland (C1437) in Uniform Test III. Multiplication of foundation seed made in the several releasing states.

C1429 named Beeson and C1437 named Calland. These varieties were officially named and released August 31, 1968.

Seed of each variety allotted to certified soybean seed growers in the several releasing states for 1969 seed production.

Seed distribution and production of Beeson and Calland

State	BEESON				CALLAND			
	For planting, 1968	Planted, 1968	Produced, 1968	For planting, 1969	For planting, 1968	Planted, 1968	Produced, 1968	For planting, 1969
	Bu.	Acres	Bu.	Bu.	Bu.	Acres	Bu.	Bu.
Michigan[a]	--	--	--	15[a]	--	--	--	--
Ontario	5 lb.	0.1	4	4	--	--	--	--
Illinois	100.0	125	4,692	4,320	19.0	25.0[b]	643	607
Indiana	60.3	186	4,248	3,692	10.2	40.0	1,190	1,011
Maryland[a]	--	--	--	1[a]	--	--	--	5[a]
Missouri	10.0	14	475	453	7.0	8.0	269	256
Ohio	33.0	71	1,690	1,600	1.5	3.0	125	119
Nebraska	12.0	11	620	595	3.5	6.0	330	315
Iowa	--	--	--	--	18.0	46.0	1,750	1,695
Kansas	--	--	--	--	1.0	1.5	47	47
TOTAL	215.4	407	11,729	10.664	60.2	129.5	4,354	4,050

[a]Michigan and Maryland are tentatively planning to release Beeson. Maryland is also tentatively planning to release Calland. Seed for 1969 multiplication will be furnished from Indiana's available seed for 1969 planting.

[b]About 8 acres lost in production. About 17 acres harvested.

Table 45. Descriptive data and shattering scores, Uniform Test II, 1968.

Strain	Flower Color	Pubescence Color	Pod Color	Seed Coat Luster	Seed Coat Color	Hilum Color	Peroxidase	Fluor. Light	Shattering: Manhattan Kans. 4 wks.	Shattering: Manhattan Kans. 6 wks.	Shattering: Five Points Cal.
Amsoy	P	G	Tan	S	Y	Y	H	L	4.1	5.0	2
C1477	P	G	Tan	S	Y	Y	H	L	3.3	5.0	2
Beeson	P	G	Br	S	Y	Ib	L	L	5.0	5.0	3
Corsoy	P	G	Br	D	Y	Y	H	E	1.2	3.2	1
Harosoy 63	P	G	Br	D	Y	Y	H	L	4.6	5.0	3
C1426	P	G	Br	S	Y	Ib	L	L	4.8	5.0	2
C1431	P	G	Br	D	Y	Ib	H	L	4.8	5.0	2
C1447	P	G	Br	D	Y	Ib	H	L	3.8	5.0	2
C1453	P	G	Br	D+S	Y	Ib	H	L	4.2	5.0	1
0-378-28	P	G	Br	D	Y	Y	H	L	3.4	3.8	2

Table 46. Summary of data, Uniform Test II, 1968.

Strain	Yield	Rank	Maturity[1]	Lodging	Height	Seed Quality	Seed Weight	Seed Composition Protein	Seed Composition Oil
No. of Tests	33	33	32	26	33	24	23	15	15
Amsoy	43.6	5	+2.8	2.6	40	2.5	17.0	38.5	22.2
C1477	44.2	2	+3.2	2.5	41	2.5	16.9	38.4	22.1
Beeson	43.3	6	+2.9	2.1	37	2.4	17.8	39.6	21.3
Corsoy	44.5	1	+0.9	2.7	38	2.1	15.7	39.2	21.8
Harosoy 63	41.5	9	0	2.7	40	2.2	17.8	39.7	21.4
C1426	44.1	3	+4.2	2.3	39	2.3	18.7	40.2	21.7
C1431	44.1	3	+4.4	1.8	36	2.5	17.5	40.3	21.1
C1447	41.7	8	+2.8	2.4	39	2.4	17.5	41.3	21.7
C1453	42.6	7	-0.8	2.2	37	2.0	15.2	40.7	21.8
0-378-28	40.8	10	+1.2	2.4	35	2.3	19.8	40.6	21.0

[1]Days earlier (-) or later (+) than Harosoy 63 which matured September 21, 116 days after planting.

Table 47. Disease data, Uniform Test II, 1968.

Strain	BB					BSR			DM					PR			
	Urbana Ill. n	Ames Ia. n-D	Ames Ia. n-T	BP Ill. a	BP Ia. a	Urbana Ill. n	Ames Ia. n[1]	Kanawha Ia. n[1]	Knox Ind. n	Worthington Ind. n	Edgewood Ill. n	Trenton Ill. n	FE2 Ind. a	Ind. a	Stoneville Miss. n	Pyd Ia. a	Pyu Ia. a
Amsoy	2	3.5	3	1	4.5	2	75	55	1.8	2	2	2.3	4	S	2	I	I
C1477	1	3.5	3	2	4	1	25	53	2	2.3	2	2	3	R	1	R	S
Beeson	2	5	2	3	3.5	2	70	80	2.3	3.5	3	2.7	1	R	1.5	R	R
Corsoy	1	4.5	2	4	4.5	2	55	55	2.3	2.8	4	3	4	S	4	I	I
Har. 63	3	4.5	2	1	5	3	30	38	2	2.5	3	2.3	4	R	1	I	S
C1426	3	5	2	2	4.5	2	75	68	3	2.3	3	2.3	4	R	1	I	S
C1431	3	4.5	2	1	4	2	85	85	2.5	2.3	3	2.3	2	R	1	I	I
C1447	3	4.5	2	2	4	2	85	83	2.3	2.5	2	2.3	3	R	1	I	S
C1453	2	4	2	1	4.5	2	90	75	2.3	3.3	3	2.7	1	R	1	S	I
0-378-28	3	4	3	3	4.5	2	50	65	2.8	3.3	4	2.7	4	R	1	S	I

[1]Percent infected plants.

Table 48. Yield and yield rank, Uniform Test II, 1968.

Strain	Mean of 33 Tests	Ontario Ridge-town	Ontario Har-row	Ohio Hoyt-ville	Ohio Woos-ter	Ohio Co-lum-bus	Michigan East Lan-sing	Michigan Dun-dee	Indiana Knox	Indiana Bluff-ton	Indiana Lafa-yette	Indiana Green-field	Indiana Wor-thing-ton
Amsoy	43.6	58.9	37.8	37.4	32.6	24.4	34.0	45.6	48.6	41.0	43.6	36.8	48.5
Cl477	44.2	64.3	40.4	34.8	37.0	25.1	39.1	42.1	48.4	43.4	48.3	35.3	47.8
Beeson	43.3	61.5	36.4	31.7	33.2	31.0	34.6	45.0	48.4	44.8	42.5	36.9	53.2
Corsoy	44.5	62.0	35.2	33.8	34.5	26.1	37.5	42.1	48.0	39.2	44.9	31.2	45.8
Harosoy 63	41.5	56.6	36.6	35.9	40.9	31.1	38.3	41.6	40.7	42.1	40.3	33.1	46.1
Cl426	44.1	65.6	36.2	25.9	37.0	22.9	34.0	41.6	43.0	42.5	44.3	32.5	51.9
Cl431	44.1	67.0	40.4	32.9	34.3	28.8	34.3	48.2	43.5	40.5	45.7	35.7	48.9
Cl447	41.7	58.5	37.5	30.1	38.5	28.3	37.3	39.0	46.3	39.7	41.3	31.3	45.8
Cl453	42.6	64.2	38.4	26.8	33.3	25.9	34.5	42.0	45.5	41.7	41.3	33.8	43.9
0-378-28	40.8	59.5	38.1	31.6	32.5	26.6	36.0	32.3	43.0	41.4	44.5	33.9	46.1
C.V. (%)		5.8	6.4	--	--	--	10.3	15.5	8.3	6.9	6.0	7.9	7.9
L.S.D. (5%)		5.1	N.S.	--	--	--	5.3	9.4	N.S.	4.1	3.7	3.7	N.S.
Row Sp.(In.)		24	40	32	32	28	28	28	40	38	38	38	38

	Yield Rank												
Amsoy	5	8	5	1	9	9	9	2	1	7	6	2	4
Cl477	2	3	1	3	3	8	1	4	2	2	1	4	5
Beeson	6	6	8	6	8	2	6	3	2	1	7	1	1
Corsoy	1	5	10	4	5	6	3	4	4	10	3	10	8
Harosoy 63	9	10	7	2	1	1	2	7	10	4	10	7	6
Cl426	3	2	9	10	3	10	9	7	8	3	5	8	2
Cl431	3	1	1	5	6	3	8	1	7	8	2	3	3
Cl447	8	9	6	8	2	4	4	9	5	9	8	9	8
Cl453	7	4	3	9	7	7	7	6	6	5	8	6	10
0-378-28	10	7	4	7	10	5	5	10	8	6	4	5	6

*Not included in the mean.
[1]Irrigated.

Table 48. (Continued)

Strain	Wisconsin Madison	Illinois De-Kalb	Illinois Pontiac	Illinois Urbana	Illinois Girard	Illinois Edgewood	Illinois Trenton	Illinois Eldorado	Illinois Carbondale	Minnesota Lamberton	Minnesota Waseca	Iowa Sutherland
Amsoy	44.5	51.2	33.5	60.9	49.8	47.0	50.9	48.0	40.0	37.2	46.6	29.9
C1477	43.7	50.1	33.4	61.4	51.6	45.3	49.0	48.6	39.2	37.4	46.8	29.7
Beeson	48.7	53.2	30.7	54.4	41.6	44.6	44.5	46.3	35.3	33.0	48.4	28.4
Corsoy	50.3	60.1	36.5	63.9	54.9	43.4	50.5	49.4	36.5	38.1	46.0	27.2
Harosoy 63	46.1	51.5	33.4	58.1	50.3	36.7	45.0	46.7	36.5	32.5	41.2	25.6
C1426	54.4	53.9	35.7	60.9	50.9	47.3	44.6	47.9	38.5	39.0	49.7	30.2
C1431	50.1	52.0	32.3	59.8	53.9	41.5	44.8	45.8	35.9	36.3	49.6	31.7
C1447	43.7	48.7	33.7	57.0	49.3	43.5	46.0	47.9	36.6	33.0	42.6	27.4
C1453	47.9	54.7	30.5	58.5	53.2	43.7	49.3	43.1	37.9	35.5	42.8	30.4
O-378-28	49.9	47.3	33.7	54.9	49.6	37.1	45.9	46.3	35.4	32.3	43.0	25.8
C.V. (%)	7.9	6.7	10.8	4.6	6.3	5.5	4.3	4.7	7.4	8.9	9.1	9.6
L.S.D. (5%)	5.5	6.0	N.S.	4.7	5.5	4.1	3.4	N.S.	N.S.	5.0	5.9	4.0
Row Sp.(In.)	36	30	38	30	30	38	36	36	40	30	30	27

	Yield Rank											
Amsoy	8	7	5	3	7	2	1	3	1	4	5	4
C1477	9	8	6	2	4	3	4	2	2	3	4	5
Beeson	5	4	9	10	10	4	10	7	10	7	3	6
Corsoy	2	1	1	1	1	7	2	1	6	2	6	8
Harosoy 63	7	6	6	7	6	10	7	6	6	9	10	10
C1426	1	3	2	3	5	1	9	4	3	1	1	3
C1431	3	5	8	5	2	8	8	9	8	5	2	1
C1447	9	9	3	8	9	6	5	4	5	7	9	7
C1453	6	2	10	6	3	5	3	10	4	6	8	2
O-378-28	4	10	3	9	8	9	6	7	9	10	7	9

Table 48. Yield and yield rank, Uniform Test II, 1968 (Continued)

Strain	Iowa		Missouri			South Dakota		Nebraska[1]		California[1]		
	Clarence	Ames	Spickard	Columbia	Mt. Vernon	Brookings	Centerville	Concord	Mead	Davis *	Five Points *	Shafter *
Amsoy	55.4	47.1	51.1	45.2	35.1	34.3	33.0	49.9	57.7	26.5	20.3	14.8
C1477	52.3	47.5	46.6	49.7	38.9	34.2	36.3	51.3	60.4	28.3	23.7	17.5
Beeson	61.2	53.3	50.8	45.8	39.0	31.1	32.7	50.4	57.1	22.2	21.6	17.2
Corsoy	59.5	50.6	54.0	44.3	31.6	35.1	42.7	54.7	59.1	23.4	23.9	14.5
Harosoy 63	49.8	46.0	48.2	36.8	32.4	30.7	35.6	48.8	55.2	19.3	20.1	17.9
C1426	64.6	52.4	46.0	49.3	35.4	32.7	38.2	49.6	56.3	23.0	19.0	15.2
C1431	66.4	48.9	50.0	51.1	31.7	30.6	36.1	51.0	55.5	24.0	13.7	22.8
C1447	50.9	48.4	45.3	42.3	30.8	31.2	35.1	46.6	61.3	19.1	12.7	18.6
C1453	54.2	47.9	50.9	43.3	30.6	35.9	35.1	50.9	57.0	20.3	22.3	13.5
0-378-28	49.9	42.0	46.4	43.6	35.5	29.1	29.7	46.6	56.3	19.4	25.2	20.9
C.V. (%)	7.5	6.5	9.5	7.2	10.9	9.1	14.2	9.1	7.5	--	13.0	23.0
L.S.D. (5%)	6.1	4.6	6.7	4.7	5.4	4.3	N.S.	5.9	6.3	--	3.8	5.7
Row Sp.(In.)	27	27	15	15	15	40	40	30	30	30	30	40

Yield Rank

Amsoy	5	8	2	5	5	3	8	6	4	2	6	8
C1477	7	7	7	2	2	4	3	2	2	1	3	5
Beeson	3	1	4	4	1	7	9	5	5	6	5	6
Corsoy	4	3	1	6	8	2	1	1	3	4	2	9
Harosoy 63	10	9	6	10	6	8	5	8	10	9	7	4
C1426	2	2	9	3	4	5	2	7	7	5	8	7
C1431	1	4	5	1	7	9	4	3	9	3	9	1
C1447	8	5	10	9	9	6	6	9	1	10	10	3
C1453	6	6	3	8	10	1	6	4	6	7	4	10
0-378-28	9	10	8	7	3	10	10	9	7	8	1	2

Table 49. Maturity dates, Uniform Test II, 1968.

Strain	Mean of 32 Tests	Ontario		Ohio			Michigan		Indiana			
		Ridge-town	Har-row	Hoyt-ville	Woos-ter	Co-lum-bus	East Lan-sing	Dun-dee	Knox	Bluff-ton	Lafa-yette	Green-field
Amsoy	+2.8	+2	+2	0	0	+ 1	-1	-2	-1	+1	+5	+ 4
Cl477	+3.2	+2	+2	0	0	0	-1	-2	+3	+2	+5	+ 5
Beeson	+2.9	+2	+2	-2	-2	- 1	+1	-2	+1	+2	+1	+ 4
Corsoy	+0.9	+1	-1	+1	+1	- 3	0	0	0	0	+3	+ 1
Harosoy 63	0	0	0	0	0	0	0	0	0	0	0	0
Cl426	+4.2	+2	+7	-1	-2	+ 2	+2	0	+8	+5	+5	+ 8
Cl431	+4.4	+6	+6	+2	0	0	+2	+1	+9	+5	+6	+ 7
Cl447	+2.8	+2	+3	0	0	+ 2	+1	-1	+8	+7	+4	+ 4
Cl453	-0.8	0	-3	0	-1	+ 2	0	-1	-4	-1	-2	0
0-378-28	+1.2	+1	+2	+1	+3	+ 1	+1	-2	+2	+2	+2	+ 3
Hark (I)		-2	-3	-6	-9	- 8	-3	-2	-5	--	-4	--
Wayne (III)		--	+9	+4	+6	+12	--	--	--	+9	+9	+11
Date planted	5-28	5-24	6-5	6-4	6-5	6-1	5-17	5-18	6-8	5-22	6-12	6-11
Harosoy 63 mat.	9-21	9-27	9-22	9-28	9-28	9-18	10-1	10-3	9-25	9-21	9-25	9-20
Days to mature	116	126	109	116	115	109	137	138	109	122	105	101

*Not included in the mean.
[1]Irrigated.

Table 49. Maturity dates, Uniform Test II, 1968 (Continued)

Strain	Indiana		Illinois								Minnesota
	Worthington	Wisconsin Madison	DeKalb	Pontiac	Urbana	Girard	Edgewood	Trenton	Eldorado	Carbondale	Lamberton
Amsoy	+3	+3	+5	+ 3	+5	+4	+6	+1	+3	+2	+3
Cl477	+3	+4	+4	+ 3	+5	+4	+5	+1	+2	+3	+3
Beeson	0	+3	+4	+ 4	+5	+1	+5	+1	0	+1	+4
Corsoy	+3	+1	+1	+ 2	+3	+1	+3	0	0	+1	0
Harosoy 63	0	0	0	0	0	0	0	0	0	0	0
Cl426	+2	+4	+4	+ 4	+6	+2	+6	+3	+2	+3	+4
Cl431	+2	+6	+4	+ 4	+4	+2	+6	+3	+3	+5	+4
Cl447	+1	+2	+2	+ 2	+3	0	+4	0	0	+3	+2
Cl453	-4	-4	0	+ 2	-2	-4	0	-4	-1	0	-1
0-378-28	+1	0	+1	+ 1	+1	0	+1	0	0	+3	-1
Hark (I)	--	-3	-1	- 2	-4	-5	-1	-6	-2	--	-2
Wayne (III)	+9	--	+8	+11	+9	+8	+9	+6	+7	+9	--
Date planted	6-8	5-21	5-24	6-6	6-5	5-17	6-7	6-10	6-6	6-12	5-14
Harosoy 63 mat.	9-17	9-29	9-25	9-11	9-20	9-9	9-9	9-16	9-8	9-8	9-30
Days to mature	101	131	124	97	107	115	94	98	94	88	139

Table 49. (Continued)

Strain	Minnesota	Iowa			Missouri		South Dakota		Nebraska[1]		California[1]
	Waseca	Sutherland	Clarence	Ames	Spickard	Columbia	Brookings	Centerville	Concord	Mead	Davis *
Amsoy	+5	+ 5	+ 6	+ 6	+2	+7	+4	+1	+2	+3	0
C1477	+6	+ 6	+ 8	+ 8	+2	+7	+5	0	+2	+4	0
Beeson	+5	+10	+ 9	+ 9	+2	+7	+8	+1	+3	+4	0
Corsoy	0	+ 2	+ 1	+ 1	+2	+3	0	-1	-1	+3	+1
Harosoy 63	0	0	0	0	0	0	0	0	0	0	0
C1426	+4	+10	+10	+10	+1	+8	+5	+3	+4	+4	0
C1431	+3	+ 6	+ 7	+ 7	+5	+9	+6	+3	+3	+4	-1
C1447	+2	+ 5	+ 6	+ 6	+1	+6	+5	+1	+2	+5	0
C1453	0	+ 2	0	0	-1	+1	+2	0	-2	+1	0
0-378-28	-2	+ 2	+ 2	0	+1	+6	+1	-1	+2	+4	0
Hark (I)	-3	0	+ 1	+ 2	-4	-2	-2	-2	--	-1	-4
Wayne (III)	--	--	+13	+14	+8	--	--	+9	--	+7	--
Date planted	5-24	5-23	5-15	5-13	6-5	5-13	5-21	5-19	5-24	5-21	6-18
Harosoy 63 mat.	9-30	9-12	9-15	9-16	9-19	8-26	10-15	10-4	10-1	9-20	10-4
Days to mature	129	112	123	126	106	105	147	138	130	122	108

Table 50. Lodging scores and plant height, Uniform Test II, 1968.

Strain	Mean of 26 Tests	Ontario		Ohio			Michigan		Indiana				
		Ridge-town	Har-row	Hoyt-ville*	Woos-ter*	Co-lum-bus*	East Lan-sing	Dun-dee	Knox	Bluff-ton	Lafa-yette	Green-field	Wor-thing-ton
Amsoy	2.6	2.3	2.2	1.0	1.0	1.0	1.0	4.0	1.1	3.5	2.9	2.0	4.0
C1477	2.5	2.5	1.5	1.0	1.0	1.0	2.0	4.0	1.4	3.5	2.3	2.8	3.0
Beeson	2.1	3.0	1.0	1.0	1.0	1.0	1.0	3.0	1.0	3.3	1.6	2.0	1.5
Corsoy	2.7	3.0	2.8	1.0	1.0	1.0	2.0	4.0	1.5	3.5	2.8	2.5	3.0
Harosoy 63	2.7	2.8	2.8	1.0	1.0	1.0	2.0	4.0	1.3	3.8	3.1	3.0	3.3
C1426	2.3	2.0	2.0	1.0	1.0	1.0	2.0	3.0	1.1	3.3	2.2	2.8	2.5
C1431	1.8	2.0	1.5	1.0	1.0	1.0	1.0	3.0	1.0	2.8	2.3	2.0	1.5
C1447	2.4	2.8	2.5	1.0	1.0	1.0	1.0	3.0	1.3	3.8	2.3	2.8	2.0
C1453	2.2	2.3	1.0	1.0	1.0	1.0	2.0	3.0	1.1	3.0	2.1	2.5	1.8
0-378-28	2.4	2.5	1.8	1.0	1.0	1.0	2.0	5.0	1.0	3.3	2.4	2.8	2.8
	Mean of 33 Tests	Plant Height											
Amsoy	40	43	40	38	31	22	34	50	39	37	46	39	46
C1477	41	45	42	37	31	27	34	51	40	38	50	39	47
Beeson	37	41	38	34	30	25	32	40	36	38	42	36	42
Corsoy	38	43	37	38	31	24	32	44	37	34	43	35	44
Harosoy 63	40	41	42	40	32	30	34	52	38	37	45	40	46
C1426	39	42	40	33	30	26	34	44	37	37	46	37	45
C1431	36	40	38	35	28	25	30	40	35	32	43	36	41
C1447	39	40	41	36	31	23	34	48	38	40	43	36	43
C1453	37	39	38	33	29	22	32	38	36	35	43	37	43
0-378-28	35	38	36	33	29	25	32	33	32	35	40	35	38

*Not included in the mean.
[1]Irrigated.

Table 50. (Continued)

Strain	Wisconsin Madison	Illinois De-Kalb	Illinois Pontiac *	Illinois Urbana	Illinois Girard	Illinois Edgewood	Illinois Trenton	Illinois Eldorado	Illinois Carbondale *	Minnesota Lamberton	Minnesota Waseca	Iowa Sutherland
Amsoy	3.5	3.0	1.0	1.9	3.4	1.4	1.6	3.0	1.0	3.5	3.5	1.3
C1477	3.3	3.3	1.0	1.7	3.3	1.4	1.4	2.6	1.0	3.0	3.5	1.4
Beeson	2.8	2.3	1.0	1.3	3.2	1.3	1.4	1.6	1.0	3.8	3.5	1.2
Corsoy	3.5	3.0	1.0	2.6	2.3	1.3	2.2	2.8	1.0	3.8	2.5	1.3
Harosoy 63	3.6	3.7	1.0	2.5	3.0	1.3	2.3	2.7	1.0	3.5	3.0	1.3
C1426	3.5	2.3	1.0	2.0	1.8	1.4	2.3	1.6	1.0	3.5	3.0	1.3
C1431	3.0	1.7	1.0	1.3	1.3	1.1	1.4	1.2	1.0	2.8	3.8	1.4
C1447	3.6	3.0	1.0	2.3	2.8	1.4	2.0	1.9	1.0	3.5	2.8	1.4
C1453	2.8	3.0	1.0	1.4	3.0	1.3	2.1	2.3	1.0	3.0	2.2	1.2
0-378-28	3.4	3.7	1.0	1.6	2.9	1.1	1.3	2.4	1.0	3.2	2.5	1.2
	Plant Height											
Amsoy	42	48	39	45	46	38	44	44	36	40	40	30
C1477	45	50	37	46	47	40	45	47	35	40	43	34
Beeson	41	47	33	44	41	37	41	40	34	36	39	30
Corsoy	45	47	33	41	41	31	41	41	32	39	39	28
Harosoy 63	48	47	35	44	45	33	45	44	34	40	40	30
C1426	46	50	39	47	44	39	43	44	38	39	39	30
C1431	41	44	33	41	40	32	39	40	31	38	38	28
C1447	47	48	37	44	44	36	41	44	33	36	39	29
C1453	45	47	36	42	41	36	41	40	33	39	40	30
0-378-28	40	43	31	39	38	30	38	39	30	34	37	27

Table 50. Lodging scores and plant height, Uniform Test II, 1968 (Continued)

Strain	Iowa		Missouri			South Dakota		Nebraska[1]		California[1]		
	Clarence	Ames	Spickard	Columbia	Mt. Vernon	Brookings	Centerville	Concord	Mead	Davis *	Five Points *	Shafter *
Amsoy	4.0	2.1	2.8	3.0	1.8			2.8	2.3	4.0	2.0	1.0
C1477	3.7	2.0	2.3	2.0	1.8			3.0	2.1	2.0	2.0	1.0
Beeson	2.4	1.9	2.5	1.5	1.0			2.8	2.5	3.0	1.0	3.0
Corsoy	3.4	2.2	3.3	3.5	2.0			2.5	2.5	2.0	2.0	2.0
Harosoy 63	3.3	2.3	3.0	2.3	2.0			2.5	2.4	3.0	3.0	2.0
C1426	2.4	1.8	2.3	1.8	1.8			2.8	2.0	3.0	2.0	2.0
C1431	2.4	1.7	1.3	1.6	1.0			1.8	1.5	3.0	2.0	1.0
C1447	2.7	1.9	2.3	2.8	2.0			2.0	2.0	4.0	2.0	2.0
C1453	3.6	2.0	2.0	3.5	2.0			2.0	1.8	3.0	3.0	2.0
0-378-28	3.8	1.9	2.5	1.5	1.0			2.2	1.4	2.0	2.0	3.0

	Plant Height											
										*	*	*
Amsoy	50	30	40	34	33	36	44	49	45	43	42	27
C1477	54	31	41	36	35	37	45	52	48	45	43	28
Beeson	45	31	41	32	29	32	40	46	42	41	40	27
Corsoy	46	32	40	32	32	33	44	46	40	41	35	25
Harosoy 63	47	31	41	34	32	33	41	49	45	45	40	28
C1426	45	31	40	35	33	33	42	48	42	41	41	26
C1431	45	32	39	28	31	34	41	46	39	40	38	28
C1447	49	31	39	32	33	34	41	45	43	42	41	26
C1453	46	29	37	31	31	34	41	46	41	42	40	25
0-378-28	42	32	37	30	29	30	40	43	39	40	38	26

Table 51. Seed quality scores and seed weight, Uniform Test II, 1968.

Strain	Mean of 24 Tests	Ontario		Ohio			Michigan		Indiana			
		Ridge-town*	Har-row	Hoyt-ville	Woos-ter	Co-lum-bus	East Lan-sing	Dun-dee	Knox	Bluff-ton	Lafa-yette	Green-field
Amsoy	2.5	2.0	2.0	2.5	2.2	3.0			2.0	2.0	2.0	1.5
C1477	2.5	2.0	2.0	2.2	2.5	2.7			2.5	2.5	2.0	2.0
Beeson	2.4	2.0	1.5	2.7	2.5	2.5			3.0	1.5	1.5	2.0
Corsoy	2.1	2.0	1.8	1.5	2.0	2.7			1.5	1.5	1.5	2.0
Harosoy 63	2.2	2.0	2.0	2.0	1.5	3.0			2.0	1.5	1.0	1.5
C1426	2.3	2.0	2.0	2.0	1.2	2.0			2.0	2.0	2.0	2.0
C1431	2.5	2.0	2.8	2.0	2.0	3.0			3.0	1.5	2.0	2.5
C1447	2.4	2.0	2.8	1.5	1.5	3.0			2.5	2.0	2.5	2.0
C1453	2.0	2.0	1.0	1.7	2.0	3.0			2.0	1.5	1.5	1.5
0-378-28	2.3	2.0	2.0	2.0	1.5	2.7			2.5	2.0	2.0	2.0
	Mean of 23 Tests	Seed Weight										
Amsoy	17.0	17.4	17.0	17.0	16.4	15.6	17.6	19.8	18.0	18.3	16.9	15.0
C1477	16.9	18.0	16.9	17.4	16.9	15.8	15.2	18.1	19.1	19.8	17.0	15.3
Beeson	17.8	17.7	16.8	15.4	14.4	15.0	17.5	23.2	20.7	20.9	16.9	16.9
Corsoy	15.7	14.2	14.4	18.6	17.7	16.3	19.4	17.3	16.2	17.4	14.8	14.6
Harosoy 63	17.8	19.2	17.7	19.5	20.4	16.8	20.4	21.0	19.5	20.2	16.9	16.8
C1426	18.7	18.9	17.2	17.9	18.3	17.7	19.4	20.5	20.7	20.9	18.2	17.3
C1431	17.5	19.0	17.2	17.4	17.7	16.2	16.2	20.8	19.2	19.7	17.7	16.9
C1447	17.5	16.6	17.4	18.2	17.6	16.7	15.8	19.6	20.3	20.0	17.6	16.8
C1453	15.2	15.2	13.6	15.1	14.1	14.1	15.6	17.2	15.6	17.3	15.1	15.3
0-378-28	19.8	20.8	20.2	19.6	19.5	18.6	18.0	19.1	22.8	24.0	20.3	20.2

*Not included in the mean.
[1]Irrigated.

Table 51. Seed quality scores and seed weight, Uniform Test II, 1968 (Continued)

Strain	Indiana Worthington	Wisconsin Madison	Illinois De-Kalb	Pontiac	Urbana	Girard	Edgewood	Trenton	Eldorado	Carbondale	Minnesota Lamberton	Waseca
Amsoy	3.0	3.0	1.7	2.0	1.3	3.2	2.5	2.0	3.3	5.0		2.5
C1477	3.5	2.0	1.8	1.8	1.3	3.0	2.5	1.8	3.3	4.0		2.8
Beeson	3.0	1.0	1.3	2.2	1.8	3.2	2.7	2.0	3.3	3.0		2.5
Corsoy	3.5	2.0	1.0	1.5	1.0	2.5	2.5	2.0	2.7	5.0		2.0
Harosoy 63	3.5	2.0	1.0	1.5	1.8	2.8	2.5	2.0	3.5	4.0		2.5
C1426	3.5	2.0	1.2	1.8	1.7	3.3	2.5	1.5	2.8	4.0		2.5
C1431	3.0	3.0	1.8	1.8	1.2	2.7	2.5	1.8	2.8	4.0		2.5
C1447	3.0	2.0	1.0	1.7	1.5	3.0	2.5	1.8	3.2	5.0		2.8
C1453	2.5	1.0	1.2	1.8	1.7	2.8	2.5	1.7	2.7	3.0		2.8
0-378-28	2.5	2.0	1.7	1.5	2.0	3.2	2.3	2.0	2.8	4.0		2.5

Seed Weight

Amsoy	18.4		18.4	12.7	17.4		15.2	16.4	16.3	18.0
C1477	19.0		17.9	12.4	17.1		15.2	16.3	16.7	16.9
Beeson	19.8		18.9	13.8	17.3		16.4	17.4	18.5	18.3
Corsoy	16.3		15.6	12.3	16.0		13.7	15.7	14.8	14.9
Harosoy 63	18.9		17.2	12.8	18.6		14.9	16.2	16.8	17.2
C1426	20.4		19.3	14.6	19.1		17.0	17.4	18.8	18.6
C1431	19.0		18.3	12.7	17.2		16.2	17.0	17.2	18.3
C1447	18.9		17.2	13.8	18.4		17.1	18.2	17.4	16.2
C1453	15.0		15.1	11.2	15.4		13.5	15.4	14.6	14.1
0-378-28	20.9		20.5	15.1	21.1		17.8	18.6	18.9	20.9

Table 51. (Continued)

Strain	Iowa			Missouri			Nebraska[1]		California[1]		
	Suth-er-land	Clar-ence	Ames	Spick-ard	Co-lum-bia	Mt. Vernon	Con-cord	Mead	Davis	Five Points	Shaf-ter
	*	*	*						*	*	*
Amsoy	1.0	1.0	1.0	2.2	2.2	4.0	2.2	2.0	3.0	4.0	3.0
C1477	1.0	1.0	1.0	2.5	2.3	4.0	2.2	2.4	2.0	3.0	2.0
Beeson	1.0	1.0	1.0	2.5	2.5	4.0	2.5	1.8	2.0	3.0	2.0
Corsoy	1.0	1.0	1.0	1.6	2.0	3.5	1.9	1.6	3.0	3.0	3.0
Harosoy 63	1.0	1.0	1.0	2.2	2.3	3.5	2.2	1.9	3.0	2.0	2.0
C1426	1.0	1.0	1.0	1.7	2.5	4.5	2.2	1.6	2.0	4.0	2.0
C1431	1.0	1.0	1.0	2.5	2.5	4.5	2.0	1.5	2.0	4.0	2.0
C1447	1.0	1.0	1.0	1.5	2.5	4.5	2.0	2.0	2.0	4.0	3.0
C1453	1.0	1.0	1.0	1.6	2.3	3.5	1.6	1.3	2.0	4.0	2.0
0-378-28	1.0	1.0	1.0	2.0	2.2	4.0	2.6	2.1	3.0	3.0	2.0

	Seed Weight							
						*	*	*
Amsoy	15.4	16.7		18.3	18.3	11.4	15.0	14.2
C1477	15.8	16.5		18.7	17.1	14.0	15.0	14.9
Beeson	16.8	17.6		19.1	19.5	12.8	18.0	17.9
Corsoy	13.0	14.4		17.1	16.2	10.1	15.0	14.2
Harosoy 63	14.8	16.1		19.0	19.1	15.0	15.0	15.0
C1426	18.0	19.0		19.8	20.0	15.3	17.0	15.6
C1431	15.0	17.0		18.4	19.2	13.2	16.0	14.7
C1447	15.4	16.2		18.3	19.9	12.7	16.0	16.2
C1453	13.4	13.7		16.8	23.0	14.2	17.0	12.5
0-378-28	16.3	18.9		22.1	21.3	13.2	18.0	18.6

Table 52. Percentages of protein and oil, Uniform Test II, 1968.

Strain	Mean of 15 Tests	Ontario Harrow	Ohio Columbus	Michigan East Lansing	Indiana Knox	Indiana Lafayette	Wisconsin Madison	Illinois DeKalb
Amsoy	38.5	40.4	37.1	39.0	40.1	39.7	35.5	37.5
C1477	38.4	40.0	38.3	38.7	40.0	39.0	36.1	37.8
Beeson	39.6	41.5	38.7	40.4	42.0	40.8	37.6	38.8
Corsoy	39.2	40.5	39.2	41.2	40.3	39.6	38.4	38.1
Harosoy 63	39.7	42.7	40.2	40.9	42.4	40.2	38.6	37.2
C1426	40.2	41.5	39.4	41.3	42.8	41.2	37.8	38.9
C1431	40.3	41.9	40.2	40.4	42.5	41.6	39.0	40.5
C1447	41.3	44.2	40.7	41.9	44.4	43.5	39.1	40.3
C1453	40.7	42.5	40.4	41.7	42.1	40.8	39.9	38.9
0-378-28	40.6	42.5	40.5	40.6	41.7	41.6	39.4	40.5
	Mean of 15 Tests			Percentage of Oil				
Amsoy	22.2	22.1	23.1	21.7	21.3	20.9	20.6	22.0
C1477	22.1	21.8	22.5	21.6	21.3	21.4	20.7	21.9
Beeson	21.3	20.8	22.1	20.9	20.7	19.5	20.4	21.2
Corsoy	21.8	21.2	22.1	20.9	21.8	21.3	20.5	22.0
Harosoy 63	21.4	20.6	21.1	20.7	20.5	20.8	20.3	21.6
C1426	21.7	21.0	21.8	21.9	20.4	20.8	20.7	21.6
C1431	21.1	21.0	21.7	21.3	20.0	20.0	19.7	20.5
C1447	21.7	21.0	21.7	21.7	20.3	20.5	21.3	21.6
C1453	21.8	21.7	21.7	21.2	21.8	20.7	20.8	22.4
0-378-28	21.0	20.7	21.0	20.9	20.2	20.4	19.8	20.5

[1]Irrigated.

Table 52. (Continued)

Strain	Illinois		Minnesota	Iowa		Missouri	South Dakota	Nebraska[1]
	Urbana	Eldorado	Lamberton	Sutherland	Ames	Columbia	Centerville	Mead
Amsoy	38.1	40.8	38.0	38.1	39.0	38.8	35.9	39.3
C1477	38.1	40.2	37.5	37.1	39.3	38.3	37.4	38.9
Beeson	39.5	40.9	40.7	38.4	40.4	38.4	36.1	40.3
Corsoy	39.3	39.6	39.1	37.2	39.5	39.5	37.3	39.5
Harosoy 63	40.1	36.8	40.3	39.4	39.6	41.0	35.8	40.3
C1426	40.5	41.1	40.0	39.3	41.3	40.1	37.1	40.8
C1431	39.7	41.0	40.0	39.1	41.6	40.3	37.0	40.3
C1447	42.1	36.1	42.0	39.6	41.5	42.5	38.9	42.5
C1453	40.8	42.0	41.6	39.2	41.5	40.1	37.7	40.9
0-378-28	40.8	41.4	41.3	40.1	39.9	40.6	37.6	41.0
	Percentage of Oil							
Amsoy	22.2	23.1	20.6	24.6	23.3	23.4	22.7	22.1
C1477	22.0	22.8	21.0	23.5	22.7	23.6	23.0	21.8
Beeson	21.1	22.1	20.1	23.0	22.2	22.7	22.0	21.2
Corsoy	22.0	23.5	20.8	23.4	22.3	21.1	22.5	21.8
Harosoy 63	21.7	22.2	20.4	22.3	22.2	21.6	23.2	21.5
C1426	21.3	23.1	21.4	22.3	22.2	22.7	23.0	21.6
C1431	21.4	21.7	20.3	22.7	21.8	21.7	22.3	20.8
C1447	21.6	22.7	20.9	23.6	22.6	22.3	23.1	20.9
C1453	21.8	22.2	20.7	23.5	21.8	21.6	23.2	21.5
0-378-28	20.9	22.5	19.4	21.9	21.6	22.1	22.2	21.0

Table 53. Five-year summary of data, Uniform Test II, 1964-1968.

Strain	Yield	Rank	Maturity[1]	Lodging	Height	Seed Quality	Seed Weight	Seed Composition Protein	Seed Composition Oil
No. of Tests	150	150	133	125	147	121	103	72	72
Amsoy	40.5	2	+3.4	2.1	39	2.2	17.2	38.7	22.0
Corsoy	41.4	1	+0.9	2.3	37	2.0	15.9	39.6	21.5
Harosoy 63	38.0	3	0	2.5	39	2.0	18.0	40.3	21.1

[1]Days earlier (-) or later (+) than Harosoy 63 which matured September 19, 118 days after planting.

Table 54. Five-year summary of yield and yield rank, Uniform Test II, 1964-1968.

Strain	Mean of 150 Tests	Ontario Ridgetown	Ontario Harrow	Ohio Hoytville	Ohio Wooster	Ohio Columbus	Michigan East Lansing	Michigan Dundee	Indiana Knox	Indiana Bluffton
Years Tested		1964-1968	1964-1968	1964-1968	1964-1968	1964-1968	1964, 1966-68	1964-1968	1964-65 1967-68	1964-1968
Amsoy	40.5	53.4	37.0	37.2	25.2	28.6	40.3	43.1	41.0	39.9
Corsoy	41.4	58.5	35.9	33.5	25.5	26.9	44.2	43.5	40.6	43.0
Harosoy 63	38.0	52.1	35.6	32.4	28.3	30.0	40.9	41.8	37.9	41.1
	Yield Rank									
Amsoy	2	2	1	1	3	2	3	2	1	3
Corsoy	1	1	2	2	2	3	1	1	2	1
Harosoy 63	3	3	3	3	1	1	2	3	3	2

*Lincoln, 1965-1967.

Table 54. (Continued)

Strain	Indiana			Wisconsin	Illinois					Minnesota
	Lafa-yette	Green-field	Wor-thington	Madison	De-Kalb	Pon-tiac	Ur-bana	Gi-rard	Edge-wood	Lamber-ton
Years Tested	1964-1968	1964-1968	1964-1968	1964-1968	1964-1968	1964-1968	1964-1968	1964-1968	1964-1968	1964-1968
Amsoy	49.3	34.8	48.6	36.9	51.3	43.7	47.4	44.4	38.0	31.4
Corsoy	49.1	32.3	41.2	41.0	53.5	45.9	49.2	43.9	38.8	35.2
Harosoy 63	44.1	34.9	42.8	36.4	47.3	42.3	43.4	39.2	33.3	29.9
	Yield Rank									
Amsoy	1	2	1	2	2	2	2	1	2	2
Corsoy	2	3	3	1	1	1	1	2	1	1
Harosoy 63	3	1	2	3	3	3	3	3	3	3

Table 54. Five-year summary of yield and yield rank, Uniform Test II, 1964-1968 (Continued)

Strain	Minnesota	Iowa				Missouri	South Dakota		Nebraska	
	Waseca	Sutherland	Kanawha	Independence	Ames	Columbia	Brookings	Centerville	Concord	Mead*
Years Tested	1964-1968	1964-1968	1964-1967	1964-1967	1964-1968	1964-1968	1965-1968	1964-1968	1964, 1966-68	1965-1968
Amsoy	37.0	33.4	37.6	36.5	39.9	38.6	26.0	37.9	42.6	51.0
Corsoy	44.0	34.2	40.6	40.1	41.6	37.2	29.7	43.2	47.3	49.3
Harosoy 63	36.3	30.4	35.5	35.2	37.7	33.9	24.2	36.2	41.8	44.6
	Yield Rank									
Amsoy	2	2	2	2	2	1	2	2	2	1
Corsoy	1	1	1	1	1	2	1	1	1	2
Harosoy 63	3	3	3	3	3	3	3	3	3	3

PRELIMINARY TEST II, 1968

Strain	Parentage	Generation Composited
1. Amsoy		
2. Corsoy		
3. Harosoy 63		
4. C1469	C1266R x C1253	F_6
5. C1470	C1266R x C1253	F_6
6. L65-1324	Wayne^2 x L62-1926	F_3
7. L65-1354	Wayne^2 x L62-1926	F_3
8. L65-1376	Wayne^2 x L62-1926	F_3
9. L65-1385	Wayne^2 x L62-1926	F_3

None of the strains outperformed Amsoy or Corsoy on a regional basis. However, C1470 was phytophthora resistant, close to the top in yield, and more lodging-resistant than any of the checks, but its seed quality was down and its shatter-resistance was not so good as Corsoy's.

The four L strains are BC_1 Wayne lines carrying the m_2 gene for earliness. They should be close to Wayne in the remaining gene complement. Their yield performance was below Amsoy and Corsoy but it is interesting to note that they showed good lodging resistance and two showed good shattering resistance. This was unexpected since Wayne, compared to other Group III varieties, is considered to be poor in both shattering and lodging.

Table 55. Descriptive data and shattering scores, Preliminary Test II, 1968.

Strain	Flower Color	Pubescence Color	Pod Color	Seed Coat Luster	Seed Coat Color	Hilum Color	Shattering Manhattan Kans. 4 wks.	Shattering Manhattan Kans. 6 wks.
Amsoy	P	G	Tan	S	Y	Y	3.8	4.8
Corsoy	P	G	Br	D	Y	Y	2.4	3.4
Harosoy 63	P	G	Br	D	Y	Y	5.0	5.0
C1469	P	G	Br	S	Y	Ib	5.0	5.0
C1470	P	G	Br	D	Y	Ib	3.8	5.0
L65-1324	W+P	T	Br	S	Y	Bl	2.0	3.2
L65-1354	W	T	Br	S	Y	Bl	1.5	3.0
L65-1376	W+P	T	Br	S	Y	Bl	3.8	4.0
L65-1385	W	T	Br	S	Y	Bl	4.6	5.0

Table 56. Summary of data, Preliminary Test II, 1968.

Strain	Yield	Rank	Maturity[1]	Lodging	Height	Seed Quality	Seed Weight	Seed Composition Protein	Seed Composition Oil
No. of Tests	19	19	16	12	18	15	12	9	9
Amsoy	43.9	1	+2.5	2.5	40	2.0	16.7	38.2	22.4
Corsoy	43.6	2	+0.8	2.6	37	1.8	15.5	38.8	22.0
Harosoy 63	40.8	4	0	2.7	39	1.9	17.7	39.6	21.5
C1469	40.6	5	+1.5	2.6	37	2.4	18.0	41.7	20.7
C1470	43.0	3	-0.4	1.6	36	2.3	15.6	39.6	21.7
L65-1324	40.1	7	-0.1	2.1	33	2.1	18.6	40.8	21.7
L65-1354	40.3	6	-0.4	2.0	35	2.0	17.8	41.1	21.5
L65-1376	39.4	9	-0.9	1.7	32	2.1	17.7	40.3	22.2
L65-1385	39.5	8	-1.1	2.2	34	1.8	17.1	40.3	21.7

[1]Days earlier (-) or later (+) than Harosoy 63 which matured September 23, 118 days after planting.

Table 57. Disease data, Preliminary Test II, 1968.

Strain	BB Urbana Ill. n	BB Ames Ia. n-T	BP Ill. a	BSR Urbana Ill. n	DM Knox Ind. n	DM Worthington Ind. n	FE2 Ind. a	PR Ind. a	PR Stoneville Miss. n	Pyd Ia. a	Pyu Ia. a
Amsoy	2	3	4	2	1	3	4	S	3	I	I
Corsoy	3	3	4	2	2.5	4	4	S	4	R	I
Harosoy 63	2	3	3	2	2	4	4	R	1	I	I
C1469	2	2	1	2	2	2	2	S	1.5	I	R
C1470	2	2	1	2	3	2	1	R	1.5	I	R
L65-1324	3	2	1	3	4	3	2	S	1	R	R
L65-1354	2	2	1	3	3.5	2	2	S	1	R	I
L65-1376	4	2	1	3	3	2	4	S	1	I	I
L65-1385	4	3	1	4	3.5	3	4	S	1	S	R

Table 58. Yield and yield rank, Preliminary Test II, 1968.

Strain	Mean of 19 Tests	Ontario Ridge-town	Ontario Har-row	Ohio Hoyt-ville	Ohio Woos-ter	Ohio Co-lum-bus	Mich. East Lan-sing	Indiana Knox	Indiana Lafa-yette	Wis. Madi-son	Ill. Pontiac
Amsoy	43.9	61.0	38.7	34.2	32.5	40.7	36.2	45.5	48.8	50.7	36.4
Corsoy	43.6	67.6	37.6	25.8	27.4	28.7	38.5	41.8	49.9	49.9	32.0
Harosoy 63	40.8	60.8	32.7	31.3	36.6	31.8	36.2	43.2	41.7	45.5	33.4
C1469	40.6	62.2	38.2	30.2	27.3	31.5	36.0	37.4	39.9	43.1	32.6
C1470	43.0	62.5	38.1	31.3	33.1	35.6	34.6	42.6	51.5	46.7	36.9
L65-1324	40.1	61.4	37.0	30.0	33.7	33.5	34.1	41.8	42.6	48.5	33.9
L65-1354	40.3	58.8	35.0	38.2	34.5	33.9	40.0	39.1	44.2	49.4	28.4
L65-1376	39.4	55.1	32.0	32.5	30.7	34.0	35.2	40.8	44.6	47.2	29.5
L65-1385	39.5	53.9	35.1	33.2	35.8	33.7	33.5	36.1	42.0	43.8	32.8
C.V. (%)		5.3	13.5	--	--	--	7.7	3.8	4.4	6.3	8.7
L.S.D. (5%)		N.S.	N.S.	--	--	--	6.3	3.6	4.6	N.S.	N.S.
Row Sp. (In.)		24	40	32	32	28	28	40	38	36	38

	Yield Rank										
Amsoy	1	5	1	2	6	1	3	1	3	1	2
Corsoy	2	1	4	9	8	9	2	4	2	2	7
Harosoy 63	4	6	8	5	1	7	3	2	8	7	4
C1469	5	3	2	7	9	8	5	8	9	9	6
C1470	3	2	3	5	5	2	7	3	1	6	1
L65-1324	7	4	5	8	4	6	8	4	6	4	3
L65-1354	6	7	7	1	3	4	1	7	5	3	9
L65-1376	9	8	9	4	7	3	6	6	4	5	8
L65-1385	8	9	6	3	2	5	9	9	7	8	5

*Not included in the mean.
[1]Irrigated.

Table 58. (Continued)

Strain	Illinois		Iowa	Missouri			South Dakota		Nebraska[1]	
	Urbana	Girard	Ames	Spick-ard	Co-lum-bia	Mt. Vernon	Brook-ings	Cen-ter-ville	Con-cord	Mead
			*							
Amsoy	54.9	50.3	49.9	46.6	38.9	40.4	39.7	33.5	47.8	57.5
Corsoy	52.5	55.9	43.7	52.7	41.7	30.3	38.9	45.6	51.6	60.6
Harosoy 63	53.2	48.9	39.6	43.4	40.4	35.0	32.4	35.8	45.1	47.7
C1469	49.3	49.7	--	47.5	38.7	35.3	35.9	35.4	44.6	56.7
C1470	50.4	54.6	45.5	53.0	42.1	31.0	35.1	33.9	50.7	52.9
L65-1324	47.9	51.6	41.4	45.7	39.8	27.0	34.2	32.4	41.5	46.1
L65-1354	46.2	49.2	38.5	45.7	41.2	28.0	32.0	29.5	41.4	50.9
L65-1376	45.2	47.9	36.1	51.0	35.9	28.2	30.4	36.2	41.2	50.7
L65-1385	45.0	47.4	42.9	46.7	37.0	29.9	34.7	32.7	47.8	49.7
C.V. (%)	6.0	4.2	8.8	7.8	8.9	9.6	6.0	11.9	7.1	5.6
L.S.D. (5%)	N.S.	4.9	8.9	8.7	8.1	7.0	3.3	N.S.	6.6	6.8
Row Sp. (In.)	40	30	27	15	15	15	40	40	30	30
	Yield Rank									
Amsoy	1	4	1	6	6	1	1	6	3	2
Corsoy	3	1	3	2	2	5	2	1	1	1
Harosoy 63	2	7	6	9	4	3	7	3	5	8
C1469	5	5	--	4	7	2	3	4	6	3
C1470	4	2	2	1	1	4	4	5	2	4
L65-1324	6	3	5	7	5	9	6	8	7	9
L65-1354	7	6	7	7	3	8	8	9	8	5
L65-1376	8	8	8	3	9	7	9	2	9	6
L65-1385	9	9	4	5	8	6	5	7	3	7

Table 59. Maturity dates, Preliminary Test II, 1968.

Strain	Mean of 16 Tests	Ontario Ridge-town	Ontario Har-row	Ohio Hoyt-ville	Ohio Woos-ter	Ohio Colum-bus	Michigan East Lansing	Indiana Knox	Indiana Lafa-yette	Wisconsin Madison
							*	*		
Amsoy	+2.5	+2	+2	+2	+5	0			+5	+4
Corsoy	+0.8	+2	-2	0	0	- 1			+3	+2
Harosoy 63	0	0	0	0	0	0			0	0
C1469	+1.5	+2	0	0	+3	+ 1			+4	+2
C1470	-0.4	-2	-2	0	+3	- 1			0	+1
L65-1324	-0.1	0	-2	0	+2	- 2			0	-1
L65-1354	-0.4	0	-2	+2	+1	0			0	-1
L65-1376	-0.9	-1	-2	+1	0	- 3			0	-2
L65-1385	-1.1	0	-2	+1	+1	+ 2			-2	-2
Hark (I)	-4.4	0	-4	-4	-8	-12	-2	-5	-4	0
Wayne (III)		--	+9	+6	+7	+ 8	--	--	+9	--
Date planted	5-28	5-24	6-5	6-4	6-5	6-1	5-17	6-8	6-12	5-21
Harosoy 63 mat.	9-23	9-26	9-22	9-26	9-27	9-22	10-1	9-25	9-25	9-26
Days to mature	118	125	109	114	114	113	137	109	105	128

*Not included in the mean.
[1]Irrigated.

Table 59. (Continued)

Strain	Illinois			Iowa	Missouri		South Dakota		Nebraska[1]	
	Pontiac	Urbana	Girard	Ames *	Spick-ard	Colum-bia	Brook-ings	Center-ville	Con-cord	Mead
Amsoy	+1	+ 2	+2	+3	+4	+ 2	+4	+3	+2	0
Corsoy	0	+ 3	+1	-1	+1	0	+2	+1	0	0
Harosoy 63	0	0	0	0	0	0	0	0	0	0
C1469	+1	+ 2	-1	+1	0	+ 1	+3	+3	+1	+2
C1470	0	0	-4	+1	-2	0	0	0	0	0
L65-1324	-1	+ 1	-3	+4	0	- 1	+1	+3	-1	+2
L65-1354	-1	+ 1	-5	+2	-1	- 3	0	+1	0	+2
L65-1376	-2	0	-4	+4	-1	- 4	+2	+3	-3	+2
L65-1385	-1	- 1	-5	-1	-2	- 5	-2	+1	-1	0
Hark (I)	-5	0	-6	-4	-5	- 5	-4	-2	-8	-3
Wayne (III)	+8	+13	+7	+8	+7	+13	--	+9	--	+5
Date planted	6-6	6-5	5-17	5-20	6-5	5-13	5-21	5-19	5-24	5-21
Harosoy 63 mat.	9-14	9-16	9-10	9-22	9-19	8-31	10-15	10-4	10-3	9-22
Days to mature	100	103	116	125	106	110	147	138	132	124

UNIFORM TEST III, 1968

Strain	Parentage	Generation Composited	Previous Testing (years)
1. Adelphia	C1070 x Adams	F_6	4*
2. Calland (C1437)	C1253 x Kent	F_7	1
3. Wayne	L49-4091 x Clark	F_5	7
4. L15	Wayne^6 x Clark 63	8 F_3 lines	1
5. C1449	C1253 x Kent	F_7	P.T. III

*1960-61 and 1966-67

Calland, in this test for the second year, again outyielded Wayne slightly in the regional mean (.5 bushel in 1967, 1.2 bushels in 1968). Its very high yield (72.9 bushels) at Clarksville, Maryland, is noteworthy. Calland, besides being phytophthora resistant (Rps), tends to be more lodging resistant but has slightly poorer seed quality. It also has a lower protein and oil content, which tends to negate the value of the higher yield.

Again this year there was little, if any, of the rotten seed quality in the Midwest which was so prevalent in the Groups III and IV area prior to 1966, and so it is not possible to evaluate Adelphia for its reported resistance to this condition. Adelphia has shown excellent lodging resistance but has yielded distinctly below Wayne and Calland.

L15 again averaged somewhat below Wayne (1.3 bushels in 1967 and 1.3 bushels in 1968) and it appears that this is another phytophthora resistant backcross which does not yield as well as the recurrent parent. C1449 yielded well in the 1967 Preliminary Test but was below Wayne and Calland at most locations and in the regional mean in this test.

CALLAND

The origin and development of Calland is presented along with Beeson under Uniform Test II in this report.

Table 60. Descriptive data and shattering scores, Uniform Test III, 1968.

Strain	Flower Color	Pubescence Color	Pod Color	Seed Coat Luster	Seed Coat Color	Hilum Color	Peroxidase	Fluor. Light	Shattering: Stoneville Miss.	Shattering: Manhattan Kans. 4 wks.	Shattering: Manhattan Kans. 6 wks.	Shattering: Five Points Cal.
Adelphia	W	G	Tan	S	Y	Bf	H	L	2	1.0	2.8	2
Calland	P	T	Br	D	Y	Bl	L	L	3.5	3.8	5.0	2
Wayne	W	T	Br	S	Y	Bl	L	L	4	2.8	3.8	2
L15	W	T	Br	S	Y	Bl	L	L	4	2.8	4.2	2
C1449	P	G	Br	S	Y	Ib	L	L	2.5	3.4	4.8	2

Table 61. Summary of data, Uniform Test III, 1968.

Strain	Yield	Rank	Maturity[1]	Lodging	Height	Seed Quality	Seed Weight	Seed Composition: Protein	Seed Composition: Oil
No. of Tests	35	35	31	27	34	29	25	15	15
Adelphia	41.2	5	+2.0	1.5	37	1.8	15.8	39.2	21.7
Calland	45.3	1	+1.2	2.0	40	2.2	17.2	38.7	21.3
Wayne	44.1	2	0	2.3	39	2.0	16.4	40.4	21.5
L15	42.8	3	+0.7	2.4	40	2.1	16.8	40.4	21.3
C1449	42.2	4	+2.2	2.6	43	1.9	15.3	39.1	21.7

[1]Days earlier (-) or later (+) than Wayne which matured September 24, 119 days after planting.

Table 62. Disease data, Uniform Test III, 1968.

Strain	BB: Urbana Ill. n	BB: Ames Ia. n-D	BB: Ames Ia. n-T	BP: Ill. a	BP: Ia. a	BSR: Urbana Ill. n	BSR: Ames Ia. n[1]	BSR: Kanawha Ia. n[1]	CN: Miller City Ill. n	DM: Worthington Ind. n	DM: Edgewood Ill. n	DM: Trenton Ill. n	DM: Eldorado Ill. n	FE2 Ind. a	PR: Ind. a	PR: Stoneville Miss. n	PR: Pyd Ia. a	PR: Pyu Ia. a
Adelphia	4	4	2	4	3.5	3	15	38	3.3	2.5	3.5	3.3	4	4	S	2	R	R
Calland	2	5	3	2	5	4	75	88	4	3.5	3	2.3	3	3	R	1	R	S
Wayne	3	4	2	1	1	3	45	60	4	3	5	4	3.5	3	S	1	R	I
L15	4	4	2	1	1	3	85	88	4	3.5	5	3.3	3	2	R	1	I	S
C1449	2	4.5	2	1	4	4	70	80	4	3.3	3	2	3	4	R	1	I	I

[1]Percent infected plants.

Table 63. Yield, yield rank, and maturity dates, Uniform Test III, 1968.

Strain	Mean of 35 Tests	Ontario Harrow	New Jersey Adelphia	Maryland Clarksville	Ohio Hoytville	Ohio Wooster	Ohio Columbus	Indiana Bluffton	Indiana Lafayette	Indiana Greenfield	Indiana Worthington	Indiana Evansville
Adelphia	41.2	35.9	54.4	56.7	30.2	29.9	35.8	36.0	36.5	29.6	45.4	36.9
Calland	45.3	34.8	62.9	72.9	42.5	34.3	33.8	45.4	38.6	31.7	58.1	47.1
Wayne	44.1	34.5	51.9	58.3	45.8	34.2	40.2	43.9	42.4	34.1	54.3	42.9
L15	42.8	36.1	51.1	59.2	40.9	33.2	32.5	46.8	38.9	34.1	49.7	38.8
C1449	42.2	27.6	46.0	64.1	40.5	27.1	37.9	39.1	36.9	35.7	44.3	45.6
C.V. (%)		8.2	8.1	3.0	--	--	--	9.7	7.0	8.0	8.5	8.7
L.S.D. (5%)		4.3	11.4	1.6	--	--	--	6.0	N.S.	4.0	6.6	5.7
Row Sp.(In.)		40	30	30	32	32	28	38	38	38	38	38
	Yield Rank											
Adelphia	5	2	2	5	5	4	3	5	5	5	4	5
Calland	1	3	1	1	2	1	4	2	3	4	1	1
Wayne	2	4	3	4	1	2	1	3	1	2	2	3
L15	3	1	4	3	3	3	5	1	2	2	3	4
C1449	4	5	5	2	4	5	2	4	4	1	5	2
	Mean of 31 Tests	Maturity										
Adelphia	+2.0	+3	+3	+1	+3	+4	+ 1	0	-3	+1	-3	-2
Calland	+1.2	0	+7	+1	+1	-1	+ 1	+1	-1	+2	0	-1
Wayne	0	0	0	0	0	0	0	0	0	0	0	0
L15	+0.7	+1	+4	0	-1	+6	0	0	-1	0	+2	0
C1449	+2.2	+2	+5	0	0	+6	+ 1	0	+2	+3	+3	+3
Amsoy (II)		-7	-7	--	-4	-1	- 8	-8	-4	-7	-6	--
Clark 63 (IV)		--	+8	-3	--	--	+29	+2	+1	+6	+3	+2
Date pltd.	5-28	6-5	6-11	5-17	6-4	6-5	6-1	5-22	6-12	6-11	6-8	6-7
Wayne mat.	9-24	10-1	9-27	10-2	10-2	10-3	10-1	9-30	10-4	10-1	9-26	9-22
Da. to mat.	119	118	108	138	120	120	122	131	114	112	110	107

*Not included in the mean.
[1]Irrigated.

Table 63. Yield, yield rank, and maturity dates, Uniform Test III, 1968 (Continued)

Strain	Kentucky		Illinois							Iowa			Missouri	
	Lexington	Henderson	Urbana	Girard	Edgewood	Trenton	Eldorado	Carbondale	Miller City *	Ames	Ottumwa	Red Oak	Spickard	Columbia
Adelphia	46.0	37.2	49.7	38.8	37.4	46.2	46.7	36.8	35.8	41.4	39.3	37.3	42.7	41.2
Calland	40.5	38.4	53.0	42.8	44.7	49.0	47.9	39.3	23.0	46.7	49.7	32.7	42.4	46.7
Wayne	43.9	44.8	55.0	45.8	43.4	49.0	46.7	40.7	26.3	45.4	45.7	33.5	42.4	44.1
L15	45.6	40.4	51.6	40.8	42.3	48.0	48.1	38.5	23.5	45.0	44.3	30.4	39.8	41.0
C1449	37.7	40.1	52.0	41.2	39.5	48.1	48.4	38.9	23.0	46.7	43.8	31.6	36.5	44.2
C.V. (%)	6.3	7.4	4.4	4.7	10.3	3.2	3.0	8.3	22.9	8.2	8.7	14.6	9.8	7.6
L.S.D. (5%)	N.S.	N.S.	N.S.	3.7	N.S.	N.S.	N.S.	N.S.	N.S.	5.7	6.0	7.4	6.2	5.1
R. Sp.(In.)	36	40	30	30	38	36	36	40	38	27	27	27	15	15

Yield Rank

Adelphia	1	5	5	5	5	5	4	5	1	5	5	1	1	4
Calland	4	4	2	2	1	1	3	2	4	1	1	3	2	1
Wayne	3	1	1	1	2	1	4	1	2	3	2	2	2	3
L15	2	2	4	4	3	4	2	4	3	4	3	5	4	5
C1449	5	3	3	3	4	3	1	3	4	1	4	4	5	2

Maturity

		*							*					*
Adelphia	-3		+3	+1	+2	+2	+1	+1	0	+5	+ 5	+5	+2	
Calland	-2		+3	+2	+3	+4	+3	+3	+1	+2	+ 2	+2	+2	
Wayne	0		0	0	0	0	0	0	0	0	0	0	0	
L15	0		+2	0	+1	0	0	0	0	+4	+ 1	0	+1	
C1449	-2		+4	+4	+2	+4	+4	+3	+1	+5	+ 3	+1	+1	
Amsoy (II)	-5		-4	-4	-3	-5	-4	-7	-8	-8	-11	-5	-6	
Clk. 63 (IV)	+7		+6	+4	+5	+2	+4	+2	+6	--	+ 4	+6	--	
Date pltd.	5-3	5-21	6-5	5-17	6-7	6-10	6-6	6-12	5-29	5-13	5-22	5-21	6-5	5-13
Wayne mat.	9-13	--	9-29	9-17	9-18	9-22	9-15	9-17	9-13	9-30	9-23	9-14	9-27	--
Da. to mat.	133	--	116	123	103	104	101	97	107	140	124	116	114	--

Table 63. (Continued)

Strain	Missouri Mt. Vernon	Missouri Portageville[1]	South Dakota Centerville	Nebraska[1] Concord	Nebraska[1] Mead	Kansas Powhattan	Kansas Manhattan	Kansas Manhattan[1]	Kansas Ottawa	Kansas Newton	Kansas Columbus	California[1] Five Points	California[1] Shafter
												*	*
Adelphia	46.2	27.6	30.5	32.7	50.3	47.9	52.8	54.7	54.8	44.9	32.2	23.0	27.0
Calland	43.1	28.5	35.0	33.8	58.6	54.2	56.4	61.5	60.8	42.4	34.3	24.3	40.0
Wayne	41.8	25.9	40.6	40.1	56.1	45.5	52.7	57.2	55.8	31.6	34.6	17.7	18.3
L15	37.3	25.2	35.1	37.9	53.5	46.8	55.6	60.8	54.7	40.7	32.9	20.7	21.7
C1449	42.6	35.2	32.6	36.6	52.8	53.4	56.2	51.5	56.7	35.2	31.1	14.6	23.6
C.V. (%)	11.2	4.2	13.8	8.8	5.6	6.0	7.9	10.6	8.6	--	9.4	8.0	21.0
L.S.D. (5%)	7.3	2.3	N.S.	4.3	4.7	4.6	N.S.	N.S.	N.S.	N.S.	N.S.	2.7	8.4
R. Sp.(In.)	15	38	40	30	30	30	30	36	30	30	30	30	40
	Yield Rank												
Adelphia	1	3	5	5	5	3	4	4	4	1	4	2	2
Calland	2	2	3	4	1	1	1	1	1	2	2	1	1
Wayne	4	4	1	1	2	5	5	3	3	5	1	4	5
L15	5	5	2	2	3	4	3	2	5	3	3	3	4
C1449	3	1	4	3	4	2	2	5	2	4	5	5	3
	Maturity												
	*			*								*	*
Adelphia		+ 3	+5		-1	+4	+2	+4	+2	+7	+3		
Calland		+ 1	+2		+1	+1	0	-1	-3	+2	0		
Wayne		0	0		0	0	0	0	0	0	0		
L15		0	+2		-1	+1	-1	+1	-1	0	0		
C1449		+ 3	+3		0	-1	+2	+3	+2	+2	+1		
Amsoy (II)		--	-5		-9	-7	-8	-7	-8	-7	--		
Clk. 63 (IV)		+12	--		+1	+7	+7	+7	+5	+7	+5		
Date pltd.	5-21	5-7	5-19	5-24	5-21	6-3	5-16	5-9	5-17	5-20	6-12	6-14	6-10
Wayne mat.	--	8-28	10-13	--	10-1	9-25	9-18	9-17	9-20	9-19	9-25	--	--
Da. to mat.	--	113	147	--	133	114	125	131	126	122	105	--	--

Table 64. Lodging scores, plant height, and seed quality scores, Uniform Test III, 1968.

Strain	Mean of 27 Tests	Ontario Harrow	New Jersey Adelphia	Maryland Clarksville	Ohio Hoytville *	Ohio Wooster *	Ohio Columbus *	Indiana Bluffton	Indiana Lafayette	Indiana Greenfield	Indiana Worthington	Indiana Evansville
Adelphia	1.5	1.5	1.0	1.3	1.0	1.0	1.0	2.5	2.3	1.3	1.1	2.5
Calland	2.0	2.8	2.0	1.8	1.0	1.0	1.0	2.5	2.6	2.5	2.0	3.0
Wayne	2.3	2.8	2.0	2.3	1.0	1.0	1.0	3.0	3.0	2.8	2.9	3.0
L15	2.4	3.0	2.0	2.7	1.0	1.0	1.0	3.0	3.0	3.0	2.8	3.8
C1449	2.6	3.2	2.0	2.9	1.0	1.0	1.0	3.0	3.1	2.5	3.5	4.0
	Mean of 34 Tests				Plant Height							
Adelphia	37	41	37	36	36	33	30	41	43	34	42	42
Calland	40	42	38	43	39	32	29	43	48	39	47	45
Wayne	39	40	38	42	39	33	31	44	43	37	44	43
L15	40	42	39	44	40	34	32	45	43	39	46	45
C1449	43	45	41	47	41	34	34	47	48	42	52	48
	Mean of 29 Tests				Seed Quality Score							
				*	*							
Adelphia	1.8	1.0	2.0	2.0	2.0	2.0	1.5	2.0	1.0	1.0	2.0	2.5
Calland	2.2	1.0	2.0	2.0	2.0	2.0	1.0	1.5	1.5	1.5	2.5	3.5
Wayne	2.0	1.0	1.0	2.0	2.0	1.5	2.0	2.0	1.5	1.5	2.0	2.5
L15	2.1	1.0	2.0	2.0	2.0	2.2	1.5	1.5	1.5	1.5	1.5	3.0
C1449	1.9	1.2	2.0	2.0	2.0	1.5	1.5	1.5	1.0	1.0	1.5	3.0

*Not included in the mean.
[1]Irrigated.

Table 64. (Continued)

Strain	Kentucky		Illinois							Iowa			Missouri	
	Lexington	Henderson	Urbana	Girard	Edgewood	Trenton	Eldorado	Carbondale *	Miller City *	Ames	Ottumwa	Red Oak	Spickard	Columbia
Adelphia	1.3	1.0	1.3	1.4	2.1	1.6	1.4	1.0	1.3	2.2	1.4	1.3	2.0	1.0
Calland	1.7	1.0	2.0	2.1	2.0	2.1	2.1	1.0	1.3	2.2	1.5	1.3	2.5	1.3
Wayne	1.7	1.0	2.2	2.1	2.0	1.9	2.5	1.0	1.5	2.3	1.5	1.2	2.5	4.0
L15	2.0	1.3	2.7	2.7	2.1	2.9	2.3	1.0	1.3	2.6	1.7	1.2	2.8	4.0
C1449	3.0	1.3	3.0	3.3	2.6	2.5	2.3	1.0	1.6	2.9	1.7	1.2	3.5	3.5

Plant Height

									*					
Adelphia	44	44	45	42	39	41	41	32	31	38	39	27	40	28
Calland	47	45	51	45	44	47	47	39	28	38	46	27	43	37
Wayne	46	45	46	45	43	42	46	37	30	38	44	24	42	35
L15	46	46	47	47	42	42	48	38	28	39	45	26	42	39
C1449	48	47	52	52	48	48	50	40	32	48	47	27	43	40

Seed Quality Score

									*	*	*	*		
Adelphia	2.0	2.0	1.7	1.8	2.5	1.8	2.5	2.0	2.7	1.0	1.0	1.0	1.2	1.7
Calland	2.7	2.7	1.5	1.7	2.8	2.5	3.0	2.5	2.7	1.0	1.0	1.0	2.0	2.0
Wayne	2.7	2.0	1.5	1.7	2.8	2.0	2.7	2.0	3.7	1.0	1.0	1.0	1.5	2.0
L15	2.7	2.7	1.5	1.8	2.5	2.2	2.5	2.0	3.7	1.0	1.0	1.0	2.0	2.1
C1449	2.3	2.0	1.8	1.5	2.8	2.3	2.7	3.0	3.5	1.0	1.0	1.0	1.7	2.0

Table 64. Lodging scores, plant height, and seed quality scores, Uniform Test III, 1968 (Continued)

Strain	Missouri Mt. Vernon	Missouri Portageville[1]	South Dakota Centerville	Nebraska[1] Concord	Nebraska[1] Mead	Kansas Powhattan	Kansas Manhattan	Kansas Manhattan[1]	Kansas Ottawa	Kansas Newton	Kansas Columbus	California[1] Five Points	California[1] Shafter
		*								*		*	*
Adelphia	1.3	1.0			1.0	1.1	1.7	1.0	1.2	1.0	1.1	2.0	1.0
Calland	1.8	1.0			2.0	1.2	2.8	2.0	1.1	1.0	1.3	1.0	2.0
Wayne	2.8	1.0			2.0	1.7	2.9	1.9	1.6	1.0	1.3	2.0	3.0
L15	2.8	1.0			1.8	1.1	2.8	1.8	1.0	1.0	1.2	2.0	2.0
C1449	2.5	1.0			2.1	1.8	2.7	3.2	1.6	1.0	2.0	2.0	2.0
	Plant Height												
												*	*
Adelphia	34	24	41		37	35	36	46	36	26	27	42	31
Calland	36	26	43		42	38	39	44	36	27	33	43	36
Wayne	34	25	43		43	38	37	44	37	27	32	41	28
L15	35	21	43		42	36	39	46	37	28	32	43	31
C1449	38	28	45		46	42	45	51	39	29	33	45	36
	Seed Quality Score												
												*	*
Adelphia	3.0	2.2		3.2	1.0	1.2	1.5	1.7	1.6	1.9	1.2	3.0	1.0
Calland	3.5	3.6		4.5	1.0	1.6	2.1	2.0	1.9	2.0	1.5	2.0	2.0
Wayne	3.5	3.5		3.1	1.1	1.6	1.9	2.0	1.6	1.7	1.3	2.0	3.0
L15	3.5	3.8		3.0	1.0	1.6	2.2	2.1	1.9	1.8	1.2	3.0	3.0
C1449	2.5	2.0		3.8	1.0	1.5	2.3	2.0	1.7	1.6	1.3	3.0	2.0

Table 65. Seed weight and percentages of protein and oil, Uniform Test III, 1968.

Strain	Mean of 25 Tests	Ontario Harrow	New Jersey Adelphia	Maryland Clarksville	Ohio Wooster	Ohio Columbus	Indiana Bluffton	Indiana Lafayette	Indiana Greenfield	Indiana Worthington
Adelphia	15.8	15.4	16.0	19.2	18.8	15.8	13.7	14.1	14.6	16.0
Calland	17.2	16.7	18.0	20.8	17.7	16.5	18.6	15.7	16.8	17.4
Wayne	16.4	16.8	17.0	19.3	18.5	16.1	16.6	15.3	15.0	16.8
L15	16.8	16.4	17.0	19.5	17.4	18.3	17.2	15.1	15.4	17.0
C1449	15.3	14.0	14.0	19.1	16.8	15.1	14.8	14.8	14.7	14.4
	Mean of 15 Tests	Percentage of Protein								
Adelphia	39.2		39.6	39.1		38.1		41.0		38.4
Calland	38.7		39.9	38.6		38.2		41.4		37.4
Wayne	40.4		41.3	40.6		39.1		41.5		40.7
L15	40.4		41.5	40.3		39.1		40.8		39.6
C1449	39.1		40.8	38.7		37.0		40.2		38.0
	Mean of 15 Tests	Percentage of Oil								
Adelphia	21.7		21.9	22.8		22.3		19.2		22.7
Calland	21.3		21.3	22.4		21.3		19.2		21.7
Wayne	21.5		21.3	22.8		21.6		19.8		21.6
L15	21.3		21.3	22.9		21.3		20.1		21.3
C1449	21.7		21.3	23.0		22.3		20.1		21.3

*Not included in the mean.
[1]Irrigated.

Table 65. Seed weight and percentages of protein and oil, Uniform Test III, 1968 (Continued)

Strain	Indiana	Kentucky		Illinois					Missouri	
	Evansville	Lexington	Henderson	Urbana	Eldorado	Carbondale	Miller City*	Iowa Ames	Columbia	Portageville[1]
Adelphia	15.1	16.2	14.2	15.5	15.7	15.0	14.9	16.1		11.6
Calland	16.9	17.5	14.6	17.1	16.5	17.1	13.5	17.1		12.6
Wayne	15.6	17.6	14.8	16.5	15.0	16.1	14.4	15.8		12.0
L15	16.7	17.4	14.7	16.6	14.7	16.3	14.2	16.6		12.6
C1449	16.7	14.8	13.4	15.2	14.6	15.5	12.5	14.5		13.0
	Percentage of Protein									
Adelphia			41.2	40.0	40.8		40.6*	38.7	40.0	
Calland			38.7	38.3	40.8		40.4	39.0	39.0	
Wayne			41.8	40.6	41.6		40.5	40.4	40.6	
L15			42.2	40.5	41.0		41.1	41.2	41.0	
C1449			40.1	40.1	39.6		40.5	39.6	39.7	
	Percentage of Oil									
Adelphia			22.2	20.5	22.5		21.5*	22.6	21.5	
Calland			20.8	19.8	21.2		20.5	22.8	21.3	
Wayne			21.9	20.5	21.9		21.1	22.1	22.2	
L15			21.0	20.3	21.9		21.2	21.8	22.0	
C1449			21.9	20.5	22.5		21.2	22.6	21.2	

Table 65. (Continued)

Strain	South Dakota	Nebraska[1]		Kansas						California[1]	
	Centerville	Concord	Mead	Powhattan	Manhattan	Manhattan[1]	Ottawa	Newton	Columbus	Five Points	Shafter
										*	*
Adelphia		16.0	17.6	17.3	14.0	15.2	16.4	17.2	17.5	17.0	16.6
Calland		18.7	19.3	18.3	15.9	15.7	18.0	19.0	17.8	18.0	19.1
Wayne		18.6	17.3	18.5	13.5	15.3	16.9	16.8	17.9	17.0	15.5
L15		18.0	18.9	18.6	15.4	15.8	17.5	17.2	18.5	17.0	16.2
C1449		15.5	18.4	16.1	13.5	15.0	17.3	16.2	15.4	16.0	15.8
	Percentage of Protein										
Adelphia	36.7		39.2	38.3		38.5	38.6				
Calland	36.8		39.9	38.7		36.8	37.2				
Wayne	37.9		42.0	40.4		38.8	39.1				
L15	38.1		42.1	40.6		38.5	40.2				
C1449	37.4		40.4	39.1		37.1	38.3				
	Percentage of Oil										
Adelphia	20.8		21.4	20.9		22.4	21.9				
Calland	21.6		20.4	21.2		22.4	21.4				
Wayne	21.6		20.3	20.9		22.0	22.0				
L15	21.2		20.1	20.8		22.0	21.6				
C1449	22.2		20.6	21.4		22.5	21.8				

PRELIMINARY TEST III, 1968

Strain	Parentage	Generation Composited
1. Adelphia		
2. Wayne		
3. L66-945	Wayne^5 x L11	F_4
4. L66-949	Wayne^5 x L11	F_4
5. C1471	C1266R x C1253	F_6
6. C1472	C1266R x C1253	F_6
7. L66L-108	Wayne x L57-0034	F_6
8. L66L-140	Wayne x L57-0034	F_6
9. L66L-154	Wayne x L57-0034	F_6
10. L66L-177	Wayne x L57-9819	F_6
11. L66L-285	Clark 63 x L57-9819	F_6
12. L66L-314	Clark 63 x L57-9819	F_6
13. L66L-317	Clark 63 x L57-9819	F_6

L66-945 and -949 are backcross lines made to transfer yellow hilum to Wayne (gene I from Richland via T201 and r from T145). They performed similarly to Wayne and L66-949 was equal in mean yield, but the .9 day later maturity may be a significant deviation.

C1471 and especially C1472 yielded well at many locations but were very low at some locations in Ohio and Missouri, giving them a low mean yield. The L66L lines were selected in early generations for resistance to rotten seed in southern Illinois, but there has been no opportunity in the past three years to confirm any progress in this respect. However, as a group they tended to have good seed quality in this test and showed very good shattering resistance in the Kansas tests. At least one of them, L66L-140, showed better yielding ability than Wayne and good lodging resistance. All seven of them carry the rxp gene for pustule resistance from CNS. Several of them are rather late in maturity but appear to average at least a day or two earlier than Clark 63 (see Table 70), which would allow them to be classified as late Group III.

Table 66. Descriptive data and shattering scores, Preliminary Test III, 1968.

Strain	Flower Color	Pubescence Color	Pod Color	Seed Coat Luster	Seed Coat Color	Hilum Color	Shattering		
							Stoneville Miss.	Manhattan Kans. 2 wks.	Manhattan Kans. 4 wks.
Adelphia	W	G	Tan	S	Y	Bf	2.5	1.0	3.6
Wayne	W	T	Br	S	Y	Bl	4	2.0	5.0
L66-945	W	T	Br	S	Y	Y	3.5	2.2	4.6
L66-949	W	T	Br	S	Y	Y	3	3.6	4.0
C1471	P	G	Br	S	Y	Ib	3	4.2	5.0
C1472	P	G	Br	D	Y	Ib	4	4.6	5.0
L66L-108	W	T	Tan	S	Y	Lbl	2	1.0	1.0
L66L-140	W	T	Tan	D	Y	Bl	2	1.0	3.1
L66L-154	W	T	Tan	S	Y	Lbl	2	1.0	1.0
L66L-177	P	T	Tan	D	Y	Bl	2.5	1.0	1.0
L66L-285	P	T	Tan	D	Y	Bl	1.5	1.0	1.0
L66L-314	P	G	Tan	D	Y	Ib	1.5	1.0	1.0
L66L-317	P	G	Tan	D	Y	Ib	1.5	1.0	1.0

Table 67. Summary of data, Preliminary Test III, 1968.

Strain	Yield	Rank	Maturity[1]	Lodging	Height	Seed Quality	Seed Weight	Seed Composition Protein	Seed Composition Oil
No. of Tests	18	18	16	14	17	18	15	9	9
Adelphia	44.4	7	+1.7	1.4	38	1.7	16.2	39.3	21.6
Wayne	45.0	4	0	2.3	39	2.0	16.6	40.8	21.2
L66-945	43.7	10	+0.9	2.3	39	2.1	16.0	41.0	21.1
L66-949	44.9	5	+0.9	2.3	39	2.0	16.4	40.6	21.3
C1471	44.1	8	-0.6	1.7	41	2.6	17.8	39.9	22.4
C1472	43.9	9	+0.6	2.0	43	2.4	16.8	40.8	22.4
L66L-108	45.9	2	+3.1	1.5	39	1.8	17.0	39.7	22.1
L66L-140	48.3	1	+3.3	1.7	39	1.9	17.8	38.2	22.6
L66L-154	45.3	3	+3.6	1.7	38	1.6	16.4	39.3	21.9
L66L-177	44.8	6	+1.9	1.8	40	1.7	15.2	38.5	21.9
L66L-285	41.1	12	+2.8	2.3	39	1.6	14.5	40.1	20.9
L66L-314	40.5	13	+1.6	2.0	37	1.5	14.9	39.4	22.1
L66L-317	42.9	11	+2.3	2.1	37	1.6	14.1	40.1	21.9

[1]Days earlier (-) or later (+) than Wayne which matured September 25, 119 days after planting.

Table 68. Disease data, Preliminary Test III, 1968.

Strain	BB		BP	BSR	DM		FE_2	PR		Pyd	Pyu
	Urbana Ill. n	Ames Ia. n-T	Ill. a	Urbana Ill. n	Worthington Ind. n	Trenton Ill. n	Ind. a	Ind. a	Stoneville Miss. n	Ia. a	Ia. a
Adelphia	3	3	1	4	4	3	4	S	2	S	I
Wayne	3	2	1	4	3.5	4	3	S	1	R	R
L66-945	3	2	1	4	3.5	4	1	S	1	I	I
L66-949	3	2	1	4	3.5	3.5	2	S	1.5	R	I
C1471	2	2	2	4	4	1.5	2	Seg	2.5	I	I
C1472	2	2	2	4	3	2.5	1	R	1.5	R	R
L66L-108	1	2	1	4	4	4	3	S	1	R	R
L66L-140	1	2	1	4	3	3	2	S	1	R	R
L66L-154	2	3	1	4	3	3.5	4	S	1	R	R
L66L-177	2	2	1	4	3	3.5	4	S	1	R	R
L66L-285	3	2	1	4	2.5	3	5	R	1	I	R
L66L-314	2	2	1	4	3	3	4	R	1	R	I
L66L-317	2	2	1	4	3.5	3.5	3	S	1.5	I	R

Table 69. Yield and yield rank, Preliminary Test III, 1968.

Strain	Mean of 18 Tests	Maryland Clarksville	Ohio Hoytville	Ohio Wooster	Ohio Columbus	Indiana Lafayette	Indiana Worthington	Illinois Urbana	Illinois Trenton[1] *	Illinois Eldorado	Iowa Ames *
Adelphia	44.4	59.6	35.8	27.9	36.5	42.7	56.7	45.3	47.3	47.4	41.0
Wayne	45.0	61.6	35.3	33.8	26.9	46.9	52.9	51.2	49.6	45.9	42.2
L66-945	43.7	62.6	32.1	35.8	40.2	42.6	49.3	46.1	52.0	46.4	47.8
L66-949	44.9	62.7	34.6	31.6	30.4	44.7	50.7	48.9	44.8	47.7	49.5
C1471	44.1	59.9	31.3	36.6	27.3	50.1	50.2	50.6	51.2	46.7	--
C1472	43.9	60.7	32.5	35.8	19.0	45.8	54.9	48.1	48.1	49.3	--
L66L-108	45.9	60.5	29.8	36.3	24.3	49.4	54.3	47.2	57.9	46.0	49.4
L66L-140	48.3	67.0	37.5	39.1	33.9	49.2	54.6	48.9	54.3	48.5	46.8
L66L-154	45.3	59.0	35.1	32.2	40.6	49.2	51.4	48.0	50.6	46.6	50.1
L66L-177	44.8	57.2	34.3	32.0	42.5	43.0	49.9	42.3	46.8	46.8	43.4
L66L-285	41.1	60.9	28.5	31.4	31.6	40.5	42.7	40.9	47.3	42.8	41.1
L66L-314	40.5	58.8	26.5	28.2	43.1	35.8	33.4	44.1	43.0	38.9	41.5
L66L-317	42.9	58.5	25.8	30.8	40.9	39.8	41.8	41.4	41.0	45.2	42.0
Coef. of Var. (%)		9.1	--	--	--	4.8	10.5	4.8	--	8.5	7.7
L.S.D. (5%)		3.3	--	--	--	4.6	11.3	4.9	--	N.S.	8.1
Row Spacing (In.)		30	32	32	28	38	38	40	36	36	27

	Yield Rank										
Adelphia	7	9	2	13	6	9	1	9	8	4	11
Wayne	4	4	3	6	11	5	5	1	6	10	7
L66-945	10	3	8	4	5	10	10	8	3	8	4
L66-949	5	2	5	9	9	7	7	3	11	3	2
C1471	8	8	9	2	10	1	8	2	4	6	--
C1472	9	6	7	4	13	6	2	5	7	1	--
L66L-108	2	7	10	3	12	2	4	7	1	9	3
L66L-140	1	1	1	1	7	3	3	3	2	2	5
L66L-154	3	10	4	7	4	3	6	6	5	7	1
L66L-177	6	13	6	8	2	8	9	11	10	5	6
L66L-285	12	5	11	10	8	11	11	13	8	12	10
L66L-314	13	11	12	12	1	13	13	10	12	13	9
L66L-317	11	12	13	11	3	12	12	12	13	11	8

*Not included in the mean.
[1]One replication only.
[2]Irrigated.

Table 69. (Continued)

Strain	Iowa		Missouri			South Dakota	Nebraska[2]		Kansas				
	Ottumwa	Red Oak	Spickard	Columbia	Mt. Vernon	Centerville	Concord	Mead	Powhattan	Manhattan	Manhattan[2]	Ottawa	Columbus
	*	*				*							
Adelphia	42.3	33.9	40.7	37.4	43.7	33.6	32.1	46.4	50.6	50.7	63.3	51.7	30.5
Wayne	45.0	35.1	44.4	41.6	41.9	38.0	38.8	51.2	48.0	46.9	61.0	50.0	30.9
L66-945	41.9	41.2	38.7	37.0	39.4	35.6	34.4	48.9	45.9	50.3	58.2	47.7	31.8
L66-949	40.7	38.1	43.8	38.5	39.6	37.1	41.8	49.6	46.0	49.8	61.3	50.6	35.3
C1471	--	--	53.2	36.9	37.6	35.5	37.0	53.3	43.6	52.6	45.6	49.9	30.9
C1472	--	--	42.6	26.4	37.4	40.0	40.1	54.5	43.6	55.0	49.9	57.4	37.1
L66L-108	42.1	35.4	44.5	44.2	44.2	33.9	29.4	49.9	55.2	59.5	60.3	55.6	35.7
L66L-140	44.7	29.0	44.6	44.6	44.7	42.2	35.3	51.8	52.8	62.4	61.7	57.2	35.7
L66L-154	41.5	36.0	45.9	42.2	41.7	41.5	32.8	48.1	50.7	51.4	58.8	50.2	31.8
L66L-177	40.4	35.7	48.1	43.0	41.6	37.0	29.6	45.3	49.7	50.4	61.3	55.5	34.0
L66L-285	39.1	32.0	43.5	41.2	37.0	35.1	34.7	48.7	40.3	42.5	48.6	50.3	33.1
L66L-314	41.0	30.5	49.7	38.4	41.5	32.1	35.8	44.0	42.1	43.6	37.8	54.8	33.1
L66L-317	46.4	30.3	52.5	37.8	43.7	34.2	36.5	45.3	45.4	45.3	49.9	55.0	35.7
C.V.(%)	9.2	15.7	13.9	--	10.0	20.8	14.7	9.8	7.9	7.3	15.1	9.2	12.0
L.S.D.(5%)	9.1	12.4	13.7	4.9	9.7	N.S.	10.0	10.5	8.1	8.0	N.S.	N.S.	2.2
Row Sp.(In.)	27	27	15	15	15	40	30	30	30	30	36	30	30

Yield Rank

Adelphia	4	7	12	10	3	12	11	10	4	6	1	7	13
Wayne	2	6	8	5	5	4	3	4	6	10	5	11	11
L66-945	6	1	13	11	10	7	9	7	8	8	8	13	9
L66-949	9	2	9	7	9	5	1	6	7	9	3	8	5
C1471	--	--	1	12	11	8	4	2	10	4	12	12	11
C1472	--	--	11	13	12	3	2	1	10	3	9	1	1
L66L-108	5	5	7	2	2	11	13	5	1	2	6	3	2
L66L-140	3	11	6	1	1	1	7	3	2	1	2	2	2
L66L-154	7	3	5	4	6	2	10	9	3	5	7	10	9
L66L-177	10	4	4	3	7	6	12	11	5	7	3	4	6
L66L-285	11	8	10	6	13	9	8	8	13	13	11	9	7
L66L-314	8	9	3	8	8	13	6	13	12	12	13	6	7
L66L-317	1	10	2	9	3	10	5	11	9	11	9	5	2

Table 70. Maturity dates, Preliminary Test III, 1968.

Strain	Mean of 16 Tests	Maryland Clarksville	Ohio Hoytville	Ohio Wooster	Ohio Columbus	Indiana Lafayette	Indiana Worthington	Illinois Urbana	Illinois Trenton *	Illinois Eldorado	Iowa Ames *
Adelphia	+1.7	-1	+5	+4	0	-1	+1	0	+2	0	+ 6
Wayne	0	0	0	0	0	0	0	0	0	0	0
L66-945	+0.9	0	+3	0	+ 2	0	+4	0	+1	+3	+ 3
L66-949	+0.9	0	+3	0	+ 3	0	+3	+1	+2	0	+ 1
C1471	-0.6	+2	+5	+3	+ 3	-1	-2	-5	0	-2	- 2
C1472	+0.6	0	+4	+2	+ 3	-1	+2	0	+3	+4	+ 1
L66L-108	+3.1	-1	+5	+4	+ 6	+2	+4	+1	+3	+4	+ 4
L66L-140	+3.3	-2	+4	+5	+ 8	+3	+4	+2	+2	+5	+ 4
L66L-154	+3.6	-1	+4	+5	+ 9	+2	+4	+1	+3	+6	+ 4
L66L-177	+1.9	-4	+3	+4	+ 9	-2	+3	+1	+2	+3	+ 3
L66L-285	+2.8	-2	+3	+5	+ 9	-2	+3	+2	+2	+5	+ 2
L66L-314	+1.6	-6	+3	+1	+10	-2	+5	+1	+2	+3	+ 2
L66L-317	+2.3	-4	+4	+2	+10	-1	+4	0	+2	+4	+ 2
Amsoy (II)		--	0	-2	- 7	-4	-3	-2	-5	-4	-10
Clark 63 (IV)		-2	--	--	+30	+1	+6	+8	+2	+4	--
Date planted	5-29	5-17	6-4	6-5	6-1	6-12	6-8	6-5	6-10	6-6	5-20
Wayne matured	9-25	10-1	9-28	10-4	9-30	10-4	9-23	9-27	9-22	9-15	10-2
Days to mature	119	137	116	121	121	114	107	114	104	101	135

*Not included in the mean.
[1]Irrigated.

Table 70. (Continued)

Strain	Iowa		Missouri		South Dakota	Nebraska[1]	Kansas				
	Ottumwa	Red Oak	Spickard	Columbia	Centerville	Mead	Powhattan	Manhattan	Manhattan[1]	Ottawa	Columbus
	*	*			*						
Adelphia	+ 6	+2	+3	- 2	+5	+5	-2	+4	+4	+4	+3
Wayne	0	0	0	0	0	0	0	0	0	0	0
L66-945	+ 1	+1	+1	- 3	+1	+1	0	0	-1	+1	+3
L66-949	0	-1	+2	- 2	0	+1	0	0	0	+1	+3
C1471	- 4	-1	+2	- 2	-3	-1	-2	-7	-8	0	+5
C1472	0	-3	+2	- 1	+3	-1	0	-5	-4	0	+5
L66L-108	+ 2	+3	+4	+ 1	+2	+2	+1	+5	+4	+6	+2
L66L-140	+ 2	+1	+4	0	+2	+2	-2	+5	+6	+6	+2
L66L-154	0	+2	+4	0	+2	+3	+2	+5	+4	+6	+3
L66L-177	0	+4	+2	- 1	+3	+1	-2	+5	+3	+5	+1
L66L-285	0	+5	+2	+ 1	+1	+2	-2	+5	+4	+6	+3
L66L-314	0	+3	+2	0	+3	-1	-2	+3	+3	+3	+3
L66L-317	+ 3	+5	+2	+ 2	+2	0	-3	+6	+4	+4	+3
Amsoy (II)	-12	-6	-3	-11	-5	-5	-7	-8	-8	-6	--
Clark 63 (IV)	+ 3	+5	--	+ 2	--	+5	+7	+7	+6	+7	--
Date planted	5-22	5-21	6-5	5-13	5-19	5-21	6-3	5-16	5-9	5-17	6-12
Wayne matured	9-24	9-15	9-26	9-13	10-13	9-27	9-25	9-18	9-18	9-18	9-25
Days to mature	125	117	113	123	147	129	114	125	132	124	105

UNIFORM TEST IV, 1968

Strain	Parentage	Generation Composited	Previous Testing (years)
1. Clark 63	(Clark^5 x L49-4091) x (Clark^6 x Blackhawk)	13 F_3 lines	6
2. Cutler (C1278)	C1069 x Clark	F_7	5
3. Kent	Lincoln x Ogden	F_7	14
4. C1423	C1266R x C1253	9 F_3 lines	1
5. C1452	C1253 x Kent	F_7	P.T. IV
6. C1455	C1266R x C1253	F_7	P.T. IV
7. C1456	C1266R x C1253	F_7	P.T. IV
8. C1457	C1266R x C1253	F_7	P.T. IV

A six-year summary for the three named varieties in this test, including the recently released Cutler, is presented in Tables 79 and 80. Cutler yielded rather consistently above Clark 63 and Kent over the area despite its averaging about five days earlier than Kent. Lodging of Cutler was somewhat better than Clark 63. Height and seed quality were the same for all three. The protein content of Cutler was slightly improved over Clark 63 and Kent.

C1423, a phytophthora resistant line in this test for the second year, performed about as well as Cutler in 1968 except for its lodging susceptibility, which was probably associated with its greater height. The remaining strains were new entries from the 1967 Preliminary Test. Only C1452 compared favorably with Cutler in mean yield, but this strain has an unusually low protein content.

CUTLER

Origin and development of Cutler is as follows:

1954 - Cross CX286 (C1069 x Clark) made by A. H. Probst at the Purdue Agricultural Experiment Station. C1069 is a selection from Lincoln x Ogden originating from the same F_2 plant as Kent.

1954 Fall, F_1 - Three F_1 plants CX286A, B, and C were grown in the greenhouse for use in a breeding study. C1278 originated from F_1 plant A. Only progenies from this plant will be discussed, although a large population was worked with from CX286.

1955, F_2 - Thirty-three plants were grown in a breeding study at Lafayette and all were saved.

1956, F_3 - Grown in 33 plant rows at Lafayette. Two plants selected from each plant row.

1957, F_4 - Sixty-six plant rows were grown at Lafayette. Best one of the two rows from plant selections of 1956 were saved.

1958, F_5 - Thirty-three CX286A entries yield tested at Lafayette. CX286-29-2 from which Cutler was subsequently selected ranked second highest in yield. Five retained for further testing.

1959, F_6 - Above entries included in HLT IVA of 32 entries at Evansville and Worthington. CX286-29-2 tied Kent as highest in yield, but was 7 days earlier. Four F_6 plant selections were retained from CX286A-29-2.

1960, F_7 - F_6, 8-foot, plant rows grown at Evansville. CX286A-29-2-2 retained for testing and assigned number C1278.

1961, F_8 - C1278 entered in Indiana Preliminary Test IV at Evansville and Worthington. Highest in yield of 15 entries.

1962, F_9 - C1278 entered in Uniform Preliminary Test IV. Ranked third in yield among 14 at 6 locations.

1963, F_{10} - Entered in Uniform Test IV. Ranked second in yield among 9 at 14 locations.

1964, F_{11} - Continued in Uniform Test IV. Ranked first of 10 at 14 locations.

1965, F_{12} - Continued in Uniform Test IV. Ranked first of 11 at 18 locations. Began breeder seed development. Grew 226 plants in the greenhouse during winter from seed originating from F_6 plant selection made in 1959.

1966, F_{13} & F_8 - Continued in Uniform Test IV. Ranked first of 8 at 24 locations. Breeder's seed produced. Threshed 226, 3-foot, plant rows as one lot after checking purity and uniformity of growth. Obtained 214 pounds of seed of which 12 were stored and 202 allotted to releasing states listed below on April 6, 1967.

1967 - Continued in Uniform Test IV. Ranked first of 7 at 27 locations. Seed multiplied by recipient states, or in Indiana.

1968 - Continued in Uniform Test IV. Ranked 1 of 8 at 25 locations. C1278 was named Cutler and officially released August 31, 1968. Seed was further multiplied by releasing states in 1968 for release to Certified Soybean Seed Producers for 1969 production.

Seed distribution and production of Cutler soybean

State	CUTLER			
	For planting, 1968	Planted, 1968	Produced, 1968	For planting, 1969
	Bu.	Acres	Bu.	Bu.
Illinois	322	259	8,853	8,477
Indiana	97	156	5,563	4,815
Kansas	88	88	2,200+	2,000 est.
Maryland	16	31	1,000+	950 est.
Nebraska	20 est.	26	1,100 est.	1,000 est.
Ohio	9 est.	18	356	343
Oklahoma	1 lb.	--	--	1 est.
TOTAL	552	578	19,072	17,586

Table 71. Descriptive data and shattering scores, Uniform Test IV, 1968.

Strain	Flower Color	Pubescence Color	Pod Color	Seed Coat Luster	Seed Coat Color	Hilum Color	Peroxidase	Fluor. Light	Shattering Stoneville Miss.	Shattering Manhattan Kans. 2 wks.	Shattering Manhattan Kans. 4 wks.	Shattering Five Points Cal.
Clark 63	P	T	Br	D	Y	Bl	L	L	2	1.0	1.5	2
Cutler	P	T	Br	S	Y	Bl	L	L	2.5	1.0	3.6	3
Kent	P	T	Br	I	Y	Bl	H	L	4	1.0	2.5	2
Cl423	P	G	Br	D	Y	Bf	H	L	2.5	2.0	3.6	2
Cl452	P	G	Br	D	Y	Ib	L	L	3	1.0	3.6	2
Cl455	P	G	Br	D	Y	Bf	H	L	3	2.5	4.8	2
Cl456	P	G	Br	D	Y	Ib	L	L	3	1.0	4.0	2
Cl457	P	G	Br	S	Y	Bf	L	L	2.5	1.0	3.6	2

Table 72. Summary of data, Uniform Test IV, 1968.

Strain	Yield	Rank	Maturity[1]	Lodging	Height	Seed Quality	Seed Weight	Seed Composition Protein	Seed Composition Oil
No. of Tests	25	25	22	20	25	23	20	12	12
Clark 63	40.4	7	0	2.3	41	1.7	15.7	39.5	21.6
Cutler	43.5	1	+2.5	1.7	41	1.8	18.1	39.7	22.0
Kent	43.1	3	+7.2	1.8	41	2.0	17.4	39.2	22.3
C1423	43.0	4	+1.7	2.4	45	2.0	16.2	39.8	21.9
C1452	43.4	2	+5.6	2.0	47	2.0	16.2	37.5	22.9
C1455	39.7	8	+1.9	2.2	46	1.9	16.0	41.3	21.1
C1456	41.6	6	0	2.7	44	2.1	15.7	39.8	22.1
C1457	42.2	5	+7.0	2.6	45	2.1	16.9	40.9	21.1

[1]Days earlier (-) or later (+) than Clark 63 which matured September 27, 121 days after planting.

Table 73. Disease data, Uniform Test IV, 1968.

Strain	BB Urbana Ill. n	BB Ames Ia. n-D	BB Ames Ia. n-T	BP Ill. a	BP Ia. a	BSR Urbana Ill. n	BSR Ames Ia. n[1]	BSR Kanawha Ia. n[1]	CN Miller City Ill. n
Clark 63	3	4.5	3	1	1	4	55	65	3.3
Cutler	2	5	2	1	4	4	60	78	2.7
Kent	3	4	2	3	3	4	100	83	3
C1423	2	4.5	3	1	4	4	40	63	3
C1452	2	4.5	2	2	4	4	50	58	4
C1455	3	4.5	3	1	3.5	4	55	68	4
C1456	2	4.5	3	3	4	4	35	58	4
C1457	1	4	3	3	4	4	55	60	3

[1]Percent infected plants.

Table 73. (Continued)

Strain	DM					PR		PS			
	Worthington Ind. n	Edgewood Ill. n	Trenton Ill. n	Eldorado Ill. n	FE2 Ind. a	Ind. a	Stoneville Miss. n	Queenstown Md. n	Linkwood Md. n	Pyd Ia. a	Pyu Ia. a
Clark 63	4.3	5	4	3.5	4	R	1	2	2	I	S
Cutler	3.8	3	2.7	3.5	1	S	2	4	3	I	I
Kent	3.8	2	1	3	1	S	3	3	2	R	S
Cl423	4.5	3	2	3.5	1	R	1.5	4	3	R	S
Cl452	2.8	3	2.7	3	1	R	1	2	2	I	R
Cl455	4.3	4	2.7	4	2	R	1	3	1	R	I
Cl456	4.3	3	2.3	3	1	R	1.5	3	4	R	S
Cl457	4.3	3	2.7	4	3	R	1.5	3	2	R	S

Table 74. Yield and yield rank, Uniform Test IV, 1968.

Strain	Mean of 25 Tests	New Jersey[1]	Maryland			Ohio	Indiana		
		Center-ton	Clarks-ville	Queens-town	Link-wood	Colum-bus	Lafa-yette	Wor-thing-ton	Evans-ville
Clark 63	40.4	21.8	58.9	35.0	42.3	23.3	30.7	43.6	36.4
Cutler	43.5	20.2	58.1	34.7	44.5	22.1	43.1	57.6	49.4
Kent	43.1	20.9	62.4	33.3	41.7	25.7	34.7	62.9	51.1
C1423	43.0	17.0	59.3	31.3	40.6	28.0	38.1	50.7	49.6
C1452	43.4	14.1	59.9	40.7	42.8	22.7	38.3	68.2	52.8
C1455	39.7	17.5	51.7	34.1	42.8	17.9	36.9	45.7	43.9
C1456	41.6	16.9	63.1	38.4	46.6	14.3	41.2	38.1	40.9
C1457	42.2	16.2	62.4	39.4	42.7	18.8	34.9	52.6	48.0
Coef. of Var. (%)		16.2	7.4	11.2	5.9	--	11.4	11.9	11.4
L.S.D. (5%)		7.7	2.4	7.1	4.5	--	6.1	9.3	7.8
Row Spacing (In.)		42	30	30	38	28	38	38	38

	Yield Rank								
Clark 63	7	1	6	4	6	3	8	7	8
Cutler	1	3	7	5	2	5	1	3	4
Kent	3	2	2	7	7	2	7	2	2
C1423	4	5	5	8	8	1	4	5	3
C1452	2	8	4	1	3	4	3	1	1
C1455	8	4	8	6	3	7	5	6	6
C1456	6	6	1	3	1	8	2	8	7
C1457	5	7	2	2	5	6	6	4	5

*Not included in the mean.
[1]Irrigated.
[2]Clay.
[3]Loam.

Table 74. (Continued)

Strain	Kentucky		Illinois							Missouri	
	Lexington	Henderson	Urbana	Girard	Edgewood	Trenton	Eldorado	Carbondale	Miller City*	Columbia	Mt. Vernon
Clark 63	41.3	36.7	47.7	35.3	40.4	46.4	43.5	37.1	32.0	34.3	38.4
Cutler	47.4	46.2	50.9	38.9	37.1	49.2	45.7	44.5	32.8	32.9	34.0
Kent	42.4	44.5	49.5	34.8	35.3	48.4	42.4	39.9	25.7	33.9	38.6
Cl423	37.7	41.7	54.8	40.9	40.2	49.3	45.6	47.0	33.7	40.6	36.8
Cl452	41.5	42.0	43.4	35.6	33.1	49.1	46.3	41.7	24.4	34.3	38.6
Cl455	37.0	43.8	47.9	36.4	36.3	45.0	39.3	38.3	18.8	32.9	35.2
Cl456	40.7	43.5	52.5	46.1	42.0	47.5	44.6	43.1	22.8	35.6	37.2
Cl457	43.9	35.6	53.5	34.4	37.4	46.8	46.3	41.7	37.2	40.4	34.6
Coef. of Var. (%)	8.2	5.4	6.1	8.8	6.9	4.7	4.3	5.3	19.9	13.3	9.0
L.S.D. (5%)	5.9	3.9	5.4	5.8	4.6	N.S.	3.3	3.2	9.9	6.3	4.5
Row Spacing (In.)	36	40	30	30	38	36	36	40	38	15	15

	Yield Rank										
Clark 63	5	7	7	6	2	7	6	8	4	4	3
Cutler	1	1	4	3	5	2	3	2	3	7	8
Kent	3	2	5	7	7	4	7	6	5	6	1
Cl423	7	6	1	2	3	1	4	1	2	1	5
Cl452	4	5	8	5	8	3	1	4	6	4	1
Cl455	8	3	6	4	6	8	8	7	8	7	6
Cl456	6	4	3	1	1	5	5	3	7	3	4
Cl457	2	8	2	8	4	6	1	4	1	2	7

Table 74. Yield and yield rank, Uniform Test IV, 1968 (Continued)

Strain	Missouri		Nebraska[1]	Kansas						California[1]	
	Portageville[2]	Portageville[1,3]	Mead	Powhattan	Manhattan	Manhattan[1]	Ottawa	Newton	Columbus	Five Points	Shafter
	*	*								*	*
Clark 63	11.2	36.7	45.0	46.3	48.9	47.2	56.5	42.3	31.1	12.5	29.3
Cutler	15.7	40.8	53.4	50.8	50.5	54.1	57.2	35.7	29.8	13.3	33.9
Kent	13.4	31.1	45.2	49.3	56.0	51.2	45.8	51.9	34.6	15.9	29.5
Cl423	13.0	36.8	49.1	49.8	42.3	45.4	61.1	43.3	34.9	11.5	26.7
Cl452	15.8	36.3	47.4	54.3	47.3	49.9	62.2	46.6	32.7	15.6	25.7
Cl455	14.0	25.3	46.6	42.0	43.7	46.9	55.1	40.5	34.4	10.7	26.6
Cl456	10.0	33.1	49.9	49.1	44.7	44.2	53.2	32.6	33.1	13.0	27.9
Cl457	19.5	34.2	42.9	52.5	51.1	45.5	55.4	40.0	36.9	11.0	28.5
C.V.(%)	19.7	25.6	10.0	7.4	16.8	18.5	8.8	16.0	10.1	31.0	13.0
L.S.D.(5%)	4.7	15.6	7.2	5.4	N.S.	N.S.	8.6	9.9	3.4	N.S.	N.S.
Row Sp.(In.)	38	38	30	30	30	36	30	30	30	30	40

	Yield Rank										
Clark 63	7	3	7	7	4	4	4	4	7	5	3
Cutler	3	1	1	3	3	1	3	7	8	3	1
Kent	5	7	6	5	1	2	8	1	3	1	2
Cl423	6	2	3	4	8	7	2	3	2	6	6
Cl452	2	4	4	1	5	3	1	2	6	2	8
Cl455	4	8	5	8	7	5	6	5	4	8	7
Cl456	8	6	2	6	6	8	7	8	5	4	5
Cl457	1	5	8	2	2	6	5	6	1	7	4

Table 75. Maturity dates, Uniform Test IV, 1968.

Strain	Mean of 22 Tests	New Jersey[1] Center-ton	Maryland Clarks-ville	Maryland Queens-town	Maryland Link-wood	Ohio Colum-bus	Indiana Lafa-yette	Indiana Wor-thing-ton	Indiana Evans-ville
Clark 63	0	0	0	0	0	0	0	0	0
Cutler	+2.5	+2	+ 4	+1	0	+ 3	+5	+3	+ 2
Kent	+7.2	+4	+ 9	+9	+ 6	0	+8	+8	+10
Cl423	+1.7	-4	+ 4	+3	0	- 4	+7	+3	+ 4
Cl452	+5.6	0	+10	+9	+ 7	+ 3	+8	+8	+ 7
Cl455	+1.9	-2	+ 4	+2	+ 2	- 2	+5	+4	+ 3
Cl456	0	-7	+ 6	-2	0	- 1	+2	+2	+ 1
Cl457	+7.0	+1	+ 8	+9	+ 7	+ 5	+8	+9	+ 7
Wayne (III)		-6	+ 2	--	--	-30	-1	-3	- 2
Hill (V)		--	--	--	+18	--	--	--	--
Date planted	5-29	6-19	5-17	5-22	5-21	6-1	6-12	6-8	6-7
Clark 63 matured	9-27	10-3	9-29	9-17	9-16	10-30	10-5	9-29	9-24
Days to mature	121	106	135	118	118	151	115	113	109

*Not included in the mean.
[1]Irrigated.
[2]Clay.
[3]Loam.

Table 75. Maturity dates, Uniform Test IV, 1968 (Continued)

Strain	Kentucky		Kansas							Missouri
	Lexington	Henderson	Urbana	Girard	Edgewood	Trenton	Eldorado	Carbondale	Miller City *	Columbia *
Clark 63	0	0	0	0	0	0	0	0	0	0
Cutler	+ 3	+ 1	+ 2	+ 3	+2	+ 3	+ 3	+3	+ 3	+1
Kent	+ 7	+ 5	+ 7	+ 7	+6	+11	+ 8	+9	+ 5	+7
C1423	+ 1	+ 5	+ 3	+ 5	+1	+ 3	+ 3	+3	- 2	+5
C1452	+ 5	+ 8	+ 8	+ 7	+3	+ 9	+ 5	+7	+ 5	--
C1455	0	+ 5	+ 2	+ 3	+2	+ 5	+ 2	+2	+ 4	+6
C1456	- 1	+ 5	0	0	-1	+ 1	- 2	0	- 6	-1
C1457	+10	+10	+ 8	+10	+6	+11	+ 9	+8	+ 5	--
Wayne (III)	- 7	- 7	- 6	- 4	-5	- 2	- 4	-2	- 6	--
Hill (V)	+22	+23	+15	--	--	+22	+20	--	+12	--
Date planted	5-3	5-21	6-5	5-17	6-7	6-10	6-6	6-12	5-29	5-13
Clark 63 matured	9-20	9-19	10-5	9-21	9-23	9-24	9-19	9-19	9-19	9-15
Days to mature	140	121	122	127	108	106	105	99	113	125

Table 75. (Continued)

Strain	Missouri		Nebraska[1]	Kansas					
	Portageville[2]	Portageville[1,3]	Mead	Powhattan	Manhattan	Manhattan[1]	Ottawa	Newton	Columbus
	*	*	*						
Clark 63	0	0	0	0	0	0	0	0	0
Cutler	+ 2	0	+1	+ 4	+ 3	+ 3	+ 4	0	0
Kent	+ 3	+ 2	--	+12	+ 6	+ 5	+ 6	+ 8	+7
Cl423	+ 2	- 1	0	+ 2	+ 1	+ 3	- 2	- 4	0
Cl452	+ 3	+ 3	--	+ 8	+ 4	+ 1	+ 2	+ 2	+2
Cl455	+ 1	- 1	--	+ 3	+ 4	+ 5	0	- 4	-3
Cl456	0	- 3	-1	+ 1	+ 1	+ 2	- 2	- 4	-2
Cl457	+ 2	+ 2	--	+ 9	+ 4	+ 8	+ 6	+ 2	0
Wayne (III)	-11	-14	-5	- 5	- 7	- 7	- 5	- 7	-5
Hill (V)	+22	+20	--	+24	+18	+14	+16	+19	--
Date planted	5-9	5-7	5-21	6-3	5-16	5-9	5-17	5-20	6-12
Clark 63 matured	9-9	9-11	10-2	10-2	9-25	9-24	9-25	9-26	9-30
Days to mature	123	127	134	121	132	138	131	129	110

Table 76. Lodging scores and plant height, Uniform Test IV, 1968.

Strain	Mean of 20 Tests	New Jersey[1] Center-ton	Maryland Clarks-ville	Maryland Queens-town	Maryland Link-wood	Ohio Colum-bus	Indiana Lafa-yette	Indiana Wor-thing-ton	Indiana Evans-ville
		*				*			
Clark 63	2.3	1.0	2.5	1.4	1.5	1.0	3.5	2.9	3.8
Cutler	1.7	1.0	2.1	1.1	1.1	1.0	2.8	2.0	2.3
Kent	1.8	1.0	1.7	1.1	1.1	1.0	2.9	1.6	1.8
Cl423	2.4	1.0	2.5	1.1	1.4	1.0	3.5	3.0	2.8
Cl452	2.0	1.0	3.1	1.1	1.2	1.0	2.8	1.6	2.3
Cl455	2.2	1.0	2.7	1.1	1.2	1.0	3.1	2.9	3.0
Cl456	2.7	1.0	3.4	1.2	1.9	1.0	3.4	4.4	4.0
Cl457	2.6	1.0	2.6	1.1	1.3	1.0	3.4	3.1	3.5
	Mean of 25 Tests				Plant Height				
Clark 63	41	24	45	38	41	28	46	46	45
Cutler	41	24	44	37	40	26	47	46	47
Kent	41	25	42	34	41	29	45	50	47
Cl423	45	29	49	37	47	26	49	52	49
Cl452	47	29	48	42	52	26	51	54	53
Cl455	46	29	50	40	50	28	50	52	53
Cl456	44	26	50	41	46	26	52	50	49
Cl457	45	27	51	42	50	23	50	52	50

*Not included in the mean.
[1]Irrigated.
[2]Clay.
[3]Loam.

Table 76. (Continued)

Strain	Kentucky		Illinois							Missouri	
	Lexington	Henderson	Urbana	Girard	Edgewood	Trenton	Eldorado	Carbondale *	Miller City *	Columbia	Mt. Vernon
Clark 63	3.0	1.3	2.4	3.1	2.4	2.3	2.0	1.0	1.7	3.0	1.5
Cutler	1.7	1.3	1.7	2.0	2.1	1.6	1.6	1.0	1.3	2.0	1.3
Kent	1.3	2.3	2.0	2.1	2.9	1.9	1.8	1.0	1.4	3.0	1.0
Cl423	3.0	2.3	2.7	3.0	2.5	2.6	2.0	1.0	1.5	4.0	1.3
Cl452	3.0	3.7	2.1	2.2	2.3	1.6	1.6	1.0	1.2	3.0	1.3
Cl455	2.0	2.5	3.0	3.0	2.4	2.1	2.1	1.0	1.2	3.5	1.5
Cl456	3.0	2.0	2.7	3.7	2.1	2.7	2.5	1.0	1.5	4.5	1.5
Cl457	3.7	3.0	3.7	3.8	2.8	2.8	2.3	1.0	1.9	3.5	1.5
	Plant Height										
Clark 63	48	47	48	49	45	43	47	36	32 *	40	33
Cutler	48	48	50	49	45	43	47	36	35	40	30
Kent	46	48	49	47	46	48	46	40	33	42	33
Cl423	54	53	53	54	49	50	52	42	40	44	35
Cl452	55	56	55	56	50	52	52	43	34	48	38
Cl455	51	57	54	56	49	52	52	41	33	48	34
Cl456	52	51	52	53	48	50	50	39	34	46	36
Cl457	52	50	54	54	49	52	54	42	44	49	37

Table 76. Lodging scores and plant height, Uniform Test IV, 1968 (Continued)

Strain	Missouri			Kansas						California[1]	
	Portageville[2]	Portageville[1,3]	Nebraska[1] Mead	Powhattan	Manhattan	Manhattan[1]	Ottawa	Newton	Columbus	Five Points	Shafter
	*	*						*		*	*
Clark 63	1.0	1.5	2.3	1.3	2.5	2.3		1.0	1.2	2.0	3.0
Cutler	1.0	1.8	1.9	1.0	1.5	1.3		1.0	1.2	1.0	2.0
Kent	1.0	1.3	1.9	1.2	1.5	1.4		1.0	1.4	1.0	2.0
Cl423	1.0	1.3	2.3	1.3	2.2	2.8		1.0	1.3	2.0	2.0
Cl452	1.0	1.3	2.0	1.1	1.3	1.9		1.0	1.2	1.0	3.0
Cl455	1.0	1.0	1.8	1.3	2.3	1.8		1.0	1.3	2.0	1.0
Cl456	1.0	1.2	1.6	1.2	3.7	3.3		1.0	1.5	2.0	2.0
Cl457	1.0	1.2	1.9	1.6	2.3	2.4		1.0	1.4	2.0	2.0

	Plant Height										
	*	*								*	*
Clark 63	27	34	45	35	38	49	39	29	31	40	37
Cutler	27	32	44	40	42	49	38	26	32	38	39
Kent	27	26	44	38	41	47	39	28	36	41	38
Cl423	28	32	49	43	45	52	40	30	37	43	38
Cl452	32	36	51	42	48	56	44	31	33	45	42
Cl455	29	31	52	42	43	55	41	30	34	44	38
Cl456	29	33	52	42	42	41	40	26	31	48	40
Cl457	33	29	50	43	44	56	39	31	36	45	39

Table 77. Seed quality scores and seed weight, Uniform Test IV, 1968.

Strain	Mean of 23 Tests	New Jersey[1]	Maryland			Ohio	Indiana		
		Center-ton	Clarks-ville	Queens-town*	Link-wood	Colum-bus	Lafa-yette	Wor-thing-ton	Evans-ville
Clark 63	1.7	1.0	2.0	3.0	2.0	1.2	1.0	1.5	2.0
Cutler	1.8	2.0	2.0	3.0	2.0	1.2	1.0	1.0	3.0
Kent	2.0	2.0	2.0	3.0	3.0	1.2	1.5	1.5	3.0
Cl423	2.0	2.0	2.2	3.0	3.0	1.5	1.5	2.0	3.0
Cl452	2.0	4.0	2.0	3.0	3.0	1.0	1.0	1.5	3.0
Cl455	1.9	3.0	2.0	3.0	3.0	1.2	1.0	1.5	2.0
Cl456	2.1	2.0	2.0	3.0	3.0	1.2	1.5	2.0	2.5
Cl457	2.1	3.0	2.0	3.0	3.0	1.2	1.0	2.5	3.5
	Mean of 20 Tests	Seed Weight							
Clark 63	15.7	16.0	19.1	14.9	17.4	19.8	13.0	15.8	14.8
Cutler	18.1	17.0	20.9	17.3	19.6	21.0	18.0	17.8	16.7
Kent	17.4	16.0	20.5	17.5	18.4	23.0	17.4	17.2	17.2
Cl423	16.2	14.0	19.4	16.9	17.3	21.5	15.7	16.3	14.9
Cl452	16.2	13.0	19.2	16.3	16.4	19.7	15.8	17.6	16.8
Cl455	16.0	14.0	18.6	16.4	17.8	19.7	15.9	14.8	13.8
Cl456	15.7	13.0	18.9	16.3	17.7	17.8	15.6	15.2	13.4
Cl457	16.9	14.0	19.4	16.9	17.5	20.7	15.8	17.3	15.4

*Not included in the mean.
[1]Irrigated.
[2]Clay.
[3]Loam.

Table 77. Seed quality scores and seed weight, Uniform Test IV, 1968 (Continued)

Strain	Kentucky		Illinois							Missouri	
	Lexington	Henderson	Urbana	Girard	Edgewood	Trenton	Eldorado	Carbondale	Miller City	Columbia	Mt. Vernon
	*								*		
Clark 63	2.0	2.0	1.5	1.3	2.2	1.7	2.3	1.5	2.0	2.5	3.0
Cutler	2.0	1.5	1.2	1.5	2.2	2.0	2.5	3.0	2.7	2.4	2.3
Kent	2.0	2.0	1.2	1.2	3.3	2.0	2.5	2.0	2.5	2.8	2.8
Cl423	2.0	2.1	1.5	1.7	2.2	1.8	2.2	2.0	2.7	2.7	4.0
Cl452	2.0	1.8	1.2	1.7	1.8	2.3	2.8	2.0	2.8	3.2	3.0
Cl455	2.0	2.0	1.5	1.5	1.7	1.5	2.2	2.5	2.3	2.5	2.5
Cl456	2.0	2.0	1.3	2.3	2.0	2.7	3.2	2.0	3.0	3.0	3.2
Cl457	2.0	2.3	1.5	1.7	3.2	1.7	2.3	2.5	2.0	2.8	2.8

	Seed Weight						
							*
Clark 63	15.0	16.9	15.0		14.2	14.8	13.9
Cutler	18.9	17.0	18.2		16.5	18.1	14.4
Kent	17.1	15.9	17.6		16.5	15.7	13.1
Cl423	15.5	14.4	16.0		15.4	14.4	12.9
Cl452	14.7	14.4	16.5		14.9	15.4	12.8
Cl455	15.1	14.0	16.8		14.2	14.9	12.1
Cl456	15.2	14.5	15.5		14.5	14.7	11.9
Cl457	17.1	13.9	16.6		15.5	17.1	13.3

Table 77. (Continued)

Strain	Missouri		Nebraska[1]	Kansas						California[1]	
	Portageville[2]	Portageville[1,3]	Mead	Powhattan	Manhattan	Manhattan[1]	Ottawa	Newton	Columbus	Five Points	Shafter
	*	*								*	*
Clark 63	4.3	2.5	1.1	1.4	1.3	1.3	1.7	1.2	1.3	2.0	2.0
Cutler	3.3	2.3	1.0	1.4	1.5	1.2	1.8	1.3	1.4	3.0	3.0
Kent	3.2	2.8	2.0	1.3	1.6	1.3	2.0	2.0	1.2	1.0	1.0
C1423	3.8	3.0	1.9	1.4	1.7	1.5	1.8	1.4	1.3	3.0	4.0
C1452	3.8	2.8	1.6	1.4	1.4	1.6	1.9	1.9	1.4	2.0	2.0
C1455	3.7	2.8	1.6	1.3	1.5	1.8	1.9	1.8	1.3	3.0	2.0
C1456	3.8	3.1	1.6	1.3	1.7	1.9	1.7	1.8	1.4	3.0	2.0
C1457	2.8	2.0	1.9	1.4	1.8	1.9	1.9	1.4	1.4	2.0	2.0
	Seed Weight										
	*	*								*	*
Clark 63	7.3	14.0	15.7	16.6	14.4	14.6	15.9	15.7	14.9	12.0	16.6
Cutler	12.3	15.0	19.7	18.9	16.4	16.2	17.8	17.8	17.4	15.0	18.2
Kent	9.0	13.3	17.4	18.5	15.7	15.0	16.8	18.0	16.3	15.0	17.8
C1423	9.7	14.0	17.0	16.8	14.6	15.1	16.9	16.6	15.7	14.0	16.2
C1452	8.6	12.0	17.6	17.9	13.6	15.8	14.9	18.5	15.4	14.0	14.8
C1455	8.6	12.6	18.1	16.7	15.1	15.7	16.0	16.1	15.5	14.0	15.0
C1456	8.0	13.6	17.2	15.6	15.2	15.5	16.3	16.0	15.9	14.0	14.5
C1457	8.0	14.0	19.4	18.7	15.4	17.7	17.2	17.4	15.3	14.0	16.8

Table 78. Percentages of protein and oil, Uniform Test IV, 1968.

Strain	Mean of 12 Tests	New Jersey[1] Centerton	Maryland Linkwood	Ohio Columbus	Indiana Evansville	Kentucky Henderson	Illinois Urbana
Clark 63	39.5	40.4	40.3	40.2	37.5	38.8	39.9
Cutler	39.7	41.2	41.8	39.3	37.5	39.6	39.2
Kent	39.2	41.2	40.5	39.1	37.3	37.5	38.4
Cl423	39.8	42.1	42.4	40.4	37.7	39.2	39.8
Cl452	37.5	38.7	38.5	37.7	35.6	37.4	38.0
Cl455	41.3	42.9	43.3	41.5	39.0	40.8	40.8
Cl456	39.8	41.0	40.1	40.7	37.4	40.8	38.5
Cl457	40.9	41.6	40.5	40.8	37.2	41.4	40.3
	Mean of 12 Tests	Percentage of Oil					
Clark 63	21.6	22.8	23.8	20.7	22.7	21.6	19.9
Cutler	22.0	22.5	23.4	21.6	22.6	22.9	20.6
Kent	22.3	22.7	23.3	21.9	23.3	22.8	21.7
Cl423	21.9	22.0	24.6	21.3	22.8	22.3	20.4
Cl452	22.9	23.7	22.4	22.3	23.6	23.0	21.8
Cl455	21.1	22.0	22.1	21.3	22.4	21.1	20.3
Cl456	22.1	22.4	23.7	20.7	23.5	22.7	20.6
Cl457	21.1	22.2	23.1	20.5	22.6	20.7	20.2

*Not included in the mean.
[1]Irrigated.
[2]Loam.

Table 78. (Continued)

Strain	Illinois		Missouri		Nebraska[1]	Kansas		
	Eldorado	Miller City*	Columbia	Portagville[1,2]*	Mead	Powhattan	Manhattan[1]	Ottawa
Clark 63	40.1	40.7	41.4	36.1	38.7	39.9	37.9	39.3
Cutler	40.6	40.6	40.5	36.7	39.4	39.9	38.1	39.5
Kent	41.0	40.9	39.6	37.7	39.3	39.6	37.6	39.3
C1423	41.4	40.3	36.5	37.4	39.9	40.4	38.6	39.2
C1452	38.8	38.1	37.4	35.3	37.4	37.0	36.4	37.2
C1455	42.4	42.2	41.9	39.1	40.2	40.7	40.0	41.5
C1456	41.9	40.5	40.7	36.7	39.6	39.4	38.0	39.4
C1457	42.5	40.9	42.5	37.4	41.1	41.0	41.0	40.9
	Percentage of Oil							
Clark 63	22.2	22.2*	21.2	24.5*	20.1	20.5	22.7	21.2
Cutler	22.1	22.0	22.3	23.7	20.7	21.4	22.4	21.6
Kent	21.9	21.1	21.9	23.0	21.8	21.7	22.6	21.9
C1423	21.4	21.5	22.2	23.7	21.2	20.5	22.7	21.9
C1452	22.8	22.7	22.8	24.5	22.7	23.3	23.7	22.6
C1455	20.7	20.8	20.3	22.5	21.0	20.8	20.9	20.7
C1456	22.5	22.7	21.8	24.9	21.6	21.6	22.6	21.7
C1457	20.8	21.1	20.8	24.9	20.5	20.7	20.6	20.6

Table 79. Six-year summary of data, Uniform Test IV, 1963-1968.

Strain	Yield	Rank	Maturity[1]	Lodging	Height	Seed Quality	Seed Weight	Seed Composition Protein	Seed Composition Oil
No. of Tests	122	122	114	107	120	112	92	65	65
Clark 63	37.8	3	0	2.1	39	2.1	15.9	40.0	21.7
Cutler	41.2	1	+2.3	1.7	39	2.2	18.0	40.4	21.6
Kent	40.4	2	+7.2	1.7	39	2.2	17.7	40.0	22.0

[1]Days earlier (-) or later (+) than Clark 63 which matured September 27, 125 days after planting.

Table 80. Six-year summary of yield and yield rank, Uniform Test IV, 1963-1968.

Strain	Mean of 122 Tests	New Jersey[1] Centerton	Delaware Georgetown	Maryland Queenstown[2]	Maryland Linkwood	Ohio Columbus	Indiana Worthington	Indiana Evansville	Kentucky Henderson	Illinois Urbana	Illinois Girard	Illinois Edgewood
Years Tested		1963, 1966-68	1963-1967	1964-65 1967-68	1966-1968	1963-1968	1963-1968	1963-1968	1966-1968	1965-1968	1965-1968	1963-1968
Clark 63	37.8	27.5	25.3	39.1	35.4	33.6	41.5	41.6	43.7	46.2	39.6	37.5
Cutler	41.2	27.1	25.8	39.2	38.0	35.3	53.6	51.9	47.7	48.3	43.0	39.8
Kent	40.4	32.6	35.0	36.6	36.2	35.1	51.8	50.0	48.1	48.2	41.3	37.8
						Yield Rank						
Clark 63	3	2	3	2	3	3	3	3	3	3	3	3
Cutler	1	3	2	1	1	1	1	1	2	1	1	1
Kent	2	1	1	3	2	2	2	2	1	2	2	2

[1]Bridgeton, 1963, 1967. Salem, 1966.
[2]Upper Marlboro, 1964-1965.
[3]Irrigated.
[4]Loam.
[5]Lincoln, 1966-1967.

Table 80. (Continued)

Strain	Illinois				Missouri		Nebraska[3,5]	Kansas					
	Trenton	Eldorado	Carbondale	Miller City	Columbia	Portageville[3,4]	Mead	Powhattan	Manhattan	Manhattan[3]	Ottawa	Newton	Columbus
Years Tested	1966-1968	1963-1968	1963-1968	1963-1968	1963-1968	1963-1968	1966-1968	1963-1968	1963-1968	1963-1968	1966-1968	1965-1968	1966-1968
Clark 63	44.5	46.7	34.9	40.2	34.8	41.9	41.8	37.5	41.8	49.7	42.3	28.7	33.4
Cutler	50.3	50.7	38.3	43.7	35.0	44.5	52.7	39.9	44.4	53.3	41.3	27.8	36.3
Kent	47.7	49.0	37.9	42.7	34.9	43.3	49.0	39.1	46.3	50.0	35.6	30.2	37.3
	Yield Rank												
Clark 63	3	3	3	3	3	3	3	3	3	3	1	2	3
Cutler	1	1	1	1	1	1	1	1	2	1	2	3	2
Kent	2	2	2	2	2	2	2	2	1	2	3	1	1

PRELIMINARY TEST IV, 1968

Strain	Parentage	Generation Composited
1. Clark 63		
2. Kent		
3. Cl473	Cl266R x Cl253	F_6
4. Cl474	Cl266R x Cl253	F_6
5. Cl475	Cl266R x Cl253	F_6
6. Cl476	Cl266R x Cl253	F_6
7. Md63-3303-3	(1 of 9 high protein sources x Dunfield) x Clark	F_7
8. UD65-9105	Bethel x Kent	F_5
9. UD65-9115	Bethel x Kent	F_5
10. UD65-9137	Bethel x Kent	F_5
11. UD65-9140	Bethel x Kent	F_5
12. UD66-7653	Delmar x Kent	F_6
13. UD66-9428	Bethel x Kent	F_6
14. UD66-9775	Bethel x Kent	F_6

Clark 63 and Kent, the two check varieties, had nearly the same mean yield over the region and outyielded most of the selections. Only Cl473, Cl475, and Cl476 were higher in regional mean yield. Cl475 is close to Clark 63 in maturity and Cl473 and Cl476 are closer to Kent. Md63-3303-3 yielded well at some locations but does not appear to be any improvement over Clark 63. Most of the UD strains were very late and at least four of them should be classified in Group V.

Table 81. Descriptive data and shattering scores, Preliminary Test IV, 1968.

Strain	Flower Color	Pubescence Color	Pod Color	Seed Coat Luster	Seed Coat Color	Hilum Color	Shattering		
							Stoneville Miss.	Manhattan Kans. 2 wks.	Manhattan Kans. 4 wks.
Clark 63	P	T	Br	D	Y	Bl	2	1.0	1.5
Kent	P	T	Br	I	Y	Bl	3	1.0	2.5
C1473	P	G	Br	S	Y	Ib	3	2.5	5.0
C1474	P	G	Br	D	Y	Ib	3	5.0	5.0
C1475	P	G	Br	S	Y	Ib	3	4.2	5.0
C1476	P	G	Br	S	Y	Bf	2	1.0	5.0
Md63-3303-3	W	T	Br	S	Y	Dib	2	1.0	5.0
UD65-9105	W	G	Br	D	Y	Lbf	1.5	1.0	5.0
UD65-9115	P	T	Br	S	Y	Bl	2	1.0	5.0
UD65-9137	W	T	Br	I	Y	Bl	3	4.0	5.0
UD65-9140	W	T	Br	S	Y	Bl	2.5	1.5	5.0
UD66-7653	W	T	Br	S	Y	Bl	1	1.0	5.0
UD66-9428	W	G	Br	D	Y	Lbf	1	1.0	5.0
UD66-9775	W	G	Br	D	Y	Y	--	1.0	5.0

Table 82. Summary of data, Preliminary Test IV, 1968.

Strain	Yield	Rank	Maturity[1]	Lodging	Height	Seed Quality	Seed Weight	Seed Composition Protein	Seed Composition Oil
No. of Tests	15	15	12	14	15	14	13	7	7
Clark 63	43.5	4	0	2.2	40	1.8	15.5	39.0	22.1
Kent	43.3	6	+ 6.9	1.6	41	2.0	17.4	38.9	22.7
C1473	44.6	3	+ 4.0	2.3	48	2.0	16.1	40.1	21.8
C1474	43.3	6	0	1.8	44	2.2	16.5	41.4	22.1
C1475	45.0	2	+ 0.8	1.8	46	1.7	15.4	40.1	21.6
C1476	46.0	1	+ 6.8	1.9	47	2.3	16.8	38.9	22.1
Md63-3303-3	43.5	4	+ 3.1	2.1	37	2.0	15.8	38.3	23.1
UD65-9105	40.4	8	+ 8.8	2.2	48	2.0	16.5	39.8	21.6
UD65-9115	37.9	11	+ 9.8	2.6	52	2.1	17.3	38.8	22.5
UD65-9137	40.1	9	+ 3.9	2.3	42	2.3	17.5	38.7	22.8
UD65-9140	37.3	13	+12.1	2.0	49	2.2	15.9	39.1	21.3
UD66-7653	39.1	10	+14.0	2.3	46	2.2	14.8	39.0	21.9
UD66-9428	37.9	11	+17.8	2.4	52	2.0	16.5	39.6	21.4
UD66-9775	33.9	14	+22.4	2.4	54	2.4	17.4	40.5	20.4

[1]Days earlier (-) or later (+) than Clark 63 which matured September 28, 123 days after planting.

Table 83. Disease data, Preliminary Test IV, 1968.

Strain	BB		BP	BSR	DM	FE2	PR		PS		Pyd	Pyu
	Urbana Ill.	Ames Ia.	Ill.	Urbana Ill.	Worthington Ind.	Ind.	Ind.	Stoneville Miss.	Queenstown Md.	Linkwood Md.	Ia.	Ia.
	n	n-T	a	n	n	a	a	n	n	n	a	a
Clark 63	2	3	1	4	4	4	R	1	4	5	R	I
Kent	2	2	2	4	3.5	1	S	3	1	2	I	R
Cl473	3	3	3	4	3.5	1	R	1.5	1	3	R	I
Cl474	2	3	1	4	4	4	R	2.5	3	1	I	R
Cl475	2	3	2	4	4	2	Seg	2	3	2	R	R
Cl476	3	3	1	4	5	3	R	2	2	1	--	R
Md63-3303-3	3	2	3	4	4	1	S	2.5	2	2	R	R
UD65-9105	3	3	3	4	4	1	S	2	1	1	I	I
UD65-9115	3	3	3	4	2.5	1	S	4	1	1	--	S
UD65-9137	2	3	1	4	4	3	S	3.5	3	1	R	I
UD65-9140	3	2	3	4	4	1	S	4.5	1	1	R	S
UD66-7653	3	2	2	4	4.5	1	S	1	1	1	I	I
UD66-9428	2	3	3	4	4	1	S	1.5	1	1	R	R
UD66-9775	3	3	3	4	3	2	S	1	1	1	R	S

Table 84. Yield and yield rank, Preliminary Test IV, 1968.

Strain	Mean of 15 Tests	Maryland			Ohio	Indiana		Illinois	
		Clarksville	Queenstown	Linkwood	Columbus	Worthington	Evansville	Eldorado	Carbondale
Clark 63	43.5	55.4	40.6	47.4	50.5	43.6	40.5	40.7	34.4
Kent	43.3	51.7	36.0	38.8	47.0	63.3	49.7	33.4	39.2
C1473	44.6	57.7	47.6	44.3	37.4	51.0	49.6	50.3	39.6
C1474	43.3	52.8	46.1	40.0	40.5	51.3	51.5	49.9	33.8
C1475	45.0	59.4	42.8	40.5	52.8	50.2	46.3	46.2	39.8
C1476	46.0	56.5	42.0	45.8	47.2	56.6	52.9	46.0	41.3
Md63-3303-3	43.5	55.6	39.2	45.2	58.0	54.8	35.0	45.8	40.1
UD65-9105	40.4	49.8	34.5	38.2	60.5	50.0	41.0	34.1	38.0
UD65-9115	37.9	49.3	34.8	36.0	33.6	48.0	36.4	34.9	35.9
UD65-9137	40.1	53.4	39.8	37.4	59.0	43.2	34.8	43.7	34.1
UD65-9140	37.3	45.4	38.4	39.7	38.8	52.7	20.0	40.6	36.8
UD66-7653	39.1	49.8	36.8	39.0	38.5	50.7	45.3	38.3	37.1
UD66-9428	37.9	47.4	36.2	36.2	43.6	46.0	42.7	39.4	29.2
UD66-9775	33.9	44.1	25.6	35.8	36.5	52.0	39.9	33.7	27.7
Coef. of Var. (%)		11.1	11.3	9.5	--	11.6	9.8	5.8	7.4
L.S.D. (5%)		2.8	9.4	8.3	--	N.S.	8.8	5.2	5.8
Row Spacing (In.)		30	30	38	28	38	38	36	40

	Yield Rank								
Clark 63	4	5	5	1	5	13	9	7	10
Kent	6	8	11	9	7	1	3	14	5
C1473	3	2	1	4	12	7	4	1	4
C1474	6	7	2	6	9	6	2	2	12
C1475	2	1	3	5	4	9	5	3	3
C1476	1	3	4	2	6	2	1	4	1
Md63-3303-3	4	4	7	3	3	3	12	5	2
UD65-9105	8	9	13	10	1	10	8	12	6
UD65-9115	11	11	12	13	14	11	11	11	9
UD65-9137	9	6	6	11	2	14	13	6	11
UD65-9140	13	14	8	7	10	4	14	8	8
UD66-7653	10	9	9	8	11	8	6	10	7
UD66-9428	11	12	10	12	8	12	7	9	13
UD66-9775	14	13	14	14	13	5	10	13	14

*Not included in the mean.
[1]Irrigated.

Table 84. (Continued)

Strain	Missouri			Kansas				
	Columbia	Mt. Vernon	Portagville[1] *	Powhattan	Manhattan	Manhattan[1]	Ottawa	Columbus
Clark 63	35.4	43.9	28.4	47.3	38.6	45.7	54.3	34.9
Kent	32.6	34.1	33.4	50.0	40.1	47.3	52.3	34.4
C1473	35.1	39.6	27.7	47.2	42.7	36.0	56.3	34.4
C1474	40.0	37.6	25.8	43.8	41.8	30.3	53.9	36.6
C1475	38.7	42.6	21.8	43.4	48.1	39.8	54.2	30.5
C1476	39.0	38.4	28.0	52.1	36.0	46.7	57.1	32.2
Md63-3303-3	45.4	34.5	44.5	47.2	40.3	38.1	43.5	29.1
UD65-9105	23.2	37.4	33.6	48.7	31.8	38.5	51.3	28.7
UD65-9115	34.5	37.8	32.5	44.1	32.2	43.5	40.9	26.9
UD65-9137	31.8	38.7	29.4	43.8	39.5	29.1	44.1	29.6
UD65-9140	32.4	31.9	27.2	46.7	36.1	28.9	43.9	27.8
UD66-7653	33.8	37.8	31.1	48.6	33.5	34.7	36.7	25.2
UD66-9428	25.4	29.0	30.1	40.7	33.6	51.9	41.3	25.2
UD66-9775	27.1	23.7	25.5	41.8	20.8	50.4	32.6	16.8
Coef. of Var. (%)	11.7	11.1	30.3	4.8	10.1	13.4	8.8	11.6
L.S.D. (5%)	8.6	8.7	19.6	4.8	8.0	11.6	9.0	3.9
Row Spacing (In.)	15	15	38	30	30	36	30	30

	Yield Rank							
Clark 63	5	1	8	5	7	5	3	2
Kent	9	11	3	2	5	3	6	3
C1473	6	3	10	6	2	10	2	3
C1474	2	8	12	10	3	12	5	1
C1475	4	2	14	12	1	7	4	6
C1476	3	5	9	1	9	4	1	5
Md63-3303-3	1	10	1	6	4	9	10	8
UD65-9105	14	9	2	3	13	8	7	9
UD65-9115	7	6	4	9	12	6	12	11
UD65-9137	11	4	7	10	6	13	8	7
UD65-9140	10	12	11	8	8	14	9	10
UD66-7653	8	6	5	4	11	11	13	12
UD66-9428	13	13	6	14	10	1	11	12
UD66-9775	12	14	13	13	14	2	14	14

Table 85. Maturity dates, Preliminary Test IV, 1968.

Strain	Mean of 12 Tests	Maryland			Ohio	Indiana		Illinois
		Clarksville	Queenstown	Linkwood	Columbus	Worthington	Evansville	Eldorado
Clark 63	0	0	0	0	0	0	0	0
Kent	+ 6.9	+10	+ 8	+ 7	+ 1	+ 9	+ 7	+ 6
Cl473	+ 4.0	+ 6	+ 4	+ 5	+ 3	+12	+ 5	+ 2
Cl474	0	+ 3	- 1	- 3	0	+ 3	+ 1	- 2
Cl475	+ 0.8	+ 5	- 1	- 2	+ 2	+ 3	+ 3	0
Cl476	+ 6.8	+ 9	+ 8	+ 8	+ 4	+11	+ 7	+ 5
Md63-3303-3	+ 3.1	+ 5	0	+ 2	0	+ 8	+ 5	+ 2
UD65-9105	+ 8.8	+ 9	+ 8	+ 8	+ 4	+12	+ 6	+ 8
UD65-9115	+ 9.8	+16	0	+ 9	+ 2	+14	+13	+ 8
UD65-9137	+ 3.9	+ 6	+ 3	+ 1	+ 2	+ 7	+ 3	+ 2
UD65-9140	+12.1	+14	+12	+11	+ 8	+13	+ 8	+11
UD66-7653	+14.0	+14	+12	+14	+ 7	+15	+12	+15
UD66-9428	+17.8	+20	+18	+20	+11	+16	+17	+11
UD66-9775	+22.4	+23	+24	+23	+16	+17	+24	+26
Wayne (III)		+ 2	--	--	-26	- 5	- 2	- 7
Hill (V)		--	--	+18	--	--	--	+17
Date planted	5-27	5-17	5-22	5-21	6-1	6-8	6-7	6-6
Clark 63 matured	9-28	9-29	9-18	9-16	10-26	9-28	9-24	9-22
Days to mature	123	135	119	118	147	112	109	108

*Not included in the mean.
[1]Irrigated.

Table 85. (Continued)

Strain	Illinois	Missouri		Kansas				
	Carbon-dale	Colum-bia	Portage-ville[1]	Pow-hattan	Man-hattan	Man-hattan[1]	Ottawa	Colum-bus
	*	*	*					
Clark 63	0	0	0	0	0	0	0	0
Kent	+ 9	+2	+ 3	+ 9	+ 5	+ 9	+ 5	+7
Cl473	+ 3	--	0	0	+ 6	+ 8	- 1	-2
Cl474	0	-1	- 1	- 2	+ 3	- 2	- 3	+2
Cl475	+ 1	+1	- 1	- 1	0	+ 1	- 4	+3
Cl476	+ 7	+8	+ 3	+ 9	+ 6	+11	+ 3	0
Md63-3303-3	+ 5	+2	+ 1	+ 5	+ 6	+ 4	+ 2	-2
UD65-9105	+ 9	--	+ 5	+14	+ 9	+12	+13	+3
UD65-9115	+15	--	+ 3	+14	+13	+11	+14	+3
UD65-9137	+ 7	+1	0	+10	+ 4	+ 4	+ 2	+3
UD65-9140	+17	--	+10	+24	+13	+13	+15	+3
UD66-7653	+17	--	+16	+20	+19	+19	+18	+3
UD66-9428	--	--	+18	+25	+22	+28	+22	+3
UD66-9775	--	--	+30	+25	+30	+31	+22	+8
Wayne (III)	- 2	-2	-12	- 6	- 6	- 8	- 5	-5
Hill (V)	--	--	+22	+23	+19	+13	+16	--
Date planted	6-12	5-13	5-7	6-3	5-16	5-9	5-17	6-12
Clark 63 matured	9-19	9-15	9-9	10-3	9-24	9-25	9-25	9-30
Days to mature	99	125	125	122	131	139	131	110

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

Strain	Parentage	Generation Composited	Previous Testing
Pridesoy II	Selection made by the Pride Hybrid Corn Co., Minn.	--	--
II-42-4-6	Lincoln^2 x Richland	--	--
II-42-37	Lincoln^2 x Richland	--	--
II-44-46	Hawkeye x Flambeau	--	--
II-54-139	Renville x Capital	--	--
II-54-232	(Lincoln^2 x Richland) x Korean	--	--
II-54-240	(Lincoln^2 x Richland) x Korean	--	--
3-11-50	Harman x [Mandarin (Ottawa) x A.K. (Harrow)]	--	--
5-1	M10 x PI 180.501	--	--
C1069	Lincoln x Ogden. From same F_3 plant as Kent.	F_7	54-58 U.T. IV
C1070	Lincoln x Ogden. From same F_3 plant as Kent.	F_7	53 P.T. IV
C1079	Lincoln x Ogden. From same F_3 plant as Kent.	F_7	54-56 U.T. IV
C1128	Wabash x Hawkeye	--	54-58 U.T. II, 58,62 U.T. III
C1253	Blackhawk x Harosoy. Phytophthora resistant.	F_6	64 P.T. II
C1266R	Harosoy x C1079	F_6	62-63 U.T. IV
C1270	Mandarin (Ottawa) x Clark	F_7	--
H24088	Monroe x Lincoln	--	56 U.T. III
L10	[Chippewa^8 x (C1128^2 x S54-1207)] x (Chippewa^{10} x Blackhawk). Pustule and phytophthora resistant.	13 F_3 lines	65 U.T. I
L11	(Clark^6 x T201) x (Clark^6 x T145). Yellow hilum ($\underline{I}$ $\underline{r}$).	27 F_4 lines	65 U.T. IV
L46-2132	Lincoln^2 x Richland; Clark progenitor	--	49-52 U.T. III, 51-52 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
L57-0034	L46-2132 x Adams	F_6	60-62 U.T. IV
L57-9819	Hawkeye x Lee	F_6	61 U.T. IV
L62-1926	Clark^6 x T245	F_3	--
M10	Lincoln^2 x Richland	--	49-51 U.T. I
M319	Lincoln x Hawkeye	F_5	58-61 U.T. I
0-52-903	Strain 753-1 from Sven A. Holmberg, Norrkoping, Sweden, same as PI 194.654	--	60-61 U.T. 00
0-57-2921	Blackhawk x Capital	F_7	60-61 U.T. 0, 62-65 U.T. 00
PI 180.501	Strain No. 18 from Germany, from Mandschurische Herkunft x USA 54.616	--	65 U.T. 00 as 060-3396
PI 194-633	Strain 733-4 from Sven A. Holmberg, Norrkoping, Sweden	--	60 P.T. 00 as Me27A
PI 257.438	Sel. C25/58R; (441 x 866)S from Dr. Wilhelm Rudorf, Koln-Vogelsang, Germany	--	--

Table 86. (Continued)

Strain	Parentage	Generation Composited	Previous Testing
S54-1207	Hawkeye x (L49-4091 x sib of Clark)	--	57 U.T. III
T145	Origin unknown. Brown seed (r), glabrous plant (P_1).	--	--
T201	Lincoln^2 x Richland. Gray hilum (I).	--	--
T245	PI 86.024, from Obihiro, Hokkaido Island, Japan.	--	--
UM3	Sel. from PI 194.630, strain 698-3-5 from Sven A. Holmberg, Norrkoping, Sweden.	--	59 P.T. 00
WOS-3386	Lincoln x Flambeau	--	53-56 U.T. 0

GROWING CONDITIONS AT TEST LOCATIONS IN 1968

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

Ottawa, Ontario, Canada. The tests were planted on May 15. Temperatures for the remainder of May were slightly above normal. Germination was uniform, resulting in good stands. Rainfall was adequate throughout the whole growing season and temperatures were near normal.

Cooperator: Central Experimental Farm.
Soil Type: Grenville loam.
Fertilizer Application: 400 lbs./A. 5-20-20.
Herbicide Application: Lorox 1 lb. ac./A.

Kemptville, Ontario, Canada. This area had an excellent growing season very similar to 1967. The temperatures in April and September were above normal. The temperatures in May, June, July, and August were slightly below normal in each month while precipitation in June was above normal. Growth was decreased and maturity was delayed most of the summer because of cool weather. The average temperature in September resulted in yield and quality of soybeans similar to other years.

Cooperator: John D. Curtis.
Soil Type: Mountain sandy loam.
Fertilizer Application: 700 lbs./A. 0-15-30 + 100 N.
Herbicide Application: Treflan and Linuron at recommended rates.
Soil Analysis: pH, 6.5; OM, M; P, 349 (H+); K, 474 (H+); Mg, 176 (H-).

Guelph, Ontario, Canada. The growing season at Guelph was characterized by a cool May, one very warm week in early June followed by record low average temperature for the remainder of June, extremely high precipitation in August, and a mild September. Soybeans had less vegetative growth and were shorter than normal. Lodging was not a problem.

Cooperator: D. J. Hume and J. W. Tanner
Soil Type: Conestoga loam.
Fertilizer Application: 400 lbs./A. 5-20-20.
Herbicide Application: 3/4 lb. (active) Treflan incorporated plus 3/4 lb. (active) Lorox.
Soil Analysis: pH, 7.0; P, 200; K, 375; Ca, High; Mg, Med.-High.

Ridgetown, Ontario, Canada. Planting was on May 24 and was followed by about 3 1/4 inches of rain on May 26 and 27. In spite of this, emergence was quite good in all plots. The growing season was quite cool and rainfall was not a limiting factor at any time. No unusual disease nor insect problems were observed.

Soil Type: Brookston clay loam.
Fertilizer Application: 900 lbs./A. 3-11-11 broadcast.
Herbicide Application: Amiben 4 lbs. active/A. incorporated.
Soil Analysis: pH, 6.2; OM, M; P, H-; K, H+; Mg, M+.

Harrow, Ontario, Canada. Excellent moisture conditions at seeding time resulted in rapid and even emergence. Precipitation during May, June, and July was above average with normal temperatures. August and September rainfall was below average

while temperatures were above normal. Lodging was not a serious problem. Harvesting was completed before the first killing frost (October 30). Yields were average, being higher than in 1967, but lower than in 1966.

Cooperator: C.D.A. Research Station.
Soil Type: Brady sandy loam.
Fertilizer Application: 500 lbs./A. 5-10-15.
Herbicide Application: Amiben 2 lbs./A.

Adelphia, New Jersey. The growing season before and shortly after planting was cool and wet. Planting was somewhat delayed by cool wet weather. Four and one-half inches of rain fell the day after seeding, inundating half the trial. There was no apparent damage from the flooding. The remainder of June was cool and wet. July was dry, followed by adequate rainfall in August. September and October stayed warm with some rainfall. No outstanding factors developed to affect growth. Vegetative growth was adequate but not excessive.

Cooperator: Soils and Crops Research Center - E. C. Visinski, Superintendent.
Soil Type: Freehold loam.
Fertilizer Application: 250 lbs./A. 0-20-20.
Herbicide Application: 1 lb./A. Treflan.

Centerton, New Jersey. Spring was cool and wet. Planting was delayed somewhat by wet weather. Soil moisture was good at planting time. Shortly after, rainfall stopped. Only 3.35 inches of rain fell from July 3 until October 7. The planting received 2 inches of water by irrigation on July 26 and again on August 20. Shortage of moisture and continued high temperatures reduced yields and hastened maturity. Some varieties in the area were largely defoliated by late August. Plots were sprayed during the growing season because of an infestation of mites. Weeds were not a problem.

Cooperator: South Jersey Research and Development Center - Joseph Steinke, Assistant to the Director.
Soil Type: Sassafras sandy loam.
Fertilizer Application: 250 lbs./A. 0-20-20.
Herbicide Application: None.

Georgetown, Delaware. Seed was planted May 31, 1968. Emergence was rapid and stands excellent. Common ragweed (*Ambrosia artemisiifolia*), the only weed growing in the experimental area, was removed by hand pulling. Manganese deficiency was evidenced in mid-July and all plots were sprayed. Average rainfall was obtained in May and June. The July through September rainfall was approximately 9 inches below the average for the area. Only 3.5 inches of precipitation was obtained from July 6 through October 6. Average temperatures were slightly above normal. While the plants were under severe moisture stress in August, a high strawberry spider mite infestation was observed on most lines. Manganese deficiency was again observed on lines with lush green foliage in late August. No harvest data were recorded at this location.

Cooperator: University Substation Division.
Soil Type: Lakeland loamy sand.
Fertilizer Application: N, 15 lbs./A; P, 13 lbs./A; K, 29 lbs./A.
Herbicide Application: 0.5 lbs./A. triflaralin.
Soil Analysis: pH, 5.8; P, High; K, Medium; Mg, High; Mn, Low.

Clarksville, Maryland. The weather conditions were very good throughout the growing season except for slightly excessive moisture early which prevented the first cultivation, and a dry period in August. The latter, however, apparently did not severely hamper flowering or pod set due to the excellent moisture holding capacity of the soil. The site was selected because of its high state of fertility and the presence of a 2-year stand of red clover. A severe infestation of nut sedge required hand weeding and repeated cultivations with a roto tiller and garden tractor.

Soil Type: Manor silt loam.
Fertilizer Application: 400 lbs./A. 0-20-20 plowed down.
Herbicide Application: 3/4 lb./A. Planavin preplant incorporated.
Soil Analysis: pH, 6.9; P, 195 H; K, 357 VH; Mg, 224+ VH.

Queenstown, Maryland. The soybeans were planted May 22. In May and June there were 7 1/2 inches of rain, most of it coming the first two weeks after planting. Starting with the first of July through the end of October there was very little rain, 8 inches less than normal. During July and August when the rain was most scarce there were 31 days over 90° F. There was rapid early growth but the drouth slowed this. Seeds were severely shriveled. Shattering and lodging were extremely bad. Heavy rains in November caused seed quality problems with some seed germinating in the pod. There were no disease problems.

Soil Type: Mattapex silt loam.
Fertilizer Application: 400 lbs./A. 0-20-20.
Herbicide Application: Treflan.
Soil Analysis: pH, 6.7; P, Med.; K, Med.; Mg, V.H.

Linkwood, Maryland. The two weeks following planting (May 21) were very wet and there was planty of rain until the middle of July. Beginning with the last of July through October, there was a minor drouth with rainfall being 6.8 inches less than normal. During this period there were 25 days over 90° F. Early rains brought on luxuriant growth and very tall plants early in the growing season. The drouth didn't seem to affect seed quality but may have had some effect on yield even though the yields were good. There was some shattering, more than normal but not as severe as expected. Heavy rains during November delayed harvest and caused some seed to germinate in the pods. There were no disease problems.

Soil Type: Sassafras sandy loam.
Fertilizer Application: 200 lbs./A. 0-15-20.
Herbicide Application: None.
Soil Analysis: pH, 6.5; P, High; K, Med.; Mg, V. high.

Hoytville, Ohio. Excessive soil moisture in May delayed plantings to June. The first half of June was dry with above normal temperatures and near normal during the second half. The first half of July was dry with abnormally low temperatures and wet the last half. Soil moisture was adequate to surplus for the first half of August and below normal the last half. Temperatures were near normal throughout the month. Soil moisture was excessive and temperatures below normal during September and October.

Soil Type: Hoytville clay.
Fertilizer Application: None.
Herbicide Application: Amiben.

Soil Analysis: pH, 6.8; P, 59 lbs./A.; K, 364 lbs./A.; Ca, 8,865 lbs./A.; Mg, 900 lbs./A.; Mn, 20 lbs./A.; Boron, 1.0 lb./A.; Zn, 29 lbs./A.

Wooster, Ohio. Excessive soil moisture in May delayed plantings to June. June was dry the first half with above normal temperatures and near normal during the second half. July was dry the first half of the month with abnormally low temperatures. The last half of the month was wet. Soil moisture was adequate to surplus for the first half of August and below normal the last half. Temperatures were near normal throughout August. Soil moisture was excessive and temperatures below normal during September and October.

Soil Type: Wooster silt loam.
Fertilizer Application: None.
Herbicide Application: None.
Soil Analysis: pH, 7.2; P, 120 lbs./A.; K, 256 lbs./A.; Ca, 2,665 lbs./A.; Mg, 469 lbs./A.; Mn, 90 lbs./A.; Boron, 3 lbs./A.; Zn, 7 lbs./A.

Columbus, Ohio. Excessive soil moisture in May delayed plantings to June. June was dry the first half with above normal temperatures and near normal during the second half. July was dry the first half of the month with abnormally low temperatures and wet the last half of the month. Soil moisture was adequate to surplus for the first half of August and below normal the last half. Temperatures were near normal throughout the month. Soil moisture was excessive with temperatures below normal during September and October.

Soil Type: Miami-Brookston silt loam.
Fertilizer Application: None.
Herbicide Application: Amiben.
Soil Analysis: pH, 6.7; P, 79 lbs./A.; K, 265 lbs./A.; Ca, 3,225 lbs./A.; Mg, 486 lbs./A.; Mn, 63 lbs./A.; Boron, 2.5 lbs./A.; Zn, 14 lbs./A.

East Lansing, Michigan. Temperatures were normal throughout the growing season but unusually heavy rainfall during the first four weeks after planting caused stand problems and extreme competition by weeds.

Cooperator: Michigan State University and S. C. Hildebrand.
Fertilizer Application: 200 lbs./A. 4-20-20.
Herbicide Application: None.

Dundee, Michigan. Temperatures were normal but rain and high winds in August caused relatively severe lodging of many strains.

Cooperator: Mr. Russell Haupt.
Fertilizer Application: None.
Herbicide Application: Amiben.

Knox, Indiana. Planting was delayed about a week to 10 days to June 8 due to frequent rains in May. Soil conditions were excellent at planting and stands were good. Growth and yields were the best ever attained at this location. Precipitation was above normal in each of the months, May through September, and averaged 4.88 inches above normal for the period. Temperatures averaged near normal for the summer with 9, 7, and 11 days with temperatures of 90° F. or above in June, July, and August, respectively. Good fertility, ample moisture, and moderately high temperatures appear to be the factors responsible for the good yields at this

location. Harvest was delayed until October 21 due to intermittent rains but harvest conditions were good. Frost occurred after all strains were mature. Bacterial blight was light throughout the plot. Downy mildew was the most serious disease and was sufficiently abundant to permit good natural rating of strains (1.0 to 5.0). There was no evidence of any killing or depressed growth due to Phytophthora. Green stems and retention of green, lower leaves following pod maturity were very evident in numerous strains, especially in the higher protein strains.

Cooperator: Frank Pulver.
Soil Type: Maumee loam.
Fertilizer Application: 200 lbs./A. in the row.
Herbicide Application: None used on soybeans.
Soil Analysis: pH, 5.8; P, 48 lbs./A.; K, 240 lbs./A.

Bluffton, Indiana. Planting was timely on May 22 with good planting conditions in moist soil preceded and followed by frequent rains. Emergence was fairly good but with areas marked by killing from residual Tordon used in spot treatment of Canadian thistles. This necessitated the harvesting of numerous plots 8 feet in length rather than the usual 16 feet. Also, one test was abandoned. Precipitation was normal to two inches above normal during the months of May through September and averaged five inches above normal for the period. Temperatures were slightly below normal. There were only 4, 4, and 7 days of 90° F. or above in the months of June, July, and August, respectively. About three inches of precipitation along with heavy winds occurred in a several-hour period August 9, flooding much of the plot area and causing excessive lodging. Lodging was quite excessive at harvest and ratings probably do not reflect true varietal differences. Mn deficiency was noted to some extent in some areas of the plot although Mn was added in the fertilizer. Light and scattered Phytophthora rot, brown spot, bacterial blight, and downy mildew were observed throughout the plot. Harvest conditions were good to fair, with some harvesting being done under fairly humid conditions. Yields were 10 to 15 percent below average for this location.

Cooperator: Gerald Bayless and Sons.
Soil Type: Nappanee silt loam.
Fertilizer Application: 300 lbs./A. 14-14-28 P.U.; 150 lbs./A. 5-26-14 + 5% Mn + 1% Zn in the row.
Herbicide Application: Amiben, 10 lbs./A. granular (Tordon was used in spots in the summer of 1967 to kill Canadian thistles and caused damage in soybeans on these spots.).
Soil Analysis: pH, 6.7; P, 68 lbs./A.; K, 175 lbs./A.

Lafayette, Indiana. Planting on June 11 to 13 was nearly three weeks late for this location. Soil condition at planting was good and emergence was good. Growth was slow early in the season, increasing rapidly in late July with considerable lodging occurring after mid-August following a 2.24 inch rain and wind August 17. Precipitation was very excessive in May with 8.29 inches (3.63 inches above normal), 0.79, and 1.28 inches below normal in June and September, respectively, and 0.47 and 0.86 inches above normal in July and August. Temperatures were below normal in each month of the growing season. There were 5, 6, and 8 days of 90° F. or above in June, July, and August, respectively. Bacterial blight and brown spot were present in moderate amounts. No Phytophthora was observed. Brown stem rot was especially damaging to late Group III, and later maturing strains. Killing frost occurred October 5 and damaged and depressed yields of varieties later than Clark 63. Harvest conditions were generally good. Yields were considered about average for the

late planting, but considerably below those expected based on the excellent plant growth.

Cooperator: O. W. Luetkemeier.
Soil Type: Chalmers silty clay.
Fertilizer Application: 11-21-67, 641 lbs./A. 0-52-0 P.U.; 187 lbs./A. 0-20-20 + 4% MM in the row.
Herbicide Application: 1 qt. Treflan/A.
Soil Analysis: pH, 6.9; P, 72 lbs./A.; K, 240 lbs./A.

Greenfield, Indiana. Planting on June 11 was nearly two weeks later than average for this location. Planting conditions and emergence were good. Precipitation was 0.79 inch below normal in June and in September, average in July, and 1.16 inches above normal in August. There were only 9 days in June, July, and August in which precipitation exceeded 0.5 inch. There were 29 days during June, July, and August in which temperatures were 90° F. or above. Growth was poor and yields were 20 to 25 percent below the expected average for this location. There was a trace of Phytophthora rot with a little killing in the susceptible Group II varieties. Mildew rated 2 to 3 on susceptible varieties. Brown spot was evident throughout the plot but it was confined to near the base of the plants. There was a trace of bean yellow mosaic. Harvest conditions were good.

Cooperator: Mrs. Raymond Roney.
Soil Type: Brookston-Crosby complex.
Fertilizer Application: 200 lbs./A. 15-15-15 + trace elements in the row.
Herbicide Application: None used on soybeans.
Soil Analysis: pH, 5.9; P, 29 lbs./A.; K, 158 lbs./A.

Worthington, Indiana. Planting on June 8 was two to three weeks later than average for this location. Planting conditions were fairly good but with the soil fairly moist. Emergence was good and stands generally somewhat excessive. Growth was good throughout the season. Precipitation of 9 inches in May was twice normal. June was 2.85 inches and September 1.25 inches below normal. July and August were both near normal. Summer rainfall distribution was good following planting, however, there was little precipitation from mid-August to mid-September. There were 6, 14, and 10 days with temperatures of 90° F. and above in June, July, and August. Highest temperatures occurred during mid-July and mid-August. Except for downy mildew, which was moderately severe, other diseases were of little or no consequence. Harvest conditions were fairly good on all tests. Average yields were the highest ever attained at this location.

Cooperator: Frederic Sloan.
Soil Type: Genesee silt loam.
Fertilizer Application: 500 lbs./A. 6-12-18 P.U.
Soil Analysis: pH, 7.8; P, 165 lbs./A.; K, 53 lbs./A.

Evansville, Indiana. Planting on June 7 was nearly three weeks late for this location. Planting conditions were fairly good in a fairly moist soil. Stands were good. Growth was good, but somewhat below average, probably due to late planting. Precipitation was near normal for May through September, except July which had 6.6 inches of rain and was 2.3 inches above normal. Average monthly maximum temperatures were 2 to 7 degrees below normal. There were 9, 19, and 16 days with temperatures of 90° F. or above during June, July, and August, respectively. Highest temperatures occurred during mid-July and mid-August. There were few diseases of

consequence in the plot. Killing from Phytophthora root-rot was severe in strain UD65-9140 (Preliminary Test IV) and was also evident to some extent in scattered areas of the plot. Brown stem rot was present in the cooperator's field of Kent. Harvest was late, October 24 and 25, and harvest conditions were fair to poor. Yields were below average, but fairly good for the late planting date.

Cooperator: Bernard Wagner.
Soil Type: Montgomery silty clay loam.
Fertilizer Application: 800 lbs./A. 8-8-8 P.U. in fall, 200 lbs./A. 4-10-10 in row.
Herbicide Application: Planoven at manufacturer's recommended rate.
Soil Analysis: pH, 5.8; P, 64 lbs./A.; K, 413 lbs./A.

Henderson, Kentucky. This was a rather good season with heavy rains early in the growing season and plenty of moisture all along. The first three weeks in August had high temperatures and very high humidity. Harvest time was fairly dry. The plots were rotary hoed once and cultivated shallow three times. Slight mosaic infection early in the season did not spread or cause much damage. There was slight corn rootworm adult damage.

Cooperator: Joe Toy.
Soil Type: Sharkey silt loam.
Fertilizer Application: None. Third year for beans. 0-100-100 in 1966.
Herbicide Application: Alanap plus CIPC.
Soil Analysis: pH, 5.8; P, High; K, Low.

Ashland, Wisconsin. The 1968 growing season was cool and wet. Every month except April and September had below normal temperatures and there was above normal rainfall in every month except August. Despite the cool wet conditions, the crop emerged well but growth was slow all season. As indicated by plant heights, we had very short growth and, consequently, low yields. Excessive moisture caused much variation between replications. No disease nor insect problems occurred.

Cooperator: University of Wisconsin Experimental Farm.
Soil Type: Clay loam.
Fertilizer Application: 300 lbs./A. 5-20-20 drilled deep before working soil. Land was fall plowed.
Herbicide Application: Sprayed entire nursery area with 3 lbs./A. Amiben preemerge.

Durand, Wisconsin. The Durand nursery was planted May 21. Both emergence and stand were good for all plots. Temperatures averaged below normal from 1 to 3° F. for every month of the growing season. Precipitation was 7 inches above normal during May, June, and July but 2 inches below normal during August. As a result of the August drouth, yields were reduced considerably more for Group I than for Group II strains.

Cooperator: James H. Torrie.
Soil Type: Sandy loam.
Soil Analysis: pH, 6.7; OM, 25; P, 95; K, 100.

Madison, Wisconsin. This nursery was planted May 21 and emergence with good stands occurred June 6. Rainfall was 1.3 inches below and 6, 0.2, 1.1, and 1.6 inches above normal during May through September, respectively. Temperatures averaged 2°

F. below normal in May, normal in June and July, and 7° F. above normal and -1° F. below normal during August and September, respectively. Growth was excellent and all varieties matured before killing frost. Disease and insect damage was minor.

Cooperator: Wisconsin Agricultural Experiment Station.
Soil Type: Miami silt loam.
Fertilizer Application: 200 lbs./A. 0-20-20.
Herbicide Application: 2 lbs./A. Amiben.
Soil Analysis: pH, 7.1; OM, 30; P, 95; K, 150.

DeKalb, Illinois. This area was used for soybean fertility trials in 1967. Therefore, a blanket application of 240 lbs./A. P_2O_5 and 240 lbs./A. K_2O was used in an effort to eliminate P and K as limiting factors. Growing conditions were excellent, especially rainfall distribution over the season, a major factor in the high yields obtained. It was necessary to spray with 1 1/4 lbs./A. Sevin August 12 to control green clover worm infestation.

Cooperator: Dick Bell, Northern Illinois Agronomy Research Center.
Soil Type: Flanagan silt loam.
Herbicide Application: 1 qt./A. Treflan.
Soil Analysis: pH, 6.1; P_1, 54; P_2, 125.1; K, 318.

Pontiac, Illinois. There were very severe drouth conditions in August after abundant rain in June. This resulted in very low yields for this area and small seed size. The drouth area was apparently a fairly limited north-south strip extending across the state east to west. The lack of chemical weed control necessitated considerable hand weeding to control foxtail. Although the yields are low, the relative values are valid.

Cooperator: Donald Alltop.
Soil Type: Dodgeville silt loam.
Fertilizer Application: None.
Herbicide Application: None.
Soil Analysis: pH, 5.9; P_1, 13 lbs./A.; P_2, 21 lbs./A.; K, 282 lbs./A.

Urbana, Illinois. Planting was on June 5 in a good seedbed. Emergence was satisfactory with hot, dry weather following planting. Growth was fair to good. Some downy mildew occurred on susceptible strains and there was severe bacterial blight in scattered areas. Podding was poor in some areas of the field, apparently because of northern corn root worm feeding on flowers and young pods. The center two rows of four-row plots were harvested from three replications. Uniform Test II strains had the highest yields.

Cooperator: M. G. Oldham, Illinois Agricultural Experiment Station.
Soil Type: Flanagan silt loam.
Fertilizer Application: 120 lbs./A. each of P_2O_5 and K_2O.
Herbicide Application: Treflan at 24 oz./A., incorporated.
Soil Analysis: pH, 6.4; P_1, 87 lbs./A.; P_2, 125+ lbs./A.; K, 400 lbs./A.

Girard, Illinois. Planting was on May 17 in a moist soft seedbed. Emergence was good. Growth was excellent, but late season drouth reduced the yields of the Group III and Group IV strains. Group II yields were excellent again this year. Downy mildew was severe and brown stem rot infection was almost 100 percent. Spider mites did some damage during mid-season. The road past the field was torn up and

the field was covered with dust the last part of the growing season. The center two rows of four-row plots were harvested from three replications for each strain.

Cooperator: Lloyd Brothers.
Soil Type: Harrison silt loam.
Fertilizer Application: None.
Herbicide Application: Amiben banded at manufacturer's recommended rate.
Soil Analysis: pH, 6.9; P_1, 35 lbs./A.; P_2, 107 lbs./A.; K, 240 lbs./A.

Edgewood, Illinois. Planting was on June 7 in a lumpy seedbed with many corn stalks. Emergence was good except for cloddy sections. Moisture was adequate through early August. It was very dry late in the season and the Groups III and IV strains died prematurely. Downy mildew was severe. There was some beetle-feeding on the leaves throughout the season. Three replications of unbordered double rod-row plots were harvested. Harvest was completed on September 30.

Cooperator: John Wilson.
Soil Type: Cisne silt loam.
Fertilizer Application: 60 lbs./A. 5-20-20.
Herbicide Application: 13 lbs./A. dry Treflan broadcast.
Soil Analysis: pH, 7.0; P_1, 57 lbs./A.; P_2, 125+ lbs./A.; K, 296 lbs./A.

Trenton, Illinois. Planting was delayed until June 10. The field was in excellent condition with moisture to the top. Stands were good even though there were several heavy rains early in the season. Uniform Tests II and III were grown in two-row plots with three replications. Uniform Tests IV and IVS were grown in four-row plots with three replications and the center two rows were harvested. Diseases observed included slight to severe downy mildew, bacterial pustule, bacterial blight, and soybean mosaic. Cucumber beetles were feeding on the tops of the plants early in the season. Uniform Test II had the best yields again this year.

Cooperator: Fred Bergmann.
Soil Type: Harrison silt loam.
Fertilizer Application: 2 tons of lime/A.
Herbicide Application: Treflan broadcast and disced in.
Soil Analysis: pH, 6.3; P_1, 38 lbs./A.; P_2, 125 lbs./A.; K, 269 lbs./A.

Eldorado, Illinois. Planting was on June 6 in a moist, slightly tight seedbed. Emergence was poor due to the lack of moisture and stands were poor in some plots. There was damage from residual atrazene scattered throughout the field from the previous year's broadcast application. Over-all growth was good even though all months except July had a deficiency of rain. Insects observed included leaf hoppers, red spiders, white flies, and cucumber beetles. There was severe downy mildew, slight phytophthora rot, and a scattered occurrence of bacterial blight. Group II strains had the highest yields. Uniform Test II was grown in two-row plots and both rows were harvested. Uniform Tests III, IV, and IVS were grown in four-row plots and the center two rows were harvested. All were replicated three times. Seed quality was good for the third year in succession after at least 12 years of poor seed quality.

Cooperator: Marshall Grisham.
Soil Type: Harco silt loam.
Fertilizer Application: 300 lbs./A. of 7-21-7.

Herbicide Application: Two quarts of Amiben/A. in a twelve-inch band.
Soil Analysis: pH, 6.5; P_1, 66 lbs./A.; P_2, 125+ lbs./A.; K, 318 lbs./A.

Carbondale, Illinois. These plots were planted June 12 which was almost a month later than normal. The seedbed was in excellent condition. The beans emerged to a good stand and growth was normal at mid-August. From mid-August to September 16 it was moderately dry with a total of .8 inch of rainfall. The center row of a three-row plot was harvested for yield. Severe downy mildew occurred in August on some varieties. Yields were above average for this moderately heavy southern Illinois soil.

Cooperator: Cooperative Agronomy Research Center.
Soil Type: Stoy silt loam.
Fertilizer Application: 0-90-150 lbs./A.
Herbicide Application: Treflan 1 qt./A. broadcast.
Soil Analysis: pH, 5.8; P_1, 53; P_2, 125; K, 200.

Miller City, Illinois. Planting was on May 29 in an excellent seedbed with plenty of moisture. Emergence was good on most strains. Moisture was adequate most of the growing season. Cyst nematodes stunted early growth of the susceptible lines, but the cyst-resistant strains grew very well. The center two rows of four-row plots were harvested from three replications for each strain. Dyer and Custer were the top yielders.

Cooperator: Malcolm Patton.
Soil Type: Riley fine sandy loam.
Fertilizer Application: None.
Herbicide Application: Band application of three pints of Amiben/A.
Soil Analysis: pH, 6.7; P_1, 76 lbs./A.; P_2, 115 lbs./A.; K, 264 lbs./A.

Crookston, Minnesota. This nursery was planted on May 28 in a good seedbed, resulting in good emergence and early growth. There was excessive rainfall in late June and during July and August along with cool temperatures. Maturity was delayed. September was favorable and a later than normal killing frost (October 4) occurred. Group 00 material matured reasonably well but Group 0 was damaged by frost. Stands were only fair as a result of water damage and inability to control weeds completely.

Cooperator: Dr. J. R. Lofgren.
Soil Type: Fargo silty clay loam.
Herbicide Application: Treflan.

Morris, Minnesota. This was generally a very dry season. There was enough moisture for good emergence and early growth but deficient in July and August. Weed control was good. Yield levels were generally lowered because of moisture limitations. The plots ripened early and were harvested under good conditions. Seed quality was good.

Cooperator: Dr. S. D. Evans.
Soil Type: Barnes silt loam.
Soil Analysis: pH, 7.7; OM, High; P, 10; K, 200.

St. Paul, Minnesota. Unusually early planting (May 1) was followed by a long cool, wet period. Stands were generally good. Rather good growing conditions

existed throughout the summer with higher than normal rainfall and moderate temperatures. There was a rather severe infestation of green clover worms in August. Group 00 test was harvested before an exceptionally wet period in October. Groups 0 and I tests were harvested later. Marked differences in seed quality were observed from the two harvest periods.

Soil Type: Waukegan silt loam.
Fertilizer Application: None.
Herbicide Application: Treflan.

Lamberton, Minnesota. The season started with very dry conditions. Moisture was abundant through most of the growing season and was greatly excessive at harvest time. Stands were good, weed control adequate, and growth and development normal. Conditions at harvest time were very unfavorable with over 15 inches of rain in late September and in October. It was necessary to cut, bag, and dry bundles before threshing and there were some losses due to shattering.

Cooperator: Dr. W. W. Nelson.
Soil Type: Webster silt loam.
Herbicide Application: Treflan.

Waseca, Minnesota. This was a generally wet season. Planting date was near average (mid-May) and stands were good. There were some problems with broad leaf weeds. There was good growth and development. Harvesting weather was very bad and it was necessary to cut, bag, and dry bundles before threshing. Green clover worms were abundant in late August.

Cooperator: Dr. William Lueschen.
Soil Type: LeSueur silty clay loam.
Fertilizer Application: None.
Herbicide Application: Treflan.

Sutherland, Iowa. The nursery was planted May 23 with good soil moisture. Drouth followed planting and persisted through the growing season. Temperatures were near normal during the growing season. The nursery was not considered good for making strain comparisons.

Cooperator: Northwest Iowa Experimental Association.
Soil Type: Primghar silt loam.
Fertilizer Application: None.
Herbicide Application: Treflan.
Soil Analysis: pH, 6.6; OM, High; P, 14 lbs./A.; K, 139 lbs./A.

Clarence, Iowa. This nursery is located in east central Iowa on highly productive soil. Planting was completed on May 15. Stands were good and plots were kept weed-free. Moisture was excellent during the growing season. Temperatures were normal for all growing months. Growth, yield, and general response were above normal. Strains were not injured by frost. This nursery was considered good for making strain comparisons.

Cooperator: Richard Elijah.
Soil Type: Muscatine silty clay loam.
Herbicide Application: Treflan.
Soil Analysis: pH, 7.5; OM, High; P, 105 lbs./A.; K, 182 lbs./A.

Ames, Iowa. Soil moisture was good at planting time. A hail storm on June 30 retarded growth but recovery was adequate to provide strain comparisons. Moisture levels were good throughout the growing season. Temperatures during the growing season were near normal.

Cooperator: Agronomy Farm, Ames, Iowa Agricultural Experiment Station.
Soil Type: Nicollet loam.
Fertilizer Application: 0-80-80.
Soil Analysis: pH, 7.7; OM, High; P, 25 lbs./A.; K, 100 lbs./A.

Ottumwa, Iowa. This nursery is in southeastern Iowa on flat, very productive Haig silty clay loam. The nursery was planted May 22. Some moisture stress occurred in July and August but the rest of the growing season had adequate moisture. Temperatures were normal for the growing season. Growth, yield, and general response were good. This nursery was considered good for making strain comparisons.

Cooperator: A. E. Newquist.
Soil Type: Haig silty clay loam.
Fertilizer Application: None.
Herbicide Application: Treflan.
Soil Analysis: pH, 5.8; OM, Medium; P, 58 lbs./A.; K, 118 lbs./A.

Red Oak, Iowa. This nursery is located in southwest Iowa and is typical of the rolling terrain frequented by terraces. Drouth persisted throughout the growing season. Temperatures were normal. The nursery was not considered good for making strain comparisons.

Cooperator: Howard Jackson.
Soil Type: Marshall silt loam.
Fertilizer Application: None.
Herbicide Application: Treflan.
Soil Analysis: pH, 6.4; OM, High; P, 92 lbs./A.; K, 780 lbs./A.

Spickard, Missouri. Due to wet weather, planting was delayed until June 5. Stands were good, both soybeans and giant foxtail. The soybeans looked extremely poor for awhile due to dry weather. Three pounds of Tenoran and 1 pint of Adjuvant CIBA Surfactant were applied. A deep cultivation must have helped because the soybeans looked good later in the summer and the yields were much higher than expected earlier.

Cooperator: University of Missouri.
Soil Type: Seymour silt loam.
Fertilizer Application: 200 lbs. 6-24-24.
Herbicide Application: 2 lbs. Amiben.

Columbia, Missouri. The tests were planted in a good seedbed on May 10, resulting in good emergence and stands. Growing conditions were reasonably good throughout the season. Leaf diseases (mainly brown spot and bacterial blight) were moderate to severe and seemed to be more severe on the earlier maturing strains. Harvesting was delayed by rain and mechanical difficulties and here, again, the earlier varieties suffered the most.

Cooperator: University of Missouri.
Soil Type: Mexico silt loam.

Fertilizer Application: 300 lbs. 8-32-16.
Herbicide Application: 2 lbs. Amiben.

Mt. Vernon, Missouri. The May 21 planting resulted in good stands. Growing conditions throughout the season were generally favorable. Green stinkbugs were a problem, particularly on the earlier strains. Some of the earlier lines did not ripen normally and seed quality was very poor. Yields were reduced but it is difficult to say how much.

Cooperator: University of Missouri.
Soil Type: Huntington silt loam.
Fertilizer Application: 300 lbs./A. 0-20-20.
Herbicide Application: 2 lbs. Amiben.

Portageville, Missouri. Rainfall was in very small amounts during July, August, and September. Soybeans developed and matured under extreme drouth conditions which resulted in very low yields. Sclerotial blight and brown stem rot were the diseases of significance in 1968. Neither of these have been a problem in previous years. Leafhopper damage was noticed on loam and clay soils where soybean strains have appressed pubescence. Tests were irrigated once on the loam and none on the clay. Both locations needed more irrigation but limited facilities made it impossible.

Cooperator: Mr. Norman Brown.
Soil Type: Salix silt loam and Sharkey clay.
Fertilizer Application: Loam = 0(N) - 50(P) - 50(K). Clay = None.
Herbicide Application: Loam = Pre-emerge with Treflan. Clay = None.
Soil Analysis: Loam--pH, 5.1; OM, 2.4; P, 307; K, 470; Ca, 3,900; Mg, 240.
Clay--pH, 5.6; OM, 2.6; P, 320; K, 410; Ca, 5,500; Mg, 800.

Lubbock, Texas. Uniform Test IV was lost because of a hailstorm on June 9.

Portage la Prairie, Manitoba, Canada. This test was seeded on May 13 and was harvested October 17. Emergence and growth throughout the season were very slow due to the unusually cool and wet season. There were 300 degree days fewer than normal. Rainfall was almost double the long-term mean. Bacterial blight was present. Tall sturdy plants were produced but grain yields were considerably below normal.

Cooperator: Special Crops Substation.
Soil Type: Riverdale silty clay loam.
Fertilizer Application: None.
Herbicide Application: None.

Winnipeg, Manitoba, Canada. The summer was cool and soybeans were very late maturing. All strains in the Uniform and Preliminary Tests 00 were frozen.

Morden, Manitoba, Canada. The test was seeded on May 13 and was harvested October 9. Emergence and growth throughout the season were very slow. Not all varieties matured as a result of low temperatures. Precipitation for the period May 1 to August 31 was 18.4 inches compared to a long-time mean for this period of 10.7 inches. Degree days above 50° F. from May 15 to September 20 were 1,443 compared to a long-term mean of 1,740. A heavy infection of sclerotinia wilt was present. A large quantity of sclerotia was found in the seed. Bacterial blight was also present.

Cooperator: Research Station, Canada Department of Agriculture.
Soil Type: Morden heavy clay loam.
Fertilizer Application: None.
Herbicide Application: 1 lb./A. Trifluralin.

Revillo, South Dakota. Moisture was excellent during nearly the entire season and excellent weed control was achieved with Ramrod herbicide. Growing season temperature was considerably below normal but yields were slightly above average for this area. Seed quality was good except for some ground damage caused by wet fall weather. Field variations were greater than expected from visual observation.

Soil Type: Formon clay loam.
Fertilizer Application: None.
Herbicide Application: Ramrod pre-emergence--granules.

Brookings, South Dakota. Moisture was well above average and temperatures were well below average for the season. A severe windstorm in June caused severe seedling damage and some yield loss. Field variation was noted as the result of this storm but seed quality was good. Chemical weed control was not effective. Wet weather caused delay in harvest.

Soil Type: Vienna loam.
Fertilizer Application: 0-40-60.
Herbicide Application: Ramrod pre-emergence--granules.

Centerville, South Dakota. Extremely dry soil caused considerable delay in emergence in areas of the field but general moisture conditions were favorable later in the season. Field variations were high with coefficients of variation of 12 to 21 percent. Yields were below average. Temperature was considerably below average. Seed quality was good. Chemical weed control was excellent.

Soil Type: Poinsett sandy loam.
Fertilizer Application: 0-40-0.
Herbicide Application: Treflan pre-emergence--liquid.

Concord, Nebraska. This nursery was planted May 24. The 1968 growing season began with an extremely dry seedbed. Rainfall from May 1 to September 30 totaled 11.61 inches (normal for this period is 15.90 inches). Supplemental irrigation was applied in four irrigations of three inches each. Temperatures were near normal for the entire season. The first irrigation was applied about July 15. Stands were excellent and growth was good throughout the season. A killing frost and temperatures of 25 degrees occurred on October 4. This resulted in several entries being immature at frost time. Only Uniform Test I was completely mature by October 4.

Cooperator: University of Nebraska N. E. Station, Ulverd Alexander.
Soil Type: Judson-Wabash silty clay complex.
Fertilizer Application: None in 1968 (Corn received 40 lbs./A. P_2O_5 + 140 lbs./A. N in 1967).
Herbicide Application: Treflan applied pre-plant.
Soil Analysis: pH, 6.8; OM, 3.8%; N, 15 ppm (medium); P, 9 ppm (low); K, 225 (high).

Mead, Nebraska. All Uniform Tests were planted adjacent to each other on the same date (May 21). Cool weather and soil conditions following planting delayed

germination, but acceptable stands did emerge. Excellent weed control was obtained with the herbicide used. Good growing conditions prevailed during June and leaf canopies were closed (30" rows) by the first week in July. Two irrigations were necessary to prevent plant stress, and two to three inches of water was applied by furrow flow from gated pipe on July 10 and on August 7. Adequate rain the last half of August and September caused below-normal temperatures. Frost was about one week earlier than average. Some insect damage from foliage-eating insects occurred in August and September but not enough to hurt yields.

Cooperator: Agronomy Department, University of Nebraska.
Soil Type: Sharpsburg silty clay loam.
Fertilizer Application: 2 1/2 tons/A. Limestone.
Herbicide Application: 3/4 lb./A. Treflan.
Soil Analysis: pH, 5.9; N, 8 ppm (Low); P, 21 ppm (Med.); K, 285 ppm (V. High); Ca, 17.3 m.e/100 gms.; Mg, 4.6 m.e/100 gms.

Powhattan, Kansas. Planting date on June 3 had been delayed 15 days due to wet weather. Moisture was adequate during the growing season with 27.21 inches from June 3 to September 30. Disease and insects caused no problems.

Cooperator: Kansas Agricultural Experiment Station.
Soil Type: Grundy silty clay loam.
Fertilizer Application: None.
Herbicide Application: Treflan 1 lb. active.
Soil Analysis: pH, 6.0; OM, 2.7; P, 16; K, 246.

Manhattan, Kansas (Dryland). Soil moisture was good at planting on May 16. Vegetative growth was reduced in late June and early July due to a lack of rainfall. Moisture was more than adequate up to September. During September, only 1.51 inches of rainfall was received, causing premature maturing of some varieties. Frost occurred on October 4, killing most late varieties. Bacterial pustule occurred in August.

Cooperator: Kansas Agricultural Experiment Station.
Soil Type: Unnamed.
Fertilizer Application: None.
Herbicide Application: Treflan 1 lb. active.
Soil Analysis: pH, 6.1; OM, 2.1; P, 41; K, 500.

Manhattan, Kansas (Irrigated). Tests were planted May 9 on a good moist seedbed. Three applications, 4 inches each, of water were made on July 1, July 10, and July 17. A heavy rain occurred (3.85 inches) seven days following the last water treatment causing extreme lodging. Adequate moisture was available during July and August. Reduced rainfall in September caused premature maturing of some varieties. A killing frost occurred on October 4. Two insects caused problems, the saltmarsh caterpillar (*Estigmene acrea*) and the striped blister beetle (*Epicauta lemniscota*).

Cooperator: Kansas Agricultural Experiment Station.
Soil Type: Sarpy fine sandy loam.
Fertilizer Application: None.
Herbicide Application: Treflan 1 lb. active.
Soil Analysis: pH, 6.0; OM, 2.7; P, 16; K, 246.

Ottawa, Kansas. Tests were planted May 17 on a well prepared seedbed. Dry weather occurred during late June and early July causing a reduction in plant growth. During the last of July and August, 16.50 inches of rain occurred, correcting the previous drouthy condition. September was extremely dry, causing some varieties to produce extremely small seeds. No problems with diseases or insects occurred.

Cooperator: Kansas Agricultural Experiment Station.
Soil Type: Woodson silt loam.
Fertilizer Application: None.
Herbicide Application: Treflan 1 lb. active.
Soil Analysis: pH, 6.4; OM, 2.9; P, 33; K, 178.

Newton, Kansas. Soil moisture at planting (May 20) was low, producing a very poor seedbed. Emergence was good even under a one-inch pounding rain. Soil moisture during the complete season was good, although the first two weeks of July were extremely hot with dry winds. Diseases and insects were not a problem.

Cooperator: Kansas Agricultural Experiment Station.
Soil Type: Goessel silty clay loam.
Fertilizer Application: None.
Herbicide Application: Treflan 1 lb. active.
Soil Analysis: pH, 5.8; OM, 2.4; P, 30; K, 350.

Columbus, Kansas. The 1968 growing season should be considered about average as far as moisture, temperature, and other factors that affect plant growth are concerned. Rainfall was a limiting factor for only short periods of time and may have reduced yields somewhat. Some infestations of powdery mildew and bacterial pustule were observed and late in the season several stinkbugs could be found on plants. However, these did not significantly reduce total yields.

Soil Type: Silt loam.
Fertilizer Application: 0-40-40 lbs./A.
Herbicide Application: None.
Soil Analysis: pH, 5.8; OM, 1.5; P_2O_5, 23 lbs./A.; K_2O, 124 lbs./A.

Davis, California. The soybeans were inoculated and planted into moisture at field capacity on June 18. An application of Thiamet (10% granular, 2 lbs./A.) at planting time was successfully used to combat mites. A few of the plants were diseased with phytophthora root rot. Fertilizer treatment was not used. Irrigations were made on July 8, 15, 31, August 5, and September 5.

Cooperator: University of California.
Soil Type: Yolo silty clay.
Fertilizer Application: None.
Herbicide Application: None.

Five Points, California. Soybeans may have a potential in California as a second crop after barley, potatoes, or sugar beets. Consequently, yield tests under these conditions are preferred. Barley was seeded and beds thrown up and irrigated in the Fall of 1967. After the barley was combined, the soybeans were sown June 14 on the existing beds. The soil was irrigated after sowing. To alleviate the tie up of nitrogen by the barley straw, 25 lbs. of nitrogen per acre as ammonium sulfate was chiseled into the beds before sowing. Two pounds of Thimet per acre was chiseled into the beds at the same time. Soybean growth was normal although

volunteer barley plants gave the plots a ragged appearance. Supplementary treatment for spider mites was not required.

Cooperator: Dick Hoover.
Soil Type: Panoche clay loam.
Fertilizer Application: 25 lbs./A. N. Ammonium sulfate.
Herbicide Application: None.

Shafter, California. The soil was thoroughly tilled and a good seedbed prepared using 40-inch beds. The seeds were sown June 10 and the soil was irrigated. Stands were adequate and growth normal throughout the season. The plots were sprayed once with Kelthane to control spider mites.

Cooperator: John H. Turner.
Soil Type: Hesperia sandy loam.
Fertilizer Application: None.
Herbicide Application: None.