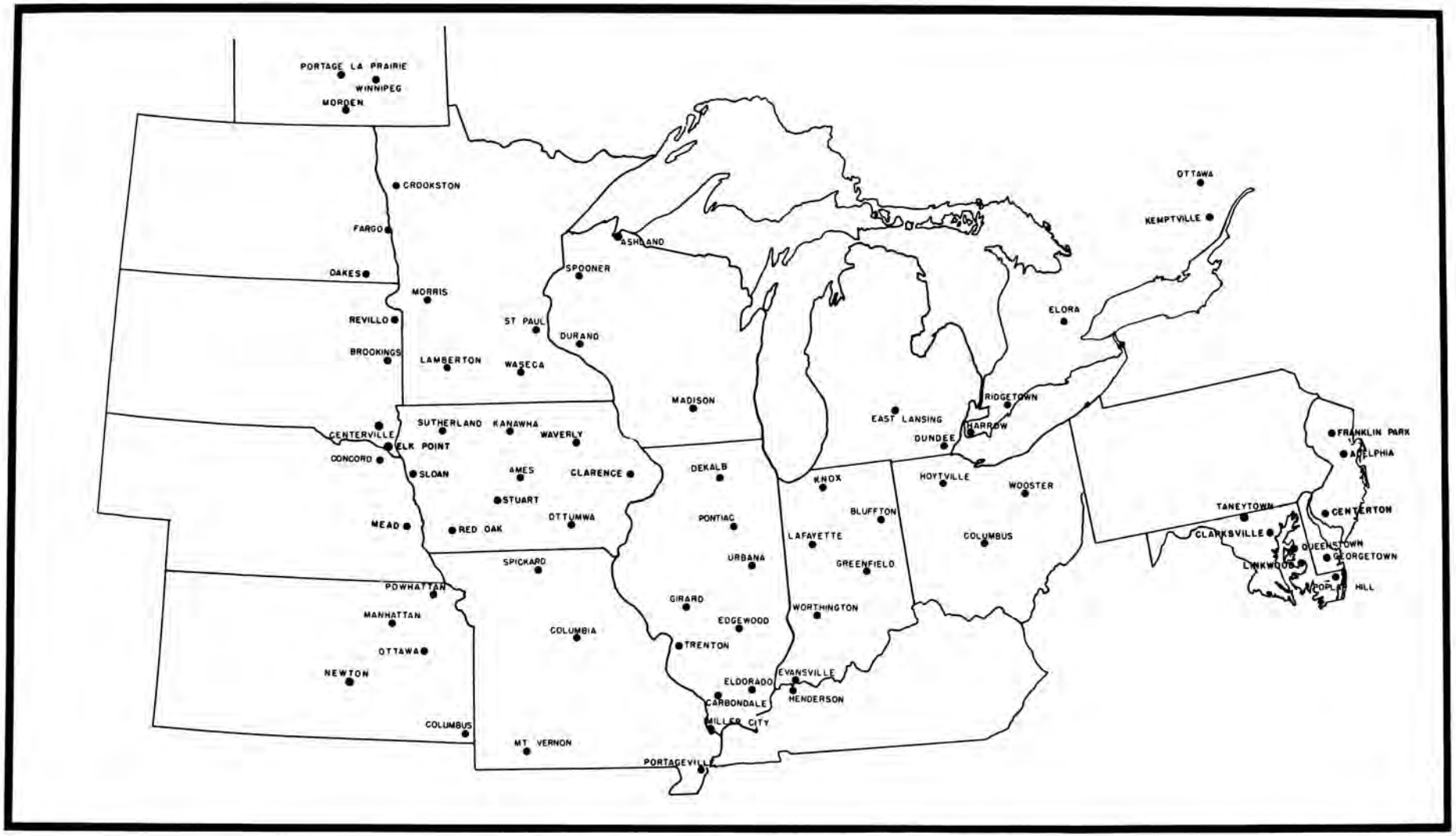

LOCATIONS OF UNIFORM SOYBEAN TESTS, NORTHERN STATES, 1970

THE UNIFORM SOYBEAN TESTS

NORTHERN STATES

1970

RSLM 246

Compiled by:
R. L. Bernard and D. A. Lindahl

TABLE OF CONTENTS

Issued January 1971. 3c.

Soybean Investigations, Oilseed and Industrial Crops Research Branch
Plant Science Research Division, Agricultural Research Service, USDA

R. W. Howell, Branch Chief
S. N. Brooks, Assistant Branch Chief
B. E. Caldwell, Soybean Investigations Leader

U. S. Regional Soybean Laboratory, Urbana, Illinois

R. L. Cooper, Agronomist-in-Charge
P. A. Lathouwers, Clerk-Stenographer
D. J. Lilley, Clerk-Typist
R. L. Warsaw, Crops Res. Helper
G. L. Sprau, Crops Res. Helper

D. W. Chamberlain, Plant Pathologist
L. E. Gray, Plant Pathologist
L. L. Lange, Crops Res. Helper

O. A. Krober, Chemist
S. J. Gibbons, Phys. Sci. Technician
V. E. Sedgwick, Phys. Sci. Technician

R. L. Bernard, Geneticist
C. R. Cremeens, Agric. Res. Technician
D. A. Lindahl, Agric. Res. Technician
P. J. Amdor, Crops Res. Helper
N. H. Maxwell, Lab. Helper

J. E. Harper, Plant Physiologist
W. L. Ogren, Plant Physiologist
R. W. Rinne, Plant Physiologist
M. E. Hageman, Chemist
S. E. White, Plant Physiol. (Res. Asst.)
A. J. Maggio, Agric. Res. Technician

Lafayette, Indiana

T. S. Abney, Plant Pathologist
J. R. Wilcox, Geneticist
R. J. Martin, Research Assistant
D. L. Kell, Technician*
P. E. Stingle, Technician*

Ames, Iowa

J. M. Dunleavy, Plant Pathologist
R. G. Palmer, Geneticist
H. Tachibana, Plant Pathologist
R. C. Clark, Res. Asst. (Agronomist)
J. W. Fisher, Agric. Res. Technician
D. Strissel, Technician*

Beltsville, Maryland

B. E. Caldwell, Agronomist
C. Sloger, Plant Physiologist
D. F. Weber, Microbiologist
J. A. Wooster, Secretary
C. E. Bass, Agric. Res. Technician
V. L. Miller, Agric. Res. Technician
P. D. Hull, Agric. Res. Technician
C. D. Trainor, Res. Asst. (Chemist)

Columbia, Missouri

V. D. Luedders, Agronomist
R. D. Scherff, Plant Pathologist
E. R. Smith, Agric. Res. Technician
G. O'Shea, Res. Microbiologist*

Collaborators in the Northern State Agricultural Experiment Stations

Iowa:	W. R. Fehr	Missouri:	L. A. Duclos
Illinois:	H. H. Hadley	Nebraska:	J. H. Williams
Indiana:	F. L. Patterson	Ohio:	A. F. Schmitthenner
	A. H. Probst		P. E. Smith
Kansas:	E. L. Mader	South Dakota:	A. O. Lunden
Maryland:	J. A. Schillinger	Wisconsin:	J. H. Torrie
Michigan:	T. J. Johnston		
Minnesota:	H. W. Johnson		
	B. W. Kennedy		
	J. W. Lambert		

* Full-time state employee

L. J. Anderson
Canada Dept. of Agriculture
Research Station
Harrow, Ontario

K. L. Athow
Department of Botany
and Plant Pathology
Purdue University
Lafayette, Indiana 47907

R. L. Bernard, ARS, USDA
U. S. Regional Soybean Lab.
University of Illinois
Urbana, Illinois 61801

R. D. Brigham
Texas A&M University
Research and Extension Center
Lubbock, Texas 79401

D. R. Browning
Agronomy Research Center
Southern Illinois University
Carbondale, Illinois 62901

R. I. Buzzell
Canada Dept. of Agriculture
Research Station
Harrow, Ontario

B. E. Caldwell, ARS, USDA
Plant Industry Station
Beltsville, Maryland 20705

D. W. Chamberlain, ARS, USDA
U. S. Regional Soybean Lab.
University of Illinois
Urbana, Illinois 61801

R. L. Cooper, ARS, USDA
U. S. Regional Soybean Laboratory
University of Illinois
Urbana, Illinois 61801

H. W. Crittenden
Department of Plant Pathology
University of Delaware
Newark, Delaware 19711

J. D. Curtis
Kemptville Agricultural School
Kemptville, Ontario

L. S. Donovan
Genetics and Plant Breeding
Research Institute
Canada Dept. of Agriculture
Ottawa, Ontario

L. A. Duclos
University of Missouri
Delta Center
Portageville, Missouri 63873

J. M. Dunleavy, ARS, USDA
Department of Botany
and Plant Pathology
Iowa State University
Ames, Iowa 50010

D. B. Egli
Department of Agronomy
University of Kentucky
Lexington, Kentucky 40506

W. R. Fehr and R. C. Clark
Department of Agronomy
Iowa State University
Ames, Iowa 50010

J. E. Giesbrecht
Canada Dept. of Agriculture
Experimental Farm
Morden, Manitoba

E. E. Hartwig, ARS, USDA
Delta Branch Experiment Station
Stoneville, Mississippi 38776

D. J. Hume
Department of Crop Science
University of Guelph
Guelph, Ontario

T. J. Johnston
Department of Crop Science
Michigan State University
East Lansing, Michigan 48823

J. R. Justin
Department of Soils and Farm Crops
Rutgers University
New Brunswick, New Jersey 08903

G. L. Kilgore
Kansas State University
Southeast Kansas Experiment Station
Mound Valley, Kansas 67354

UNIFORM TEST PARTICIPANTS - 1970

P. F. Knowles
Department of Agronomy
University of California
Davis, California 95616

O. A. Krober, ARS, USDA
U. S. Regional Soybean Lab.
University of Illinois
Urbana, Illinois 61801

J. W. Lambert
Department of Agronomy
University of Minnesota
St. Paul, Minnesota 55101

F. A. Laviolette
Department of Botany
and Plant Pathology
Purdue University
Lafayette, Indiana 47907

D. A. Littlejohns
Western Ontario Agricultural
School and Experiment Farm
Ontario Dept. of Agriculture
Ridgetown, Ontario

V. D. Luedders, ARS, USDA
Department of Agronomy
University of Missouri
Columbia, Missouri 65201

A. O. Lunden
Department of Agronomy
South Dakota State University
Brookings, South Dakota 57006

C. D. Nickell
Department of Agronomy
Kansas State University
Manhattan, Kansas 66502

C. O. Rydberg
University of Wisconsin
Experimental Farm
Spooner, Wisconsin 54801

J. A. Schillinger
Department of Agronomy
University of Maryland
College Park, Maryland 20742

P. E. Smith
Department of Agronomy
Ohio State University
Columbus, Ohio 43210

B. R. Stefansson
Department of Plant Science
University of Manitoba
Winnipeg, Manitoba

H. Tachibana, ARS, USDA
Department of Botany
and Plant Pathology
Iowa State University
Ames, Iowa 50010

G. H. Tenpas
University of Wisconsin
Experimental Farm
Ashland, Wisconsin 54806

J. H. Torrie
Department of Agronomy
University of Wisconsin
Madison, Wisconsin 53706

D. A. Whited
Department of Agronomy
North Dakota State University
Fargo, North Dakota 58102

J. R. Wilcox, ARS, USDA
Department of Agronomy
Purdue University
Lafayette, Indiana 47907

J. H. Williams
Department of Agronomy
University of Nebraska
Lincoln, Nebraska 68503

E. L. Wisk
University Substation
Delaware Agricultural
Experiment Station
Georgetown, Delaware 19947

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.

Uniform Tests are usually planted in four-row plots with three replications or three-row plots with four replications and the center one or two rows are harvested. Preliminary Tests are planted in one- or two-row plots, usually unbordered, 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 for each row.

Parentage. Parent strains other than named varieties are identified on page 12.

Generation Composited is the generation after the final single-plant selection.

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 abbreviated UT 0 for Uniform Test 0, PT III for Preliminary Test III, etc.

Yield is measured after the seeds have been dried to a uniform moisture content and is recorded in bushels (60 pounds) per acre. [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 95% of the pods have ripened. Delayed leaf drop and green stems are not considered in assigning maturity. 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. Current reference and tie varieties and the maturity group limits relative to the reference varieties are:

Group	Reference	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	Merit (0)	Corsoy (II)
II	Corsoy	-3 to +5	Hark (I)	Wayne (III)
III	Wayne	-4 to +4	Beeson (II)	Cutler (IV)
IV	Cutler	-4 to +7	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 in inches of plants from the ground to the tip of the main stem at the time of maturity. [To convert to centimeters, multiply by 2.54.]

Seed Quality is rated according to the following scores considering the amount and degree of wrinkling, defective seed coat (growth cracks), greenishness, and moldy

or rotten seeds. (Threshing or handling damage is not considered, nor is mottling or other pigment.)

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

Weight per Seed in centigrams (cg) is based on a 100-seed sample (equivalent to g/100 seeds). [To convert to seeds per pound divide this into 45,359.2.]

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.

Descriptive Code: 1234 567, abbreviated as underlined below:

1 = Flower Color: Purple, White
2 = Pubescence Color: Tawny, Gray, Light tawny
3 = Pubescence Type: Normal, Appressed, Semi-appressed
4 = Pod Color: Brown, Tan
5 = Seed Coat Luster: Dull, Shiny, Intermediate
6 = Seed Coat Color: Yellow, Gray, Light gray, Green
7 = Hilum Color: Black, Imperfect black, Brown, Buff, Gray, Tan, Yellow; prefixes indicate Light or Dark shades, e.g., Lbf = light buff, Dib = dark imperfect black.

Peroxidase Activity: H = high, L = low, in seed coat

Fluorescent Light Response: E = early flowering (about 35 days), L = late flowering (about 70 days) under 20-hour cool white fluorescent photoperiod.

Shattering is scored at a specified time after maturity 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

Iron Chlorosis is rated from 1, no chlorosis, to 5, severe chlorosis.

Hypocotyl Elongation was measured at Ames, Iowa, on 24 seedlings after germinating for nine days at 25° C (a critical temperature for differentiating strains).

Disease Reactions are listed according to "Soybean Classification Standards", March 1955, unless otherwise specified. Disease reaction is scored from 1 (healthy) to 5 (heavily infected) or in some cases as simply + (present) or o (absent). The location where the test was made is identified in the column heading, and the letter "a" or "n" signifies artificial or natural infection. Clearcut and consistent reactions are given by letter instead of number: R = resistant, S = susceptible, I = intermediate, and H = heterogeneous. Natural infection ratings are from agronomic tests in some instances and from special disease plantings in others. Absence of symptoms under natural infection does not necessarily mean high resistance.

Abbreviation	Disease	Pathogen
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*
PM	Powdery mildew	*Erysiphe polygoni*
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	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

Ratings for BB, BP, BS, DM, FE_2, and PM were based on leaf symptoms; those for PS on the amount of seed stain; those for BSR on height of stem browning and percent of plants with those symptoms; and those for PR and Pyd on seedling rotting.

The delayed leaf maturity and associated very poor seed quality, which occurred at Carbondale, Illinois, in 1970, appears to be due to a pathogen but it has not been identified, although PS and PSB are usually present on such seeds. In addition to the seed quality and PS ratings at Carbondale we rated leaf drop from 1 (normal) to 5 (most leaves retained).

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.

Location		Tests Conducted by	Uniform Tests						Preliminary Tests					
			00	0	I	II	III	IV	00	0	I	II	III	IV
N. J.	Franklin Park	J. R. Justin				x								
	Adelphia	"					x							
	Centerton	"						x						
Del.	Georgetown	E. L. Wisk						x						
	" Irrig.	"						x						x
	" " after barley	"												
Md.	Taneytown " "	J. A. Schillinger					x	x						
	Clarksville	"				x	x	x					x	
	Queenstown	B. E. Caldwell						x						x
	" after barley	J. A. Schillinger					o	x						
	Poplar Hill "	"					o	x						
	" after wheat	"					x	x						
	Linkwood	B. E. Caldwell						x						x
Ont.	Ottawa Irrig.	L. S. Donovan	x						x					
	Kemptville	J. D. Curtis	x	x					x	x				
	Elora Irrig.	D. J. Hume	x	x					x	x				
	Ridgetown	D. A. Littlejohns		x	x	x				x	x	x		
	Harrow	L. J. Anderson			x	x	o				x	x		
Ohio	Hoytville	P. E. Smith		x	x	x	x				x	x	x	
	Wooster	"			x	x	x				x	x	x	
	Columbus	"			x	x	x	x			x	x	x	x
Mich.	East Lansing	T. J. Johnston		o	o	o				o	o	o		
	Petersburg	"			o	o					o	o		
Ind.	Knox	J. R. Wilcox			x	x						x		
	Bluffton	"				x	x							
	Lafayette	"			x	x	x	x				x	x	
	Greenfield	"				x	x							
	Worthington	"				x	x	x					x	x
	Evansville	"					x	x						x
Ky.	Henderson	D. B. Egli					x	x						
Wis.	Ashland	G. H. Tenpas	x						x					
	Spooner Irrig.	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		
	Girard	"				x	x	x					x	
	Edgewood	"				x	x	x						x
	Trenton	"				x	x	x						
	Eldorado	"				x	x	x						x
	Carbondale	D. R. Browning				x	x	x						
Minn.	Crookston	J. W. Lambert	o	o					o					
	Morris	"	x	x										
	St. Paul	"	x	x	x					x				
	Lamberton	"			x	x								
	Waseca	"			x	x					x			
Iowa	Sutherland	R. C. Clark,			x	x					x			
	Kanawha	and W. R. Fehr			x	x					x	x		
	Waverly	"				x								
	Sloan	"				x								
	Clarence	"				x								

Location		Tests Conducted by	Uniform Tests						Preliminary Tests					
			00	0	I	II	III	IV	00	0	I	II	III	IV
Iowa	Ames	R. C. Clark,				x						x		
	Stuart	and W. R. Fehr					x						x	
	Ottumwa	"					x						x	
	Red Oak	"					o							
Mo.	Spickard	V. D. Luedders			o	x	x							
	Columbia	"			x	x	x	x			x	x	x	x
	Mt. Vernon	"				o	x	x						
	Portageville Irrig.	L. A. Duclos						x						
Man.	Portage la Prairie	J. E. Giesbrecht	x						x					
	Winnipeg	B. R. Stefansson	x						x					
	Morden	J. E. Giesbrecht	x						x					
N. D.	Fargo	D. A. Whited	x	x	x				x	x				
	Oakes Irrig.	"		x										
S. D.	Revillo	A. O. Lunden		x	x					x	x			
	Brookings	"			x	x					x	x		
	Centerville	"				x						x		
	Elk Point	"					x						x	
Neb.	Concord	J. H. Williams			x	x	x				x	x		
	Mead Irrig.	"			x	x	x	x				x	x	x
Kansas	Powhattan	C. D. Nickell				x	x	x					x	
	Manhattan	"					o	o					o	o
	" Irrig.	"					x	x					x	x
	Ottawa	"					x	x					o	o
	Columbus	G. L. Kilgore					x	x						x
Texas	Lubbock Irrig.	R. D. Brigham						x						
Cal.	Davis Irrig.	P. F. Knowles	x	x	x				x	x	x			
	Five Points	"	c	o	o	o	o	o	o	o	o	o	o	o
No. of locations with agronomic data (x,x)			11	12	24	36	31	30	9	8	15	17	15	12
No. with seed composition data (x)			6	5	12	16	16	16	5	5	8	8	9	6
		Disease and Shattering Tests												
Del.	Georgetown-PSB,PS	H. W. Crittenden					o	o					o	o
Ind.	Laf.-FE_2,PR,BS,BSR	F. A. Laviolette,	x	x	x	x	x	x	x	x	x	x	x	x
	Worthington-DM	and K. L. Athow	x	x	x	x	x	x	x	x	x	x	x	x
Ill.	Urbana-BSR	D. W. Chamberlain	x	x	x	x	x	x	x	x	x	x	x	x
	" -BP	R. L. Bernard					x	x						
Minn.	Lamberton-Fe chlor.	J. W. Lambert	x	x	x	x								
	Crookston- " "	"	x	x	x	x	x	x						
Iowa	Ames-BB,BP,BS,Pyd	J. M. Dunleavy	x	x	x	x	x	x						
	Kanawha-BSR	"	x	x	x	x	x	x						
	Ames-BB,BP,PR,chlor.	H. Tachibana	x	x	x	x	x	x	x	x	x	x	x	x
	Ames-Hyp. elong.	W. R. Fehr	x	x	x	x	x	x						
Miss.	Stoneville-Shat.	E. E. Hartwig				x	x	x				x	x	x
Ill.	Urbana-Shat.	R. L. Bernard	x	x	x	x			x	x	x	x		
Kansas	Manhattan-Shat.	C. D. Nickell	x	x	x	x	x	x	x	x	x	x	x	x
Ont.	Har.-PM,Per.,Fluor.	R. I. Buzzell	x	x	x	x	x	x						
Ohio,	Castalia	A. F. Schmitthenner			o	o	o	o						
	Hoytville	"			o	o	o	o						
	Wooster	"			o	o	o	o						

o = test failed or data not reported

Strain	Parentage or Source	Uniform Testing
Chip.-Rps rxp-L10	PR and BP resistant Chippewa BC	65 I
"-Ir Rps rxp-L16	PR and BP resistant yellow hilum Chippewa BC	67 Prel. I
Kent-Rps rxp-SL5	PR and BP resistant Kent BC	65 IV
Tokachi Nagaha	Minnesota introduction, same as PI 196.163	---
II-54-139	Renville x Capital	---
II-54-240	(Lincoln^2 x Richland) x Korean	---
AX50F58-2	Hawkeye x Clark	61-62 II
AX56P64-1	Adams x Harosoy, progenitor of Amsoy	61-63 II
C1069	Lincoln x Ogden. From same F_3 plant as Kent	54-58 IV
C1079	Lincoln x Ogden. From same F_3 plant as Kent	54-56 IV
C1128	Wabash x Hawkeye	54-58 II, 58,62 III
C1243	PI 68.521 x Wabash	60 Prel. II
C1253	Blackhawk x Harosoy. PR resistant	64 Prel. II
C1265	Harosoy x C1079	62-63 II
C1266R	Harosoy x C1079	62-63 IV
D49-2491	S100 x CNS. sib of Lee	52-53 VI
FC 31.122	From E. R. Sheffel, Bayfield, Wis., in 1941	---
H20833-7	Monroe x Lincoln	58 Prel. II
L46-1503	I t w from Lincoln^2 x Richland	49-50 III
L48-7289	Seneca x Richland	50-51 II
L49-4091	(F_3 Lincoln^2 x Richland) x (F_1 Lincoln x CNS)	51 IV,52-53 III
L57-0034	Clark x Adams	60-62 IV
L57-9819	Hawkeye x Lee	61 IV
L62-1926	Clark^6 x T245. (early gene e_2)	---
L62-2257	Sioux x Clark. (high protein)	---
M319	Lincoln x Hawkeye	58-61 I
M387	Renville x Capital	63 00,64 0
M402	Renville x Capital	63-64 II
M406	Harosoy x Norchief	64-65 0
M413	Lincoln^2 x Richland	64 Prel. I
0-52-903	Strain 753-1 from Sven A. Holmberg, Norrkoping, Sweden, same as PI 194.654	60-61 00
PI 68.708	From Yaomyn, Manchuria, China, in 1925	---
PI 80.473-1	Unknown (unlike original from Japan in 1929)	---
PI 84.666-1	Unknown (unlike original from Korea in 1930)	---
PI 84.946-2	Unknown (unlike original from Korea in 1930)	---
PI 91.110-1	Collected in northern Manchuria in 1931	---
PI 248.404	Novosadska Bela, from Yugoslavia in 1958	---
PI 248.406	Osijecka, from Yugoslavia in 1958	---
PI 257.435	Soja B49/58 from Dr. Wilhelm Rudorf, Koln-Vogelsang, Germany in 1959	---
PI 261.475	Shika No. 1 from Manchuria via Hyogo Agricultural College, Japan in 1959	---
S62X30:1	(Clark^2 x L46-1503) x (Clark 63^3 x Kanrich) I t w, DM resistant	---
T245	PI 86.024 from Obihiro, Hokkaido, Japan	---
W49-1982-32	Hawkeye x Wisconsin Manchu 3	57-59 I

Strain	Parentage	Generation Composited	Previous Testing (years)
1. Altona	052-903(Holmberg 753-1) x Flambeau	F_5	6
2. Flambeau	Introduction from Russia	--	12
3. Morsoy (CM30)	Acme x L48-7289(Seneca x Richland)	F_7	2
4. Norman	Acme x Hardome	F_5	5
5. Portage	Acme x Comet	F_5	10
6. M61-60	Merit x Norman	F_5	P.T. 00

The five named varieties have been in this test for three years or more, and the three-year mean shows a small yield advantage for Altona over the others. This is true despite its being a few days earlier than Flambeau and Morsoy. Morsoy was similar to Flambeau in its late group 00 maturity and in mean yield but was slightly better in lodging resistance. Portage yielded well in 1970 despite its early maturity but has a strong tendency to shatter.

The only experimental strain in the test, M61-60, is phytophthora resistant but yielded below Altona (also PR resistant) and about the same as Norman. It is apparently rather resistant to iron chlorosis, which Altona is very susceptible to.

Regional Summary

Strain	Yield	Rank	Maturity	Lodging	Height	Seed Quality	Seed Weight	Seed Composition	
								Protein	Oil
					1970				
No. of Tests	10	10	10	10	10	9	8	6	6
Altona	32.1	1	+4.8	2.4	31	1.9	18.7	41.9	20.3
Flambeau	30.6	2	+9.4	3.4	32	2.4	17.0	42.8	18.9
Morsoy	29.6	5	+7.2	2.9	32	2.6	20.1	39.6	21.9
Norman	29.8	4	+2.8	2.4	30	1.7	17.6	41.1	20.7
Portage	30.0	3	9-9†	1.8	28	2.0	18.8	40.7	20.5
M61-60	29.6	5	+3.9	2.4	32	1.5	17.5	41.5	20.0

† 107 days after planting

					1968-70				
No. of Tests	29	29	29	23	27	27	24	17	17
Altona	31.2	1	+2.9	2.5	29	2.1	18.9	40.6	20.3
Flambeau	30.7	2	+5.9	3.5	30	2.1	17.1	41.5	19.1
Morsoy	30.6	3	+5.8	2.9	30	2.6	19.7	38.6	21.8
Norman	30.1	4	+2.4	2.3	29	1.8	17.8	40.6	20.3
Portage	29.7	5	9-12†	1.6	27	2.2	18.8	39.8	20.2

† 114 days after planting

Disease Data

Strain	BB Ames Iowa n	BB Ames Iowa a	BP Ames Iowa n	BP Ames Iowa a	BS Laf. Ind. n	BSR Laf. Ind. n 1	BSR Urb. Ill. n	BSR Kanawha Iowa n 1	BSR Kanawha Iowa n 2	DM Worth. Ind. n	FE2 Laf. Ind. a	PM Har. Ont. a	PR Laf. Ind. a	PR Ames Iowa a	Pyd Ames Iowa a
Altona	2	1.5	+	3.5	5	12	2	95	10	1	3	R	R	H	3.2
Flambeau	2	2	+	3.5	5	4	2	100	8	1	4	R	S	S	3.6
Morsoy	2	2.5	+	3.5	4	18	1	100	15	2	5	R	S	S	3.9
Norman	3	3	+	3.5	5	4	2	80	9	2	5	S	S	S	3.4
Portage	3	3	+	3	5	8	2	95	12	2	5	S	S	S	3.6
M61-60	3	3	+	3.5	4	14	2	65	10	2	5	R	H	H	5.0

[1] Percent of plants with browning
[2] Mean height of stem browning

Descriptive and Shattering Data

Strain	Descriptive Code	Peroxidase	Fluor. Light	Shattering Illinois Urbana 1 mo.	Shattering Illinois Urbana 9 wk.	Shattering Kansas Manhattan 2 wk.	Shattering Kansas Manhattan 4 wk.	Chlorosis Minnesota Crookston	Chlorosis Minnesota Lamberton	Chlorosis Iowa Ames	Hypocotyl Length mm
Altona	PTNBr SYBl	H	E	1.5	3.5	2.1	3.3	3.5	3.8	3	213
Flambeau	PTNBr SYBl	H	E	1.0	3.0	2.1	2.5	2.5	3.0	2	189
Morsoy	PGNBr DYLib	L	E	1.5	4.0	2.1	4.2	3.5	2.5	2	177
Norman	PGNBr SYY	H	E	1.0	4.0	2.5	2.5	2.0	2.5	3	236
Portage	PGNBr D+SYY	H	E	4.0	5.0	5.0	5.0	3.0	3.0	3	218
M61-60	WGNBr SYY	L	E	1.0	4.0	1.0	4.2	1.5	2.0	1	200

Strain	Mean	Ontario			Wisconsin	Minnesota		
		Ottawa	Kempt-ville	Elora	Ashland	Crookston	Morris	St. Paul
		I		I				
	10 Tests	1970 YIELD (bu/a)						
Altona	32.1	49.5	33.9	41.3	27.8		30.3	42.0
Flambeau	30.6	49.6	30.1	38.8	27.6		26.7	41.2
Morsoy	29.6	47.6	21.9	34.8	25.0		25.5	42.4
Norman	29.8	44.6	45.6	38.4	19.1		26.7	36.3
Portage	30.0	46.0	39.7	41.3	21.6		23.6	37.7
M61-60	29.6	48.6	31.0	36.6	17.9		28.2	37.0
Coef. of Var. (%)	12.4	6.0	16.0	9.1	11.0		8.2	4.7
L.S.D. (5%)	3.4	4.2	8.1	n.s.	3.9		3.8	3.2
Row Spacing (in.)		36	14	12	24		30	30
Rows/Plot		1	2	4	1		4	4
Reps		4	4	4	4		3	3
		RANK						
Altona	1	2	3	1	1		1	2
Flambeau	2	1	5	3	2		3	3
Morsoy	5	4	6	6	3		5	1
Norman	4	6	1	4	5		3	6
Portage	3	5	2	1	4		6	4
M61-60	5	3	4	5	6		2	5

	29 Tests	1968-70 MEAN YIELD						
				a		68-69		
Altona	31.2	45.6	35.8	37.9	23.2	21.1	27.8	38.9
Flambeau	30.7	45.7	36.0	37.2	24.2	23.6	27.3	38.3
Morsoy	30.6	44.6	32.0	34.7	22.9	21.9	25.5	39.1
Norman	30.1	46.6	42.9	34.3	20.3	18.4	24.2	36.4
Portage	29.7	42.3	39.1	36.2	21.9	21.0	24.0	36.8
				RANK				
Altona	1	3	4	1	2	3	1	2
Flambeau	2	2	3	2	1	1	2	3
Morsoy	3	4	5	4	3	2	3	1
Norman	4	1	1	5	5	5	4	5
Portage	5	5	2	3	4	4	5	4

I=Irrigated
* Not included in the mean
a Guelph in 1968

Manitoba			North Dakota	California	
Portage la Prairie	Winnipeg	Morden	Fargo	Davis I*	Five Points
		1970 YIELD (bu/a)			
35.4	22.3	21.4	16.8	29.5	
32.9	17.3	25.5	16.5	34.7	
33.8	23.0	25.9	15.8	32.2	
33.8	22.7	15.5	15.5	38.0	
31.2	25.5	17.4	15.9	27.1	
33.9	24.2	22.7	15.7	43.6	
9.9	10.6	19.2	6.7	--	
4.6	4.9	5.9	1.9	--	
30	24	30	40	30	
1	1	1	1	1	
3	4	4	4	6	
		RANK			
1	5	4	1	5	
5	6	2	2	3	
3	3	1	4	4	
3	4	6	6	2	
6	1	5	3	6	
2	2	3	5	1	

		1968-70 MEAN YIELD			
			69-70		68-69
33.2		26.7	18.6	22.0	19.4
27.5		27.2	19.9	25.4	18.9
33.1		29.9	18.2	29.9	23.8
31.4		25.7	16.2	27.0	20.5
30.4		24.0	16.4	27.8	19.5
		RANK			
1		3	2	5	4
5		2	1	4	5
2		1	3	1	1
3		4	5	3	2
4		5	4	2	3

Strain	Mean	Ontario			Wis.	Minnesota		Manitoba			North Dak.	Calif.
		Ottawa	Kemptville	Elora	Ashland	Morris	St. Paul	Portage la Prairie	Winnipeg	Morden	Fargo	Davis
		I		I								I*
	10 Tests				MATURITY (date)							
Altona	+4.8	+2	+1	+4	+2	+6	+2	+12	+5	+13	+1	-2
Flambeau	+9.4	+12	+1	+10	+7	+6	+9	+19	+14	+14	+2	-2
Morsoy	+7.2	+17	+3	+8	+4	+3	+9	+10	+6	+11	+1	0
Norman	+2.8	+4	+2	+3	+1	+1	+1	+10	+2	+3	+1	-1
Portage†	9-9	9-6	9-28	9-17	9-20	8-25	9-7	9-5	8-29	9-7	9-3	9-26
M61-60	+3.9	+5	+1	+10	+1	0	+2	+12	+5	+3	0	-4
Date Planted	5-25	5-15	6-2	5-25	6-10	5-13	5-26	5-22	5-22	5-29	5-22	6-14
†Days to mat.	107	114	118	115	102	104	104	106	99	101	104	104
												*
	10 Tests				LODGING (score)							
Altona	2.4	3.5	3	2.8	1.3	1.3	4.0	2.5	3	3.0	1	3
Flambeau	3.4	4.3	4	4.5	2.0	2.3	4.3	3.7	4	3.7	1	3
Morsoy	2.9	5.0	3	3.9	1.8	2.0	4.3	2.7	2	3.3	1	4
Norman	2.4	4.0	3	3.4	1.0	1.7	4.0	2.0	1	2.7	1	3
Portage	1.8	3.8	3	1.9	1.3	1.0	3.0	1.0	1	1.3	1	4
M61-60	2.4	4.8	3	3.4	1.0	1.0	3.7	2.3	1	2.7	1	4
												*
	10 Tests				PLANT HEIGHT (inches)							
Altona	31	36	45	34	21	32	30	30	32	30	22	40
Flambeau	32	37	46	38	22	24	30	34	34	32	24	41
Morsoy	32	36	50	36	22	24	34	32	32	32	24	40
Norman	30	35	46	34	19	23	31	29	30	26	24	41
Portage	28	33	42	33	19	21	30	29	28	26	22	39
M61-60	32	36	46	38	20	25	35	34	31	32	22	37
												*
	9 Tests				SEED QUALITY (score)							
Altona	1.9	1	1	1.5	2	3.3	2.3	1.2		1.5	3	1
Flambeau	2.4	3	1	2.0	2	3.0	2.7	2.5		2.0	3	2
Morsoy	2.6	2	3	3.5	2	3.3	3.7	2.0		2.0	2	2
Norman	1.7	2	1	2.0	1	2.3	2.3	1.0		1.0	3	1
Portage	2.0	2	1	2.0	3	2.7	2.7	1.2		1.3	2	2
M61-60	1.5	2	1	2.5	1	1.7	2.3	1.2		1.0	1	2

I=Irrigated
* Not included in the mean

Strain	Mean	Ontario		Wis.	Minnesota		Manitoba		North Dakota	Calif.
		Ottawa	Kemptville	Elora	Ashland	Morris	St. Paul	Portage la Prairie	Morden	Fargo	Davis
		I		I							I*
	8 Tests				SEED WEIGHT (cg)						
Altona	18.7	23.5	22.9	20.0		15.7	16.2	18.8	17.7	15.0	22.0
Flambeau	17.0	21.9	20.6	17.1		14.1	15.8	18.1	16.0	12.0	21.0
Morsoy	20.1	25.4	24.9	21.0		17.5	18.6	19.5	17.4	16.2	17.3
Norman	17.6	22.1	21.1	19.6		15.3	15.4	17.4	15.0	15.0	20.8
Portage	18.8	22.7	23.7	19.9		15.4	17.9	18.3	15.4	16.7	19.7
M61-60	17.5	21.6	20.7	20.5		14.6	16.0	17.7	14.9	14.1	23.2
	6 Tests				PROTEIN (%)						
Altona	41.9	43.7		43.1	41.9	42.3			40.6	39.5	
Flambeau	42.8	44.1		43.3	43.3	42.5			42.3	41.3	
Morsoy	39.6	40.5		40.0	39.3	40.0			39.9	37.8	
Norman	41.1	42.1		41.8	42.9	41.0			40.4	38.2	
Portage	40.7	41.6		40.9	42.0	39.8			41.0	38.6	
M61-60	41.5	42.3		43.9	40.4	41.9			41.7	38.9	
	6 Tests				OIL (%)						
Altona	20.3	20.4		18.9	19.3	20.9			20.8	21.7	
Flambeau	18.9	18.6		16.6	17.7	19.7			19.0	21.7	
Morsoy	21.9	21.4		20.1	20.7	23.1			22.3	23.7	
Norman	20.7	21.1		18.9	19.1	21.4			21.1	22.5	
Portage	20.5	20.3		19.6	19.3	21.7			20.2	21.8	
M61-60	20.0	20.3		17.6	18.9	21.0			20.0	22.3	

I=Irrigated
* Not included in the mean

Strain	Parentage	Generation Composited
1. Norman		
2. Portage		
3. CM88	Acme x Monroe	F_9
4. CM103	Acme x L48-7289(Seneca x Richland)	F_9
5. CM107	Acme x L48-7289	F_9
6. CM108	Acme x L48-7289	F_9
7. CM117	Acme x Blackhawk	F_7
8. CM119	Acme x Blackhawk	F_7
9. CM121	Acme x Blackhawk	F_7
10. CM122	Acme x Blackhawk	F_7
11. CM127	Acme x Blackhawk	F_7
12. M62-173	M387(Renville x Capital) x M406(Harosoy x Norchief)	F_5
13. M62-374	Traverse x Merit	F_5

The check varieties in this test ranked relatively low in mean yield indicating that the strains represent some improvement in yield. However, most of them were later even than the late check Norman. CM119 showed the most promise being PR resistant and having the top mean yield. CM121 and CM127 were similarly good in performance. M62-173 and possibly CM107, CM108, and M62-374 were rather late for this group but all except M62-374 yield as well or better than the checks. The earliest strain, CM117, was just a little later than Portage, equal in yield, and PR resistant.

Regional Summary

Strain	Yield	Rank	Maturity	Lodging	Height	Seed Quality	Seed Weight	Seed Composition	
								Protein	Oil
No. of Tests	8	8	8	8	8	7	6	4	4
Norman	27.0	11	+ 3.8	1.8	29	1.5	18.2	42.1	20.3
Portage	27.3	9	9-10	1.3	28	1.6	17.9	40.6	19.8
CM88	26.6	12	+ 3.5	1.7	32	2.0	17.3	42.3	21.2
CM103	27.5	7	+ 4.4	1.5	31	1.9	16.6	41.1	20.3
CM107	29.5	4	+ 7.6	2.1	32	2.4	20.1	40.2	21.2
CM108	27.3	9	+ 8.0	1.3	31	2.1	19.7	42.0	20.1
CM117	27.4	8	+ 1.4	1.6	28	1.6	17.1	40.1	20.5
CM119	30.5	1	+ 5.4	1.7	30	1.7	20.1	41.5	20.2
CM121	29.8	3	+ 4.9	1.6	29	1.7	20.4	41.6	20.4
CM122	28.8	5	+ 5.3	2.0	29	1.7	19.4	40.6	20.5
CM127	29.9	2	+ 5.1	1.5	28	1.9	18.0	39.8	20.6
M62-173	28.8	5	+11.4	2.0	30	2.3	16.1	39.9	20.8
M62-374	25.4	13	+ 8.0	1.6	30	2.2	15.7	40.3	20.7

Disease Data

Strain	BB	BP	BS	BSR		DM	FE2	PR	
	Ames Iowa n	Ames Iowa n	Laf. Ind. n	Laf. Ind. n [1]	Urb. Ill. n	Worth. Ind. n	Laf. Ind. a	Laf. Ind. a	Ames Iowa a
Norman	3	+	5	4	2	2	5	S	S
Portage	4	+	5	8	2	2	5	S	S
CM88	3	+	5	25	2	3	4	S	S
CM103	3	+	5	7	1	1	5	S	S
CM107	4	+	4	7	2	4	3	S	S
CM108	4	+	4	24	2	3	4	S	S
CM117	3	+	5	87	2	3	3	R	R
CM119	3	+	5	53	2	2	5	R	R
CM121	3	+	5	12	2	2	4	H	S
CM122	4	+	5	79	2	1	5	S	S
CM127	5	+	5	39	2	2	3	S	S
M62-173	3	+	5	14	2	3	5	S	S
M62-374	1	+	5	37	2	3	5	R	R

[1] Percent of plants with browning

Strain	Mean	Ontario			Wis.	Manitoba			North Dakota	Calif.
		Ottawa	Kempt-ville	Elora	Ash-land	Portage la Prairie	Winn-ipeg	Mor-den	Fargo	Davis
		I		I						I*
	8 Tests				YIELD RANK					
Norman	11	10	6	2	12	9	12	13	5	5
Portage	9	12	8	6	8	12	4	10	7	13
CM88	12	11	9	7	8	13	10	6	7	3
CM103	7	9	10	10	11	6	9	3	12	1
CM107	4	1	5	11	8	3	6	7	6	4
CM108	9	2	12	8	5	10	10	12	13	11
CM117	8	13	3	12	6	8	5	8	10	9
CM119	1	6	2	4	3	1	2	4	11	7
CM121	3	3	7	9	2	2	1	4	7	12
CM122	5	7	10	5	4	5	3	8	3	8
CM127	2	5	4	1	7	11	7	1	2	10
M62-173	5	3	1	3	1	4	13	2	4	2
M62-374	13	8	13	13	13	7	8	11	1	6
										*
	8 Tests				MATURITY (date)					
Norman	+ 3.8	+ 6	+2	- 1	+3	+12	+ 3	+ 3	+2	-5
Portage	9-10	9-3	9-28	9-14	9-19	9-6	8-29	9-8	9-3	9-26
CM88	+ 3.5	+ 2	+3	+ 5	+2	+12	+ 1	+ 2	+1	-2
CM103	+ 4.4	+ 6	+3	+ 5	+1	+12	+ 3	+ 5	0	-2
CM107	+ 7.6	+14	+2	+ 9	+6	+14	+ 5	+ 9	+2	-2
CM108	+ 8.0	+13	-1	+10	+8	+14	+ 6	+12	+2	-2
CM117	+ 1.4	+ 1	+3	+ 5	+1	+ 1	0	0	0	0
CM119	+ 5.4	+ 5	-1	+ 5	+8	+13	+ 3	+ 8	+2	-2
CM121	+ 4.9	+ 4	+2	+ 2	+3	+14	+ 6	+ 7	+1	-2
CM122	+ 5.3	+ 7	+2	+ 3	+3	+14	+ 5	+ 6	+2	-2
CM127	+ 5.1	+ 8	-1	+ 2	+4	+13	+ 4	+ 9	+2	-5
M62-173	+11.4	+ 9	+1	+ 8	+9	+24	+20	+15	+5	-3
M62-374	+ 8.0	+11	+2	+ 8	+1	+18	+ 7	+14	+3	-2
Date Planted	5-27	5-15	6-2	5-25	6-10	5-27	5-22	5-29	5-22	6-14

I=Irrigated
* Not included in the mean

Strain	Mean	Ontario			Wis.	Manitoba			North Dakota	Calif.
		Ottawa	Kempt-ville	Elora	Ash-land	Portage la Prairie	Winn-ipeg	Mor-den	Fargo	Davis
		I		I						I*
	8 Tests			YIELD RANK						
Norman	11	10	6	2	12	9	12	13	5	5
Portage	9	12	8	6	8	12	4	10	7	13
CM88	12	11	9	7	8	13	10	6	7	3
CM103	7	9	10	10	11	6	9	3	12	1
CM107	4	1	5	11	8	3	6	7	6	4
CM108	9	2	12	8	5	10	10	12	13	11
CM117	8	13	3	12	6	8	5	8	10	9
CM119	1	6	2	4	3	1	2	4	11	7
CM121	3	3	7	9	2	2	1	4	7	12
CM122	5	7	10	5	4	5	3	8	3	8
CM127	2	5	4	1	7	11	7	1	2	10
M62-173	5	3	1	3	1	4	13	2	4	2
M62-374	13	8	13	13	13	7	8	11	1	6
										*
	8 Tests			MATURITY (date)						
Norman	+ 3.8	+ 6	+2	- 1	+3	+12	+ 3	+ 3	+2	-5
Portage	9-10	9-3	9-28	9-14	9-19	9-6	8-29	9-8	9-3	9-26
CM88	+ 3.5	+ 2	+3	+ 5	+2	+12	+ 1	+ 2	+1	-2
CM103	+ 4.4	+ 6	+3	+ 5	+1	+12	+ 3	+ 5	0	-2
CM107	+ 7.6	+14	+2	+ 9	+6	+14	+ 5	+ 9	+2	-2
CM108	+ 8.0	+13	-1	+10	+8	+14	+ 6	+12	+2	-2
CM117	+ 1.4	+ 1	+3	+ 5	+1	+ 1	0	0	0	0
CM119	+ 5.4	+ 5	-1	+ 5	+8	+13	+ 3	+ 8	+2	-2
CM121	+ 4.9	+ 4	+2	+ 2	+3	+14	+ 6	+ 7	+1	-2
CM122	+ 5.3	+ 7	+2	+ 3	+3	+14	+ 5	+ 6	+2	-2
CM127	+ 5.1	+ 8	-1	+ 2	+4	+13	+ 4	+ 9	+2	-5
M62-173	+11.4	+ 9	+1	+ 8	+9	+24	+20	+15	+5	-3
M62-374	+ 8.0	+11	+2	+ 8	+1	+18	+ 7	+14	+3	-2
Date Planted		5-27	5-15	6-2	5-25	6-10	5-27	5-22	5-29	5-22	6-14

I=Irrigated
* Not included in the mean

Strain	Parentage	Generation Composited	Previous Testing (years)
1. Clay	Capital x Renville	F_5	3
2. Merit	Blackhawk x Capital	F_8	12
3. M59-121	II-54-240[(Lincoln^2 x Richland) x Korean] x II-54-139(Renville x Capital)	F_5	2
4. M60-92	Comet x M319(Lincoln x Hawkeye)	F_5	1
5. M60-400	Blackhawk x Harosoy	F_5	1
6. M61-52	Merit x Harosoy	F_5	P.T. 0
7. M61-96	Merit x Harosoy	F_5	P.T. 0
8. M62-101	Merit x M406(Harosoy x Norchief)	F_5	P.T. 0

M59-121 has been in the test for three years and shows a distinct yield advantage in the three-year regional mean and is only a little later than Merit. It is being increased for possible release. M60-92 and M60-400 have been tested two years. M60-92 averaged just below M59-121 in yield and was better in lodging and seed quality. M60-400 is phytophthora resistant and high in mean yield, especially in 1969, but is quite late for this group averaging less than a day earlier than Chippewa 64.

The three new entries in the test, M61-52, M61-96, and M62-101, are all phytophthora resistant. M61-52 is quite early, almost as early as Clay, but averaged below Clay in the regional mean yield. It is being increased for possible release because of its phytophthora resistance. M61-96 topped the 1970 test in mean yield, 1.8 bushels ahead of Merit and was similar to Merit in other respects. M62-101 was similar to Merit, a little later and showed no apparent advantage except perhaps in shattering resistance.

Descriptive and Shattering Data

Strain	Descriptive Code	Peroxidase	Fluor. Light	Shattering Illinois Urbana 1 mo.	Shattering Illinois Urbana 9 wk.	Shattering Kansas Manhattan 2 wk.	Shattering Kansas Manhattan 4 wk.	Chlorosis Minnesota Crookston	Chlorosis Minnesota Lamberton	Chlorosis Iowa Ames	Hypocotyl Length mm
Clay	PGNBr SYY	H+L	E	1.0	2.0	2.1	2.5	3.0	1.5	3	225
Merit	WGNBr DYBf	L	E	1.0	3.0	2.5	2.5	3.0	1.8	1	189
M59-121	WTNBr DYBl	H	E	1.0	2.5	3.8	4.8	2.0	1.5	2	185
M60-92	PGNBr SYY	H	E+L	1.0	2.5	4.8	4.8	1.5	4.0	3	210
M60-400	WGNBr DYY	L	E	2.0	3.5	4.2	4.8	2.0	1.5	2	208
M61-52	WGNBr DYY	L	E	1.5	3.5	3.3	3.3	3.0	2.0	2	168
M61-96	WGNBr DYY	H	E+L	1.0	3.0	2.5	2.5	3.5	2.0	2	184
M62-101	WGNBr DYY	L	E	1.0	2.0	2.1	2.1	3.0	2.2	1	167

Regional Summary

Strain	Yield	Rank	Maturity	Lodging	Height	Seed Quality	Seed Weight	Seed Composition: Protein	Seed Composition: Oil
					1970				
No. of Tests	8	8	7	7	8	7	6	5	5
Clay	32.6	4	-6.0	1.4	27	1.9	17.1	40.7	22.3
Merit	32.0	6	9-15†	1.9	35	1.6	15.0	40.9	21.4
M59-121	32.7	3	+1.9	2.4	35	1.9	15.8	39.3	21.6
M60-92	33.1	2	+1.4	1.8	32	1.6	18.0	42.1	20.3
M60-400	32.3	5	+4.6	2.4	37	1.5	17.1	40.5	21.4
M61-52	30.9	8	-4.9	1.1	28	2.0	16.4	40.4	21.2
M61-96	33.8	1	+0.4	1.8	35	1.7	15.6	40.0	22.1
M62-101	31.5	7	+1.6	2.0	34	1.9	18.5	39.4	21.4

† 115 days after planting

					1969-70				
No. of Tests	16	16	14	15	16	15	12	9	9
Clay	33.5	3	-5.4	1.6	29	2.1	16.7	41.4	22.1
Merit	33.1	4	9-19†	2.1	37	2.0	14.5	41.2	21.4
M59-121	33.7	2	+2.0	2.5	37	2.3	15.7	40.1	21.5
M60-92	33.0	5	+1.8	1.9	33	2.0	17.6	42.6	20.4
M60-400	34.1	1	+4.6	2.6	38	1.9	16.6	40.9	21.4

† 121 days after planting

					1968-70				
No. of Tests	24	24	22	21	23	21	16	13	13
Clay	33.5	3	-5.0	1.6	28	2.0	16.8	41.0	21.8
Merit	33.7	2	9-19†	2.1	35	2.0	14.5	40.6	21.1
M59-121	35.1	1	+1.6	2.4	35	2.1	15.9	39.5	21.3

† 122 days after planting

Disease Data

Strain	BB: Ames Iowa n	BB: Ames Iowa a	BP: Ames Iowa n	BP: Ames Iowa a	BS: Laf. Ind. n	BSR: Laf. Ind. n	BSR: Urb. Ill. n	BSR: Kanawha Iowa n 1	BSR: Kanawha Iowa 1 2	DM: Worth. Ind. n	FE2: Laf. Ind. a	PM: Har. Ont. a	PR: Laf. Ind. a	PR: Ames Iowa a	Pyd: Ames Iowa a
Clay	2	2	+	5	5	26	2	100	11	4	4	S	S	S	4.7
Merit	2	2	+	4.5	4	18	2	55	10	4	4	R	R	R	3.6
M59-121	1	2.5	+	4.5	4	31	2	100	12	3	4	R	S	S	4.2
M60-92	3	2.5	+	5	5	6	2	95	13	2	5	S	S	S	3.1
M60-400	2	2	+	3	4	49	3	100	12	3	4	R+S	R	R	3.3
M61-52	3	2	+	4	5	50	3	70	9	4	3	R	R	R	4.2
M61-96	2	2.5	+	4.5	4	0	3	40	4	3	4	R	R	R	5.0
M62-101	2	3.5	+	4.5	4	0	3	50	4	4	5	R	R	R	5.0

1 Percent of plants with browning
2 Mean height of browning in diseased stems

Strain	Mean	Ontario			Ohio	Wisconsin	
		Kemptville	Elora	Ridgetown	Hoytville	Spooner	Durand
		*	I		*	I	
	8 Tests	1970 YIELD (bu/a)					
Clay	32.6	33.8	40.6	47.4	25.2	22.1	24.4
Merit	32.0	28.0	35.0	48.0	28.7	24.3	24.5
M59-121	32.7	38.3	34.1	51.6	27.9	25.6	27.3
M60-92	33.1	40.1	36.2	49.2	28.4	24.5	26.8
M60-400	32.3	40.2	32.5	51.3	26.4	26.4	25.7
M61-52	30.9	31.6	38.3	46.2	21.5	21.2	22.6
M61-96	33.8	46.1	40.3	50.6	25.0	24.4	27.3
M62-101	31.5	33.7	36.9	47.5	21.4	25.3	24.7
Coef. of Var. (%)	7.4	23.7	5.6	6.2	--	11.3	8.9
L.S.D. (5%)	2.4	--	3.0	n.s.	--	4.4	3.3
Row Spacing (in.)		14	12	24	32	36	36
Rows/Plot		2	4	4	1	1	1
Reps		4	4	4	4	4	4
		RANK					
Clay	4	5	1	7	5	7	7
Merit	6	8	6	5	1	6	6
M59-121	3	4	7	1	3	2	1
M60-92	2	3	5	4	2	4	3
M60-400	5	2	8	2	4	1	4
M61-52	8	7	3	8	7	8	8
M61-96	1	1	2	3	6	5	1
M62-101	7	6	4	6	8	3	5

	24 Tests	1968-70 MEAN YIELD			69-70		68,70
			a				
Clay	33.5	38.6	37.5	47.3	22.8	26.0	25.4
Merit	33.7	39.4	34.4	50.3	23.0	29.0	25.7
M59-121	35.1	43.6	30.8	53.6	22.9	30.7	28.1
		RANK					
Clay	3	3	1	3	3	3	3
Merit	2	2	2	2	1	2	2
M59-121	1	1	3	1	2	1	1

I=Irrigated
* Not included in the mean
a Guelph in 1968
b Milbank in 1969

Minnesota			North Dakota		South Dakota	California
Crookston	Morris	St. Paul	Fargo	Oakes	Revillo	Davis
		*		I		I*
			1970 YIELD (bu/a)			
	35.0	52.1	21.2	35.6	34.1	35.4
	32.8	42.3	20.7	36.6	33.8	34.4
	34.9	44.8	18.7	38.5	31.2	32.9
	32.9	38.6	21.9	38.6	34.4	34.7
	32.6	43.6	20.1	40.8	28.7	38.8
	38.9	45.3	19.2	31.0	29.4	30.2
	36.8	45.2	22.6	36.3	32.2	38.1
	39.9	--	16.8	32.7	27.8	35.3
	9.4	7.5	11.5	11.9	8.8	--
	5.6	5.6	3.3	6.3	5.0	--
	30	30	40	36	40	30
	4	4	1	2	1	1
	3	3	4	4	4	6
			RANK			
	4	1	3	6	2	3
	7	6	4	4	3	6
	5	4	7	3	5	7
	6	7	2	2	1	5
	8	5	5	1	7	1
	2	2	6	8	6	8
	3	3	1	5	4	2
	1	--	8	7	8	4

68-69			1968-70 MEAN YIELD 69-70	b	
24.4	29.0	42.0	22.1	29.2	28.7
20.3	28.2	36.8	22.6	28.3	33.5
22.5	30.2	39.7	23.9	29.6	27.0
			RANK		
1	2	1	3	2	2
3	3	3	2	3	1
2	1	2	1	1	3

Strain	Mean	Ontario			Ohio	Wisconsin		Minn.		N.D.		S.D.	Cal.
		Kempt-ville	El-ora	Ridg-town	Hoyt-ville	Spoon-er	Dur-and	Mor-ris	St. Paul	Fargo	Oakes	Rev-illo	Davis
		*			*				*				I*
	7 Tests				MATURITY (date)								
Clay	-6.0	-2	-8	-10	-4	- 6	-6	-6	-11	- 3		-3	0
Merit†	9-15	10-7	10-2	9-17	9-10	9-13	9-1	9-8	9-27	9-18		9-13	10-10
M59-121	+1.9	+7	+3	- 1	0	+ 5	+2	+2	+ 3	+ 2		0	+ 2
M60-92	+1.4	+7	+7	- 4	+1	+ 4	+2	0	- 7	+ 2		-1	+ 2
M60-400	+4.6	+7	+8	+ 6	+6	+10	+3	+2	+ 4	+ 3		0	0
M61-52	-4.9	-1	-6	- 4	0	- 5	-6	-6	-10	- 3		-4	+ 3
M61-96	+0.4	+3	-1	- 2	+1	+ 3	+1	0	- 1	+ 3		-1	0
M62-101	+1.6	0	0	+ 5	+6	+ 3	+1	+1	--	+ 2		-1	+ 2
Flambeau(00)		-8	-5	--	--	--	--	-8	-11	-13		--	-16
Chippewa 64 (I)		--	--	+ 5	+9	+ 6	+5	+3	0	+ 9		+3	+ 5
Date plt.	5-25	6-2	5-25	5-22	6-10	5-28	5-26	5-13	5-26	5-22	5-21	5-19	6-14
†Days to mat.	115	127	130	118	92	108	98	118	124	119		117	118
		*			*				*				*
	7 Tests				LODGING (score)								
Clay	1.4	2	2.5	1.0	1	1.0	1.0	1.3	3.0	1	2		3
Merit	1.9	3	3.6	2.0	1	1.5	1.1	1.3	4.0	1	3		3
M59-121	2.4	3	4.9	2.5	1	1.8	1.6	1.7	4.3	1	3		2
M60-92	1.8	3	4.0	1.0	1	1.0	1.3	1.0	3.0	1	3		3
M60-400	2.4	3	4.6	2.0	1	1.8	1.4	1.7	4.3	1	4		3
M61-52	1.1	2	1.6	1.0	1	1.0	1.0	1.0	2.0	1	1		2
M61-96	1.8	3	4.1	1.5	1	1.0	1.0	1.0	3.0	1	3		3
M62-101	2.0	3	4.0	2.5	1	1.0	1.1	1.3	--	1	3		5
		*			*				*				*
	8 Tests				PLANT HEIGHT (inches)								
Clay	27	36	30	30	24	26	23	24	32	24	30	30	44
Merit	35	47	39	41	31	32	28	32	38	27	40	37	45
M59-121	35	47	39	42	32	34	31	32	41	28	39	36	45
M60-92	32	41	36	35	28	30	25	29	36	27	36	38	44
M60-400	37	48	40	41	33	34	31	36	42	31	42	39	44
M61-52	28	39	34	31	26	28	20	24	34	23	33	33	42
M61-96	35	49	40	41	31	31	29	32	38	30	40	37	43
M62-101	34	48	35	42	32	29	29	34	--	30	37	36	44
		*			*				*				*
	7 Tests				SEED QUALITY (score)								
Clay	1.9	1	3.0	1	2.5	1		2.3	2.3	3	2	1	2
Merit	1.6	1	2.0	1	2.0	1		2.0	2.3	2	2	1	3
M59-121	1.9	2	3.5	1	2.2	1		1.7	2.7	2	2	2	1
M60-92	1.6	1	3.0	1	2.2	1		2.3	2.3	2	1	1	2
M60-400	1.5	1	2.5	1	1.7	1		1.7	2.0	2	1	1	1
M61-52	2.0	1	2.5	2	2.0	1		2.7	2.3	3	2	1	3
M61-96	1.7	1	2.0	2	2.0	1		1.7	2.0	2	2	1	2
M62-101	1.9	1	2.5	2	2.2	1		1.7	--	2	2	2	2

* Not included in the mean
I=Irrigated

Strain	Mean	Ontario			Ohio	Wis.	Minn.		North Dak.		South Dakota	Calif.
		Kemptville	Elora	Ridgetown	Hoytville	Spooner	Morris	St. Paul	Fargo	Oakes	Revillo	Davis
		*			*			*				I*
6 Tests					SEED WEIGHT (cg)							
Clay	17.1	20.5	18.3	17.6	15.1	19.9	15.5	15.8	14.3	17.1		18.5
Merit	15.0	15.7	16.8	15.0	12.6	17.8	12.4	13.9	12.2	15.9		13.8
M59-121	15.8	18.9	17.5	15.4	14.3	19.5	13.9	16.1	12.1	16.5		13.6
M60-92	18.0	22.7	21.5	19.6	16.7	21.8	14.1	15.2	13.9	17.2		13.4
M60-400	17.1	20.2	18.5	19.1	16.2	20.2	12.9	15.7	13.9	18.0		11.5
M61-52	16.4	18.3	18.6	16.5	15.1	18.9	14.5	13.5	14.0	16.1		13.8
M61-96	15.6	18.4	17.2	15.7	14.7	18.1	13.5	14.6	13.4	15.9		14.4
M62-101	18.5	21.8	20.8	19.8	17.6	22.3	15.8	--	14.9	17.1		12.9
								*				
5 Tests					PROTEIN (%)							
Clay	40.7		44.2		40.4			38.7	39.1	39.6	40.2	
Merit	40.9		45.0		41.4			38.2	39.8	38.8	39.3	
M59-121	39.3		45.0		39.0			35.9	37.0	37.1	38.4	
M60-92	42.1		46.0		41.8			36.9	41.4	41.4	39.9	
M60-400	40.5		45.0		41.1			36.2	39.4	37.6	39.2	
M61-52	40.4		42.5		39.5			37.1	40.2	39.1	40.7	
M61-96	40.0		44.0		39.4			38.3	39.0	38.1	39.5	
M62-101	39.4		42.9		40.3			--	38.9	36.6	38.2	
								*				
5 Tests					OIL (%)							
Clay	22.3		19.2		22.1			23.1	24.2	22.5	23.4	
Merit	21.4		18.1		21.1			21.7	22.7	22.7	22.4	
M59-121	21.6		17.7		21.7			23.4	22.7	23.5	22.4	
M60-92	20.3		16.3		20.0			21.7	21.7	21.7	21.6	
M60-400	21.4		17.9		21.4			22.5	23.0	22.5	22.4	
M61-52	21.2		18.2		21.6			22.0	22.3	22.2	21.8	
M61-96	22.1		19.2		22.3			22.5	23.0	23.0	23.1	
M62-101	21.4		17.9		20.7			--	23.0	22.5	22.8	

* Not included in the mean
I=Irrigated

Strain	Parentage	Generation Composited
1. Clay		
2. Merit		
3. M61-207	Merit x Norman	F_5
4. M61-216	Merit x Harosoy	F_5
5. M62-177	M387(Renville x Capital) x M406(Harosoy x Norchief)	F_5
6. M62-220	Merit x M406	F_5
7. M63-9	M402(Renville x Capital) x M406	F_5
8. M63-11	M402 x M406	F_5
9. M63-38	M402 x M406	F_5
10. M63-87	Chippewa x PI 261.475(Shika No. 1)	F_6

Surprisingly, the early check variety Clay outyielded the later check Merit, by three bushels, and this makes interpretation of the other strains' performances difficult. Two of the earliest strains M62-177 and M61-216 yielded highest among the strains but showed no advantage over Clay except for the phytophthora resistance of M61-216. Among the later strains only M63-38 had a higher mean yield than Merit and it also had better lodging resistance. M63-87 is of interest as an early, high protein line.

Regional Summary

Strain	Yield	Rank	Maturity	Lodging	Height	Seed Quality	Seed Weight	Seed Composition	
								Protein	Oil
No. of Tests	6	6	6	5	6	6	5	4	4
Clay	40.7	2	-5.8	1.6	30	1.3	17.9	40.2	22.1
Merit	37.7	7	9-22	2.5	38	1.8	15.2	40.1	21.4
M61-207	37.8	6	+0.5	2.9	36	1.4	17.6	41.1	20.1
M61-216	40.2	3	-2.0	2.2	37	1.4	17.5	40.5	20.9
M62-177	40.9	1	-2.8	2.2	36	1.6	18.6	39.9	21.3
M62-220	36.8	10	-0.7	2.8	40	1.7	17.8	40.3	21.3
M63-9	37.6	8	+3.7	2.6	40	1.9	20.0	40.0	21.2
M63-11	38.3	5	-2.3	2.6	38	1.8	19.1	40.9	21.9
M63-38	38.8	4	+1.3	2.1	38	1.7	21.6	40.2	21.6
M63-87	37.5	9	-2.3	2.4	32	1.6	18.8	42.6	19.9

Disease Data

Strain	BB	BP	BS	BSR		DM	FE_2	PR	
	Ames Iowa n	Ames Iowa n	Laf. Ind. n	Laf. Ind. n [1]	Urb. Ill. n	Worth. Ind. n	Laf. Ind. a	Laf. Ind. a	Ames Iowa a
Clay	3	+	5	26	3	4	4	S	S
Merit	2	+	4	18	4	4	4	R	R
M61-207	2	+	5	13	3	3	5	R	H
M61-216	1	+	4	9	2	4	3	R	H
M62-177	1	0	5	25	3	3	4	S	S
M62-220	2	+	5	15	4	2	5	H	H
M63-9	2	+	3	26	3	4	3	S	S
M63-11	2	+	5	21	3	3	5	S	S
M63-38	3	+	4	17	3	5	5	S	S
M63-87	3	+	5	6	3	3	4	S	S

[1] Percent of plants with browning

Descriptive and Shattering Data

Strain	Descriptive Code	Shattering				Chlorosis
		Illinois Urbana		Kansas Manhattan		Iowa Ames
		1 mo.	9 wk.	2 wk.	4 wk.	
Clay	PGNBr SYY	1.0	2.5	2.5	3.8	2
Merit	WGNBr DYBf	1.0	3.5	3.8	3.8	2
M61-207	WGNBr DYY	1.0	2.5	3.8	3.8	2
M61-216	W+PGNBr DYG+Y	1.0	2.5	2.5	2.5	2
M62-177	PGNBr DYY	1.0	3.5	2.5	2.5	5
M62-220	WGNBr DYY	1.0	4.0	4.8	4.8	3
M63-9	WGNBr DYY	1.0	2.5	2.5	2.5	5
M63-11	PGNBr DYY	1.0	3.5	4.3	5.0	2
M63-38	PTNBr DYTn	1.0	2.0	4.8	4.8	2
M63-87	PGNBr IYY	1.0	2.5	5.0	5.0	2

Strain	Mean	Ontario Kemptville	Ontario Elora	Ontario Ridgetown	Wis. Spooner	Minn. St. Paul	North Dak. Fargo	South Dakota Revillo	Calif. Davis
			I		I		*		I*
	6 Tests		1970 YIELD (bu/a)						
Clay	40.7	33.0	40.2	43.4	26.7	54.9	20.1	46.1	37.9
Merit	37.7	24.2	34.1	46.3	29.9	43.0	19.4	48.4	39.6
M61-207	37.8	31.8	32.6	47.5	27.2	45.7	18.1	41.9	37.1
M61-216	40.2	41.2	34.9	48.0	33.9	41.8	18.4	41.5	34.2
M62-177	40.9	37.8	40.9	47.2	30.5	46.6	18.7	42.6	32.2
M62-220	36.8	34.5	33.8	46.7	29.8	39.4	--	36.3	44.7
M63-9	37.6	37.2	33.6	50.8	28.8	36.6	18.9	38.5	38.3
M63-11	38.3	29.6	40.5	49.8	28.5	39.7	16.7	41.8	34.7
M63-38	38.8	39.9	38.3	49.2	25.5	39.9	14.8	39.8	35.2
M63-87	37.5	28.0	41.0	44.5	30.7	37.7	13.3	42.8	35.3
Coef. of Var. (%)	10.4	14.0	11.5	5.8	4.6	10.2	17.8	7.4	--
L.S.D. (5%)	4.7	--	n.s.	n.s.	3.0	9.0	7.1	7.0	--
Row Spacing (in.)		14	12	24	36	30	40	40	30
Rows/Plot		2	4	2	1	4	1	1	1
Reps		2	2	2	4	2	2	2	6
				RANK					
Clay	2	6	4	10	9	1	1	2	4
Merit	7	10	7	8	4	4	2	1	2
M61-207	6	7	10	5	8	3	6	5	5
M61-216	3	1	6	4	1	5	5	7	9
M62-177	1	3	2	6	3	2	4	4	10
M62-220	10	5	8	7	5	8	--	10	1
M63-9	8	4	9	1	6	10	3	9	3
M63-11	5	8	3	2	7	7	7	6	8
M63-38	4	2	5	3	10	6	8	8	7
M63-87	9	9	1	9	2	9	9	3	6
							*		
	6 Tests		MATURITY (date)						
Clay	-5.8	-2	-6	-5	-6	-11	-4	-5	0
Merit	9-22	10-7	9-30	9-12	9-13	9-26	9-20	9-13	10-10
M61-207	+0.5	+1	+5	+3	-2	- 4	-3	0	0
M61-216	-2.0	-2	-5	-1	-2	0	-3	-2	+2
M62-177	-2.8	+2	-4	-2	-3	- 6	-5	-4	+2
M62-220	-0.7	+2	+7	0	-5	- 6	--	-2	0
M63-9	+3.7	+1	+8	+7	+4	0	+1	+2	-2
M63-11	-2.3	-1	-3	-1	-1	- 7	-5	-1	+3
M63-38	+1.3	+2	+3	+1	+3	0	-5	-1	0
M63-87	-2.3	+2	-4	-1	+1	- 8	-5	-4	0
Flambeau (00)		-8	--	--	--	-10	-15	--	-16
Chippewa 64 (I)		--	--	+10	+6	+ 1	+ 7	+3	+ 6
Date Planted	5-26	6-2	5-25	5-22	5-28	5-26	5-22	5-19	6-14

I=Irrigated
* Not included in the mean

Strain	Parentage	Generation Composited	Previous Testing (years)
1. Chippewa 64	Chippewa^{8} x Blackhawk	29 F_3 lines	8
2. SL7	Chippewa-Rps rxp-L10^{8} x Kanrich	7 F_3 lines	0
3. SL8	Chippewa-I r Rps rxp-L16 x SL7	3 F_3 lines	0
4. Hark	Hawkeye x Harosoy	F_9	6
5. L65-1342	Wayne^{2} x L62-1926(Clark^{6} x T245)	F_3	1
6. M59-120	II-54-240[(Lincoln^{2} x Richland) x Korean] x II-54-139(Renville x Capital)	F_5	2
7. M59-213	Blackhawk x Harosoy	F_5	2
8. M62-19	M319(Linc. x Hawkeye) x M406(Har. x Norchief)	F_5	P.T. I
9. M62-56	Chippewa x M406	F_5	P.T. I
10. M62-93	Merit x M406	F_5	P.T. 0
11. W6-3445	C1128(Wabash x Hawkeye) x M319	F_5	P.T. I
12. W6-4108	Merit x W9-1982-32(Hawkeye x Wis. Manchu 3)	F_5	P.T. I

Three strains have been in the test more than one year. M59-213 is early, phytophthora resistant, and high yielding for its maturity. It is being increased for release since all of the recent early I releases, Anoka, Dunn, and Wirth, are PR-susceptible. L65-1342 and M59-120 were close to Hark in maturity and yield but seem to have no particular advantage.

Of the new entries, M62-93 and W6-4108 are early I and phytophthora resistant but did not yield as well as M59-213 on the average. The three later M strains yielded better but not as well as Hark at most locations.

SL7 and SL8 are of interest since they were developed by backcrossing to Chippewa 64 to introduce resistance to bacterial pustule from CNS and downy mildew from Kanrich (SL8 also has yellow hilum added). While it is questionable that it is due to the disease resistance they averaged appreciably above Chippewa 64 in yield and somewhat in protein content but were also a day or two later in maturity. They appear to be close enough to Chippewa to be useful as breeding lines.

Regional Summary

Strain	Yield	Rank	Maturity	Lodging	Height	Seed Quality	Seed Weight	Seed Composition	
								Protein	Oil
					1970				
No. of Tests	20	20	17	18	20	15	14	11	11
Chippewa 64	31.7	12	9-12†	1.7	34	2.0	14.2	40.8	21.0
SL7	34.2	8	+1.7	2.0	34	2.3	14.7	41.6	20.8
SL8	33.7	9	+1.5	1.8	34	2.2	14.7	41.4	20.9
Hark	36.2	2	+6.7	1.6	36	2.0	15.9	41.1	21.0
L65-1342	36.3	1	+5.2	2.3	35	2.0	17.7	42.3	21.2
M59-120	35.1	3	+7.8	2.2	35	2.4	16.4	39.8	22.1
M59-213	34.6	6	+1.9	1.7	34	2.0	16.2	40.4	21.3
M62-19	34.7	5	+3.0	1.8	34	2.0	16.8	40.2	22.1
M62-56	34.4	7	+2.4	1.5	31	1.9	16.4	40.3	22.0
M62-93	32.9	11	+0.3	1.8	30	2.6	16.4	39.7	23.1
W6-3445	34.8	4	+5.8	2.2	37	2.4	16.6	40.8	21.8
W6-4108	33.6	10	+1.3	2.2	34	2.5	18.0	41.1	21.3

† 108 days after planting

					1969-70				
No. of Tests	36	36	31	33	36	28	27	21	21
Chippewa 64	34.5	5	9-16†	1.7	36	2.0	14.8	41.4	21.3
Hark	39.7	1	+5.8	1.8	38	1.8	16.3	41.8	21.4
L65-1342	39.5	2	+4.6	2.3	37	1.9	18.1	42.8	21.4
M59-120	38.9	3	+6.8	2.5	37	2.3	17.1	40.3	22.2
M59-213	38.3	4	+1.5	1.9	36	1.9	16.6	40.8	21.5

† 113 days after planting

					1968-70				
No. of Tests	60	60	54	51	58	46	44	33	33
Chippewa 64	34.8	4	9-17†	1.7	34	1.9	15.0	41.1	21.3
Hark	39.3	2	+5.0	1.8	36	1.8	16.1	41.4	21.2
M59-120	39.4	1	+6.1	2.5	36	2.2	17.3	40.0	22.1
M59-213	38.3	3	+1.3	1.8	35	1.9	16.7	40.4	21.4

† 113 days after planting

Disease Data

Strain	BB Ames Iowa n	BB Ames Iowa a	BP Ames Iowa n	BP Ames Iowa a	BS Laf. Ind. n	BSR Laf. Ind. n 1	BSR Urb. Ill. n	BSR Kanawha Iowa n 1	BSR Kanawha Iowa n 2	DM Worth. Ind. n	FE_2 Laf. Ind. a	PM Har. Ont. a	PR Laf. Ind. a	PR Ames Iowa a	Pyd Ames Iowa a
Chippewa 64	2	2.5	+	4	4	19	3	100	17	3	4	R	R	H	4.2
SL7	3	2.5	+?	1	4	26	3	100	16	2	4	R	R	R	4.8
SL8	3	2	0	1	5	23	3	100	16	2	5	R	R	R	4.2
Hark	3	2	0	2	3	41	1	100	9	4	4	S	S	S	2.3
L65-1342	3	1.5	0	2	4	30	2	100	15	5	1	R	S	S	4.0
M59-120	2	2.5	+	4	3	31	3	95	12	2	4	R	S	S	3.2
M59-213	3	2.5	0	4	4	22	3	95	12	5	5	S	R	R	3.9
M62-19	2	2.5	+	3.5	3	38	3	85	9	4	5	R	S	S	3.7
M62-56	2	2.5	+	3.5	3	32	3	80	11	4	4	R	S	S	4.3
M62-93	2	2.5	+	4.5	5	45	3	70	5	3	4	R	R	R	4.1
W6-3445	2	3	+	3.5	4	32	3	95	17	3	3	R	S	S	2.0
W6-4108	2	2.5	+	4	4	37	3	85	11	3	3	R	R	R	2.4

[1] Percent of plants with browning
[2] Mean height of browning in diseased stems

Descriptive and Shattering Data

Strain	Descriptive Code	Peroxidase	Fluor. Light	Shattering Illinois Urbana 1 mo.	Shattering Illinois Urbana 8 wk.	Shattering Kansas Manhattan 2 wk.	Shattering Kansas Manhattan 4 wk.	Chlorosis Minnesota Crookston	Chlorosis Minnesota Lamberton	Chlorosis Iowa Ames	Hypocotyl Length mm
Chippewa 64	PTNBr SYB1	L	E	1.0	1.5	2.5	3.3	3.0	3.0	2	200
SL7	PTNBr SYB1	L	E	1.0	1.0	2.5	3.3	3.5	2.5	3	207
SL8	PTNBr SYY	L	E	1.0	1.0	3.3	3.3	3.5	2.8	1	184
Hark	PGNBr DYY	H	L	1.0	2.0	4.3	4.3	2.0	4.2	5	169
L65-1342	WTNBr SYB1	L	L	1.0	2.0	3.8	5.0	--	3.5	4	225
M59-120	WTNBr DYBr	L	L	1.0	1.0	1.0	3.8	2.0	1.0	2	180
M59-213	PGNBr DYY	L	E	1.0	2.0	3.8	4.8	2.5	2.2	4	191
M62-19	PGNBr DYY	L	L	1.0	2.0	3.3	3.3	3.0	1.5	1	167
M62-56	PGNBr DYY	L	E	1.0	2.0	3.8	3.8	3.0	1.2	1	170
M62-93	WGNBr DYY	H	E	1.0	2.5	2.5	2.5	3.0	1.5	1	177
W6-3445	WTNTn SYB1	L	L	1.0	1.0	2.1	3.3	2.0	3.0	3	178
W6-4108	WTNBr DYB1	L	E	1.0	2.0	2.5	2.5	3.0	1.0	2	214

Strain	Mean	Ontario Ridge-town	Ontario Har-row	Ohio Hoyt-ville *	Ohio Woos-ter *	Ohio Col-umbus *	Mich. Dun-dee	Indiana Knox	Indiana Lafay-ette	Wis. Dur-and	Wis. Mad-ison	Illinois De-kalb	Illinois Pon-tiac	Illinois Ur-bana
20 Tests					1970 YIELD (bu/a)									
Chippewa 64	31.7	45.0	32.3	26.8	23.9	45.0		36.1	38.9	20.6	28.6	46.4	27.8	40.9
SL7	34.2	48.6	33.1	26.4	27.3	41.0		35.6	41.8	22.3	30.5	48.8	30.7	43.6
SL8	33.7	48.5	31.8	21.3	27.4	46.1		36.1	41.6	20.1	30.2	49.0	29.8	45.9
Hark	36.2	48.6	34.3	27.5	26.1	46.6		41.6	46.3	24.0	31.0	50.3	34.2	45.1
L65-1342	36.3	54.4	38.3	26.6	30.0	50.8		37.9	43.9	22.4	35.9	53.4	31.7	48.4
M59-120	35.1	50.5	34.3	25.2	27.3	53.1		36.5	40.3	26.4	31.9	52.1	29.7	46.3
M59-213	34.6	51.5	34.8	24.4	28.3	40.3		36.1	41.1	23.8	29.1	50.5	29.1	42.5
M62-19	34.7	50.7	31.9	28.3	28.3	45.2		42.8	41.3	24.2	30.5	49.8	30.6	41.7
M62-56	34.4	44.6	33.6	18.6	25.2	38.8		31.4	39.1	23.1	28.1	50.0	30.9	43.0
M62-93	32.9	54.2	30.0	21.6	23.4	34.5		32.3	29.5	25.1	26.8	45.2	26.2	36.7
W6-3445	34.8	49.2	33.6	27.9	30.0	52.0		38.6	44.2	22.1	32.7	50.9	30.4	47.4
W6-4108	33.6	55.0	33.5	23.3	25.9	43.8		34.0	41.0	24.9	30.5	43.9	29.5	41.9
C.V. (%)	8.0	7.4	14.5	--	--	--		14.0	6.0	9.5	6.0	3.4	6.3	4.9
L.S.D. (5%)	1.7	5.3	n.s.	--	--	--		n.s.	4.1	3.1	2.6	2.8	3.2	3.6
Row Sp.(in.)		24	40	32	32	28		38	38	36	36	30	38	30
Rows/Plot		4	1	1	1	1		3	3	1	1	4	4	4
Reps		4	4	4	4	4		3	3	4	4	3	3	3
					RANK									
Chippewa 64	12	11	9	4	11	7		6	11	11	10	10	11	11
SL7	8	8	8	6	6	9		9	4	9	5	9	4	6
SL8	9	10	11	11	5	5		6	5	12	8	8	7	4
Hark	2	8	3	3	8	4		2	1	5	4	5	1	5
L65-1342	1	2	1	5	1	3		4	3	8	1	1	2	1
M59-120	3	6	3	7	6	1		5	9	1	3	2	8	3
M59-213	6	4	2	8	3	10		6	7	6	9	4	10	8
M62-19	5	5	10	1	3	6		1	6	4	5	7	5	10
M62-56	7	12	5	12	10	11		12	10	7	11	6	3	7
M62-93	11	3	12	10	12	12		11	12	2	12	11	12	12
W6-3445	4	7	5	2	1	2		3	2	10	2	3	6	2
W6-4108	10	1	7	9	9	8		10	8	3	5	12	9	9

Strain	Mean	Ontario Ridge-town	Ontario Har-row	Ohio Hoyt-ville *	Ohio Woos-ter *	Ohio Col-umbus *	Mich. Dun-dee	Indiana Knox	Indiana Lafay-ette	Wis. Dur-and	Wis. Mad-ison	Illinois De-kalb	Illinois Pon-tiac	Illinois Ur-bana
60 Tests					1968-70 MEAN YIELD		68-69		68,70					
Chippewa 64	34.8	45.9	31.0	25.6	27.2	37.8	33.6	36.1	43.4	18.7	37.7	43.3	31.9	42.4
Hark	39.3	50.8	37.7	27.6	29.3	37.8	38.6	41.6	49.1	20.5	39.1	48.0	35.9	48.8
M59-120	39.4	54.5	36.6	26.6	35.0	44.8	39.7	40.5	45.6	22.8	42.3	47.6	34.0	49.0
M59-213	38.3	54.7	34.9	26.3	28.5	33.3	35.8	38.3	46.9	21.4	40.1	46.2	36.2	46.7
					RANK									
Chippewa 64	4	4	4	4	4	2	4	4	4	4	4	4	4	4
Hark	2	3	1	1	2	2	2	1	1	3	3	1	2	2
M59-120	1	2	2	2	1	1	1	2	3	1	1	2	3	1
M59-213	3	1	3	3	3	4	3	3	2	2	2	3	1	3

I=Irrigated, * Not included in the mean, a Milbank in 1969

Minnesota			Iowa		Missouri		North	S. Dakota		Nebraska		
St. Paul	Lamberton	Waseca	Sutherland	Kanawha	Spickard	Columbia	Dakota Fargo	Revillo	Brookings	Concord	Mead I	Calif. Davis I*
					1970 YIELD (bu/a)							
28.9	34.5	36.2	32.8	36.9	30.2	16.3	27.0	26.0		22.2	26.6	32.9
36.6	36.7	43.0	34.0	36.2	31.9	17.2	26.2	25.7		24.0	37.5	40.9
39.3	33.4	42.9	35.8	36.7	30.5	16.7	26.3	22.4		23.7	33.8	31.3
35.1	40.5	43.3	38.4	40.2	31.7	16.4	28.7	25.9		24.7	43.1	27.6
31.8	36.6	41.8	33.2	39.6	31.0	17.8	36.0	30.0		25.6	37.1	27.5
31.5	37.3	34.1	35.5	40.1	29.6	16.6	33.0	26.3		27.6	41.9	28.8
39.0	40.3	39.0	32.7	37.6	29.0	16.9	30.1	27.0		25.1	36.4	33.9
31.7	32.2	33.1	39.3	39.2	31.7	16.7	32.7	26.8		27.6	40.0	30.2
33.1	39.3	41.3	35.2	38.1	30.3	18.0	31.5	24.4		27.7	45.8	32.2
42.0	39.9	39.4	33.1	39.3	27.0	16.0	29.4	31.4		24.0	31.0	26.0
30.9	33.7	37.1	32.4	37.2	30.9	16.5	29.8	25.6		32.4	40.8	23.1
35.1	38.4	38.8	32.1	39.5	24.3	17.9	29.9	25.7		22.5	34.2	32.4
13.1	8.8	7.6	8.2	4.7	11.2	10.8	9.9	13.1		11.5	11.0	--
7.5	5.4	5.0	2.7	2.6	4.8	2.7	6.6	n.s.		5.0	7.0	--
30	30	30	27	27	15	40	40	30		30	30	30
4	4	4	3	3	4	1	1	1		4	4	1
3	3	3	4	4	4	4	4	4		3	3	6
					RANK							
12	9	10	9	10	8	11	10	6		12	12	3
4	7	2	6	12	1	4	12	8		8	6	1
2	11	3	3	11	6	6	11	12		10	10	6
5	1	1	2	1	2	10	9	7		7	2	9
8	8	4	7	3	4	3	1	2		5	7	10
10	6	11	4	2	9	8	2	5		3	3	8
3	2	7	10	8	10	5	5	3		6	8	2
9	12	12	1	6	2	6	3	4		3	5	7
7	4	5	5	7	7	1	4	11		2	1	5
1	3	6	8	5	11	12	8	1		8	11	11
11	10	9	11	9	5	9	7	10		1	4	12
5	5	8	12	4	12	2	6	8		11	9	4
					1968-70 MEAN YIELD							
				69-70	68-69			a			68,70	
27.5	36.7	38.1	30.2	36.7	40.5	29.9		25.8	30.7	34.3	38.2	22.8
30.5	40.8	42.4	35.9	42.2	45.9	35.6		27.7	32.1	39.9	47.7	24.2
30.3	42.5	41.3	34.4	40.6	44.2	33.0		27.2	34.5	39.7	48.5	22.7
34.4	40.6	39.7	32.6	37.3	45.4	31.8		28.1	33.1	39.4	42.9	28.0
					RANK							
4	4	4	4	4	4	4		4	4	4	4	3
2	2	1	1	1	1	1		2	3	1	2	2
3	1	2	2	2	3	2		3	1	2	1	4
1	3	3	3	3	2	3		1	2	3	3	1

Strain	Mean	Ontario		Ohio			Indiana		Wisconsin		Illinois		
		Ridge-town	Har-row	Hoyt-ville *	Woos-ter *	Col-umbus *	Knox	Lafay-ette	Dur-and	Mad-ison	De-kalb	Pon-tiac	Ur-bana
	17 Tests				MATURITY (date)								
Chippewa 64†	9-12	9-22	9-7	9-19	9-8	9-5	9-21	9-4	9-6	9-3	9-7	9-19	8-30
SL7	+1.7	0	+ 2	0	0	0	+ 4	+ 1	+1	0	0	+1	+1
SL8	+1.5	0	+ 1	-1	0	0	+ 2	+ 2	+1	0	+ 1	+1	+1
Hark	+6.7	+ 4	+ 5	+3	+1	+10	+ 5	+ 5	+5	+ 8	+ 8	+3	+7
L65-1342	+5.2	+ 3	+ 9	+2	+2	+10	+ 1	+ 6	+3	+ 3	+ 8	+2	+6
M59-120	+7.8	+ 8	+10	+4	+4	+10	+ 2	+ 6	+5	+ 8	+12	+2	+6
M59-213	+1.9	+ 1	+ 4	-1	0	+ 5	- 4	+ 2	+2	- 1	+ 1	-1	+1
M62-19	+3.0	+ 3	+ 2	+2	+1	+ 3	+ 2	+ 3	+2	+ 1	+ 2	+1	+2
M62-56	+2.4	+ 1	+ 2	-1	+2	+ 4	- 4	+ 2	+2	+ 3	+ 1	+1	+3
M62-93	+0.3	+ 4	+ 4	+1	-2	+ 1	- 1	+ 2	-5	- 5	+ 1	-2	-3
W6-3445	+5.8	+ 9	+ 9	+2	+1	+ 9	+ 3	+ 6	+2	+ 2	+11	+2	+6
W6-4108	+1.3	+ 3	+ 5	-1	0	+ 8	0	+ 2	-2	- 2	+ 1	0	0
Merit (0)		-10	--	-9	--	--	--	--	-5	- 6	- 4	-5	-4
Corsoy (II)	+10	+13	+15	+2	0	+15	+12	+10	+9	+10	+18	+3	+7
Date Planted	5-27	5-22	5-28	6-10	5-20	5-19	6-12	5-21	5-26	5-19	5-21	6-13	5-20
†Days to mat.	108	123	102	101	111	109	101	106	103	107	109	98	102
	18 Tests				LODGING (score)								
Chippewa 64	1.7	2.0	2.8	1.2	1.0	1.7	2.5	1.6	1.1	1.0	2.0	1.3	1.2
SL7	2.0	2.5	2.8	1.7	1.7	2.7	3.2	1.6	1.3	1.0	2.0	1.8	1.3
SL8	1.8	2.0	1.8	1.0	1.0	2.2	2.5	1.6	1.3	1.1	2.5	1.8	1.4
Hark	1.6	2.0	1.2	1.0	1.0	2.2	1.0	1.8	1.0	1.0	2.2	1.3	1.1
L65-1342	2.3	2.5	3.0	1.2	2.7	1.5	3.0	2.3	1.5	1.0	2.5	2.2	1.3
M59-120	2.2	3.0	2.2	1.7	2.7	3.5	3.0	2.0	1.4	1.3	2.5	2.0	1.3
M59-213	1.7	2.0	2.0	1.0	1.0	2.2	1.7	1.2	1.0	1.0	2.2	1.8	1.2
M62-19	1.8	2.5	2.0	1.0	1.0	1.7	3.0	1.5	1.4	1.0	2.3	1.7	1.1
M62-56	1.5	2.0	1.2	1.0	1.0	1.7	1.0	1.2	1.6	1.1	2.0	1.3	1.1
M62-93	1.8	2.0	2.0	1.0	1.0	1.2	3.0	1.0	1.6	1.0	1.5	1.3	1.1
W6-3445	2.2	2.0	3.0	1.2	1.2	1.5	3.3	2.2	1.5	1.0	2.3	2.3	1.7
W6-4108	2.2	3.0	3.0	1.5	1.0	2.5	3.5	2.0	1.9	1.0	2.5	2.3	1.4

I=Irrigated
* Not included in the mean

Minnesota			Iowa		Mo.	North	S. Dakota		Nebraska		
St. Paul	Lamberton	Waseca	Sutherland	Kanawha	Columbia	Dakota Fargo	Revillo	Brookings	Concord	Mead	Calif. Davis
			*		*	*				I	I*
					MATURITY (date)						
9-28	9-10	9-21		9-5	9-29		9-16	9-26	9-7	9-10	10-16
+ 2	+ 3	+ 1		+1	+1		0	0	+1	+11	0
+ 4	+ 1	+ 1		+1	+1		0	0	+2	+ 8	+1
+ 8	+14	+10		+7	+2		+2	+6	+4	+13	0
+ 5	+10	+ 4		+6	0		+2	+4	+5	+11	+2
+12	+15	+ 6		+8	+2		+4	+4	+7	+17	0
+ 4	+ 5	+ 2		+4	--		+1	+2	+3	+ 7	0
+ 5	+ 4	0		+4	-1		+2	+2	+5	+11	+2
+ 5	+ 2	+ 2		+2	-1		+2	+3	+4	+ 9	+1
0	0	0		0	--		0	+1	+6	+ 3	+1
+ 8	+10	+ 4		+4	+2		+3	+3	+5	+12	0
- 1	- 1	+ 2		+3	-1		-1	+1	+1	+11	0
- 5	- 4	- 8	--	--	--	--	-3	-3	--	--	-6
+12	+14	+ 9	--	+9	+4	--	+6	+6	+5	+14	--
5-26	5-16	5-21	6-1	5-18	6-29	5-22	5-19	6-3	5-27	5-27	6-14
125	117	123	--	110	92	--	120	115	103	106	124
											*
					LODGING (score)						
3.0	1.7	2.0	1.5	1.4	2.2	1			1.0	1.7	5
3.7	2.0	2.3	1.5	1.4	3.1	1			1.0	1.7	5
3.0	2.0	2.7	1.6	1.4	2.5	1			1.0	2.0	5
3.0	3.0	2.7	1.6	1.2	1.3	1			1.0	2.2	5
3.0	2.7	3.3	1.7	1.5	2.3	5			1.0	1.7	5
4.0	4.7	2.3	1.8	1.4	1.7	1			1.3	2.0	5
3.0	2.0	2.7	1.4	1.4	1.9	1			1.0	1.8	5
3.0	2.7	1.3	1.7	1.3	1.5	1			1.0	1.8	4
3.0	2.0	1.7	1.2	1.2	1.4	1			1.0	1.7	5
3.3	1.7	1.3	1.2	1.2	1.6	4			1.0	1.7	5
3.7	3.3	2.7	1.8	1.4	2.0	1			2.0	2.0	5
4.0	2.3	2.7	1.6	1.4	3.0	1			1.0	1.7	5

Strain	Mean	Ontario		Ohio			Indiana		Wisconsin		Illinois		
		Ridge-town	Har-row	Hoyt-ville *	Woos-ter *	Col-umbus *	Knox	Lafay-ette	Dur-and	Mad-ison	De-kalb	Pon-tiac	Ur-bana
	20 Tests			PLANT HEIGHT (inches)									
Chippewa 64	34	42	36	32	30	32	33	34	30	26	28	32	33
SL7	34	40	35	31	30	35	32	33	30	26	30	34	31
SL8	34	42	35	32	31	35	33	33	30	28	31	33	33
Hark	36	43	35	34	31	36	33	38	33	28	34	33	33
L65-1342	35	44	36	33	32	33	34	37	31	28	35	33	34
M59-120	35	44	38	33	32	37	35	35	33	27	34	32	32
M59-213	34	42	37	32	31	33	34	32	32	24	31	32	31
M62-19	34	42	35	35	31	33	37	36	32	24	32	32	28
M62-56	31	39	31	28	28	31	29	29	28	23	27	27	27
M62-93	30	42	29	30	24	25	34	25	27	23	26	29	23
W6-3445	37	43	37	30	32	34	35	38	33	26	33	35	38
W6-4108	34	45	36	30	33	35	37	35	31	26	32	33	30
	15 Tests			SEED QUALITY (score)									
Chippewa 64	2.0	1	2.0	1.2	3.5	3.0	2.0	1.5		2	2.5	2.7	2.5
SL7	2.3	3	2.0	1.2	3.5	3.0	2.0	2.0		2	3.0	2.5	2.5
SL8	2.2	2	2.2	1.2	3.7	3.7	2.0	2.0		2	3.0	2.5	2.5
Hark	2.0	2	2.0	1.0	2.2	3.0	1.5	2.0		2	2.7	2.3	1.8
L65-1342	2.0	2	2.0	1.7	4.0	3.0	1.5	1.5		2	2.0	2.7	2.3
M59-120	2.4	3	2.2	1.5	3.2	3.0	1.5	2.0		2	2.5	3.0	3.2
M59-213	2.0	3	2.0	1.0	3.5	2.5	1.5	1.5		2	2.2	2.8	2.2
M62-19	2.0	2	2.2	1.2	3.0	2.0	2.0	1.5		2	2.7	2.8	2.5
M62-56	1.9	3	2.0	1.0	3.0	2.2	1.5	1.5		2	2.5	2.5	2.2
M62-93	2.6	2	2.0	1.5	4.2	2.0	3.0	2.0		2	3.0	3.3	3.3
W6-3445	2.4	2	2.5	2.0	3.5	3.0	3.0	2.5		2	3.3	2.8	3.2
W6-4108	2.5	2	2.5	1.7	3.7	3.0	2.5	2.5		1	3.7	3.3	3.2
	14 Tests			SEED WEIGHT (cg)									
Chippewa 64	14.2	16.9	14.4	14.8	16.4	15.5	16.7	17.0			13.6	14.3	14.4
SL7	14.7	16.8	14.5	14.0	16.0	14.6	16.9	17.5			13.7	14.8	15.2
SL8	14.7	16.8	14.2	14.0	16.1	15.2	16.0	16.8			14.1	14.7	15.1
Hark	15.9	19.4	15.0	14.0	16.3	16.0	17.3	18.6			14.6	16.7	15.2
L65-1342	17.7	20.4	17.8	17.2	19.2	19.3	19.2	21.0			17.2	17.3	18.7
M59-120	16.4	20.4	16.8	15.3	17.6	18.4	18.3	19.9			15.9	15.6	16.6
M59-213	16.2	19.0	16.0	14.3	17.3	16.9	15.8	19.3			16.1	15.5	16.3
M62-19	16.8	21.8	15.5	15.5	18.9	16.1	19.9	19.4			16.3	16.8	16.9
M62-56	16.4	18.2	15.7	15.8	17.7	16.3	17.8	18.9			17.5	17.4	16.6
M62-93	16.4	19.7	15.1	16.6	17.6	15.8	16.8	19.8			16.2	14.9	16.2
W6-3445	16.6	19.2	16.0	14.7	18.6	15.9	18.9	19.9			16.3	15.2	16.9
W6-4108	18.0	21.0	17.1	16.2	19.7	17.9	20.2	22.4			18.9	18.2	18.1

I=Irrigated
* Not included in the mean

Minnesota			Iowa		Mo.	North	S. Dakota		Nebraska		
St. Paul	Lamberton	Waseca	Sutherland	Kanawha	Columbia	Dakota Fargo	Revillo	Brookings	Concord	Mead I	Calif. Davis I*
PLANT HEIGHT (inches)											
38	37	35	33	36	30	27	43	38	27	32	46
37	38	37	32	35	30	27	44	39	26	34	47
38	38	37	36	36	29	28	44	39	28	34	45
39	41	40	37	42	29	27	46	42	26	39	46
39	39	38	38	39	31	29	43	38	28	34	44
41	38	34	36	41	28	26	44	38	28	34	44
41	39	36	32	38	27	29	41	40	26	32	45
43	37	35	34	38	29	29	45	39	27	34	47
39	36	34	33	32	26	27	39	35	24	30	45
36	34	30	28	28	25	26	40	39	23	27	46
44	41	40	38	40	31	32	43	42	34	36	45
36	36	34	34	37	30	30	38	40	25	32	46
SEED QUALITY (score)											*
3.3	2.0	1.7			1.8	2			1.8	1.9	2
3.7	2.3	1.7			2.0	2			1.8	2.6	2
3.3	2.0	1.3			1.8	2			2.0	2.4	3
3.0	1.7	1.3			1.3	2			1.5	2.6	2
2.3	2.0	1.7			2.0	2			1.7	1.8	2
3.0	2.7	2.3			1.8	2			2.0	2.2	1
2.3	1.7	1.3			1.8	1			1.6	3.0	2
2.0	2.0	1.7			1.5	2			1.4	1.8	1
1.7	2.0	1.3			1.7	2			1.3	1.6	2
3.0	2.0	1.3			2.0	2			3.5	4.1	2
3.3	1.7	1.7			2.0	2			1.6	2.5	1
3.7	2.3	1.7			2.0	2			2.8	2.6	1
SEED WEIGHT (cg)											*
12.2	12.9	14.2		12.2		12.0			12.2	15.4	16.4
13.6	13.4	16.2		12.7		11.1			12.3	17.2	19.2
14.4	13.2	15.2		13.4		11.9			12.8	16.6	13.1
14.7	15.6	17.1		14.8		12.0			13.0	18.2	16.3
15.5	16.8	18.7		16.0		13.9			15.7	19.8	15.6
14.8	15.0	14.8		15.7		12.0			13.3	19.8	17.6
15.8	15.1	16.5		16.2		14.9			13.1	17.7	18.3
15.9	14.8	16.5		15.5		12.3			14.5	19.6	16.6
14.5	15.0	17.2		15.2		12.4			14.7	17.8	16.3
16.5	16.1	17.3		16.2		12.9			14.1	17.3	17.9
15.6	14.6	17.2		15.6		13.4			14.5	18.8	11.5
16.5	15.6	18.4		17.1		13.9			15.0	19.2	15.8

Strain	Mean	Ont. Ridge-town	Ohio Col-umbus	Ind. Knox	Wis. Mad-ison	Illinois De-kalb	Illinois Ur-bana	Minn. Wa-seca	Iowa Kana-wha	Mo. Col-umbia	North Dak. Fargo *	S.Dak. Brook-ings	Neb. Mead I
	11 Tests				PROTEIN (%)								
Chippewa 64	40.8	40.2	42.0	42.9	41.2	39.5	40.1	40.3	39.1	41.3	38.2	42.4	40.3
SL7	41.6	40.9	42.4	43.9	42.6	39.6	40.8	41.1	38.6	42.1	38.9	43.7	41.5
SL8	41.4	40.2	43.0	43.2	40.5	39.6	40.4	41.0	39.3	42.7	40.3	44.3	41.4
Hark	41.1	42.5	43.6	39.9	36.8	39.7	39.6	42.4	40.3	41.5	40.0	44.2	41.9
L65-1342	42.3	40.4	44.3	44.5	42.0	41.5	40.8	42.0	40.0	42.5	40.2	43.7	43.1
M59-120	39.8	39.0	40.9	41.1	40.1	37.3	38.9	39.1	38.0	40.4	37.3	42.4	40.5
M59-213	40.4	39.4	41.7	41.0	40.9	39.3	39.4	39.5	39.0	41.0	39.4	41.9	41.0
M62-19	40.2	40.1	40.0	40.5	42.4	38.4	39.0	39.3	39.0	40.6	38.7	42.7	40.3
M62-56	40.3	37.9	41.2	41.6	41.4	39.0	39.1	40.0	38.4	41.5	39.0	43.1	39.9
M62-93	39.7	38.7	40.0	41.5	39.5	38.8	39.5	39.8	38.1	39.9	37.9	40.9	40.3
W6-3445	40.8	41.2	42.8	42.1	41.4	39.2	39.2	40.0	39.2	41.1	40.8	42.0	40.7
W6-4108	41.1	40.3	42.6	41.8	41.7	40.0	39.6	40.8	39.8	41.1	39.6	42.9	41.5
	11 Tests				OIL (%)						*		
Chippewa 64	21.0	20.9	20.7	20.7	20.5	21.9	21.6	20.9	21.8	20.6	22.8	19.9	21.8
SL7	20.8	20.7	20.1	20.2	20.6	22.4	21.8	20.4	21.8	20.4	21.3	19.3	21.0
SL8	20.9	20.9	20.3	20.5	20.6	21.7	21.6	20.9	21.8	21.0	21.3	19.6	21.7
Hark	21.0	20.2	20.8	21.2	21.0	22.3	22.7	21.0	22.2	20.3	21.0	19.4	21.0
L65-1342	21.2	21.5	20.7	20.5	21.5	21.7	22.3	20.7	21.7	21.3	21.7	19.6	21.3
M59-120	22.1	21.5	22.0	21.5	22.3	23.1	23.6	22.2	23.0	21.3	22.3	19.9	23.0
M59-213	21.3	20.9	20.3	21.2	21.6	21.6	22.2	21.0	21.5	21.1	22.3	20.6	22.4
M62-19	22.1	21.2	22.3	21.8	21.6	22.9	23.4	22.2	22.5	21.8	21.8	20.4	23.3
M62-56	22.0	21.9	21.7	21.6	21.3	22.8	23.4	21.4	22.6	21.8	22.7	20.1	23.3
M62-93	23.1	22.4	23.4	23.0	23.3	24.0	23.9	22.4	23.7	22.9	23.8	20.6	24.0
W6-3445	21.8	21.4	20.8	20.9	21.8	22.8	22.9	21.2	22.0	22.9	21.7	20.6	22.5
W6-4108	21.3	20.5	21.0	21.2	21.5	22.3	22.3	21.0	21.5	21.3	21.3	19.6	22.0

I=Irrigated
* Not included in the mean

Strain	Parentage	Generation Composited
1. Chippewa 64		
2. Hark		
3. A66-1240-2	Provar x F_1(Harosoy 63 x PI 84.666-1)	F_5
4. A66-1319-1	Provar x F_1(Harosoy 63 x PI 91.110-1)	F_5
5. A66-1319-2	Provar x F_1(Harosoy 63 x PI 91.110-1)	F_5
6. A66-1441-2	Provar x F_1(Harosoy 63 x PI 248.406)	F_5
7. A66-1457-3	Harosoy 63 x PI 257.435	F_6
8. A66-1504-10	Provar x F_1(Harosoy 63 x PI 257.435)	F_5
9. A66-1936-9	Provar x F_1(AX50F58-2 x PI 84.666-1)	F_5
10. AX214-3-1	(D49-2491[4] x Hawkeye)-19-7-5 x F_4(Ford x PI 68.708)	F_4
11. AX214-3-3	Same as above	F_4
12. AX224-49	Harosoy 63 x PI 248.404(Novosadska Bela)	F_4
13. AX224-88	Harosoy 63 x PI 248.404	F_4
14. AX229-24	Hawkeye 63 x PI 91.110-1	F_4
15. AX265-5	Provar x F_1(Harosoy 63 x PI 248.404)	F_4
16. AX270-26	Provar x F_1(Hawkeye 63 x PI 91.110-1)	F_4
17. H82-24032	Monroe x Hawkeye	F_5
18. L67D-805	Hark x Disoy	F_3
19. L67D-939	Hark x Disoy	F_3
20. L67D-942	Hark x Disoy	F_3
21. L67D-944	Hark x Disoy	F_3
22. L67D-1030	Hark x Disoy	F_3
23. L67D-1036	Hark x Disoy	F_3
24. L68-4241	Chippewa-Rps rxp-L10[5] x S62X30:1	F_3
25. L68-4242	Chippewa-Rps rxp-L10[5] x S62X30:1	F_3
26. M61-223	Merit x Harosoy	F_5
27. M61-224	Merit x Harosoy	F_5
28. M62-253	Norchief x M413(Lincoln[2] x Richland)	F_5
29. M62-263	Grant x M319W(Lincoln x Hawkeye)	F_5
30. M62-275	Norchief x Harosoy	F_5
31. M62-281	Comet x M319[2]	F_5
32. M62-345	M319W x Harosoy	F_5
33. M63-7	M402(Renville x Capital) x M406(Harosoy x Norchief)	F_5
34. M63-17	M402 x M406	F_5
35. M63-39	M402 x M406	F_5
36. M63-59	Harosoy 63 x Hawkeye 63	F_5
37. M63-83	Chippewa x PI 261.475(Shika No. 1)	F_6
38. M64-3	Traverse x Tokachi Nagaha(PI 196.163)	F_5

A number of strains in this test appear to merit further regional testing. The 14 A strains represent some interestingly diverse parentage, but only A66-1441-2 appeared to have an improved yield. This strain also had good seed composition, above the checks in both protein and oil, but averaged almost as late as Corsoy in maturity. Several A strains had high protein, in the 44 to 47% range, but were correspondingly down in mean yield so that protein per acre was not increased. Nevertheless they may be of some commercial value if the special purpose demand for high protein varieties such as Provar and Protana should develop.

Both AX214 lines had an interesting stem type, distinctly more determinate than the other strains, but probably not determinate enough to be $\underline{dt_1}$ from the D49-2491 parent. The trait more likely comes from the PI 68.708 parent and may be $\underline{Dt_2}$.

L68-4241 and 4242 were developed by backcrossing to Chippewa to transfer BP, DM, and PR resistance (as are SL7 and SL8 in U.T. I) and also yellow hilum with genes $\underline{I}$ $\underline{t}$ $\underline{w}$, light hilum, gray pubescence, and white flower, respectively. This contrasts with SL8, where I r (light hilum, brown hilum) were used. Both lines yielded well relative to Chippewa 64 but were later in maturity and perhaps poorer in seed quality but should be of some use as breeding lines. The remaining six L strains all averaged later in maturity than Corsoy and despite this none were high in yield.

Several of the 13 M strains averaged equal to or a little above Hark in yield. M62-275 and M63-17 were especially noteworthy since they were almost as early as Chippewa 64. M62-263 topped the test in mean yield and is of Hark maturity. All of these tended to be high in oil and low in protein.

Regional Summary

Strain	Yield	Rank	Matu-rity	Lodg-ing	Height	Seed Quality	Seed Weight	Seed Composition	
								Protein	Oil
No. of Tests	11	11	9	9	11	6	6	8	8
Chippewa 64	35.4	34	9-12	2.2	37	2.3	14.7	42.2	20.9
Hark	39.1	8	+ 8	1.8	38	2.7	16.5	42.9	20.9
A66-12-1-2	36.3	27	1	2.2	34	2.1	19.4	44.2	19.9
A66-1319-1	37.2	18	+ 9	1.9	41	2.8	19.9	44.4	20.3
A66-1319-2	36.2	28	+ 6	1.8	43	2.9	18.5	44.2	19.9
A66-1-41-2	41.2	2	+ 8	1.8	41	2.6	19.2	43.3	21.8
A66-1-87-3	36.4	26	2	2.2	38	3.2	19.5	42.6	21.6
A66-150--10	31.9	38	+ 1	1.9	41	2.2	17.8	46.8	19.0
A66-1936-9	36.4	25	+ 7	2.2	39	2.3	18.8	43.3	22.4
AX21--3-1	35.2	35	+ 6	2.2	35	2.7	15.1	42.2	21.4
AX21--3-3	35.8	33	+ 7	2.1	36	2.2	15.2	42.3	21.2
AX22---9	37.3	15	+ 5	1.6	39	2.2	17.1	42.6	20.4
AX22--88	37.1	16	+ 6	1.6	39	1.6	17.6	42.6	20.3
AX229-2-	37.9	9	+ 3	2.1	37	2.3	17.1	42.4	21.5
AX265-5	35.9	32	+ 2	1.8	34	2.1	17.4	42.7	21.4
AX270-26	36.1	29	+ 5	1.6	38	2.1	17.2	45.4	19.1
H62-2-232	32.6	37	+ 8	2.2	43	2.1	17.6	42.5	20.6
L67D-805	36.2	31	+10	2.1	38	2.3	20.8	43.4	20.5
L67D-939	37.2	21	+11	2.7	42	2.3	21.7	41.9	20.6
L67D-9-2	37.4	12	+10	2.2	38	2.6	22.9	42.3	21.3
L67D-9-4	38.1	8	+11	2.6	42	2.6	22.5	43.2	20.7
L67D-1030	37.1	18	+11	2.5	42	2.6	23.2	43.4	20.4
L67D-1036	36.7	24	+10	2.2	42	2.5	21.3	42.7	21.0
L68-4241	38.5	7	+ 5	2.2	37	1.9	15.0	39.6	21.6
L68--242	36.1	29	+ 2	1.8	35	2.1	15.8	40.7	21.4
M61-223	36.9	22	+ 6	1.6	37	2.5	17.6	40.5	21.7
M61-224	36.9	22	+ 1	1.3	34	2.5	16.5	40.2	22.1
M62-253	38.9	36	- 1	2.1	33	2.8	16.6	41.2	21.1
M62-263	40.3	1	+ 5	1.7	33	1.9	19.4	40.4	21.9
M62-275	39.7	3	+ 1	1.9	36	2.0	18.2	39.4	22.1
M62-281	37.4	12	+ 3	1.4	36	1.6	14.2	40.6	21.1
M62-345	37.9	9	+ 5	2.0	36	2.2	17.2	40.7	21.7
M63-7	38.9	6	+ 5	1.9	34	2.1	18.1	40.0	22.1
M63-17	39.6	4	+ 2	1.5	37	2.4	15.7	40.2	21.9
M63-39	37.2	17	+ 3	1.4	33	2.4	18.0	40.2	22.5
M63-59	37.4	12	+ 4	2.0	37	1.6	17.9	40.7	21.5
M63-83	37.3	15	0	1.5	29	2.3	17.8	41.3	20.4
M64-3	37.9	9	+ 8	1.7	36	2.0	16.3	39.7	22.7

Disease Data

Strain	BB	BP	BS	BSR		DM	FE_2	PR	
	Ames Iowa n	Ames Iowa n	Laf. Ind. n	Laf. Ind. n 1	Urb. Ill. n	Worth. Ind. n	Laf. Ind. a	Laf. Ind. a	Ames Iowa a
Chippewa 64	3	+	4	19	3	3	4	R	H
Hark	2	0	3	41	3	4	4	S	S
A66-1240-2	4	0	4	28	4	2	4	S	S
A66-1319-1	3	0	3	28	4	2	3	S	S
A66-1319-2	3	+	4	39	3	3	5	S	S
A66-1441-2	3	0	4	20	3	3	4	S	S
A66-1457-3	2	+	4	24	4	3	4	S	S
A66-1504-10	3	0	5	22	4	3	5	R	H
A66-1936-9	3	0	4	39	3	5	4	S	S
AX214-3-1	3	+	5	17	1	5	5	S	S
AX214-3-3	4	0	5	19	3	5	5	S	S
AX224-49	4	+	3	20	3	2	5	R	R
AX224-88	3	+	3	14	4	2	5	R	R
AX229-24	2	+	5	26	3	2	5	R	R
AX265-5	3	+	3	31	3	3	4	S	S
AX270-26	3	+	3	21	3	2	5	H	H
H82-24032	3	+	5	17	3	4	5	R	S
L67D-805	3	+	3	20	3	5	3	S	S
L67D-939	2	+	3	25	3	3	4	S	S
L67D-942	3	+	3	13	3	4	4	S	S
L67D-944	2	0	3	13	3	4	4	S	S
L67D-1030	3	+	3	26	3	5	4	S	S
L67D-1036	2	+	3	24	3	2	3	S	S
L68-4241	2	0	5	28	3	2	5	R	R
L68-4242	2	+	5	20	3	3	5	R	H
M61-223	2	+	4	50	3	2	5	R	R
M61-224	2	+	4	6	3	3	5	H	H
M62-253	3	+	5	6	3	2	5	S	S
M62-263	3	+	4	29	3	3	4	S	S
M62-275	3	+	5	14	3	5	5	S	S
M62-281	2	+	4	50	4	3	5	S	S
M62-345	3	+	3	33	3	4	5	S	S
M63-7	3	+	4	38	3	5	5	S	S
M63-17	3	+	3	27	3	4	5	S	S
M63-39	3	+	5	26	3	2	5	S	S
M63-59	2	+	3	30	3	2	5	R	R
M63-83	2	+	5	11	3	4	4	S	S
M64-3	3	+	3	29	3	2	5	S	S

1 Percent of plants with browning

Descriptive and Shattering Data

Strain	Descriptive Code	Shattering				Chlorosis
		Illinois Urbana		Kansas Manhattan		Iowa
		1 mo.	8 wk.	2 wk.	4 wk.	Ames
Chippewa 64	PTNBr SYBl	1.0	1.0	2.1	2.5	4
Hark	PGNBr DYY	1.0	1.5	3.9	4.8	5
A66-1240-2	PTNBr DYTn	1.0	1.5	2.1	2.5	1
A66-1319-1	PTNTn DYBr	1.0	1.5	2.5	3.8	3
A66-1319-2	PTNTn DYY	1.0	1.5	2.5	3.8	3
A66-1441-2	PGNBr DYBf	1.0	2.0	3.3	3.8	2
A66-1457-3	PGNBr DYY	2.5	3.0	3.8	5.0	2
A66-1504-10	PTNBr DYTn	1.0	2.0	2.5	5.0	2
A66-1936-9	PTNBr DYBr	1.0	2.0	3.3	3.3	1
AX214-3-1*	PTNBr SYBl	1.5	2.0	2.1	3.8	3
AX214-3-3*	PTNBr SYBl	2.0	2.5	3.3	3.3	4
AX224-49	PGNBr DYY	1.0	1.0	2.1	3.8	2
AX224-88	PGNBr DYY	1.0	1.5	2.1	3.3	2
AX229-24	PGNBr DYG	1.5	3.5	4.3	5.0	2
AX265-5	PGNBr DYBf	1.0	2.0	3.8	3.8	2
AX270-26	PTNBr DYBr	1.0	1.5	3.3	4.3	2
H82-24032	PGNBr SYG	3.0	3.0	3.8	4.3	1
L67D-805	PGNTn DYY	2.0	2.5	2.1	3.8	2
L67D-939	PGNTn DYY	3.0	3.0	3.8	5.0	2
L67D-942	PGNTn DYY	3.0	3.0	3.3	4.8	2
L67D-944	PGNTn DYY	2.5	3.0	4.3	5.0	3
L67D-1030	PGNTn DYY	2.5	3.0	3.3	4.8	2
L67D-1036	PGNTn DYY	2.5	3.0	3.8	5.0	2
L68-4241	WGNBr SYY	1.0	1.0	3.3	3.3	2
L68-4242	WGNBr SYY	1.0	1.5	2.1	3.3	2
M61-223	PGNBr DYY	1.5	2.0	2.5	3.3	2
M61-224	WGNBr DYY	1.0	3.0	3.3	3.3	2
M62-253	WGNBr SYY	1.0	3.5	3.8	3.8	2
M62-263	WGNBr SYBl	1.0	1.0	3.3	3.3	3
M62-275	PGNBr IYY	1.5	3.0	3.8	4.3	1
M62-281	WGNBr SYY	1.5	2.0	2.5	4.8	4
M62-345	WGNBr SYY	1.0	1.5	3.8	4.3	2
M63-7	WGNBr DYY	1.0	1.5	3.8	4.3	2
M63-17	WGNBr DYY	1.0	2.0	3.8	3.8	2
M63-39	WGNBr DYY	1.0	2.0	2.5	3.8	1
M63-59	PGNBr DYY	1.0	1.5	3.8	4.0	2
M63-83	PTNBr DYBr	1.0	1.5	2.5	3.8	4
M64-3	WTNBr DYY	1.5	1.5	3.3	3.8	2

* Moderately determinate stem

Strain	Mean	Ontario		Ohio			Wis.
		Ridge-town	Har-row	Hoyt-ville *	Woos-ter *	Col-umbus *	Mad-ison
	10 Tests	1970 YIELD (bu/a)					
Chippewa 64	35.4	41.3	28.9	26.2	19.1	38.7	30.1
Hark	39.1	48.3	39.2	30.6	19.6	39.5	33.3
A66-1240-2	36.3	52.7	34.9	25.6	20.8	40.7	32.9
A66-1319-1	37.1	54.0	35.6	30.7	30.2	46.0	30.8
A66-1319-2	36.2	46.5	34.5	27.6	24.2	40.6	32.3
A66-1441-2	40.2	54.8	36.4	32.8	23.3	33.2	39.4
A66-1457-3	36.4	57.1	33.3	26.0	15.9	31.6	28.5
A66-1504-10	31.9	43.1	27.7	23.8	25.5	35.2	27.6
A66-1936-9	36.4	50.4	33.3	26.3	25.1	47.7	31.6
AX214-3-1	35.0	46.4	35.8	26.6	20.2	54.2	29.6
AX214-3-3	35.8	50.8	38.7	26.4	23.9	37.3	28.4
AX224-49	37.3	56.2	33.3	28.2	21.4	48.2	28.1
AX224-88	37.1	53.7	32.9	26.6	24.1	43.3	27.8
AX229-24	37.9	47.0	34.7	26.8	23.4	38.5	26.8
AX265-5	35.9	47.5	26.2	29.4	24.8	34.5	27.6
AX270-26	36.1	47.4	31.3	26.1	20.8	38.0	28.5
H82-24032	32.6	44.7	28.8	27.9	27.0	33.6	28.6
L67D-805	36.0	51.0	33.8	28.0	24.0	42.0	28.8
L67D-939	37.0	54.2	40.7	19.2	24.2	44.6	29.1
L67D-942	37.4	55.9	29.3	30.4	23.8	39.0	29.2
L67D-944	38.1	53.8	33.3	26.2	22.7	40.4	30.0
L67D-1030	37.1	56.4	35.7	26.4	29.3	33.2	28.5
L67D-1036	36.7	51.2	27.5	29.6	25.5	45.8	28.6
L68-4241	38.5	55.1	40.0	30.8	22.0	42.2	33.8
L68-4242	36.1	48.7	32.0	26.5	22.1	38.6	28.7
M61-223	36.9	50.3	25.2	29.5	20.8	34.5	27.8
M61-224	36.9	48.0	34.8	28.7	19.7	31.5	25.9
M62-253	33.9	48.8	30.0	26.1	23.5	38.0	27.6
M62-263	40.3	54.2	39.6	32.9	22.3	46.6	29.1
M62-275	39.7	57.3	39.3	29.0	25.6	47.4	26.7
M62-281	37.4	47.2	34.2	28.0	22.3	47.0	30.3
M62-345	37.9	48.2	38.7	30.2	19.1	41.4	29.2
M63-7	38.9	53.4	41.4	29.8	24.1	40.9	31.7
M63-17	39.6	57.2	39.3	31.4	28.9	35.9	32.3
M63-39	37.2	52.2	40.5	27.9	21.1	29.2	27.8
M63-59	37.4	56.2	36.9	31.8	21.5	40.6	27.6
M63-83	37.3	48.6	34.4	25.7	21.1	29.6	28.7
M64-3	37.9	49.5	44.8	30.8	24.1	45.8	38.0
Coef. of Var. (%)	11.6	8.3	12.6	--	--	--	8.7
L.S.D. (5%)	3.0	10.1	8.8	--	--	--	5.3
Row Spacing (in.)		24	40	32	32	28	36
Rows/Plot		2	1	1	1	1	1
Reps		2	2	2	2	2	3

I=Irrigated
* Not included in the mean

Ill.	Minn.	Iowa		Mo.	South Dakota		Neb.	
De-kalb	Wa-seca	Suther-land	Kana-wha	Col-umbia *	Rev-illo	Brook-ings	Con-cord	Calif. Davis I*
1970 YIELD (bu/a)								
48.1	39.0	35.2	39.6	27.5	36.6	27.4	27.4	38.0
53.2	45.8	32.8	41.8	29.5	44.6	27.8	24.4	33.3
48.4	37.5	32.1	35.5	26.3	33.4	24.0	31.2	35.0
52.6	35.0	31.7	37.1	31.8	38.6	26.7	28.8	36.1
53.6	28.9	30.7	37.3	28.6	41.6	27.8	29.0	34.0
59.2	42.0	30.6	39.2	37.5	42.1	31.0	27.4	41.1
49.0	37.5	29.5	38.7	33.0	40.4	23.9	25.7	28.2
46.2	36.7	24.8	33.0	23.5	30.5	27.1	22.4	25.2
57.8	38.8	31.5	37.6	28.2	36.6	21.7	25.0	38.2
47.7	35.7	29.0	38.4	25.9	37.0	19.6	30.6	36.7
47.0	36.6	28.3	39.6	27.3	36.2	22.6	29.8	37.3
51.8	38.7	30.8	35.8	35.2	40.4	26.4	31.6	31.6
52.5	37.1	30.2	35.8	31.6	38.4	24.7	38.2	27.7
48.7	39.8	34.1	39.6	24.9	41.2	27.1	40.4	28.5
52.9	36.2	34.1	42.5	25.4	37.2	29.8	25.4	29.6
52.3	37.4	36.6	38.0	31.8	36.3	26.2	27.3	34.7
48.5	33.8	28.2	35.6	35.0	36.3	18.4	23.0	32.4
56.6	38.9	31.8	39.8	33.9	33.0	23.7	22.1	33.3
54.8	40.4	30.4	39.1	31.7	34.3	22.5	24.8	22.2
55.6	44.0	33.0	38.3	34.2	33.7	21.5	33.2	27.7
57.9	41.9	34.0	37.5	34.6	37.6	25.3	29.6	28.2
54.1	40.7	31.4	40.1	30.7	33.4	23.2	27.3	31.9
53.9	43.4	30.2	39.9	33.3	41.8	23.3	26.8	26.1
54.1	44.9	31.4	38.6	33.5	38.6	20.0	28.8	29.2
51.3	42.3	31.6	39.8	27.1	35.0	28.6	22.8	24.3
53.7	46.8	32.6	39.4	29.0	41.7	27.3	24.4	36.0
48.8	41.9	33.2	38.0	26.7	41.0	32.3	25.4	42.3
40.8	42.5	31.3	36.5	26.1	29.4	29.6	22.4	32.1
54.6	41.4	34.3	45.5	25.1	40.7	31.9	31.3	32.6
50.8	42.5	31.0	40.2	36.0	40.7	26.5	42.0	34.8
49.5	41.9	32.4	40.5	27.1	44.2	26.3	27.0	36.1
53.3	35.0	30.8	42.6	35.5	43.0	26.5	31.5	37.8
54.4	43.2	32.8	46.1	28.9	34.4	27.2	24.2	32.7
52.9	41.0	35.5	43.9	31.6	40.5	27.4	25.6	32.0
50.2	39.0	30.2	40.8	30.2	39.2	28.5	23.8	32.9
50.5	41.6	31.3	35.3	33.0	41.3	24.1	29.2	27.1
50.4	39.2	34.4	40.0	26.5	43.6	27.1	27.0	30.0
54.5	29.3	32.5	40.9	29.7	37.4	23.8	28.4	30.1
4.6	10.7	5.6	6.0	13.5	8.2	12.3	11.4	--
4.7	8.4	3.6	4.8	n.s.	6.4	6.5	6.4	--
30	30	40	40	15	40	30	30	30
2	4	1	1	4	1	1	1	1
2	2	2	2	2	2	2	2	6

Strain	Mean	Ontario		Ohio			Wis.
		Ridge-town	Har-row	Hoyt-ville *	Woos-ter *	Col-umbus *	Mad-ison
	10 Tests	YIELD RANK					
Chippewa 64	34	38	33	30	36	22	12
Hark	5	27	9	8	35	20	4
A66-1240-2	27	16	17	36	30	16	5
A66-1319-1	18	12	16	7	1	7	10
A66-1319-2	28	34	20	22	10	17	6
A66-1441-2	2	9	13	2	20	33	1
A66-1457-3	25	3	24	34	38	35	24
A66-1504-10	38	37	35	37	6	29	32
A66-1936-9	25	21	24	29	8	3	9
AX214-3-1	35	35	14	24	33	1	14
AX214-3-3	33	20	10	27	16	27	27
AX224-49	15	5	24	17	27	2	28
AX224-88	18	14	28	24	12	11	29
AX229-24	9	33	19	23	19	24	36
AX265-5	32	30	37	14	9	30	32
AX270-26	29	31	30	32	30	25	24
H82-24032	37	36	34	20	4	32	22
L67D-805	31	19	23	18	15	13	19
L67D-939	21	10	3	38	10	10	17
L67D-942	12	7	32	9	17	21	15
L67D-944	8	13	24	30	21	19	13
L67D-1030	18	4	15	27	2	33	24
L67D-1036	24	18	36	12	6	8	22
L68-4241	7	8	5	5	25	12	3
L68-4242	29	25	29	26	24	23	20
M61-223	22	22	38	13	30	30	29
M61-224	22	29	18	16	34	36	38
M62-253	36	24	31	32	18	25	32
M62-263	1	10	6	1	22	6	17
M62-275	3	1	7	15	5	4	37
M62-281	12	32	22	18	22	5	11
M62-345	9	28	10	10	36	14	15
M63-7	6	15	2	11	12	15	8
M63-17	4	2	7	4	3	28	6
M63-39	17	17	4	20	28	38	29
M63-59	12	5	12	3	26	17	32
M63-83	15	26	21	35	28	37	20
M64-3	9	23	1	5	12	8	2

I=Irrigated
* Not included in the mean

Ill.	Minn.	Iowa		Mo.	South Dakota		Neb.	
De-kalb	Wa-seca	Suther-land	Kana-wha	Col-umbia *	Rev-illo	Brook-ings	Con-cord	Calif. Davis I*
				YIELD RANK				
34	21	3	16	26	25	10	17	4
16	2	11	6	21	1	8	30	15
33	26	16	36	32	34	26	8	11
19	34	18	31	13	18	17	14	8
14	38	28	30	24	8	8	13	14
1	10	29	20	1	5	3	17	2
29	26	34	22	11	15	27	24	30
37	30	38	38	38	37	14	36	36
3	24	20	28	25	25	34	28	3
35	33	35	24	34	24	37	9	7
36	31	36	16	27	29	32	10	6
22	25	26	33	4	15	20	5	24
20	29	31	33	16	20	24	3	32
31	19	6	16	37	10	14	2	29
17	32	6	5	35	23	4	26	27
21	28	1	26	13	27	22	19	13
32	36	37	35	5	27	38	34	20
4	23	17	14	8	36	29	38	15
6	18	30	21	15	32	33	29	38
5	4	10	25	7	33	35	4	32
2	11	8	29	6	21	23	11	30
10	17	21	11	18	34	31	19	23
12	5	31	13	10	6	30	23	35
10	3	21	23	9	18	36	14	28
23	9	19	14	28	30	6	35	37
13	1	13	19	22	7	12	30	10
30	11	9	26	30	11	1	26	1
38	7	23	32	33	38	5	36	21
7	15	5	2	36	12	2	7	19
24	7	25	10	2	12	18	1	12
28	11	15	9	28	2	21	21	8
15	34	26	4	3	4	18	6	5
9	6	11	1	23	31	13	32	18
17	16	2	3	16	14	10	25	22
27	21	31	8	19	17	7	33	17
25	14	23	37	11	9	25	12	34
26	20	4	12	31	3	14	21	26
8	37	14	7	20	22	28	16	25

Strain	Mean	Ontario		Ohio			Wis.
		Ridge-town	Har-row	Hoyt-ville	Woos-ter	Col-umbus	Mad-ison
				*	*	*	
	9 Tests	MATURITY (date)					
Chippewa 64	9-14	9-23	9-8	9-16	9-8	9-7	9-3
Hark	+ 5	+5	+ 4	+ 7	+ 1	+ 3	+ 4
A66-1240-2	0	+1	+ 4	- 2	0	+ 2	- 1
A66-1319-1	+ 9	+7	+12	+ 5	+ 2	+ 4	+ 8
A66-1319-2	+ 6	+5	+10	+ 8	+ 6	+ 2	+ 2
A66-1441-2	+ 8	+4	+ 7	+ 6	+ 2	- 1	+ 8
A66-1457-3	0	-1	0	+ 3	+ 1	- 2	0
A66-1504-10	+ 2	+2	+ 3	- 1	0	+ 1	0
A66-1936-9	+ 7	+5	+ 6	+ 5	0	- 2	+ 7
AX214-3-1	+ 6	+5	0	+ 5	0	+ 3	+ 4
AX214-3-3	+ 7	+6	+ 6	+ 4	0	+ 1	+ 4
AX224-49	+ 5	+4	+ 5	+ 7	+ 2	+ 7	+ 7
AX224-88	+ 5	+5	+ 4	+ 5	+ 1	+ 8	+ 5
AX229-24	+ 3	+4	+ 8	+ 4	+ 1	0	- 2
AX265-5	+ 2	+1	+ 2	+ 3	0	0	+ 3
AX270-26	+ 5	+1	+ 4	+ 6	+ 1	- 2	+ 4
H82-24032	+ 8	+8	+10	+ 6	+ 4	+ 9	+ 7
L67D-805	+10	+7	+10	- 2	+ 2	+11	+10
L67D-939	+11	+7	+13	+ 9	+ 5	+ 7	+11
L67D-942	+10	+8	+11	+ 6	+ 4	+ 1	+10
L67D-944	+11	+7	+10	+10	+10	+ 8	+11
L67D-1030	+11	+9	+12	+11	+10	+ 9	+11
L67D-1036	+10	+9	+10	+11	+ 7	+11	+ 7
L68-4241	+ 5	+4	+10	+ 8	+ 2	+ 6	+ 4
L68-4242	+ 2	+2	+ 6	0	+ 1	+ 3	+ 2
M61-223	+ 6	+7	+ 6	+ 9	+ 8	0	+ 5
M61-224	+ 1	+3	+ 1	0	0	0	- 1
M62-253	- 1	+4	- 2	+ 1	0	+ 5	- 2
M62-263	+ 5	+5	+ 6	+ 5	+ 4	+ 7	+ 4
M62-275	+ 1	0	+ 4	+ 3	0	0	- 2
M62-281	+ 3	+2	+ 6	+ 6	0	+ 2	+ 4
M62-345	+ 5	+5	+ 8	+ 9	+ 3	+ 3	+ 5
M63-7	+ 5	+6	+10	+ 6	0	+ 3	+ 5
M63-17	+ 2	0	+ 6	+ 2	+ 2	+ 1	+ 4
M63-39	+ 3	+5	+12	+ 5	+ 1	0	0
M63-59	+ 4	+3	+ 3	+ 3	+ 1	0	+ 2
M63-83	0	0	+ 1	+ 1	+ 1	+ 7	0
M64-3	+ 8	+3	+10	+ 6	+ 2	+ 4	+ 9
Merit (0)		-6	--	- 6	--	--	- 6
Corsoy (II)	+ 9	+8	+12	+ 5	0	+13	+10
Date Planted	5-23	5-22	5-28	6-10	5-20	5-19	5-19

I=Irrigated
* Not included in the mean

Ill.	Minn.	Iowa		Mo.	South Dakota		Neb.	
De-kalb	Wa-seca	Suther-land	Kana-wha	Col-umbia	Rev-illo	Brook-ings	Con-cord	Calif. Davis
		*		*				I*
				MATURITY (date)				
9-8	9-21		9-10	9-29	9-16	9-26	9-8	10-16
+ 3	+10		+ 4	+3	+4	+ 3	+ 7	
- 1	+ 1		- 1	-1	+1	- 1	0	
+17	+10		+ 6	+5	+5	+ 5	+10	
+15	+ 6		+ 3	+4	+4	+ 5	+ 6	
+17	+11		+ 4	+4	+6	+ 8	+ 6	
+ 3	+ 1		- 2	0	0	0	0	
+ 1	+ 7		- 2	0	+1	+ 2	+ 2	
+13	+12		+ 4	0	+6	+ 6	+ 7	
+15	+11		+ 4	+1	+4	+ 6	+ 4	
+15	+11		+ 7	-1	+5	+ 5	+ 3	
+13	+ 7		+ 2	+4	+4	+ 5	+ 2	
+13	+ 5		+ 3	+2	+4	+ 4	+ 3	
+ 3	+ 5		0	+2	+2	+ 4	+ 2	
+ 3	+ 4		+ 1	+1	0	+ 3	+ 2	
+11	+ 7		+ 4	+1	+3	+ 5	+ 5	
+12	+13		+ 8	+7	+3	+ 6	+ 4	
+11	+15		+12	+6	+5	+ 6	+11	
+17	+15		+ 8	+5	+8	+ 8	+10	
+14	+15		+ 8	+5	+6	+ 8	+11	
+17	+17		+11	+6	+6	+ 8	+10	
+16	+15		+10	+6	+7	+ 6	+12	
+17	+15		+10	+7	+6	+10	+10	
+10	+ 7		+ 2	+4	+3	+ 2	+ 4	
+ 1	+ 3		- 2	+2	+1	+ 3	+ 1	
+ 9	+ 9		+ 4	+1	+3	+ 2	+11	
+ 1	+ 1		- 4	+1	0	+ 2	+ 2	
- 1	0		- 3	--	-2	- 2	0	
+ 8	+ 8		+ 4	+4	+4	+ 3	+ 4	
+ 3	+ 1		- 2	+1	+1	+ 2	0	
+ 4	+ 3		0	+4	+2	+ 3	+ 2	
+10	+ 5		+ 6	+7	+3	+ 2	+ 2	
+ 8	+ 7		+ 4	+2	+1	+ 3	+ 4	
+ 4	+ 1		+ 3	+1	+1	+ 1	+ 2	
+ 4	+ 1		- 1	+2	0	+ 2	+ 1	
+ 6	+ 7		+ 4	+3	+5	+ 6	+ 2	
+ 3	- 1		- 1	+1	0	- 1	0	
+13	+ 9		+ 6	+3	+4	+ 3	+11	
- 5	- 8	--	--	--	-3	- 3	--	-6
+17	+ 9	--	+ 4	+5	+6	+ 6	+ 5	--
5-21	5-21	6-1	5-18	6-29	5-19	6-3	5-27	6-14

Strain	Parentage	Generation Composited	Previous Testing (years)
1. Amsoy 71(CX407BC7)	Amsoy[8] x C1253(Blackhawk x Harosoy)	4 F_3 lines	1
2. Beeson	C1253 x Kent	F_7	3
3. Corsoy	Harosoy x Capital	F_9	6
4. C1453	C1266R(Harosoy x Kent sib C1079) x C1253	F_7	2
5. C1470	C1266R x C1253	F_6	1

The three check varieties are all rather close in mean yield in the one, two, and three year summaries. Corsoy is slightly the lower of the three in long-term yield but tends to have better seed quality and shatter resistance. C1453 has been in the test three years and is early and PR resistant with good seed quality but showed no yield advantage over the checks. C1470 had improved lodging resistance and yield equal to Corsoy.

Descriptive and Shattering Data

Strain	Descriptive Code	Peroxidase	Fluor. Light	Shattering			Chlorosis			Hypocotyl Length mm	Leaf Drop Carb. Ill.
				Miss. Stoneville	Kansas Manhattan		Minnesota		Iowa		
				2 wk.	2 wk.	4 wk.	Crookston	Lamberton	Ames		
Amsoy 71	PGNTn SYY	H	L	1	2.5	4.3	2.5	1.2	2	104	5.0
Beeson	PGNBr SYIb	L	L	2	3.3	4.3	2.0	3.2	4	148	5.0
Corsoy	PGNBr DYY	H	E	3	2.1	3.3	2.5	3.5	5	217	3.0
C1453	PGNBr D+SYIb	H	L	3	4.3	5.0	3.0	3.5	1	154	3.7
C1470	PGNBr DYIb	L	L	3	4.3	5.0	3.0	2.0	4	192	4.0

UNIFORM TEST II, 1970

Regional Summary

Strain	Yield	Rank	Maturity	Lodging	Height	Seed Quality	Seed Weight	Seed Composition: Protein	Seed Composition: Oil
					1970				
No. of Tests	31	31	26	29	31	24	22	14	14
Amsoy 71	42.9	2	+3.7	2.3	41	2.5	17.7	39.6	22.5
Beeson	42.9	2	+4.7	2.2	38	2.5	19.7	40.3	21.9
Corsoy	43.1	1	9-18†	2.4	37	2.4	16.6	40.6	21.8
C1453	42.2	5	-1.8	1.9	37	2.2	15.5	41.0	22.2
C1470	42.8	4	+0.2	1.5	37	2.6	16.0	40.8	22.0

† 116 days after planting

					1969-70				
No. of Tests	60	60	49	56	60	49	46	30	30
Amsoy 71*	44.5	2	+3.1	2.5	43	2.3	17.3	39.7	22.5
Beeson	44.8	1	+3.2	2.2	40	2.3	19.4	40.5	22.0
Corsoy	43.4	4	9-20†	2.6	39	2.1	16.0	40.7	21.8
C1453	42.7	5	-2.6	2.1	39	2.0	15.2	41.5	22.2
C1470	43.6	3	-0.7	1.7	39	2.5	16.2	41.2	22.0

† 117 days after planting

					1968-70				
No. of Tests	93	93	81	82	93	73	69	45	45
Amsoy 71*	44.4	1	+3.1	2.5	42	2.4	17.2	39.3	22.4
Beeson	44.3	2	+2.8	2.1	39	2.3	18.9	40.1	21.7
Corsoy	43.7	3	9-20†	2.6	39	2.1	15.9	40.2	21.8
C1453	42.6	4	-2.0	2.1	38	2.0	15.2	41.2	22.1

† 117 days after planting
* C1477 in 1968, mean of 4 sublines in 1969

Disease Data

Strain	BB: Ames Iowa n	BB: Ames Iowa a	BP: Ames Iowa n	BP: Ames Iowa a	BS: Laf. Ind. n	BSR: Laf. Ind. n	BSR: Urb. Ill. n	BSR: Kanawha Iowa n 1	BSR: Kanawha Iowa n 2	DM: Worth. Ind. n	FE_2: Laf. Ind. a	PM: Har. Ont. a	PR: Laf. Ind. a	PR: Ames Iowa a	Pyd: Ames Iowa a	PS: Carb. Ill. n
Amsoy 71	3	2.5	0	2.5	3	57	3	70	7	2	5	S	R	R	1.6	4.5
Beeson	3	2.5	+	1.5	3	59	3	70	8	3	1	R	R	R	3.5	5.0
Corsoy	3	3.0	0	3.5	3	58	3	20	5	4	5	S	S	S	1.6	2.5
C1453	2	3.0	+	2.5	4	34	3	75	8	5	1	S	R	R	3.2	3.0
C1470	2	3.0	+	2.0	3	50	3	100	13	5	1	S	R	R	3.5	3.5

[1] Percent of plants with browning
[2] Mean height of browning in diseased stems

Strain	Mean	N.J. Frank-lin Park	Md. Clarks-ville	Ontario Ridge-town	Ontario Har-row	Ohio Hoyt-ville	Ohio Woos-ter	Ohio Col-umbus	Mich. Dun-dee	Indiana Knox	Indiana Bluff-ton	Indiana Lafay-ette
		*	*			*	*	*				
	31 Tests			1970 YIELD (bu/a)								
Amsoy 71	42.9	17.7	58.0	57.2	38.2	30.7	33.2	56.1		48.9	57.8	52.6
Beeson	42.9	18.3	47.1	54.3	39.7	29.3	33.9	62.2		53.3	51.4	45.4
Corsoy	43.1	15.2	49.6	66.1	43.4	31.4	23.7	52.3		50.3	61.1	53.4
C1453	42.2	15.4	45.7	61.4	40.0	31.2	29.4	56.9		48.0	57.9	47.4
C1470	42.8	16.2	53.6	52.2	44.5	33.9	34.4	59.5		50.7	54.4	47.5
C.V.(%)	7.9	13.8	11.0	6.3	5.8	--	--	--		7.4	8.0	7.3
L.S.D.(5%)	1.7	5.3	10.4	5.7	3.5	--	--	--		n.s.	n.s.	n.s.
Row Sp.(in.)		36	30	24	40	32	32	28		38	30	38
Rows/Plot		1	3	4	1	1	1	1		3	3	3
Reps		4	3	4	4	4	4	4		3	3	3
				RANK								
Amsoy 71	2	2	1	3	5	4	3	4		4	3	2
Beeson	2	1	4	4	4	5	2	1		1	5	5
Corsoy	1	5	3	1	2	2	5	5		3	1	1
C1453	5	4	5	2	3	3	4	3		5	2	4
C1470	4	3	2	5	1	1	1	2		2	4	3
	36 Tests	69-70a		1968-70 MEAN YIELD					68-69			
Amsoy 71	43.0	29.4		60.1	39.0	30.7	38.5	43.0	42.5	47.8	48.5	53.9
Beeson	42.8	30.8		55.9	38.3	29.6	39.6	46.5	47.2	50.1	47.9	49.3
Corsoy	42.1	23.8		60.6	37.9	29.7	33.3	39.9	45.9	47.0	46.5	51.4
C1453	41.1	26.6		59.9	37.7	27.3	34.5	45.8	45.6	44.6	47.4	47.8
				RANK								
Amsoy 71	1	2		2	1	1	2	3	4	2	1	1
Beeson	2	1		4	2	3	1	1	1	1	2	3
Corsoy	3	4		1	3	2	4	4	2	3	4	2
C1453	4	3		3	4	4	3	2	3	4	3	4
			*			*	*	*				
	26 Tests			1970 MATURITY (date)								
Amsoy 71	+3.7		0	-3	0	+ 4	+ 9	- 1		+ 1	- 1	+ 4
Beeson	+4.7		+ 1	0	+ 2	+ 5	+10	- 1		- 1	+ 1	+ 4
Corsoy†	9-18		9-15	10-4	9-22	9-21	9-8	9-20		10-3	9-18	9-14
C1453	-1.8		- 4	-6	- 5	+ 1	+ 1	- 6		-10	- 4	- 4
C1470	+0.2		- 5	-7	- 4	+ 2	+ 4	- 9		- 9	- 2	- 1
Hark (I)		--	--	-8	-10	+ 1	+ 1	- 5		- 7	--	- 5
Wayne (III)		--	+12	--	--	+13	+16	+13		--	+11	+11
Date Planted	5-26	6-19	5-22	5-22	5-28	6-10	5-20	5-19		6-12	5-19	5-21
†Days to mat.	116	--	116	135	117	103	111	124		113	122	116

I=Irrigated
* Not included in the mean
a=Vail in 1969

Indiana		Wis.	Illinois			
Green-field	Worth-ington	Mad-ison	De-kalb	Pon-tiac	Ur-bana	Gi-rard
1970 YIELD (bu/a)						
40.4	53.4	33.7	62.8	33.0	51.5	52.5
46.2	51.2	38.7	60.6	42.1	54.1	49.1
38.8	52.2	34.5	63.6	32.8	51.1	47.3
34.1	49.4	35.9	56.2	30.9	52.5	48.5
40.5	52.9	37.2	58.9	38.0	52.7	50.5
10.4	5.2	4.7	3.3	13.8	5.8	4.8
n.s.	n.s.	2.5	3.8	9.2	5.7	3.7
38	38	36	30	38	30	30
3	3	1	4	4	4	3
3	3	4	3	3	3	4
RANK						
3	1	5	2	3	4	1
1	4	1	3	1	1	3
4	3	4	1	4	5	5
5	5	3	5	5	3	4
2	2	2	4	2	2	2
1968-69 MEAN YIELD						
42.1	51.9	41.5	53.5	37.0	51.8	50.3
44.8	53.9	46.3	52.8	39.1	50.1	45.8
35.7	48.9	43.9	56.7	38.1	53.5	51.1
38.4	44.5	42.7	51.3	34.9	51.6	49.4
RANK						
2	2	4	2	3	2	2
1	1	1	3	1	4	4
4	3	2	1	2	1	1
3	4	3	4	4	3	3
1970 MATURITY (date)						
+ 6	+1	+5	+ 5	+3	+ 4	+ 4
+ 6	+1	+8	+ 5	+8	+ 9	+ 3
9-14	9-13	9-13	9-25	9-22	9-7	9-7
0	-5	0	- 7	0	+ 2	0
+ 3	-3	+4	- 5	+2	+ 4	0
--	--	- 2	-10	0	- 1	- 1
+17	+5	--	+10	+9	+15	+15
5-27	5-25	5-19	5-21	6-13	5-20	5-21
110	111	117	127	101	110	109

Missouri		South Dakota		Nebraska		Kansas
-Col-umbia	Mt. Vernon	Brook-ings	Center-ville	Con-cord	Mead I	Pow-hattan
YIELD (bu/a)						
30.1		21.4	35.2	27.1	43.4	38.2
28.8		21.2	37.0	26.1	40.8	36.9
26.2		23.6	40.4	29.3	40.2	26.9
27.0		22.4	38.7	26.9	39.4	33.8
33.9		25.0	38.1	29.4	40.0	32.3
14.8		9.0	10.5	5.0	9.4	5.6
n.s.		n.s.	n.s.	n.s.	7.2	2.9
15		30	30	30	30	30
4		1	1	4	4	3
4		4	4	3	3	4
RANK						
2		4	5	3	1	1
3		5	4	5	2	2
5		3	1	2	3	5
4		2	2	4	5	3
1		1	3	1	4	4
) MEAN YIELD						
68-69			68,70		68,70	69,70
37.6		31.8	35.8	42.1	51.9	42.7
38.2		31.1	34.9	41.0	49.0	41.9
31.9		35.2	41.6	41.5	49.7	32.1
31.2		33.6	36.9	40.7	48.2	36.6
RANK						
2		3	3	1	1	1
1		4	4	3	3	2
3		1	1	2	2	4
4		2	2	4	4	3
TURITY (date)						
+3		+4	0	+6	+4	+ 8
+2		+6	+1	+8	+4	+ 8
10-3		10-2	9-27	9-12	9-24	9-10
0		0	-1	+1	0	+ 4
0		+1	+1	+8	+4	+ 8
-2		-2	-1	+3	-1	- 2
+6		--	+5	--	+8	+20
6-29		6-3	5-21	5-27	5-27	5-18
96		121	129	108	120	115

Strain	Mean	N.J. Franklin Park *	Md. Clarksville *	Ontario Ridge-town	Ontario Harrow	Ontario Ho vi	Illinois Edgewood	Illinois Trenton	Illinois Eldorado	Illinois Carbondale	Minnesota Lamberton	Minnesota Waseca
	31 Tests			1970 YIELD (			1970 YIELD (bu/a)					
Amsoy 71	42.9	17.7	58.0	57.2	38.2	3(	52.0	47.5	49.0	29.9	41.4	45.1
Beeson	42.9	18.3	47.1	54.3	39.7	2(	54.2	43.5	54.1	28.7	40.4	44.6
Corsoy	43.1	15.2	49.6	66.1	43.4	3]	44.3	44.5	50.9	26.2	51.2	47.1
C1453	42.2	15.4	45.7	61.4	40.0	3]	46.9	44.4	52.4	31.4	45.3	44.5
C1470	42.8	16.2	53.6	52.2	44.5	3(	45.8	44.0	53.7	28.1	38.2	47.3
C.V.(%)	7.9	13.8	11.0	6.3	5.8	-	9.1	8.7	6.0	10.8	8.3	6.6
L.S.D.(5%)	1.7	5.3	10.4	5.7	3.5	-	8.3	7.3	5.9	5.9	6.3	5.2
Row Sp.(in.)		36	30	24	40	(	38	36	36	30	30	30
Rows/Plot		1	3	4	1		4	4	4	4	4	4
Reps		4	3	4	4		3	3	3	3	2	3
				RANK			RANK					
Amsoy 71	2	2	1	3	5	4	2	1	5	2	3	3
Beeson	2	1	4	4	4	5	1	5	1	3	4	4
Corsoy	1	5	3	1	2	2	5	2	4	5	1	2
C1453	5	4	5	2	3	(	3	3	3	1	2	5
C1470	4	3	2	5	1	1	4	4	2	4	5	1
	36 Tests	69-70a		1968-70 MEAN			1968-70 MEAN YIELD					
Amsoy 71	43.0	29.4		60.1	39.0	3(	46.5	47.6	50.9	37.4	40.8	42.8
Beeson	42.8	30.8		55.9	38.3	2(	46.5	44.8	51.7	35.0	39.0	44.5
Corsoy	42.1	23.8		60.6	37.9	2(	40.3	48.5	49.1	35.4	45.0	43.8
C1453	41.1	26.6		59.9	37.7	2(	42.9	44.1	49.6	37.1	41.3	41.8
				RANK			RANK					
Amsoy 71	1	2		2	1	1	1	2	2	1	3	3
Beeson	2	1		4	2	(	1	3	1	4	4	1
Corsoy	3	4		1	3	2	4	1	4	3	1	2
C1453	4	3		3	4	4	3	4	3	2	2	4
	26 Tests		*	1970 MATURITY			1970 MATURITY (date)					
Amsoy 71	+3.7		0	-3	0	+	+3	+2	+3	+19	+8	+3
Beeson	+4.7		+ 1	0	+ 2	+	+5	+1	+4	+16	+8	+4
Corsoy†	9-18		9-15	10-4	9-22	9-	9-9	9-8	9-5	9-4	9-24	10-3
C1453	-1.8		- 4	-6	- 5	+	0	-3	0	+ 3	-1	-3
C1470	+0.2		- 5	-7	- 4	+	0	0	+1	+ 4	-3	0
Hark (I)		--	--	-8	-10	+	-1	-3	0	--	0	-3
Wayne (III)		--	+12	--	--	+1	+9	+6	+5	+13	--	+8
Date Planted	5-26	6-19	5-22	5-22	5-28	6-	5-27	5-24	5-21	5-27	5-16	5-21
†Days to mat.	116	--	116	135	117	1	105	107	107	100	131	135

I=Irrigated
* Not included in the mean
a=Vail in 1969

Indiana		Wis.	Illinois			
Green-field	Worth-ington	Mad-ison	De-kalb	Pon-tiac	Ur-bana	Gi-rard
1970 YIELD (bu/a)						
40.4	53.4	33.7	62.8	33.0	51.5	52.5
46.2	51.2	38.7	60.6	42.1	54.1	49.1
38.8	52.2	34.5	63.6	32.8	51.1	47.3
34.1	49.4	35.9	56.2	30.9	52.5	48.5
40.5	52.9	37.2	58.9	38.0	52.7	50.5
10.4	5.2	4.7	3.3	13.8	5.8	4.8
n.s.	n.s.	2.5	3.8	9.2	5.7	3.7
38	38	36	30	38	30	30
3	3	1	4	4	4	3
3	3	4	3	3	3	4
RANK						
3	1	5	2	3	4	1
1	4	1	3	1	1	3
4	3	4	1	4	5	5
5	5	3	5	5	3	4
2	2	2	4	2	2	2
1968-69 MEAN YIELD						
42.1	51.9	41.5	53.5	37.0	51.8	50.3
44.8	53.9	46.3	52.8	39.1	50.1	45.8
35.7	48.9	43.9	56.7	38.1	53.5	51.1
38.4	44.5	42.7	51.3	34.9	51.6	49.4
RANK						
2	2	4	2	3	2	2
1	1	1	3	1	4	4
4	3	2	1	2	1	1
3	4	3	4	4	3	3
1970 MATURITY (date)						
+ 6	+1	+5	+ 5	+3	+ 4	+ 4
+ 6	+1	+8	+ 5	+8	+ 9	+ 3
9-14	9-13	9-13	9-25	9-22	9-7	9-7
0	-5	0	- 7	0	+ 2	0
+ 3	-3	+4	- 5	+2	+ 4	0
--	--	- 2	-10	0	- 1	- 1
+17	+5	--	+10	+9	+15	+15
5-27	5-25	5-19	5-21	6-13	5-20	5-21
110	111	117	127	101	110	109

Missouri		South Dakota		Nebraska		Kansas
-Col-umbia	Mt. Vernon	Brook-ings	Center-ville	Con-cord	Mead I	Pow-hattan
YIELD (bu/a)						
30.1		21.4	35.2	27.1	43.4	38.2
28.8		21.2	37.0	26.1	40.8	36.9
26.2		23.6	40.4	29.3	40.2	26.9
27.0		22.4	38.7	26.9	39.4	33.8
33.9		25.0	38.1	29.4	40.0	32.3
14.8		9.0	10.5	5.0	9.4	5.6
n.s.		n.s.	n.s.	n.s.	7.2	2.9
15		30	30	30	30	30
4		1	1	4	4	3
4		4	4	3	3	4
RANK						
2		4	5	3	1	1
3		5	4	5	2	2
5		3	1	2	3	5
4		2	2	4	5	3
1		1	3	1	4	4
) MEAN YIELD						
	68-69		68,70		68,70	69,70
	37.6	31.8	35.8	42.1	51.9	42.7
	38.2	31.1	34.9	41.0	49.0	41.9
	31.9	35.2	41.6	41.5	49.7	32.1
	31.2	33.6	36.9	40.7	48.2	36.6
RANK						
	2	3	3	1	1	1
	1	4	4	3	3	2
	3	1	1	2	2	4
	4	2	2	4	4	3
TURITY (date)						
+3		+4	0	+6	+4	+ 8
+2		+6	+1	+8	+4	+ 8
10-3		10-2	9-27	9-12	9-24	9-10
0		0	-1	+1	0	+ 4
0		+1	+1	+8	+4	+ 8
-2		-2	-1	+3	-1	- 2
+6		--	+5	--	+8	+20
6-29		6-3	5-21	5-27	5-27	5-18
96		121	129	108	120	115

Strain	Mean	N.J. Franklin Park	Md. Clarksville	Ontario Ridgetown	Ontario Harrow	Ohio Hoytville	Ohio Wooster	Ohio Columbus	Indiana Knox	Indiana Bluffton	Indiana Lafayette
		*	*			*	*	*			
	29 Tests			LODGING (score)							
Amsoy 71	2.3	1	3	2.0	2.8	1.2	1.5	3.5	3.0	2.7	1.5
Beeson	2.2	1	2	2.5	2.5	1.0	2.0	4.0	2.0	2.8	2.3
Corsoy	2.4	1	2	3.5	2.2	1.5	1.0	3.7	2.8	2.8	2.5
C1453	1.9	1	1	2.5	1.5	1.0	1.0	3.0	2.0	2.3	2.3
C1470	1.5	1	1	1.5	1.2	1.0	1.0	2.0	1.3	1.8	1.5
		*	*			*	*	*			
	31 Tests			HEIGHT (inches)							
Amsoy 71	41	22	42	52	43	38	37	41	43	47	46
Beeson	38	21	36	47	41	37	34	40	36	42	43
Corsoy	37	20	39	52	39	37	31	38	40	43	39
C1453	37	19	38	49	38	37	33	35	37	43	43
C1470	37	19	40	46	40	37	33	36	37	41	41
		*	*			*	*	*			
	24 Tests			SEED QUALITY (score)							
Amsoy 71	2.5	3.8	2.8	2	3.0	1.0	2.0	3.7	2.0	1.5	2.0
Beeson	2.5	3.8	3.2	2	3.2	1.0	2.7	2.5	2.0	1.0	1.5
Corsoy	2.4	2.2	2.5	3	3.0	1.0	1.7	2.5	1.5	1.5	2.0
C1453	2.2	2.5	2.5	3	3.2	1.0	1.7	2.8	1.5	1.0	2.0
C1470	2.6	2.5	3.2	3	3.0	1.5	2.0	3.0	1.5	1.5	2.0
		*	*			*	*	*			
	22 Tests			SEED WEIGHT (cg)							
Amsoy 71	17.7	14.8	17.8	19.6	17.7	14.6	17.2	15.6	20.0	17.2	19.3
Beeson	19.7	19.2	17.9	22.5	19.0	16.7	18.9	16.7	22.8	19.6	19.4
Corsoy	16.6	15.2	15.8	18.8	16.4	13.6	17.4	14.3	18.0	18.9	18.3
C1453	15.5	15.0	14.8	16.7	15.3	14.5	16.9	12.8	16.8	16.4	16.9
C1470	16.0	14.8	16.4	19.9	16.8	14.2	15.5	12.8	17.9	17.0	17.3
		*						*			
	14 Tests			PROTEIN (%)							
Amsoy 71	39.6	42.0		41.7				41.0	41.3		39.4
Beeson	40.3	46.6		42.6				41.8	41.6		41.3
Corsoy	40.6	44.6		42.1				42.2	43.0		40.5
C1453	41.0	45.0		42.5				42.0	42.4		41.6
C1470	40.8	43.3		42.7				42.0	40.6		42.4
	14 Tests			OIL (%)							
Amsoy 71	22.5	22.3		21.0				20.8	21.5		22.5
Beeson	21.9	20.6		20.4				21.0	20.5		21.8
Corsoy	21.8	20.3		20.9				20.4	20.7		22.0
C1453	22.2	21.3		21.5				21.5	21.6		22.0
C1470	22.0	21.6		20.5				20.7	21.0		21.6

I=Irrigated
* Not included in the mean

Indiana		Wis.	Illinois			
Green-field	Worth-ington	Mad-ison	De-kalb	Pon-tiac	Ur-bana	Gi-rard
LODGING (score)						
2.3	3.3	1.5	3.3	2.7	1.2	2.0
2.8	3.2	2.1	3.0	1.8	1.4	2.1
3.2	3.8	1.4	3.0	2.2	1.5	2.5
2.0	2.5	1.0	2.5	1.7	1.3	1.4
1.7	1.7	1.1	2.3	1.3	1.1	1.2
HEIGHT (inches)						
43	43	32	41	38	42	43
42	40	32	40	38	40	41
38	41	31	39	34	35	34
36	40	31	36	36	38	37
39	39	30	36	37	38	38
SEED QUALITY (score)						
2.0	3.0	3	2.3	2.8	1.9	2.6
1.5	2.5	3	1.8	2.3	2.9	2.6
1.5	3.0	2	1.8	2.2	2.2	2.7
1.5	2.0	1	2.3	2.2	2.1	2.2
2.0	3.5	2	1.5	2.8	2.7	2.5
SEED WEIGHT (cg)						
19.7	20.2		16.4	16.8	16.4	17.7
20.8	21.1		17.6	20.6	18.5	18.1
17.6	19.0		15.4	14.9	15.6	17.7
15.7	16.0		13.4	14.0	14.7	15.4
18.6	18.6		14.5	17.6	15.5	16.3
PROTEIN (%)						
	38.5	38.0		38.4	42.0	
	38.1	39.0		38.3	41.7	
	38.9	38.5		38.5	43.8	
	39.8	38.7		38.2	42.7	
	39.8	38.9		39.0	42.1	
OIL (%)						
	23.2	23.5		23.2	22.0	
	22.3	22.4		22.9	21.2	
	21.8	22.8		22.8	21.1	
	23.0	22.9		22.8	22.2	
	22.3	22.3		22.5	22.0	

Missouri		South Dakota		Nebraska		Kansas
ick-i	Col-umbia	Brook-ings	Center-ville	Con-cord	Mead I	Pow-hattan
ING (score)						
.1	3.8			1	1.8	1
.6	3.5			1	1.7	1
.0	4.3			1	1.7	1
.6	3.6			1	1.5	1
.9	2.8			1	1.5	1
HT (inches)						
9	38	44	41	32	36	21
5	34	40	39	31	36	21
5	33	41	35	29	36	16
5	34	42	36	29	36	17
5	33	42	37	31	36	18
ALITY (score)						
.0	1.2		3	1.4	2.7	2.7
.5	1.3		3	1.3	2.4	2.7
.0	1.2		2.5	1.3	3.1	2.5
.0	1.2		3	1.7	1.6	2.6
.5	1.3		2.5	1.6	3.0	3.3
WEIGHT (cg)						
				12.0	17.8	18.1
				14.8	21.6	21.5
				12.2	18.7	15.5
				12.3	17.8	16.2
				13.1	18.4	17.7
TEIN (%)						
	39.0		38.6		38.8	
	41.1		39.0		40.5	
	39.4		40.3		41.1	
	41.2		40.4		41.4	
	40.4		39.1		41.5	
IL (%)						
	22.1		24.3		22.9	
	20.8		23.4		22.5	
	20.8		22.9		22.4	
	21.3		23.4		22.4	
	21.1		23.8		22.9	

Strain	Mean	N.J. Franklin Park	Md. Clarksville	Ontario Ridgetown	Ontario Harrow
		*	*		
29 Tests				LODGING (s	
Amsoy 71	2.3	1	3	2.0	2.8
Beeson	2.2	1	2	2.5	2.5
Corsoy	2.4	1	2	3.5	2.2
C1453	1.9	1	1	2.5	1.5
C1470	1.5	1	1	1.5	1.2
		*	*		
31 Tests				HEIGHT (in	
Amsoy 71	41	22	42	52	43
Beeson	38	21	36	47	41
Corsoy	37	20	39	52	39
C1453	37	19	38	49	38
C1470	37	19	40	46	40
		*	*		
24 Tests				SEED QUALITY (	
Amsoy 71	2.5	3.8	2.8	2	3.0
Beeson	2.5	3.8	3.2	2	3.2
Corsoy	2.4	2.2	2.5	3	3.0
C1453	2.2	2.5	2.5	3	3.2
C1470	2.6	2.5	3.2	3	3.0
		*	*		
22 Tests				SEED WEIGHT	
Amsoy 71	17.7	14.8	17.8	19.6	17.7
Beeson	19.7	19.2	17.9	22.5	19.0
Corsoy	16.6	15.2	15.8	18.8	16.4
C1453	15.5	15.0	14.8	16.7	15.3
C1470	16.0	14.8	16.4	19.9	16.8
		*			
14 Tests				PROTEIN (	
Amsoy 71	39.6	42.0		41.7	
Beeson	40.3	46.6		42.6	
Corsoy	40.6	44.6		42.1	
C1453	41.0	45.0		42.5	
C1470	40.8	43.3		42.7	
14 Tests				OIL (%)	
Amsoy 71	22.5	22.3		21.0	
Beeson	21.9	20.6		20.4	
Corsoy	21.8	20.3		20.9	
C1453	22.2	21.3		21.5	
C1470	22.0	21.6		20.5	

I=Irrigated
* Not included in the mean

Illinois Edgewood	Illinois Trenton	Illinois Eldorado	Illinois Carbondale	Minnesota Lamberton	Minnesota Waseca
		LODGING (score)			
1.8	1.1	3.2	1	4.7	3.7
1.6	1.2	2.6	1	4.7	3.7
1.8	1.1	4.0	1	4.0	3.3
1.3	1.0	2.7	1	3.7	3.7
1.0	1.1	1.5	1	2.7	2.3
		HEIGHT (inches)			
39	36	49	30	43	46
36	32	38	28	39	42
29	31	37	27	46	45
33	32	40	28	43	44
31	30	38	25	42	43
		SEED QUALITY (score)			
2.8	1.8	3.1	5	2.3	1.3
2.7	2.7	3.1	5	2.7	2.3
2.1	2.2	2.7	5	2.0	1.7
1.7	1.6	2.7	5	2.7	2.0
3.0	3.2	3.3	5	2.7	2.0
		SEED WEIGHT (cg)			
16.9	16.7	17.0	20.8	16.8	18.2
18.9	18.5	20.0	24.1	18.1	20.4
14.8	15.7	16.1	17.4	14.9	16.8
14.7	14.8	16.1	17.6	15.3	15.9
15.4	16.5	17.0	20.1	15.4	17.1
		PROTEIN (%)			
		39.2		40.3	
		41.1		40.6	
		41.2		41.3	
		41.9		41.6	
		40.6		41.3	
		OIL (%)			
		23.1		21.5	
		22.4		21.9	
		22.9		20.9	
		22.7		22.0	
		22.6		22.0	

Iowa						Missouri		South Dakota		Nebraska		Kansas
Suther-land	Kan-awha	Wav-erly	Sloan	Clar-ence	Ames	Spick-ard	Col-umbia	Brook-ings	Center-ville	Con-cord	Mead I	Pow-hattan
LODGING (score)												
1.8	1.6	1.6	1.3	2.6	1.8	3.1	3.8			1	1.8	1
2.0	1.9	1.4	1.6	2.6	1.7	2.6	3.5			1	1.7	1
1.7	1.7	1.5	1.7	3.9	2.3	3.0	4.3			1	1.7	1
1.6	1.6	1.4	1.5	2.8	1.4	2.6	3.6			1	1.5	1
1.6	1.6	1.5	1.3	2.0	1.3	1.9	2.8			1	1.5	1
HEIGHT (inches)												
42	47	42	45	46	38	29	38	44	41	32	36	21
44	46	40	44	43	38	25	34	40	39	31	36	21
40	43	40	44	41	35	25	33	41	35	29	36	16
42	44	42	42	41	35	25	34	42	36	29	36	17
42	44	42	41	42	38	25	33	42	37	31	36	18
SEED QUALITY (score)												
						4.0	1.2		3	1.4	2.7	2.7
						3.5	1.3		3	1.3	2.4	2.7
						4.0	1.2		2.5	1.3	3.1	2.5
						4.0	1.2		3	1.7	1.6	2.6
						4.5	1.3		2.5	1.6	3.0	3.3
SEED WEIGHT (cg)												
	16.3				17.4					12.0	17.8	18.1
	17.8				18.0					14.8	21.6	21.5
	15.7				16.3					12.2	18.7	15.5
	14.0				14.3					12.3	17.8	16.2
	14.9				15.2					13.1	18.4	17.7
PROTEIN (%)												
	39.3				39.9		39.0		38.6		38.8	
	40.7				38.7		41.1		39.0		40.5	
	39.8				40.6		39.4		40.3		41.1	
	41.6				39.3		41.2		40.4		41.4	
	42.3				41.0		40.4		39.1		41.5	
OIL (%)												
	21.7				22.0		22.1		24.3		22.9	
	21.5				22.6		20.8		23.4		22.5	
	21.5				21.6		20.8		22.9		22.4	
	21.5				22.0		21.3		23.4		22.4	
	21.0				22.0		21.1		23.8		22.9	

Strain	Parentage	Generation Composited
1. Beeson		
2. Corsoy		
3. A66-1158-1	Provar x F_1(Harosoy 63 x FC 31.122)	F_5
4. A66-1158-2	Provar x F_1(Harosoy 63 x FC 31.122)	F_5
5. A66-1441-9	Provar x F_1(Harosoy 63 x PI 248.406, Osijecka)	F_5
6. A66-1746-5	AX56P64-1(Amsoy) x FC 31.122	F_6
7. A66-1746-8	AX56P64-1 x FC 31.122	F_6
8. A66-1746-9	AX56P64-1 x FC 31.122	F_6
9. A66-1855-2	Provar x F_1(AX56P64-1 x PI 257.435)	F_5
10. A66-1906-1	Provar x F_1(AX50F58-2 x FC 31.122)	F_5
11. A66-1936-2	Provar x F_1(AX50F58-2 x PI 84.666-1)	F_5
12. AX209-31-3	(D49-2491[4] x Hawkeye)-19-9-1 x F_4(Hawkeye x PI 68.708)	F_4
13. AX211-1-3	(D49-2491[4] x Hawkeye)-19-9-1 x F_4(Ford x PI 68.708)	F_4
14. AX214-13-3	(D49-2491[4] x Hawkeye)-19-7-5 x F_4(Ford x PI 68.708)	F_4
15. AX224-23	Harosoy 63 x PI 248.404(Novosadska Bela)	F_4
16. AX232-33	AX56P64-1(Amsoy) x FC31.122	F_4
17. AX309-1	Provar x F_1(Hawkeye 63 x PI 248.404)	F_3
18. H105-9311	H20833-7(Monroe x Lincoln) x Harosoy	F_5
19. H131-10902	Harosoy 63 x Wayne	F_5
20. L67-234	Harosoy[6] x Higan	F_3
21. L67-248	Harosoy[6] x Higan	F_3
22. L67D-334	Chippewa 64 x Corsoy	F_3
23. L67D-423	Chippewa 64 x Corsoy	F_3
24. L67D-612	Chippewa 64 x Corsoy	F_3
25. L67D-950	Hark x Disoy	F_3
26. L67D-1013	Hark x Disoy	F_3
27. L67D-1220	Hark x Disoy	F_3
28. L67D-1249	Hark x Disoy	F_3
29. L67D-1803	Provar x Disoy	F_3
30. L67D-1812	Provar x Disoy	F_3
31. L67U-312	Chippewa 64 x Corsoy	F_3
32. L67U-326	Chippewa 64 x Corsoy	F_3
33. L67U-440	Chippewa 64 x Corsoy	F_3
34. L67U-1111	Hark x Disoy	F_3
35. L67U-1446	Provar x Magna	F_3
36. L67U-1546	Provar x Magna	F_3
37. L67U-1643	Provar x Magna	F_3
38. L67U-1806	Provar x Disoy	F_3
39. L67U-1842	Provar x Disoy	F_3
40. L68-0017	Harosoy[2] x PI 84.946-2(BSR resistant)	F_{11}
41. L68-0107	Harosoy[4] x PI 84.946-2	F_9
42. L68-0429	Clark[5] x PI 84.946-2	F_7
43. M63-36	M402(Renville x Capital) x M406(Harosoy x Norchief)	F_5
44. OX-383	Corsoy x Harosoy 63	F_6

Despite the very large number of entries, one check, Corsoy, was highest in mean yield and the other, Beeson, ranked only 6. A majority of the 15 A strains were rather high in protein content, in the 42 to 45% range, but none came up to the check varieties in mean yield. It would be of interest to test the better-performing ones, such as A66-1746-8 and -9 and A66-1906-1, against the high protein varieties, Protana and Provar, to see if they are an improvement. Some of these may be PR-resistant, but the two sources of data were in disagreement on this point.

All of the strains ranking 10 or better in mean yield were among the 18 L67D and U strains. However, six of them were heterogeneous in pubescence, pod, or hilum color and all eight appeared to be segregating for maturity in the test at Urbana. Several appeared to segregate some plants later than group II, which created problems of border effects and harvesting.

L67-234 and 248 are Harosoy isolines with a gene for short internode transferred from Higan. They show improved lodging resistance and in bordered-plot tests in Illinois have yielded well, but they did very poorly in this test, perhaps partly due to border effects and their short height. The three lines, L68-0017, 0107, and 0429, selected for BSR resistance have shown good partial resistance in tests in Illinois, Indiana, and Iowa, but showed no resistance in the data on page 68 Their high yield at an occasional location may be due to this resistance but no data on incidence of BSR infection were available.

The four H, M, and O strains were all well below the checks in mean yield. H131-10902 was the best of these in yield but may be too late for group II since it was close to Wayne in maturity at most locations except Columbus, Ohio.

Regional Summary

Strain	Yield	Rank	Maturity	Lodging	Height	Seed Quality	Seed Weight	Seed Composition	
								Protein	Oil
No. of Tests	11	11	11	9	11	8	8	7	7
Beeson	43.8	6	+3.5	1.8	39	2.1	20.6	40.4	21.4
Corsoy	45.2	1	9-23	2.0	38	2.1	16.7	40.1	21.8
A66-1158-1	40.3	26	+0.1	1.6	38	1.8	20.8	43.2	20.4
A66-1158-2	39.4	34	-0.5	1.7	40	2.1	20.2	43.4	20.6
A66-1441-9	39.2	35	-0.4	1.7	34	1.9	21.4	43.0	21.8
A66-1746-5	39.7	32	-0.3	1.3	35	2.2	22.1	43.1	21.4
A66-1746-8	42.6	12	+2.0	1.8	39	2.4	24.2	43.3	21.6
A66-1746-9	42.7	11	+2.0	1.7	40	2.1	23.4	43.7	21.1
A66-1855-2	39.7	32	+0.7	1.8	38	2.1	20.5	42.3	21.6
A66-1906-1	42.0	16	+1.4	1.6	36	2.0	23.5	44.8	20.0
A66-1936-2	38.3	39	+1.0	2.0	39	1.7	21.9	44.9	20.5
AX209-31-3	37.2	40	+4.2	2.6	31	2.1	15.8	41.2	21.5
AX211-1-3	40.0	28	+0.3	1.6	33	1.5	17.1	41.1	23.1
AX214-13-3	40.9	19	0.0	2.2	37	2.2	15.9	42.2	21.4
AX224-23	39.8	31	+1.0	2.4	40	2.0	20.1	42.3	20.8
AX232-33	40.6	23	+2.4	1.9	41	2.4	18.9	42.8	21.0
AX309-1	38.6	38	+2.5	1.9	35	2.0	22.3	42.8	20.8
H105-9311	39.1	36	+3.7	1.7	43	1.7	17.9	40.9	22.3
H131-10902	41.0	18	+5.9	2.5	44	2.0	15.6	41.9	20.8
L67-234	35.5	44	-2.8	1.3	31	1.8	19.4	41.4	21.8
L67-248	36.9	41	-3.3	1.2	28	1.7	19.7	41.3	21.4
L67D-334	42.4	13	+4.9	2.1	42	1.8	15.1	40.5	21.4
L67D-423	44.1	5	+4.1	2.6	43	2.0	15.4	41.1	20.8
L67D-612	44.2	4	+6.7	2.5	42	1.9	15.3	39.5	22.4
L67D-950	42.4	13	+3.5	1.9	39	2.3	23.7	41.2	21.6
L67D-1013	39.9	30	+3.1	2.1	41	2.2	24.0	42.9	20.6
L67D-1220	43.5	8	+3.9	1.9	41	2.4	23.1	41.7	22.1
L67D-1249	40.8	20	+1.7	2.6	38	2.2	22.1	42.4	21.7
L67D-1803	41.5	17	+2.3	1.9	38	2.1	26.2	42.7	20.9
L67D-1812	40.4	25	+1.8	1.8	37	2.2	24.1	41.1	21.5
L67U-312	43.8	6	+6.1	2.4	40	2.0	16.4	40.2	21.3
L67U-326	44.5	3	+4.3	2.3	42	1.9	15.8	41.4	21.0
L67U-440	44.8	2	+5.5	2.3	42	2.1	14.6	39.6	22.0
L67U-1111	43.0	10	+5.7	3.0	43	2.3	24.3	42.5	21.2
L67U-1446	40.0	28	+2.8	1.7	37	2.5	24.7	41.7	21.1
L67U-1546	43.4	9	+7.5	2.2	41	2.0	25.1	42.2	20.7
L67U-1643	40.5	24	+5.4	2.0	37	2.1	25.5	42.3	20.7
L67U-1806	40.7	22	+4.8	2.0	40	2.1	23.1	41.4	20.8
L67U-1842	40.3	26	+5.7	1.7	37	2.4	25.4	42.5	20.8
L68-0017	36.4	43	-0.2	2.3	40	2.0	22.1	43.3	21.2
L68-0107	36.5	42	+0.1	2.0	38	1.9	18.9	42.2	21.3
L68-0429	42.2	15	+2.2	1.8	35	2.0	19.4	41.4	22.1
M63-36	40.8	20	-0.1	1.7	36	2.0	20.5	41.2	22.1
OX-383	38.9	37	-1.0	2.0	39	2.1	16.4	41.3	21.0

Disease Data

Strain	BB	BP	BS	BSR		DM	FE_2	PR	
	Ames Iowa n	Ames Iowa n	Laf. Ind. n	Laf. Ind. n [1]	Urb. Ill. n	Worth. Ind. n	Laf. Ind. a	Laf. Ind. a	Ames Iowa a
Beeson	3	+	3	59	3	3	1	R	R
Corsoy	3	+	3	58	3	4	5	S	S
A66-1158-1	4	+	4	77	3	4	4	S	S
A66-1158-2	4	+	5	27	3	3	4	R	S
A66-1441-9	3	0	4	52	3	2	4	S	S
A66-1746-5	3	+	3	19	3	2	4	S	H
A66-1746-8	5	+	5	31	3	2	3	S	H
A66-1746-9	4	+	3	36	3	4	4	S	R
A66-1855-2	3	0	4	46	3	5	3	S	R
A66-1906-1	4	0	3	23	3	5	4	S	S
A66-1936-2	5	+	4	17	3	5	3	S	S
AX209-31-3	3	0	5	30	3	2	5	S	S
AX211-1-3	4	0	5	20	3	5	4	S	S
AX214-13-3	3	0	4	24	3	4	4	S	S
AX224-23	4	0	2	17	3	3	5	R	H
AX232-33	4	+	2	34	3	3	3	S	H
AX309-1	3	0	3	52	3	3	3	R	R
H105-9311	2	+	4	50	3	5	4	R	S
H131-10902	2	0	4	24	3	5	4	S	S
L67-234	3	+	3	78	3	3	4	S	S
L67-248	3	0	5	17	3	3	5	S	S
L67D-334	3	+	5	36	3	5	4	S	H
L67D-423	2	+	4	38	3	4	5	H	H
L67D-612	3	+	5	29	3	4	5	R	R
L67D-950	2	+	4	13	3	5	3	S	S
L67D-1013	3	+	3	19	3	5	4	S	S
L67D-1220	2	+	4	27	3	4	3	S	S
L67D-1249	2	+	5	31	3	4	5	S	S
L67D-1803	3	+	4	83	4	4	4	S	H
L67D-1812	4	0	5	59	4	5	3	S	S
L67U-312	2	0	5	46	3	4	5	H	H
L67U-326	2	+	4	25	3	4	5	H	H
L67U-440	3	+	4	39	3	5	5	S	S
L67U-1111	2	0	2	19	3	5	4	S	R
L67U-1446	4	0	3	25	3	5	4	S	S
L67U-1546	3	0	3	48	3	5	3	S	S
L67U-1643	4	0	4	20	3	4	5	S	S
L67U-1806	3	0	4	26	3	4	4	S	S
L67U-1842	3	+	3	30	3	4	5	S	S
L68-0017	2	+	3	29	3	2	4	S	R
L68-0107	3	+	5	23	3	3	5	S	S
L68-0429	3	+	4	33	4	4	5	S	S
M63-36	2	+	5	44	4	4	5	S	S
OX-383	2	0	4	18	4	2	5	R	R

[1] Percent of plants with browning

Descriptive and Shattering Data

Strain	Descriptive Code	Shattering					Chlorosis
		Illinois Urbana		Miss. Stoneville	Kansas Manhattan		Iowa Ames
		1 mo.	7 wk.	2 wk.	2 wk.	4 wk.	
Beeson	PGNBr SYIb	1.5	1.5	2	2.5	4.3	2
Corsoy	PGNBr DYY	1.5	2.0	3	2.5	4.3	4
A66-1158-1	PTNBr DYBr	1.0	2.0	3	3.8	4.8	2
A66-1158-2	PTNBr DYBr	1.0	2.0	2	3.8	4.3	2
A66-1441-9	PTNBr DYBr	1.5	1.5	3	3.8	4.8	3
A66-1746-5	PGNBr SYY	1.5	1.5	2	3.8	4.3	3
A66-1746-8	PGNBr SYY	2.0	2.0	2	3.8	4.3	2
A66-1746-9	PGNBr SYY	2.0	2.0	3	2.5	3.8	2
A66-1855-2	PGNBr SYDbf	2.0	2.0	3	4.3	4.3	3
A66-1906-1	PGNBr DYBf	1.0	1.0	3	4.3	4.3	2
A66-1936-2	PTNBr DYBr	1.0	1.5	4	3.3	3.8	1
AX209-31-3*	PGNTn IYIb	2.5	2.5	4	2.5	3.8	2
AX211-1-3	PTSaBr SYBl	1.0	1.0	3	3.3	3.3	2
AX214-13-3*	PTNBr SYBr	1.0	1.0	3	2.1	3.3	2
AX224-23	PGNBr DYY	2.0	2.5	3	4.3	4.3	1
AX232-33	PGNBr IYY	2.0	2.0	3	4.3	4.3	1
AX309-1	PGNBr DYIb	2.0	2.0	2	3.8	3.8	1
H105-9311	PGNBr SYIb	3.0	3.0	2	4.3	5.0	2
H131-10902	PGNBr IYBf	2.0	2.0	2	2.5	4.3	5
L67-234	PGNBr DYY	1.0	2.0	3	5.0	5.0	2
L67-248	PGNBr DYY	1.0	2.0	2	4.3	4.8	2
L67D-334	PTNBr DYBl+Br+G+Y	1.0	1.0	2	1.0	2.5	3
L67D-423	PG+TNTn+Br SYG+Y	1.0	1.5	3	1.0	3.8	5
L67D-612	PGNBr S+DYBf+Ib	1.5	2.0	2	3.3	3.3	3
L67D-950	PGNTn DYY	2.0	2.5	3	3.8	5.0	5
L67D-1013	PGNTn DYY	2.0	2.5	3	3.3	5.0	1
L67D-1220	PGNTn DYY	3.0	3.0	3	4.3	5.0	2
L67D-1249	PGNTn DYY	1.5	2.0	3	3.8	4.3	2
L67D-1803	PG+TNBr DYBr+Bf+Y	1.0	1.5	2	1.0	3.8	2
L67D-1812	PTNBr DYY+Br	1.0	1.0	2	2.5	2.5	2
L67U-312	PGNBr DYY+G+Ib+Bf	1.0	1.0	2	1.0	1.0	5
L67U-326	PG+TNBr SYBr+Bf+Y	1.0	1.0	2	1.0	1.0	3
L67U-440	PG+TNBr DYY	1.5	1.5	2	1.0	1.0	3
L67U-1111	PGNTn DYY	1.5	1.5	3	2.5	3.3	5
L67U-1446	PG+TNBr DYY	2.0	2.0	2	4.3	4.8	2
L67U-1546	PGNTn+Br DYBf	1.5	1.5	2	2.5	3.3	5
L67U-1643	PG+TNBr DYBr+Y+Bf	1.0	1.0	1	1.0	1.0	3
L67U-1806	PG+TNBr DYBr+Bf	1.0	1.0	1	2.5	4.3	3
L67U-1842	PGNBr DYBf	1.0	1.0	1	3.8	4.3	2
L68-0017	PGNBr SYY	2.0	2.0	3	4.3	5.0	4
L68-0107	PGNBr SYY	2.0	2.0	3	4.8	5.0	2
L68-0429	PTNBr DYBr	1.0	1.0	2	2.5	2.5	2
M63-36	WGNBr DYY	1.5	1.5	2	3.3	3.3	2
OX-383	PGNBr IYY	2.0	2.0	3	3.8	4.3	4

* Moderately determinate stem

Strain	Mean	Ontario		Ohio			Indiana	
		Ridge-town	Har-row *	Hoyt-ville *	Woos-ter *	Col-umbus *	Knox	Lafay-ette
	11 Tests	1970 YIELD (bu/a)						
Beeson	43.8	48.6	36.8	33.0	33.2	42.4	65.3	59.6
Corsoy	45.2	61.7	33.3	31.0	24.2	28.0	53.6	54.2
A66-1158-1	40.3	53.5	40.3	27.5	29.3	31.7	48.2	52.9
A66-1158-2	39.4	55.4	38.3	31.4	27.9	30.8	51.2	51.4
A66-1441-9	39.2	47.0	40.3	28.5	29.1	31.6	41.1	50.3
A66-1746-5	39.7	60.0	33.3	28.5	27.2	20.9	50.7	52.3
A66-1746-8	42.6	64.4	32.7	31.4	29.8	27.7	54.5	60.8
A66-1746-9	42.7	56.1	37.9	29.9	29.1	33.1	59.6	61.3
A66-1855-2	39.7	45.0	29.8	28.0	25.6	34.0	50.2	59.7
A66-1906-1	42.0	56.0	34.4	28.6	22.4	32.8	46.7	55.3
A66-1936-2	38.3	45.2	29.3	28.4	23.2	34.2	51.7	56.0
AX209-31-3	37.2	36.8	32.1	22.6	18.6	28.3	42.6	46.6
AX211-1-3	40.0	59.6	32.5	28.1	22.2	24.7	47.4	57.1
AX214-13-3	40.9	47.9	32.7	30.8	23.0	31.4	47.7	64.8
AX224-23	39.8	57.5	31.8	30.1	27.6	30.6	43.4	55.9
AX232-33	40.6	56.1	34.5	31.0	31.6	28.8	42.3	57.1
AX309-1	38.6	54.4	26.2	29.5	22.8	31.7	41.5	45.3
H105-9311	39.1	46.9	38.0	29.2	28.2	38.3	47.5	64.1
H131-10902	41.0	51.1	31.4	30.4	31.7	32.6	45.5	59.0
L67-234	35.5	46.6	32.2	24.0	25.1	27.7	33.6	46.7
L67-248	36.9	43.0	26.8	25.1	22.7	27.3	37.7	46.2
L67D-334	42.4	56.6	26.4	31.0	25.9	39.4	44.4	61.8
L67D-423	44.1	55.1	35.9	31.2	22.6	34.2	52.6	62.9
L67D-612	44.2	59.7	34.1	33.2	29.9	38.7	59.9	57.6
L67D-950	42.4	56.6	35.2	28.9	28.4	35.0	48.4	60.6
L67D-1013	39.9	52.7	33.3	28.4	32.8	35.5	51.6	58.1
L67D-1220	43.5	58.8	40.7	33.3	27.1	37.3	59.2	59.1
L67D-1249	40.8	59.5	27.8	27.6	31.9	36.2	43.7	57.4
L67D-1803	41.5	47.3	32.9	32.2	21.4	33.0	56.2	56.3
L67D-1812	40.4	52.2	36.2	31.6	26.0	33.3	43.2	51.9
L67U-312	43.8	53.5	34.4	30.0	25.8	41.5	48.3	62.9
L67U-326	44.5	60.3	32.1	31.5	31.1	36.6	57.8	59.4
L67U-440	44.8	59.9	37.1	33.0	28.7	31.5	54.0	66.9
L67U-1111	43.0	55.4	38.5	27.2	26.6	30.4	59.5	57.8
L67U-1446	40.0	50.5	41.0	25.6	29.1	35.1	55.0	54.1
L67U-1546	43.4	55.7	30.4	17.0	25.3	35.8	55.3	55.4
L67U-1643	40.5	48.7	34.7	30.7	24.4	35.2	48.1	54.6
L67U-1806	40.7	46.8	35.2	30.9	25.8	31.1	45.8	51.3
L67U-1842	40.3	50.9	38.9	29.5	28.7	26.5	43.8	55.2
L68-0017	36.4	47.6	22.8	26.0	34.5	34.1	42.4	50.7
L68-0107	36.5	53.4	46.7	27.7	33.7	44.8	37.7	55.6
L68-0429	42.2	56.9	31.8	27.3	23.6	43.3	42.6	64.9
M63-36	40.8	59.4	37.2	27.1	27.2	40.7	44.2	57.9
OX-383	38.9	63.8	32.0	29.2	23.3	26.2	35.5	47.8
Coef. of Var. (%)	9.5	9.5	25.3	--	--	--	11.9	7.8
L.S.D. (5%)	3.3	10.3	--	--	--	--	11.6	8.9
Row Spacing (in.)		24	40	32	32	28	38	38
Rows/Plot - Reps.		2-2	1-2	1-2	1-2	1-2	1-2	1-2

Wis.	Illinois		Iowa		Mo.	South Dakota		Nebraska	
Madison *	Pontiac	Urbana	Kanawha	Ames	Columbia *	Brookings	Centerville	Concord	Mead I
					1970 YIELD (bu/a)				
35.9	38.7	56.3	39.0	46.7	32.2	20.1	33.8	32.0	41.2
32.2	32.4	57.3	43.0	44.2	26.3	28.1	36.5	37.4	48.4
33.2	33.9	52.4	37.7	34.8	22.3	23.5	38.4	33.4	34.0
32.6	26.6	53.2	35.3	38.6	26.8	21.4	30.6	31.4	38.2
34.0	37.2	50.2	38.2	38.4	30.6	25.4	34.2	30.9	38.2
32.1	36.1	50.1	36.1	37.8	27.4	21.5	30.6	27.1	33.8
32.8	36.0	52.3	37.8	42.9	33.1	21.9	31.0	32.2	34.8
30.5	36.1	54.7	35.6	42.2	27.4	23.3	31.3	31.0	38.8
33.8	31.0	52.0	36.7	41.3	27.2	20.9	31.4	32.8	35.5
35.7	35.8	50.8	39.7	43.0	23.9	22.7	30.8	36.6	44.2
30.1	35.6	50.3	32.2	37.3	25.0	20.5	29.6	28.0	34.6
30.3	30.1	51.8	39.8	45.7	17.7	22.8	29.5	27.9	35.4
31.1	32.2	47.7	37.9	35.3	28.5	23.3	30.8	30.7	37.8
30.3	38.8	57.8	38.6	45.5	25.1	14.7	26.4	30.6	36.7
33.9	31.5	48.3	35.4	43.4	31.6	22.7	32.4	30.0	37.1
36.2	33.8	50.9	37.2	39.9	28.6	22.6	32.8	34.8	39.2
32.4	30.3	49.9	37.6	40.1	31.1	23.5	30.7	31.8	39.8
33.2	39.2	49.1	30.3	38.9	28.5	17.8	30.8	29.6	36.1
--	41.7	52.2	33.3	47.4	29.3	19.6	26.7	31.9	42.2
31.8	31.4	45.8	36.9	33.1	28.6	19.3	32.0	28.3	37.2
31.3	31.5	46.5	38.6	32.3	25.0	25.0	36.7	27.5	41.2
37.4	43.0	53.2	39.8	46.2	24.0	17.3	31.0	32.2	40.9
33.9	39.2	58.3	40.8	41.4	24.5	24.5	32.7	36.4	40.6
36.1	37.3	56.5	43.8	40.1	27.3	22.0	35.9	31.6	41.7
32.6	38.9	54.5	37.8	44.9	25.7	20.6	30.9	34.5	38.1
32.9	37.0	47.6	32.8	39.1	31.4	18.5	29.1	32.6	39.2
30.9	42.7	50.8	38.3	46.2	29.3	22.6	32.5	29.8	38.6
30.6	36.6	49.6	38.0	36.8	29.0	24.6	27.3	31.2	43.8
35.6	36.3	56.8	38.5	43.1	20.6	19.5	33.7	30.6	38.4
35.5	37.2	51.6	38.8	42.3	26.6	19.1	30.5	33.4	44.1
36.7	35.6	59.8	40.1	49.4	21.2	19.1	37.1	34.0	41.4
36.5	42.2	55.4	39.4	43.4	23.9	26.9	27.2	36.0	41.7
36.1	35.4	59.7	40.4	51.3	27.6	21.4	31.0	31.4	41.4
34.1	43.1	52.2	35.4	46.2	28.0	17.1	25.3	33.6	47.2
35.0	32.4	52.2	38.6	41.4	32.5	21.9	29.6	31.0	33.7
33.8	42.4	59.1	34.2	47.6	29.6	18.4	32.3	32.4	45.0
29.6	31.4	56.3	36.5	45.2	18.0	22.6	31.9	32.5	38.0
31.0	36.9	55.6	39.7	44.2	27.4	21.7	35.7	33.7	36.4
31.7	34.9	52.7	34.4	45.8	22.7	19.4	32.0	35.9	37.9
30.3	32.7	47.9	33.2	38.4	27.6	21.0	24.5	28.7	33.6
31.0	34.4	45.2	34.7	38.6	29.8	21.0	16.6	25.5	39.2
35.1	40.2	55.6	39.5	41.8	33.6	23.0	29.5	32.6	37.2
29.1	36.8	50.6	40.6	41.9	29.0	22.8	28.0	29.6	36.4
31.2	27.7	49.9	40.7	37.5	29.1	21.5	29.2	34.6	39.2
6.8	11.0	5.6	4.7	6.9	18.2	14.9	12.6	10.0	11.0
n.s.	8.0	5.9	3.0	4.9	n.s.	6.5	7.8	n.s.	8.7
36	38	40	40	40	15	30	30	30	30
1-2	1-2	1-2	1-2	1-2	4-2	1-2	1-2	1-2	1-2

Strain	Mean	Ontario		Ohio			Indiana	
		Ridge-town	Har-row *	Hoyt-ville *	Woos-ter *	Col-umbus *	Knox	Lafay-ette
	11 Tests			YIELD RANK				
Beeson	6	33	13	3	3	3	1	12
Corsoy	1	3	23	11	33	37	12	31
A66-1158-1	26	24	4	35	11	26	21	33
A66-1158-2	34	20	8	8	19	32	16	36
A66-1441-9	35	37	4	27	12	28	40	39
A66-1746-5	32	5	23	27	21	44	17	34
A66-1746-8	12	1	27	8	10	38	10	9
A66-1746-9	11	16	10	20	12	22	3	8
A66-1855-2	32	42	38	32	29	20	18	11
A66-1906-1	16	18	20	26	41	24	26	28
A66-1936-2	39	41	39	29	36	17	14	24
AX209-31-3	40	44	31	43	44	36	35	42
AX211-1-3	28	8	29	31	42	43	25	21
AX214-13-3	19	34	27	15	37	30	23	3
AX224-23	31	12	34	18	20	33	33	25
AX232-33	23	16	19	11	7	35	38	21
AX309-1	38	23	43	21	38	26	39	44
H105-9311	36	38	9	23	18	8	24	4
H131-10902	18	29	36	17	6	25	28	15
L67-234	44	40	30	42	31	38	44	41
L67-248	41	43	41	41	39	40	41	43
L67D-334	13	14	42	11	26	6	29	7
L67D-423	5	22	15	10	40	17	13	5
L67D-612	4	7	22	2	9	7	2	19
L67D-950	13	14	16	25	17	16	19	10
L67D-1013	30	27	23	29	4	13	15	16
L67D-1220	8	11	3	1	23	9	5	14
L67D-1249	20	9	40	34	5	11	32	20
L67D-1803	17	36	26	5	43	23	7	23
L67D-1812	25	28	14	6	25	21	34	35
L67U-312	6	24	20	19	27	4	20	5
L67U-326	3	4	31	7	8	10	6	13
L67U-440	2	6	12	3	15	29	11	1
L67U-1111	10	20	7	37	24	34	4	18
L67U-1446	28	31	2	40	12	15	9	32
L67U-1546	9	19	37	44	30	12	8	27
L67U-1643	24	32	18	16	32	14	22	30
L67U-1806	22	39	16	14	27	31	27	37
L67U-1842	26	30	6	21	15	41	31	29
L68-0017	43	35	44	39	1	19	37	38
L68-0107	42	26	1	33	2	1	41	26
L68-0429	15	13	34	36	34	2	35	2
M63-36	20	10	11	38	21	5	30	17
OX-383	37	2	33	23	35	42	43	40

I = Irrigated
* Not included in the mean

Wis.	Illinois		Iowa		Mo.	South Dakota		Nebraska	
Mad-ison *	Pon-tiac	Ur-bana	Kan-awha	Ames	Col-umbia *	Brook-ings	Center-ville	Con-cord	Mead I
					YIELD RANK				
7	12	9	14	5	4	32	8	21	12
26	33	6	2	14	30	1	4	1	1
19	30	19	26	42	40	7	1	12	41
23	44	16	36	33	28	25	28	25	24
14	14	32	21	35	8	3	7	30	24
27	21	33	32	37	23	23	28	43	42
22	23	20	24	20	2	20	20	19	39
37	21	14	33	22	23	9	19	28	21
17	40	24	30	27	27	29	18	14	37
8	24	28	10	19	37	14	24	2	4
41	25	31	43	39	33	31	31	40	40
38	42	25	8	10	44	12	33	41	38
32	35	40	23	41	18	9	24	31	29
38	11	5	16	11	32	44	41	32	33
15	36	38	34	16	5	14	13	34	32
4	31	27	28	30	16	16	10	6	17
25	41	34	27	28	7	7	27	23	16
19	8	37	44	32	18	41	24	36	36
--	6	21	40	4	11	33	40	22	7
28	38	43	29	43	16	36	15	39	30
30	36	42	16	44	33	4	3	42	12
1	2	16	8	6	36	42	20	19	14
15	8	4	3	25	35	6	11	3	15
5	13	8	1	28	26	19	5	24	8
23	10	15	24	13	31	30	23	8	26
21	16	41	42	31	6	39	36	15	17
35	3	28	20	6	11	16	12	35	22
36	19	36	22	40	14	5	38	27	6
9	20	7	19	18	42	34	9	32	23
10	14	26	15	21	29	37	30	12	5
2	25	1	7	2	41	37	2	9	10
3	5	13	13	16	37	2	39	4	8
5	27	2	6	1	21	25	20	25	10
13	1	21	34	6	20	43	42	11	2
12	33	21	16	25	3	20	31	28	43
17	4	3	39	3	10	40	14	18	3
42	38	9	31	12	43	16	17	17	27
33	17	11	10	14	23	22	6	10	34
29	28	18	38	9	39	35	15	5	28
38	32	39	41	35	21	27	43	38	44
33	29	44	37	33	9	27	44	44	17
11	7	11	12	24	1	11	33	15	30
43	18	30	5	23	14	12	37	36	34
31	43	34	4	38	13	23	35	7	17

Strain	Mean	Ontario		Ohio			Indiana	
		Ridge-town	Har-row	Hoyt-ville	Woos-ter	Col-umbus	Knox	Lafay-ette
			*	*	*	*		
	11 Tests	MATURITY (date)						
Beeson	+3.5	+2	+2	0	+ 8	+ 4	-2	+ 2
Corsoy	9-23	10-4	9-20	9-26	9-9	9-11	10-4	9-16
A66-1158-1	+0.1	0	+4	+2	+ 4	0	+2	+ 3
A66-1158-2	-0.5	-2	-2	+1	+ 8	+ 3	+1	+ 3
A66-1441-9	-0.4	-2	+1	0	+ 2	0	0	+ 2
A66-1746-5	-0.3	-2	0	+1	+ 3	- 1	0	+ 2
A66-1746-8	+2.0	+1	+1	+2	+11	+ 3	+2	+ 3
A66-1746-9	+2.0	+1	+2	+1	+11	+ 3	0	+ 4
A66-1855-2	+0.7	-3	-2	-2	+ 6	- 1	0	+ 2
A66-1906-1	+1.4	-2	0	-1	+ 6	- 2	0	+ 3
A66-1936-2	+1.0	+2	-2	+1	+ 2	- 1	0	+ 3
AX209-31-3	+4.2	+3	+4	+6	+ 2	- 5	+2	+ 4
AX211-1-3	+0.3	-2	-4	-1	+ 1	- 5	-1	+ 2
AX214-13-3	0.0	+1	+5	-1	+ 2	- 4	+1	+ 4
AX224-23	+1.0	-2	0	0	+ 4	0	+1	+ 2
AX232-33	+2.4	-1	+5	-1	+10	+ 2	-1	+ 4
AX309-1	+2.5	0	+2	+2	+ 6	0	+2	+ 3
H105-9311	+3.7	-1	+4	+4	+11	+ 2	0	+ 4
H131-10902	+5.9	+4	+8	+6	+14	+ 7	+2	+ 6
L67-234	-2.8	-3	-2	-3	- 1	- 5	-8	0
L67-248	-3.3	-4	-4	-4	- 1	- 5	-5	+ 1
L67D-334	+4.9	+1	0	+7	+14	+ 6	0	+ 6
L67D-423	+4.1	+3	+4	+2	+10	+ 4	0	+ 6
L67D-612	+6.7	+3	+3	+3	+10	+ 4	+1	+ 3
L67D-950	+3.5	0	+3	+4	+11	+ 3	-2	+ 6
L67D-1013	+3.1	+2	+4	+6	+20	+ 8	+3	+ 6
L67D-1220	+3.9	+4	+3	+6	+11	+ 3	+2	+ 5
L67D-1249	+1.7	-1	+4	+6	+10	+ 3	+1	+ 4
L67D-1803	+2.3	-2	-1	+2	+10	+ 3	+1	+ 6
L67D-1812	+1.8	-1	-2	0	+ 9	+ 3	-1	+ 4
L67U-312	+6.1	+3	+4	+5	+10	+12	+2	+ 7
L67U-326	+4.3	+2	+6	+3	+12	+10	+2	+ 7
L67U-440	+5.5	+4	+7	+4	+12	+ 8	+1	+10
L67U-1111	+5.7	+4	+8	+3	+13	+ 9	+2	+12
L67U-1446	+2.8	-1	+1	+3	+12	+ 5	0	+ 5
L67U-1546	+7.5	+3	+7	+4	+16	+13	+3	+11
L67U-1643	+5.4	-1	+7	-4	+13	+ 8	-1	+ 7
L67U-1806	+4.8	-1	+2	+2	+10	+ 8	-1	+ 5
L67U-1842	+5.7	0	+7	+3	+13	+10	-1	+ 6
L68-0017	-0.2	0	-2	-1	+ 5	+ 5	-4	+ 1
L68-0107	+0.1	-1	+2	-1	+ 9	+ 1	-5	0
L68-0429	+2.2	-2	-4	+1	+ 3	+ 2	-1	+ 3
M63-36	-0.1	-1	-2	+3	+ 9	+ 4	-5	+ 1
OX-383	-1.0	-1	-2	-1	0	+ 3	-8	+ 2
Hark (I)		-8	-8	-4	0	+ 4	--	- 7
Wayne(III)		--	--	+8	+15	+22	--	+12
Date Planted	5-27	5-22	5-28	6-10	5-20	5-19	6-12	5-21

I=Irrigated, * Not included in the mean

Wis.	Illinois		Iowa		Mo.	South Dakota		Nebraska	
Mad-ison *	Pon-tiac	Ur-bana	Kan-awha	Ames	Col-umbia *	Brook-ings	Center-ville	Con-cord	Mead I
					MATURITY (date)				
+10	+6	+10	+1	+2	+3	+8	+4	+ 6	0
9-13	9-25	9-11	9-17	9-16	10-4	10-2	9-27	9-16	9-29
0	0	0	-3	-2	0	+4	+1	+ 5	- 9
- 3	0	0	-3	-2	-2	+1	+1	+ 4	- 8
- 3	0	- 1	-3	-1	+1	+4	0	+ 4	- 7
- 2	+2	- 2	-3	-2	+1	+3	-1	+ 4	- 4
0	+5	+ 3	-1	+2	+1	+6	+1	+ 5	- 5
+ 1	+5	+ 2	-1	+2	+2	+2	+2	+ 5	0
+ 3	+1	0	-1	0	-1	+3	0	+ 6	0
+ 2	+3	0	-2	0	-3	+5	+2	+ 6	0
+ 2	+1	0	+1	-1	0	+3	+1	+ 4	- 3
+ 9	+6	+ 9	+3	+2	-5	+6	+4	+ 6	+ 1
- 3	+1	+ 1	-1	-4	-3	+4	-1	+ 4	0
+ 1	+3	+ 5	+1	+2	-3	+2	+1	+ 6	+ 1
- 1	+1	0	-2	0	0	+4	+3	+ 4	0
+ 5	+5	+ 4	+1	+2	+3	+4	+2	+ 6	0
+11	+3	0	+3	+2	+4	+5	+2	+ 6	+ 1
+13	+6	+ 6	+5	+2	+2	+8	+4	+ 7	0
--	+6	+11	+6	+6	+2	+8	+6	+ 9	+ 1
- 3	+1	- 2	-7	-6	0	+2	+1	0	- 9
- 3	0	- 3	-6	-8	-2	0	-1	+ 1	-11
+ 9	+5	+10	+6	+6	+3	+6	+4	+ 8	+ 2
+12	+4	+10	+4	+4	+2	+6	+2	+ 6	0
+11	+5	+ 8	+5	+4	+1	+2	+2	+ 5	0
+ 9	+5	+ 8	+3	+1	+3	+6	+4	+ 8	0
+ 5	+5	+ 1	+2	+1	+2	+4	+2	+ 5	+ 3
+ 6	+6	+ 9	-2	0	+2	+6	+5	+ 7	+ 1
+ 7	+5	0	0	-2	+2	+3	+2	+ 5	+ 2
+ 6	+3	+ 2	+2	+1	+2	+5	+2	+ 5	0
+ 4	+1	+ 1	+2	0	+2	+4	+4	+ 6	0
+13	+6	+12	+6	+6	+4	+6	+7	+ 8	+ 4
+13	+3	+ 9	+3	+4	+5	+6	+3	+ 7	+ 1
+14	+6	+15	+5	+6	+3	+6	+2	+ 5	+ 1
+12	+6	+ 8	+5	+3	+4	+6	+4	+ 9	+ 4
+ 6	+5	+ 4	+1	+2	+3	+6	+3	+ 6	0
+16	+7	+14	+7	+8	+4	+8	+6	+13	+ 3
+10	+3	+15	+6	+5	+2	+5	+6	+12	+ 2
+11	+1	+11	+6	+4	+3	+6	+8	+10	+ 4
+16	+3	+11	+6	+6	0	+10	+5	+13	+ 4
+ 1	+3	0	-1	-1	+3	+3	0	0	- 3
- 1	+3	+ 1	-3	-2	+1	+3	+2	+ 3	0
+ 6	+5	+ 3	+2	+1	+2	+5	+2	+ 6	0
+ 5	+3	- 1	-1	0	+3	+2	+2	+ 2	- 3
+ 1	+1	- 1	-3	-2	-1	0	+1	0	0
- 2	-3	- 5	--	--	--	-2	-1	- 1	- 6
--	+6	+11	--	--	--	--	+5	--	+ 3
5-19	6-13	5-20	5-18	5-20	6-29	6-3	5-21	5-27	5-27

Strain	Parentage	Generation Composited	Previous Testing (years)
1. Calland	C1253(Blackhawk x Harosoy) x Kent	F_7	3
2. Wayne	L49-4091 x Clark	F_5	9
3. SL9	Wayne[10] x Kanrich	4 F_3 lines	0
4. L66L-108	Wayne x L57-0034(Clark x Adams)	F_6	1
5. L66L-137	Wayne x L57-0034	F_6	P.T. III
6. L66L-140	Wayne x L57-0034	F_6	1
7. L66L-154	Wayne x L57-0034	F_6	1
8. L66L-172	Wayne x L57-0034	F_6	P.T. III

Calland showed a distinct advantage in mean yield over Wayne this year and this may be partly due to its PR-resistance. The three strains in the two-year summary are from the same cross, were fairly similar in performance to each other, and are being increased for possible release. L66L-108 appears to have a slight advantage over the other two. It yielded somewhat higher than the checks and averaged better in lodging resistance, seed quality, oil content, and shattering resistance.

The two new entries are also from this same cross. L66L-137 had the highest mean yield but did not quite equal L66L-108 in lodging and seed quality. L66L-172 was similar in yield but the earliest maturing of these lines. All five appear to represent improvement in shattering and lodging resistance, oil content, and seed quality.

SL9 is a Wayne backcross with a gene for DM resistance from Kanrich. Most of the backcrossing was done at Missouri by Leonard Williams and the final crossing and selection was done at Illinois. It appears to be equal to Wayne although at a few locations it lodged more heavily and even showed a bushel advantage in mean yield which may be related to its DM-resistance.

Descriptive and Shattering Data

Strain	Descriptive Code	Per-oxi-dase	Fluor. Light	Shattering Miss. Stoneville 2 wk.	Shattering Kansas Manhattan 2 wk.	Shattering Kansas Manhattan 4 wk.	Chlorosis Minnesota Crook-ston	Chlorosis Iowa Lamb-erton	Chlorosis Iowa Ames	Hypo-cotyl Length mm	Leaf Drop Carb. Ill.
Calland	PTNBr DYB1	L	L	4	1.0	3.3	2.0	1.8	2	185	3.4
Wayne	WTNBr SYB1	L	L	4	2.5	4.3	3.5	3.5	3	218	3.7
SL9	WTNBr SYB1	L	L	4	1.0	2.5	3.5	3.5	2	215	4.3
L66L-108	WTNTn SYLb1	H	L	1.5	1.0	1.0	2.5	1.5	4	206	2.4
L66L-137	WTNTn DYB1	L	L	2.5	1.0	1.0	3.0	3.0	4	210	4.0
L66L-140	WTNTn DYB1	L	L	2.5	1.0	1.0	4.0	3.8	4	231	4.4
L66L-154	WTNTn SYLb1	H	L	1.5	1.0	1.0	2.5	2.8	4	136	4.7
L66L-172	WTNTn DYB1	L	L	2.5	1.0	2.5	3.5	1.8	4	116	3.8

Regional Summary

Strain	Yield	Rank	Maturity	Lodging	Height	Seed Quality	Seed Weight	Seed Composition Protein	Seed Composition Oil
					1970				
No. of Tests	21	21	19	18	21	19	17	12	12
Calland	45.4	6	+3.2	2.4	48	2.8	18.4	39.9	21.2
Wayne	43.3	8	9-25†	2.6	47	2.5	17.8	41.3	21.9
SL9	44.4	7	+0.5	2.7	47	2.6	18.5	41.5	21.6
L66L-108	46.0	3	+3.7	1.9	47	2.1	17.9	40.6	22.4
L66L-137	46.3	1	+2.9	2.2	46	2.4	17.8	39.2	22.9
L66L-140	46.2	2	+3.8	2.2	47	2.4	18.4	38.9	23.2
L66L-154	45.7	5	+3.5	1.9	45	2.3	17.2	40.3	22.3
L66L-172	45.9	4	+0.3	2.0	45	2.4	15.8	39.4	22.4

† 122 days after planting

Strain	Yield	Rank	Maturity	Lodging	Height	Seed Quality	Seed Weight	Seed Composition Protein	Seed Composition Oil
					1969-70				
No. of Tests	51	51	43	43	49	45	43	27	27
Calland	45.9	4	+2.3	2.4	45	2.4	17.9	40.0	21.5
Wayne	45.0	5	9-25†	2.6	44	2.2	17.4	41.5	22.2
L66L-108	47.0	1	+3.3	1.9	44	1.9	17.8	40.8	22.7
L66L-140	46.9	2	+3.8	2.4	44	2.1	18.2	39.2	23.3
L66L-154	46.7	3	+3.1	2.0	42	2.0	16.9	40.4	22.5

† 122 days after planting

Disease Data

Strain	BB Ames Iowa n	BB Ames Iowa a	BP Urb. Ill. a	BP Ames Iowa n	BP Ames Iowa a	BS Laf. Ind. n	BSR Laf. Ind. n	BSR Urb. Ill. n	BSR Kanawha Iowa n 1	BSR Kanawha Iowa 1	BSR Kanawha Iowa 2	DM Worth. Ind. n	FE_2 Laf. Ind. a	PM Har. Ont. a	PR Laf.+ Ames a	Pyd Ames Iowa a	PS Carb. Ill. n
Calland	2	3	S	+	1.5	5	71	4	100	15		3	5	R	R	2.4	2.8
Wayne	2	2.5	R	0	1	5	26	4	100	17		4	3	R	S	2.9	3.8
SL9	3	3.5	R	0	1	5	29	4	100	15		2	3	R	S	3.4	4.0
L66L-108	3	3	R	0	1.5	4	21	3	90	11		4	5	R	S	1.8	3.3
L66L-137	1	2.5	R	0	1	5	39	4	95	13		3	4	R	S	2.1	4.5
L66L-140	2	2	R	+	1	5	36	4	100	13		2	4	R	S	2.2	4.7
L66L-154	3	2.5	R	0	1	3	29	4	70	10		4	5	R	S	2.7	4.5
L66L-172	3	3	R	0	1	5	63	4	100	10		4	5	R	S	2.9	4.0

1 Percent of plants with browning
2 Mean height of browning in diseased stems

Strain	Mean	N.J.	Maryland			Ohio			Indiana	
		Adel-phia	Taney-town	Clarks-ville	Poplar Hill	Hoyt-ville	Woos-ter	Col-umbus	Bluff-ton	Lafay-ette
		*	*b	*	*w	*	*	*		
	21 Tests		1970 YIELD (bu/a)							
Calland	45.4	36.7	30.3	53.2	30.6	23.5	30.0	66.4	54.0	41.6
Wayne	43.3	30.3	23.2	49.6	26.5	30.2	33.2	62.3	53.9	45.3
SL9	44.4	29.6	26.1	50.4	31.7	25.8	31.2	43.9	55.6	44.8
L66L-108	46.0	33.7	21.8	57.4	34.3	25.4	29.9	62.7	48.7	47.3
L66L-137	46.3	34.2	26.8	53.9	33.7	27.5	30.5	58.7	60.8	45.7
L66L-140	46.2	28.4	27.2	53.1	38.5	31.5	30.1	53.8	55.8	47.9
L66L-154	45.7	30.5	22.1	52.3	33.1	28.0	26.1	66.2	53.3	47.3
L66L-172	45.9	32.3	21.6	55.6	33.0	23.8	26.2	58.0	59.8	45.3
Coef. of Var. (%)	6.0	10.5	12.6	9.6	14.7	--	--	--	9.8	6.8
L.S.D. (5%)	1.0	6.9	5.2	3.0	8.2	--	--	--	n.s.	n.s.
Row Spacing (in.)		36	15	30	15	32	32	28	30	38
Rows/Plot		1	5	3	5	1	1	1	3	3
Reps		4	3	4	3	4	4	4	3	3
			RANK							
Calland	6	1	1	4	7	8	5	1	5	8
Wayne	8	6	5	8	8	2	1	4	6	5
SL9	7	7	4	7	6	5	2	8	4	7
L66L-108	3	3	7	1	2	6	6	3	8	2
L66L-137	1	2	3	3	3	4	3	5	1	4
L66L-140	2	8	2	5	1	1	4	7	3	1
L66L-154	5	5	6	6	4	3	8	2	7	2
L66L-172	4	4	8	2	5	7	7	6	2	5
	51 Tests		1969-70 MEAN YIELD							
Calland	45.9	40.2	29.3	50.4		27.9	38.0	56.1	48.0	44.7
Wayne	45.0	38.8	23.4	49.3		32.1	41.6	55.1	50.4	50.0
L66L-108	47.0	44.5	25.2	53.9		29.2	40.8	56.3	47.1	56.5
L66L-140	46.9	35.8	27.5	53.2		32.2	40.7	54.5	48.8	52.7
L66L-154	46.7	42.0	23.7	51.1		29.6	36.3	55.7	50.6	53.9
			RANK							
Calland	4	3	1	4		5	4	2	4	5
Wayne	5	4	5	5		2	1	4	2	4
L66L-108	1	1	3	1		4	2	1	5	1
L66L-140	2	5	2	2		1	3	5	3	3
L66L-154	3	2	4	3		3	5	3	1	2

I=Irrigated
* Not included in the mean
b=after barley
w=after wheat

Indiana			Ky.	Ill.
Green-field	Worth-ington	Evans-ville	Hen-derson *	Ur-bana
1970 YIELD (bu/a)				
40.2	54.6	43.9	58.1	49.7
35.5	50.4	41.2	56.4	49.4
36.2	49.4	45.9	49.5	53.3
39.3	53.8	44.8	55.7	52.0
39.2	54.8	43.8	61.9	49.1
34.0	54.3	50.1	58.4	53.5
43.0	56.5	41.2	52.1	51.1
42.2	55.9	44.5	54.4	51.0
10.9	6.1	9.0	--	7.0
n.s.	n.s.	n.s.	--	6.3
38	38	40	30	30
3	3	3	4	4
3	3	3	3	3
RANK				
3	4	5	3	6
7	7	7	4	7
6	8	2	8	2
4	6	3	5	3
5	3	6	1	8
8	5	1	2	1
1	1	7	7	4
2	2	4	6	5
1969-70 MEAN YIELD				
46.1	49.6	45.6	55.6	45.9
41.7	53.2	45.0	53.8	48.0
43.6	54.9	45.5	53.9	48.3
41.3	54.2	50.1	53.1	50.5
44.9	58.5	44.7	50.9	49.0
RANK				
1	5	2	1	5
4	4	4	3	4
3	2	3	2	3
5	3	1	4	1
2	1	5	5	2

Nebraska			Kansas		
ıt	Con-cord	Mead I	Pow-hattan	Man-hattan I	Ot-tawa	Col-umbus *
YIELD (bu/a)						
5	33.9	47.1	44.9	80.4	24.5	6.8
5	32.1	49.1	38.8	67.3	22.1	7.5
4	33.6	43.5	38.1	72.4	20.9	8.3
3	36.0	44.9	47.1	79.6	25.7	10.9
1	34.5	45.2	44.7	76.3	25.1	10.9
1	32.6	46.2	47.5	76.9	24.9	9.8
2	35.4	43.6	41.8	74.1	23.3	8.7
5	33.8	44.4	43.8	76.2	21.2	7.9
)	8.6	7.1	3.9	8.5	7.8	--
5.	n.s.	5.1	3.5	n.s.	3.2	3.7
	30	30	30	30	30	30
	4	4	3	3	3	3
	3	3	4	4	3	3
RANK						
	4	2	3	1	4	8
	8	1	7	8	6	7
	6	8	8	7	8	5
	1	5	2	2	1	1
	3	4	4	4	2	1
	7	3	1	3	3	3
	2	7	6	6	5	4
	5	6	5	5	7	6
) MEAN YIELD						
2	42.7		47.8	74.2	42.2	20.8
)	40.3		42.4	65.7	39.5	20.0
1	43.4		49.4	68.4	45.3	23.2
)	43.5		48.9	69.2	43.0	22.8
3	44.1		45.8	64.3	43.1	20.1
RANK						
	4		3	1	4	3
	5		5	4	5	5
	3		1	3	1	1
	2		2	2	3	2
	1		4	5	2	4

Strain	Mean	N.J. Adelphia	Maryland Taneytown	Maryland Clarksville
		*	*b	*
	21 Tests		1970 YIELD	
Calland	45.4	36.7	30.3	53.2
Wayne	43.3	30.3	23.2	49.6
SL9	44.4	29.6	26.1	50.4
L66L-108	46.0	33.7	21.8	57.4
L66L-137	46.3	34.2	26.8	53.9
L66L-140	46.2	28.4	27.2	53.1
L66L-154	45.7	30.5	22.1	52.3
L66L-172	45.9	32.3	21.6	55.6
Coef. of Var. (%)	6.0	10.5	12.6	9.6
L.S.D. (5%)	1.0	6.9	5.2	3.0
Row Spacing (in.)		36	15	30
Rows/Plot		1	5	3
Reps		4	3	4
			RANK	
Calland	6	1	1	4
Wayne	8	6	5	8
SL9	7	7	4	7
L66L-108	3	3	7	1
L66L-137	1	2	3	3
L66L-140	2	8	2	5
L66L-154	5	5	6	6
L66L-172	4	4	8	2
	51 Tests		1969-70 MEAN	
Calland	45.9	40.2	29.3	50.4
Wayne	45.0	38.8	23.4	49.3
L66L-108	47.0	44.5	25.2	53.9
L66L-140	46.9	35.8	27.5	53.2
L66L-154	46.7	42.0	23.7	51.1
			RANK	
Calland	4	3	1	4
Wayne	5	4	5	5
L66L-108	1	1	3	1
L66L-140	2	5	2	2
L66L-154	3	2	4	3

I=Irrigated
* Not included in the mean
b=after barley
w=after wheat

Illinois Girard	Illinois Edgewood	Illinois Trenton	Illinois Eldorado	Illinois Carbondale
		1970 YIELD (bu/a)		
48.3	53.8	46.5	55.7	46.7
49.9	51.0	50.5	52.0	41.6
51.0	52.7	51.4	56.3	43.1
50.6	51.8	50.5	57.4	45.6
54.3	48.7	48.9	56.8	47.3
52.1	50.0	50.4	56.0	44.6
54.4	51.8	46.8	58.6	44.3
50.6	51.2	52.0	54.6	40.3
7.1	7.4	4.7	4.1	12.2
5.4	6.6	4.1	4.0	9.4
30	38	36	36	30
3	4	4	4	4
4	3	3	3	3
		RANK		
8	1	8	6	2
7	6	3	8	7
4	2	2	4	6
5	3	3	2	3
2	8	6	3	1
3	7	5	5	4
1	3	7	1	5
5	5	1	7	8
		1969-70 MEAN YIELD		
52.9	50.3	47.7	54.1	44.7
53.8	45.7	53.0	54.7	43.5
53.5	48.1	51.6	56.7	46.6
56.0	45.5	52.8	58.5	47.5
57.1	48.5	51.1	59.1	45.9
		RANK		
5	1	5	5	4
3	4	1	4	5
4	3	3	3	2
2	5	2	2	1
1	2	4	1	3

Iowa		Missouri			S.D.	Nebraska		Kansas			
Stuart	Ottumawa	Spickard	Columbia	Mt. Vernon	Elk Point	Concord	Mead	Powhattan	Manhattan	Ottawa	Columbus
		*					I		I		*
1970 YIELD (bu/a)											
43.2	50.2	32.3	31.8	29.0	33.6	33.9	47.1	44.9	80.4	24.5	6.8
41.9	49.5	30.1	30.6	27.8	29.6	32.1	49.1	38.8	67.3	22.1	7.5
41.9	49.2	33.3	36.1	28.7	28.4	33.6	43.5	38.1	72.4	20.9	8.3
44.2	54.6	37.5	35.9	29.9	27.3	36.0	44.9	47.1	79.6	25.7	10.9
41.1	58.1	34.5	34.7	30.7	33.1	34.5	45.2	44.7	76.3	25.1	10.9
41.0	53.5	33.6	39.4	30.8	29.1	32.6	46.2	47.5	76.9	24.9	9.8
41.3	55.5	25.6	37.7	27.4	31.2	35.4	43.6	41.8	74.1	23.3	8.7
44.4	57.9	32.2	33.2	31.0	31.6	33.8	44.4	43.8	76.2	21.2	7.9
6.9	8.4	18.0	13.2	12.8	13.0	8.6	7.1	3.9	8.5	7.8	--
4.0	5.9	n.s.	n.s.	n.s.	n.s.	n.s.	5.1	3.5	n.s.	3.2	3.7
27	27	15	15	15	30	30	30	30	30	30	30
3	3	4	4	4	1	4	4	3	3	3	3
4	4	4	4	4	4	3	3	4	4	3	3
RANK											
3	6	5	7	5	1	4	2	3	1	4	8
4	7	7	8	7	5	8	1	7	8	6	7
4	8	4	3	6	7	6	8	8	7	8	5
2	4	1	4	4	8	1	5	2	2	1	1
7	1	2	5	3	2	3	4	4	4	2	1
8	5	3	1	2	6	7	3	1	3	3	3
6	3	8	2	8	4	2	7	6	6	5	4
1	2	6	6	1	3	5	6	5	5	7	6
1969-70 MEAN YIELD											
	48.3	39.5		38.3	33.2	42.7		47.8	74.2	42.2	20.8
	47.4	35.0		37.0	36.0	40.3		42.4	65.7	39.5	20.0
	52.0	42.4		38.8	33.1	43.4		49.4	68.4	43.3	23.2
	49.8	40.0		36.5	32.0	43.5		48.9	69.2	43.0	22.8
	51.6	36.7		35.6	36.8	44.1		45.8	64.3	43.1	20.1
RANK											
	4	3		2	3	4		3	1	4	3
	5	5		3	2	5		5	4	5	5
	1	1		1	4	3		1	3	1	1
	3	2		4	5	2		2	2	3	2
	2	4		5	1	1		4	5	2	4

Strain	Mean	N.J.	Maryland			Ohio			Indiana	
		Adel-phia	Taney-town	Clarks-ville	Poplar Hill	Hoyt-ville	Woos-ter	Col-umbus	Bluff-ton	Lafay-ette
		*	*b	*	*w	*	*	*		
	19 Tests			MATURITY (date)						
Calland	+3.2		+1	-2	+2	+3	+5	+ 3	+ 1	+3
Wayne†	9-25†		10-27	9-25	10-15	10-4	9-24	10-3	9-29	9-25
SL9	+0.5		+1	-1	0	+1	0	0	0	+1
L66L-108	+3.7		+2	0	+1	+3	+3	+ 1	+ 2	+6
L66L-137	+2.9		0	0	+1	+3	+2	+ 1	+ 1	+5
L66L-140	+3.8		+2	0	+2	+3	+2	+ 2	+ 2	+5
L66L-154	+3.5		0	-1	0	+3	+2	+ 1	+ 2	+6
L66L-172	+0.3		0	0	+1	-1	-3	- 3	0	+1
Beeson (II)		--	--	-9	--	-8	-6	-14	-10	-7
Cutler (IV)		--	+4	+3	+5	--	--	+ 1	--	+9
Date Planted	5-25	6-2	7-6	5-22	7-8	6-10	5-20	5-19	5-19	5-21
†Days to mature	123		113	126	99	116	127	137	133	127
		*	*	*	*	*	*	*		
	18 Tests			LODGING (score)						
Calland	2.4	1.2	1	3	1	1.0	1.5	5.0	2.8	3.5
Wayne	2.6	1.5	1	3	1	2.5	1.7	4.7	4.0	3.5
SL9	2.7	1.5	1	4	1	2.7	2.0	5.0	3.8	3.5
L66L-108	1.9	1.0	1	2	1	1.5	1.0	3.7	2.0	2.7
L66L-137	2.2	1.0	1	3	1	2.0	1.0	4.7	3.0	3.7
L66L-140	2.2	1.0	1	3	1	2.0	1.2	3.7	3.2	3.3
L66L-154	1.9	1.0	1	2	1	1.2	1.2	3.5	2.8	3.0
L66L-172	2.0	1.0	1	3	1	1.5	1.0	4.5	2.0	3.0
		*	*	*	*	*	*	*		
	21 Tests			HEIGHT (inches)						
Calland	48	36	29	44	28	39	35	42	49	47
Wayne	47	37	28	40	27	37	40	42	50	49
SL9	47	34	28	43	26	38	40	43	50	45
L66L-108	47	31	30	40	28	34	36	43	49	49
L66L-137	46	30	28	39	27	35	31	42	49	47
L66L-140	47	32	30	39	29	35	37	42	48	48
L66L-154	45	28	29	40	26	35	36	43	46	46
L66L-172	45	32	29	40	26	35	37	41	48	45

I=Irrigated
* Not included in the mean
b=after barley
w=after wheat

Indiana			Ky.	Ill.
Green-field	Worth-ington	Evans-ville	Hen-derson	Ur-bana
			*	
	MATURITY (date)			
0	+ 5	0		+ 9
10-1	9-18	9-21		9-22
0	+ 1	+1		0
- 2	+ 6	0		+ 4
0	+ 2	-1		+ 3
- 4	+ 6	+1		+ 7
0	+ 6	0		+ 1
- 4	+ 1	-1		0
-11	- 4	--		- 6
--	+10	+8		+18
5-27	5-25	5-29	5-27	5-20
127	116	115		125
			*	
	LODGING (score)			
3.0	3.2	2.5	2.5	1.7
2.7	3.8	2.5	1.2	2.6
3.0	4.0	2.8	3.2	3.0
1.8	2.8	1.5	1.2	1.4
2.7	3.0	1.7	1.0	1.6
2.0	2.8	1.3	1.5	2.5
1.7	2.5	1.3	2.0	1.3
2.2	2.8	1.7	1.2	1.7
			*	
	HEIGHT (inches)			
44	50	44	43	43
43	46	44	41	45
43	45	46	43	46
43	44	44	41	41
43	42	43	38	42
43	45	44	42	41
42	43	39	39	41
43	43	41	41	41

D.	Nebraska		Kansas			
k int	Con-cord	Mead	Pow-hattan	Man-hattan	Ot-tawa	Col-umbus
		I		I		*
RITY (date)						
4	+1	+4	+ 3	- 1	+ 2	-3
-7	10-1	10-2	9-30	9-30	10-2	10-4
1	0	+1	0	0	+ 2	+1
4	+3	+4	+ 5	+ 3	+ 4	+3
2	+3	+4	+ 3	+ 2	+ 3	+2
5	+3	+4	+ 5	+ 1	+ 2	+2
3	+2	+3	+ 6	+ 1	+ 2	-4
1	0	+1	+ 4	0	+ 1	+5
3	-7	-4	-12	-12	-15	--
-	--	--	+10	+ 7	+ 9	+3
-21	5-27	5-27	5-18	5-11	5-20	5-27
139	127	128	135	142	135	130
						*
ING (score)						
	1.7	3.0		2.5		1.1
	2.0	2.7		3.0		1.2
	2.0	2.2		3.1		1.4
	1.7	1.3		2.3		1.2
	1.7	3.0		2.6		1.2
	2.0	3.5		2.8		1.2
	2.0	2.3		1.9		1.1
	1.7	1.6		2.1		1.2
						*
HT (inches)						
3	36	44	24	41	24	24
4	36	45	22	46	23	25
3	37	40	23	48	23	20
3	35	42	24	47	23	21
3	36	42	26	43	24	22
3	36	46	27	43	22	22
4	37	42	23	43	24	23
4	36	40	25	42	22	23

Strain	Mean	N.J. Adelphia	Maryland Taneytown	Maryland Clarksville
		*	*b	*
	19 Tests			MATURITY (
Calland	+3.2		+1	-2
Wayne†	9-25†		10-27	9-25
SL9	+0.5		+1	-1
L66L-108	+3.7		+2	0
L66L-137	+2.9		0	0
L66L-140	+3.8		+2	0
L66L-154	+3.5		0	-1
L66L-172	+0.3		0	0
Beeson (II)		--	--	-9
Cutler (IV)		--	+4	+3
Date Planted	5-25	6-2	7-6	5-22
†Days to mature	123		113	126
		*	*	*
	18 Tests			LODGING (s
Calland	2.4	1.2	1	3
Wayne	2.6	1.5	1	3
SL9	2.7	1.5	1	4
L66L-108	1.9	1.0	1	2
L66L-137	2.2	1.0	1	3
L66L-140	2.2	1.0	1	3
L66L-154	1.9	1.0	1	2
L66L-172	2.0	1.0	1	3
		*	n	*
	21 Tests			HEIGHT (in
Calland	48	36	29	44
Wayne	47	37	28	40
SL9	47	34	28	43
L66L-108	47	31	30	40
L66L-137	46	30	28	39
L66L-140	47	32	30	39
L66L-154	45	28	29	40
L66L-172	45	32	29	40

I=Irrigated
* Not included in the mean
b=after barley
w=after wheat

Illinois Girard	Illinois Edgewood	Illinois Trenton	Illinois Eldorado	Illinois Carbondale
		MATURITY (date)		
- 1	+ 7	+ 5	+ 4	+8
9-22	9-18	9-14	9-10	9-17
0	+ 1	+ 1	+ 1	0
+ 4	+ 7	+ 5	+ 5	+2
+ 1	+ 5	+ 6	+ 4	+6
+ 4	+ 5	+ 6	+ 4	+9
+ 3	+ 7	+ 6	+ 5	+6
- 1	+ 2	+ 1	+ 1	0
-12	- 4	- 5	- 1	+3
+11	+15	+13	+12	+7
5-21	5-27	5-24	5-21	5-27
124	114	113	112	113
		LODGING (score)		
2.5	2.4	1.3	3.0	1
2.7	1.8	1.3	3.4	1
3.0	1.9	1.3	4.1	1
2.0	1.3	1.2	1.5	1
2.2	1.6	1.3	2.1	1
2.6	1.7	1.2	1.5	1
2.3	1.4	1.2	1.7	1
2.6	1.6	1.3	1.6	1
		HEIGHT (inches)		
47	42	41	45	29
47	38	39	46	28
47	39	41	48	29
47	38	37	44	27
45	36	36	43	27
47	40	37	42	28
44	36	36	40	26
45	37	37	40	27

Iowa		Missouri			S.D.	Nebraska		Kansas			
Stuart	Ottumawa	Spickard	Columbia	Mt. Vernon	Elk Point	Concord	Mead	Powhattan	Manhattan	Ottawa	Columbus
	*	*		*			I		I		*
					MATURITY (date)						
+1			+6		+4	+1	+4	+ 3	- 1	+ 2	-3
9-20	9-20		10-9		10-7	10-1	10-2	9-30	9-30	10-2	10-4
0			0		+1	0	+1	0	0	+ 2	+1
+2			+6		+4	+3	+4	+ 5	+ 3	+ 4	+3
+1			+5		+2	+3	+4	+ 3	+ 2	+ 3	+2
+2			+6		+5	+3	+4	+ 5	+ 1	+ 2	+2
+2			+6		+3	+2	+3	+ 6	+ 1	+ 2	-4
0			+1		-1	0	+1	+ 4	0	+ 1	+5
--			-4		-3	-7	-4	-12	-12	-15	--
--			--		--	--	--	+10	+ 7	+ 9	+3
5-22	5-22	5-6	6-29	5-8	5-21	5-27	5-27	5-18	5-11	5-20	5-27
121	121	--	102	--	139	127	128	135	142	135	130
		*									*
					LODGING (score)						
2.2	2.4	1.8	3.5	1.3		1.7	3.0		2.5		1.1
2.4	2.6	2.7	3.8	1.4		2.0	2.7		3.0		1.2
2.5	2.6	3.1	4.2	1.4		2.0	2.2		3.1		1.4
2.3	2.3	1.7	3.3	1.0		1.7	1.3		2.3		1.2
2.2	2.5	2.6	3.3	1.0		1.7	3.0		2.6		1.2
2.0	2.2	1.3	3.4	1.0		2.0	3.5		2.8		1.2
2.1	2.4	1.4	3.0	1.0		2.0	2.3		1.9		1.1
2.0	2.4	1.8	3.1	1.0		1.7	1.6		2.1		1.2
		*									*
					HEIGHT (inches)						
40	48	28	37	37	43	36	44	24	41	24	24
40	47	27	39	36	44	36	45	22	46	23	25
40	47	27	36	35	43	37	40	23	48	23	20
39	48	27	39	33	46	35	42	24	47	23	21
38	50	26	36	35	43	36	42	26	43	24	22
39	47	24	37	33	46	36	46	27	43	22	22
37	45	24	34	34	44	37	42	23	43	24	23
38	46	25	37	34	44	36	40	25	42	22	23

Strain	Mean	N.J.	Maryland			Ohio			Indiana	
		Adelphia	Taneytown	Clarksville	Poplar Hill	Hoytville	Wooster	Columbus	Bluffton	Lafayette
		*	*b	*	*w	*	*	*		
	19 Tests			SEED QUALITY (score)						
Calland	2.8	2.8	2.0	3.0	4.3	2.2	2.7	3.2	1.0	2.5
Wayne	2.5	2.0	1.3	2.5	4.0	1.0	2.0	3.2	1.5	1.5
SL9	2.6	2.0	1.3	2.0	4.0	1.2	2.7	3.0	1.0	2.0
L66L-108	2.1	2.0	1.3	1.5	3.3	1.2	1.7	2.8	1.5	1.5
L66L-137	2.4	2.0	1.3	1.3	4.7	1.2	2.5	2.8	1.5	1.5
L66L-140	2.4	2.0	1.0	1.8	4.0	1.2	2.2	3.2	1.5	1.5
L66L-154	2.3	1.5	1.7	1.3	2.3	1.2	1.5	2.8	1.5	1.5
L66L-172	2.4	1.8	2.0	1.0	3.7	1.2	1.7	3.5	1.5	1.5
		*	*	*	*	*	*	*		
	17 Tests			SEED WEIGHT (cg)						
Calland	18.4	21.8	16.1	16.1	16.2	18.4	17.8	20.3	18.1	18.3
Wayne	17.8	20.0	13.9	15.1	14.0	16.8	18.2	20.4	17.1	19.0
SL9	18.5	18.8	14.2	16.2	14.6	17.2	18.2	20.6	17.9	19.9
L66L-108	17.9	20.0	15.7	15.6	14.9	18.1	18.8	20.1	18.2	19.8
L66L-137	17.8	21.5	15.2	16.3	16.0	17.3	18.1	20.1	17.3	19.7
L66L-140	18.4	19.2	15.0	16.5	15.8	17.5	18.7	21.3	18.6	20.0
L66L-154	17.2	18.8	13.8	13.5	14.2	16.7	17.3	19.8	16.9	18.5
L66L-172	15.8	18.5	13.6	14.8	13.7	15.3	15.5	18.0	15.0	17.0
		*	*					*		
	12 Tests			PROTEIN (%)						
Calland	39.9	41.1		40.0				41.3		38.8
Wayne	41.3	44.4		41.5				42.7		40.9
SL9	41.5	44.3		42.3				43.9		42.5
L66L-108	40.6	44.3		40.9				42.0		39.5
L66L-137	39.2	42.1		35.5				41.5		39.2
L66L-140	38.9	41.1		40.5				41.3		39.1
L66L-154	40.3	43.0		40.5				42.3		39.4
L66L-172	39.4	41.9		40.2				41.4		38.8
		*		*				*		
	12 Tests			OIL (%)						
Calland	21.2	21.1		20.7				20.7		21.5
Wayne	21.9	20.3		21.2				21.6		21.6
SL9	21.6	20.2		20.5				20.3		21.8
L66L-108	22.4	21.0		22.8				22.1		22.6
L66L-137	22.9	21.5		22.1				21.8		22.6
L66L-140	23.2	21.8		22.6				22.3		23.3
L66L-154	22.3	20.5		21.8				22.0		22.8
L66L-172	22.4	20.8		21.4				21.6		22.3

I=Irrigated
* Not included in the mean
b=after barley
w=after wheat

Indiana			Ky.	Ill.
Green-field	Worth-ington	Evans-ville	Hen-derson *	Ur-bana
SEED QUALITY (score)				
1.5	1.5	4.0	3.0	3.3
1.5	2.0	4.0	2.5	2.6
1.5	2.0	4.0	4.0	2.9
1.5	1.5	3.5	2.0	2.4
1.5	1.5	3.0	1.5	2.4
1.5	1.5	3.5	2.5	2.2
1.5	1.5	3.5	3.0	2.3
1.5	1.5	3.5	2.0	2.2
SEED WEIGHT (cg)				
18.4	18.8	16.0	18.8	17.1
18.0	18.4	18.7	17.1	16.7
19.8	20.1	19.3	18.7	16.9
17.6	18.0	16.8	17.1	17.5
19.0	18.3	18.0	17.4	17.2
17.4	18.5	18.5	18.3	18.3
17.5	17.6	16.6	16.8	16.2
15.2	16.3	15.7	16.3	14.5
PROTEIN (%)				
	39.4		40.4	38.9
	41.3		42.0	40.0
	41.8		42.4	40.2
	40.5		40.6	39.4
	38.2		39.5	39.8
	38.8		39.7	38.4
	40.1		40.4	39.3
	38.8		39.7	38.3
OIL (%)				
	21.2		21.3	22.0
	22.1		22.8	22.6
	22.3		22.4	22.3
	22.6		23.3	23.4
	24.0		23.3	23.8
	24.0		23.6	23.4
	22.3		23.1	23.8
	23.0		22.8	22.7

D.	Nebraska		Kansas			
k int	Con-cord	Mead I	Pow-hattan	Man-hattan I	Ot-tawa	Col-umbus *
ALITY (score)						
.0	3.5	1.5	3.2	2.5	4.5	4.0
.0	1.4	1.7	2.5	2.2	3.9	4.0
.0	1.4	1.4	2.4	3.0	4.2	4.0
.0	1.6	1.6	2.9	1.8	3.0	3.7
.0	1.8	1.6	2.7	2.6	4.2	4.0
.5	2.0	1.5	2.4	2.7	4.1	3.4
.0	1.7	1.6	3.0	2.2	4.3	3.5
.0	1.6	1.3	2.6	2.2	4.7	3.3
WEIGHT (cg)						
	15.8	20.4	21.3	19.8	16.7	19.7
	14.1	19.2	19.3	17.0	16.2	19.1
	14.2	18.6	18.4	19.7	15.8	20.9
	16.2	19.1	18.9	17.7	16.7	19.3
	14.8	17.8	19.2	19.2	15.8	18.6
	15.3	18.8	20.4	19.5	17.7	18.4
	14.2	17.5	18.6	17.9	15.5	16.9
	13.5	16.0	17.4	16.9	13.7	18.3
OTEIN (%)						
.0		40.5	39.0	39.6	40.9	
.4		42.0	41.4	41.3	41.7	
.4		42.3	41.1	42.2	42.0	
.6		40.6	40.0	38.4	44.3	
.0		39.5	38.1	37.7	41.1	
.1		39.4	38.0	38.6	40.3	
.9		40.0	40.4	40.4	42.2	
.6		39.8	38.5	38.6	40.2	
OIL (%)						
.4		21.0	21.2	22.0	20.5	
.8		21.2	22.4	22.3	21.9	
.8		20.7	21.9	22.0	21.5	
.3		22.4	22.9	23.0	21.2	
.2		22.0	23.9	23.6	22.9	
.8		22.0	23.7	24.1	23.2	
.8		21.9	22.5	23.0	21.9	
.0		21.7	22.5	23.1	21.9	

Strain	Mean	N.J. Adelphia	Maryland Taneytown	Maryland Clarksville	Maryland Popla Hill
		*	*b	*	*w
	19 Tests			SEED QUALITY (	
Calland	2.8	2.8	2.0	3.0	4.3
Wayne	2.5	2.0	1.3	2.5	4.0
SL9	2.6	2.0	1.3	2.0	4.0
L66L-108	2.1	2.0	1.3	1.5	3.3
L66L-137	2.4	2.0	1.3	1.3	4.7
L66L-140	2.4	2.0	1.0	1.8	4.0
L66L-154	2.3	1.5	1.7	1.3	2.3
L66L-172	2.4	1.8	2.0	1.0	3.7
		*	*	*	*
	17 Tests			SEED WEIGHT	
Calland	18.4	21.8	16.1	16.1	16.2
Wayne	17.8	20.0	13.9	15.1	14.0
SL9	18.5	18.8	14.2	16.2	14.6
L66L-108	17.9	20.0	15.7	15.6	14.9
L66L-137	17.8	21.5	15.2	16.3	16.0
L66L-140	18.4	19.2	15.0	16.5	15.8
L66L-154	17.2	18.8	13.8	13.5	14.2
L66L-172	15.8	18.5	13.6	14.8	13.7
		*		*	
	12 Tests				PROTEIN (
Calland	39.9	41.1		40.0	
Wayne	41.3	44.4		41.5	
SL9	41.5	44.3		42.3	
L66L-108	40.6	44.3		40.9	
L66L-137	39.2	42.1		35.5	
L66L-140	38.9	41.1		40.5	
L66L-154	40.3	43.0		40.5	
L66L-172	39.4	41.9		40.2	
		*		*	
	12 Tests				OIL (%)
Calland	21.2	21.1		20.7	
Wayne	21.9	20.3		21.2	
SL9	21.6	20.2		20.5	
L66L-108	22.4	21.0		22.8	
L66L-137	22.9	21.5		22.1	
L66L-140	23.2	21.8		22.6	
L66L-154	22.3	20.5		21.8	
L66L-172	22.4	20.8		21.4	

I=Irrigated
* Not included in the mean
b=after barley
w=after wheat

Illinois Girard	Illinois Edgewood	Illinois Trenton	Illinois Eldorado	Illinois Carbondale
		SEED QUALITY (score)		
2.6	2.4	2.3	3.4	5
2.1	1.8	2.0	3.4	5
2.3	2.0	2.4	3.7	5
1.9	1.3	1.8	1.9	4
2.1	1.6	2.1	2.7	5
2.1	1.5	2.2	2.5	5
2.3	1.3	1.6	1.8	5
2.0	1.6	1.7	2.2	5
		SEED WEIGHT (cg)		
17.1	19.0	18.0	18.3	22.3
18.6	16.8	18.1	18.2	19.6
18.7	18.2	18.5	20.1	20.8
17.8	17.0	17.7	18.2	19.9
17.6	15.6	16.8	18.2	20.3
18.2	16.6	17.7	18.2	22.1
17.6	16.4	16.9	17.8	20.4
15.8	14.9	15.6	15.8	18.6
		PROTEIN (%)		
41.3			40.2	
43.0			42.2	
40.5			42.6	
41.9			41.4	
40.5			39.6	
40.9			39.0	
42.2			41.5	
41.6			39.6	
		OIL (%)		
21.2			21.6	
21.9			22.0	
21.6			22.0	
22.2			23.0	
22.9			23.3	
22.6			24.3	
22.2			22.6	
22.7			23.2	

Iowa		Missouri			S.D.	Nebraska		Kansas			
Stuart	Ottumawa	Spickard	Columbia	Mt. Vernon	Elk Point	Concord	Mead	Powhattan	Manhattan	Ottawa	Columbus
		*					I		I		*
SEED QUALITY (score)											
		3.5	1.3	4.0	4.0	3.5	1.5	3.2	2.5	4.5	4.0
		3.0	1.2	3.5	4.0	1.4	1.7	2.5	2.2	3.9	4.0
		3.0	1.4	3.5	4.0	1.4	1.4	2.4	3.0	4.2	4.0
		2.5	1.2	2.5	3.0	1.6	1.6	2.9	1.8	3.0	3.7
		3.5	1.3	3.5	3.0	1.8	1.6	2.7	2.6	4.2	4.0
		3.0	1.1	3.5	3.5	2.0	1.5	2.4	2.7	4.1	3.4
		3.0	1.1	3.5	3.0	1.7	1.6	3.0	2.2	4.3	3.5
		3.0	1.0	3.5	4.0	1.6	1.3	2.6	2.2	4.7	3.3
											*
SEED WEIGHT (cg)											
18.0						15.8	20.4	21.3	19.8	16.7	19.7
17.7						14.1	19.2	19.3	17.0	16.2	19.1
17.2						14.2	18.6	18.4	19.7	15.8	20.9
18.0						16.2	19.1	18.9	17.7	16.7	19.3
18.0						14.8	17.8	19.2	19.2	15.8	18.6
17.7						15.3	18.8	20.4	19.5	17.7	18.4
16.4						14.2	17.5	18.6	17.9	15.5	16.9
16.2						13.5	16.0	17.4	16.9	13.7	18.3
PROTEIN (%)											
40.0			40.6		39.0		40.5	39.0	39.6	40.9	
41.5			41.1		39.4		42.0	41.4	41.3	41.7	
42.1			41.5		39.4		42.3	41.1	42.2	42.0	
41.3			40.9		38.6		40.6	40.0	38.4	44.3	
40.2			39.1		37.0		39.5	38.1	37.7	41.1	
39.8			38.6		36.1		39.4	38.0	38.6	40.3	
41.4			40.0		36.9		40.0	40.4	40.4	42.2	
41.5			39.3		37.6		39.8	38.5	38.6	40.2	
OIL (%)											
20.8			19.9		21.4		21.0	21.2	22.0	20.5	
21.3			21.3		21.8		21.2	22.4	22.3	21.9	
21.2			20.6		21.8		20.7	21.9	22.0	21.5	
21.7			22.3		21.3		22.4	22.9	23.0	21.2	
21.8			21.9		22.2		22.0	23.9	23.6	22.9	
21.7			22.8		22.8		22.0	23.7	24.1	23.2	
21.2			21.8		21.8		21.9	22.5	23.0	21.9	
21.8			21.8		22.0		21.7	22.5	23.1	21.9	

Strain	Parentage	Generation Composited
1. Calland		
2. Wayne		
3. AX210-5-2-1	(D49-2491[4] x Hawkeye)-19-9-1 x F_4(Ford x PI 68.708)	F_5
4. AX214-13-2	(D49-2491[4] x Hawkeye)-19-7-5 x F_4(Ford x PI 68.708)	F_4
5. AX214-14-1	Same as above	F_4
6. AX268-25	Provar x F_1(Hawkeye 63 x FC 31.122)	F_4
7. H105-9351	H20833-7(Monroe x Lincoln) x Harosoy	F_5
8. H130-2273	Harosoy 63 x C1243(PI 68.521 x Wabash)	F_5
9. H130-25021	Harosoy 63 x C1243	F_5
10. L67-533	Clark[6] x Higan	F_3
11. L67-5816	Clark 63 x L62-2257(Sioux x Clark)	F_3
12. L67-5860	Clark 63 x L62-2257	F_3
13. L67U-1615	Provar x Magna	F_3
14. L67U-1621	Provar x Magna	F_3
15. L67U-1630	Provar x Magna	F_3
16. L67U-1827	Provar x Disoy	F_3

The check varieties, Wayne and Calland, rank first and second in mean yield in this test of 14 experimental strains. The entries in Uniform Test III have been tending to the late side of maturity group III and it would be well to inspect closely the performance of the early lines in this test. However the best of them fall seven bushels below the checks in mean yield and this is too much for only three to four days earlier. Some of the L67U lines are rather large-seeded and may have value as special-purpose varieties although most are heterogeneous. L67-5816 and 5860 are high in protein but their yield was so low that protein per acre was lowered.

Descriptive and Shattering Data

Strain	Descriptive Code	Shattering			Chlorosis
		Miss. Stoneville	Kansas Manhattan		Iowa
		2 wk.	2 wk.	4 wk.	Ames
Calland	PTNBr DYBl	3.0	1.0	2.5	3
Wayne	WTNBr SYBl	3.5	3.3	3.8	4
AX210-5-2-1*	PTNBr SYBl	4.0	3.3	3.8	4
AX214-13-2*	PTNBr SYBr	3.5	3.8	4.3	2
AX214-14-1*	PTNBr SYBr	4.0	3.8	4.3	4
AX268-25	PGNBr DYIb	2.5	3.8	3.8	2
H105-9351	WGNBr SYBf	3.5	5.0	5.0	3
H130-2273	PGNBr SYBf	2.0	3.8	3.8	3
H130-25021	PGNBr SYIb	2.0	3.3	3.3	2
L67-533	PTNBr DYBl	1.0	1.0	2.1	2
L67-5816	PTNBr DGnBl	2.5	1.0	2.5	2
L67-5860	PTNBr DYBl	3.0	1.0	3.3	2
L67U-1615	PGNBr DYY+Bf	2.5	1.0	1.0	3
L67U-1621	PT+GNBr DYBr+Bf+Y	3.0	3.3	3.3	2
L67U-1630	PGNBr DYBf	2.0	2.5	2.5	5
L67U-1827*	PTN-- DYY+Br	3.0	1.0	1.0	1

* Moderately determinate stem

Regional Summary

Strain	Yield	Rank	Maturity	Lodging	Height	Seed Quality	Seed Weight	Seed Composition	
								Protein	Oil
No. of Tests	10	10	9	8	10	8	8	8	8
Calland	50.4	2	+1.8	2.6	42	2.7	18.4	40.2	21.3
Wayne	51.6	1	9-24	2.9	41	2.5	18.3	42.0	21.5
AX210-5-2-1	43.5	9	-1.2	3.2	38	2.4	15.1	41.7	22.2
AX214-13-2	40.2	15	-3.3	2.5	32	2.1	15.7	42.4	21.6
AX214-14-1	41.7	13	-3.0	2.5	33	2.5	15.7	41.5	21.8
AX268-25	45.1	6	+1.2	2.3	38	2.4	21.5	42.1	20.8
H105-9351	41.6	14	-4.7	2.4	40	2.3	16.9	41.2	20.9
H130-2273	43.2	10	-2.2	3.1	41	3.0	17.5	41.3	21.6
H130-25021	45.1	6	+0.2	3.0	43	2.4	18.4	40.8	21.9
L67-533	43.9	8	+1.9	2.5	35	2.0	16.1	41.2	21.5
L67-5816	38.5	16	-2.3	3.1	37	2.4	16.2	45.8	18.4
L67-5860	42.3	11	-1.0	2.8	39	2.1	18.3	44.6	18.7
L67U-1615	47.2	3	+1.8	3.1	44	3.4	25.0	41.5	21.5
L67U-1621	42.0	12	-1.1	3.1	41	3.0	22.4	42.2	20.4
L67U-1630	46.7	4	+0.3	2.9	44	2.9	25.3	42.9	20.5
L67U-1827	46.0	5	-2.1	2.2	38	2.7	22.8	40.7	21.5

Disease Data

Strain	BB	BP	BS	BSR		DM	FE_2	PR	
	Ames Iowa n	Ames Iowa n	Laf. Ind. n	Laf. Ind. n [1]	Urb. Ill. n	Worth. Ind. n	Laf. Ind. a	Laf. Ind. a	Ames Iowa a
Calland	2	+	5	71	4	3	5	R	H
Wayne	2	0	5	26	4	4	3	S	S
AX210-5-2-1	2	+	4	28	4	2	5	S	S
AX214-13-2	3	0	5	50	4	4	5	S	S
AX214-14-1	3	0	4	43	4	4	5	S	S
AX268-25	3	0	4	69	4	3	5	R	H
H105-9351	2	+	4	28	4	5	5	R	S
H130-2273	2	0	3	25	3	3	5	R	R
H130-25021	3	+	3	69	3	3	5	R	R
L67-533	3	+	3	51	3	4	5	S	S
L67-5816	3	+	4	19	4	3	5	S	H
L67-5860	4	+	4	38	4	3	5	S	S
L67U-1615	3	+	4	16	3	5	1	S	S
L67U-1621	3	+	4	13	4	5	4	S	S
L67U-1630	3	+	5	29	4	4	4	S	S
L67U-1827	3	+	5	47	4	3	1	S	S

[1] Percent of plants with browning

Strain	Mean	Md.	Ohio			Indiana	
		Clarks-ville	Hoyt-ville *	Woos-ter *	Col-umbus *	Lafay-ette	Worth-ington
	10 Tests	1970 YIELD (bu/a)					
Calland	50.4	49.7	30.4	28.2	46.7	47.8	64.9
Wayne	51.6	52.5	35.9	26.8	56.2	55.9	64.4
AX210-5-2-1	43.5	45.8	26.5	24.2	44.6	47.4	50.5
AX214-13-2	40.2	44.9	25.3	19.8	52.8	48.2	51.2
AX214-14-1	41.7	49.4	27.5	22.9	35.4	50.1	55.7
AX268-25	45.1	50.1	23.1	19.4	43.0	44.3	60.4
H105-9351	41.6	42.7	27.4	27.3	48.3	52.7	58.1
H130-2273	43.2	45.6	24.4	22.2	30.0	48.0	59.0
H130-25021	45.1	51.9	28.5	25.6	48.0	46.7	59.7
L67-533	43.9	44.8	24.1	15.9	41.0	44.8	54.7
L67-5816	38.5	41.9	25.6	20.5	43.5	43.4	49.2
L67-5860	42.3	46.9	20.5	20.1	41.8	49.1	55.9
L67U-1615	47.2	48.3	26.7	21.1	43.0	53.5	50.2
L67U-1621	42.0	44.3	26.2	19.7	50.4	47.2	46.5
L67U-1630	46.7	49.8	24.5	22.6	46.9	49.2	60.1
L67U-1827	46.0	50.5	24.1	20.4	46.2	45.7	59.2
Coef. of Var. (%)	10.8	9.5	--	--	--	7.5	10.5
L.S.D. (5%)	4.2	7.6	--	--	--	n.s.	n.s.
Row Spacing (in.)		30	32	32	28	38	38
Rows/Plot		3	1	1	1	1	1
Reps		3	2	2	2	2	2
			RANK				
Calland	2	6	2	1	7	9	1
Wayne	1	1	1	3	1	1	2
AX210-5-2-1	9	10	7	5	9	10	13
AX214-13-2	15	12	10	13	2	7	12
AX214-14-1	13	7	4	6	15	4	10
AX268-25	6	4	15	15	11	15	3
H105-9351	14	15	5	2	4	3	8
H130-2273	10	11	12	8	16	8	7
H130-25021	6	2	3	4	5	12	5
L67-533	8	13	13	16	14	14	11
L67-5816	16	16	9	10	10	16	15
L67-5860	11	9	16	12	13	6	9
L67U-1615	3	8	6	9	11	2	14
L67U-1621	12	14	8	14	3	11	16
L67U-1630	4	5	11	7	6	5	4
L67U-1827	5	3	13	11	8	13	6

I=Irrigated
* Not included in the mean

Ill.	Iowa		Mo.	S.D.		Kansas	
Girard	Stuart	Ottumwa	Columbia	Elk Point	Neb. Mead	Powhattan	Manhattan
			*		I		I
			1970 YIELD (bu/a)				
42.0	45.0	49.1	24.2	31.5	42.4	40.1	91.8
46.6	44.6	54.3	32.9	34.5	40.6	45.5	77.3
41.6	44.2	50.9	20.0	30.0	39.4	29.3	56.1
43.1	40.6	45.2	21.6	23.3	31.8	30.8	42.6
46.2	43.5	42.4	23.4	22.0	32.6	30.4	44.2
45.7	39.8	48.1	28.6	27.1	34.6	32.0	69.1
39.5	38.7	44.9	23.4	20.9	29.6	31.4	57.1
42.5	43.2	39.9	22.0	24.2	30.9	34.9	63.9
41.1	41.4	47.3	26.6	21.4	39.3	32.8	68.9
44.7	39.0	45.1	30.1	26.9	31.9	39.1	68.1
42.9	34.8	37.0	22.1	24.4	29.4	31.1	51.3
44.1	40.2	40.6	32.5	26.8	30.5	30.5	58.8
36.4	40.9	50.8	24.7	26.4	37.6	44.2	83.8
41.7	37.1	42.0	26.6	21.3	38.4	36.0	65.3
43.2	42.3	45.4	29.6	26.4	32.7	43.6	74.2
43.7	41.2	46.6	25.8	25.9	41.7	34.7	70.4
9.6	7.0	2.7	14.1	11.7	13.1	6.2	10.7
8.8	6.1	2.6	n.s.	6.9	9.9	4.7	14.9
30	40	40	15	30	30	30	30
3	1	1	4	1	1	1	1
2	2	2	2	2	2	2	2
			RANK				
11	1	4	10	2	1	4	1
1	2	1	1	1	3	1	3
13	3	2	16	3	4	16	13
8	10	9	15	12	12	13	16
2	4	12	11	13	10	15	15
3	12	5	5	4	8	10	6
15	14	11	11	16	15	11	12
10	5	15	14	11	13	7	10
14	7	6	6	14	5	9	7
4	13	10	3	5	11	5	8
9	16	16	13	10	16	12	14
5	11	14	2	6	14	14	11
16	9	3	9	7	7	2	2
12	15	13	6	15	6	6	9
7	6	8	4	7	9	3	4
6	8	7	8	9	2	8	5

Strain	Mean	Md.	Ohio			Indiana	
		Clarksville	Hoytville *	Wooster *	Columbus *	Lafayette	Worthington
	9 Tests	MATURITY (date)					
Calland	+1.8	+ 2	+3	+ 3	+7	- 2	+4
Wayne	9-24	9-26	10-5	9-27	9-28	9-28	9-19
AX210-5-2-1	-1.2	- 4	-1	- 4	+7	- 5	-1
AX214-13-2	-3.3	- 4	-4	-13	-1	- 7	-5
AX214-14-1	-3.0	- 3	-3	-11	-3	- 4	-4
AX268-25	+1.2	+ 5	+3	- 1	-3	- 4	-1
H105-9351	-4.7	- 4	-4	- 6	-5	- 7	-5
H130-2273	-2.2	- 1	-3	- 1	-3	- 6	-3
H130-25021	+0.2	+ 4	+1	0	-2	- 4	0
L67-533	+1.9	+ 5	+7	+ 4	+1	- 4	+4
L67-5816	-2.3	+ 1	-1	- 5	-1	- 5	-4
L67-5860	-1.0	+ 2	-1	+ 1	-1	- 3	+1
L67U-1615	+1.8	- 3	-3	+ 1	-1	- 1	+3
L67U-1621	-1.1	- 9	-5	- 3	-3	- 4	-3
L67U-1630	+0.3	- 3	-4	0	-1	- 4	-1
L67U-1827	-2.1	- 4	-5	-10	-4	- 8	-3
Beeson (II)		-10	-9	- 9	-9	-10	-5
Cutler (IV)		+ 2	--	--	+6	+ 6	+9
Date Planted	5-21	5-22	6-10	5-20	5-19	5-21	5-25

Strain	Ill.	Iowa		Mo.	S.D.		Kansas	
	Girard	Stuart	Ottumwa *	Columbia *	Elk Point	Neb. Mead I	Powhattan	Manhattan I
			MATURITY (date)					
Calland	+ 1	+2		+3	-1	+5	+ 6	- 1
Wayne	9-18	9-20		10-9	10-7	10-2	9-28	9-30
AX210-5-2-1	+ 2	0		-3	0	+1	0	- 4
AX214-13-2	- 3	-4		-4	-1	0	- 2	- 4
AX214-14-1	- 2	-4		-4	-3	0	- 1	- 6
AX268-25	+ 3	0		+1	+1	+1	+ 7	- 1
H105-9351	- 6	-4		-3	+2	0	- 4	-14
H130-2273	- 5	-1		-1	+5	0	+ 2	-11
H130-25021	- 2	-1		+3	+1	0	+ 5	- 1
L67-533	+ 3	+1		+3	+3	+1	+ 6	- 2
L67-5816	0	+2		-1	-3	+1	- 3	-10
L67-5860	+ 2	+1		0	+1	+1	- 4	-10
L67U-1615	+ 2	+2		-2	+1	+3	+ 7	+ 2
L67U-1621	0	-2		-2	-1	+1	+ 7	+ 1
L67U-1630	0	0		-1	-2	+4	+ 7	+ 2
L67U-1827	- 4	-3		-3	+1	+1	+ 4	- 3
Beeson (II)	- 8	--	--	-2	-3	-4	-10	-12
Cutler (IV)	+15	--	--	--	--	--	+12	+ 7
Date Planted	5-21	5-22	5-22	6-29	5-21	5-27	5-18	5-11

I=Irrigated, * Not included in the mean

Strain	Parentage	Generation Composited	Previous Testing (years)
1. Cutler	C1069(Kent sib) x Clark	F_7	7
2. Cutler 71(C1481)	Cutler[4] x Kent-Rps rxp-SL5	6 F_3^7 lines	1
3. Kent	Lincoln x Ogden	F_7	16
4. C1474	C1266R(Harosoy x Kent sib C1079) x C1253(Blackhawk x Harosoy)	F_6	1
5. L66-1359	Wayne x L57-0034(Clark x Adams)	F_6	P.T. IV
6. L66L-144	Wayne x L57-0034	F_6	P.T. IV
7. L66L-191	Wayne x L57-9819(Hawkeye x Lee)	F_6	P.T. IV
8. L66L-333	Clark 63 x L57-9819	F_6	P.T. IV
9. Md62-3223	Selection from bulk population	F_4	P.T. IV

The regional summaries and means are presented separately this year for the East Coast and Central regions.

The phytophthora-resistant Cutler 71 is being named and released after two years in this test (details of its development are in the back of this report). In the East Coast region it averaged two bushels below Cutler and was slightly below in the Central region despite the occurrence of PR at some locations. It appears to be a little earlier than Cutler and showed evidence of the slightly increased height often shown by PR-resistant isolines.

C1474 has been in the test two years and is being increased by the Indiana AES for release. It has yielded well and is early in maturity and PR resistant. Two of the new entries, L66-1359 and L66L-144, were equally early and higher in mean yield, the highest in the test in both the eastern and central regions. They were also quite high in oil without an excessive lowering of protein. The three lines averaged about five days earlier than Cutler in the Central Region and about six days later than Wayne, so they are very close to the dividing line between the two groups and could be classed late III instead of early IV.

East Coast Regional Summary

Strain	Yield	Rank	Maturity	Lodging	Height	Seed Quality	Seed Weight	Seed Composition: Protein	Seed Composition: Oil
					1970				
No. of Tests	6	6	6	6	6	6	6	4	4
Cutler	40.1	3	9-27†	1.5	36	2.4	17.9	42.1	21.3
Cutler 71	38.0	5	-1.2	1.6	38	2.3	18.0	42.1	21.2
Kent	35.9	9	+0.5	1.3	37	2.2	16.8	42.0	21.3
C1474	38.2	4	0.0	1.4	39	2.4	17.2	43.8	21.5
L66-1359	43.7	1	-1.7	1.4	35	2.3	18.4	41.4	22.4
L66L-144	42.3	2	-2.7	1.7	35	2.4	18.8	40.9	22.6
L66L-191	36.7	8	-0.3	2.0	41	2.0	15.2	43.2	20.8
L66L-333	37.5	7	-1.3	1.7	35	1.9	14.4	42.6	20.1
Md62-3223	38.0	5	-1.3	1.5	34	2.2	17.4	41.8	21.7

† 117 days after planting

Strain	Yield	Rank	Maturity	Lodging	Height	Seed Quality	Seed Weight	Seed Composition: Protein	Seed Composition: Oil
					1969-70				
No. of Tests	12	12	11	12	12	12	12	7	7
Cutler 44.1	42.2	1	9-27†	1.8	39	2.3	18.1	41.1	22.0
43.6 Cutler 71	40.2	3	-0.3	1.8	41	2.2	18.2	40.8	21.9
Kent	39.0	4	+2.3	1.6	40	2.1	17.2	41.3	21.9
C1474	40.6	2	-0.5	1.8	43	2.3	17.1	42.8	22.2

† 119 days after planting

Descriptive and Shattering Data

Strain	Descriptive Code	Peroxidase	Fluor. Light	Shattering: Miss. Stoneville 2 wk.	Shattering: Tex. Lubbock	Shattering: Kansas Manhattan 2 wk.	Shattering: Kansas Manhattan 4 wk.	Chlorosis: Minnesota Crookston	Chlorosis: Iowa Lamberton	Chlorosis: Iowa Ames	Hypocotyl Length mm	Leaf Drop Carb. Ill.
Cutler	PTNBr SYB1	L	L	5	2.5	1.0	2.1	3.0	1.0	5	141	2.0
Cutler 71	PTNBr SYB1	H+L	L	3	2.5	1.0	2.5	3.0	1.2	3	162	1.3
Kent	PTNBr IYB1	H	L	5	3.5	1.0	1.0	4.0	1.2	5	183	2.6
C1474	PGNBr DYIb	L	L	3.5	4.5	2.1	4.3	2.0	1.0	1	127	2.0
L66-1359	WTNTn DYB1	L	L	2.5	2.0	1.0	1.0	4.0	3.5	5	232	3.7
L66L-144	WTNTn DYB1	L	L	3	2.5	1.0	1.0	4.0	4.2	4	217	3.0
L66L-191	PGNBr DYIb	L	L	2	2.5	1.0	1.0	3.5	2.5	3	197	1.3
L66L-333	PTNTn DYB1	L	L	5	4.5	1.0	1.0	3.5	2.0	3	192	1.0
Md62-3223	WGNBr SYBf+Ib	H+L	L	5	2.0	1.0	1.0	4.0	1.8	4	162	2.3

Central Regional Summary

Strain	Yield	Rank	Maturity	Lodging	Height	Seed Quality	Seed Weight	Seed Composition: Protein	Seed Composition: Oil
					1970				
No. of Tests	16	16	13	14	16	16	13	10	10
Cutler	43.7	3	10-1†	2.2	40	2.5	18.6	40.9	21.7
Cutler 71	43.5	5	-1.1	2.3	41	2.5	18.3	40.9	21.7
Kent	43.1	6	+4.2	2.2	39	2.7	18.3	40.4	22.2
C1474	43.6	4	-5.1	2.2	43	2.6	17.9	43.0	22.0
L66-1359	45.0	1	-5.3	2.1	38	2.6	18.8	39.8	23.1
L66L-144	44.9	2	-5.5	2.2	38	2.5	18.8	39.5	22.8
L66L-191	42.1	7	+2.8	2.8	44	2.3	15.9	40.6	22.6
L66L-333	41.3	8	-1.7	2.6	39	1.9	14.2	41.0	21.1
Md62-3223	39.6	9	-1.7	2.1	38	2.5	16.8	40.7	22.5

† 132 days after planting

					1969-70				
No. of Tests	37	37	33	33	35	37	31	19	19
Cutler	44.7	2	9-30†	2.1	41	2.5	18.3	41.2	22.1
Cutler 71	44.3	3	-0.7	2.1	42	2.4	18.1	41.0	22.1
Kent	44.0	4	+4.2	2.0	40	2.6	18.0	40.8	22.3
C1474	45.1	1	-4.0	2.3	45	2.4	17.5	43.4	22.2

† 129 days after planting

Disease Data

Strain	BB: Ames Iowa n	BB: Ames Iowa a	BP: Urb. Ill. a	BP: Ames Iowa n	BP: Ames Iowa a	BS: Laf. Ind. n	BSR: Laf. Ind. n	BSR: Urb. Ill. n	BSR: Kanawha Iowa n 1	BSR: Kanawha Iowa 1	BSR: Kanawha Iowa 2	DM: Worth. Ind. n	FE_2: Laf. Ind. a	PM: Har. Ont. a	PR: Laf.+ Ames a	Pyd: Ames Iowa a	PS: Carb. Ill. n
Cutler	2	2.5	S	0	2	3	32	4	90	11		4	1	R	S	2.9	3.2
Cutler 71	2	2.5	--	0	2	3	58	4	100	12		4	1	R	R	3.1	3.0
Kent	2	3.5	S	+	1.5	3	59	4	95	10		2	1	R	S	1.2	3.2
C1474	2	2.5	--	0	2	3	27	4	95	16		5	5	S	R	1.2	3.5
L66-1359	2	2.5	R	0	1	5	66	4	100	13		4	4	R	S	1.5	4.3
L66L-144	2	2	R	0	1	4	50	4	100	13		4	3	R	S	1.6	4.2
L66L-191	3	3.5	R	0	1.5	3	17	4	75	9		4	4	R	S	1.5	2.5
L66L-333	2	2.5	R	0	1.5	5	23	4	90	11		4	5	R	S	1.3	1.7
Md62-3223	3	3	--	0	2.5	4	39	4	75	10		3	5	R	S	2.1	3.2

1 Percent of plants with browning
2 Mean height of browning in diseased stems

Strain	East Coast Mean	N.J.	Delaware		Maryland						
		Center-ton	George-town	George-town I	Taney-town *b	Clarks-ville	Queens-town *	Queens-town *b	Poplar Hill b	Poplar Hill *w	Link-wood
	6 Tests				1970 YIELD (bu/a)						
Cutler	40.1	26.0	36.9	40.9	26.7	52.6	28.1	28.6	35.5	38.3	48.5
Cutler 71	38.0	24.7	38.9	36.1	25.0	44.8	29.1	24.2	36.6	33.2	46.9
Kent	35.9	21.7	34.6	42.0	31.9	47.3	27.5	26.8	29.4	36.6	40.5
C1474	38.2	27.7	37.8	43.9	27.9	43.4	25.7	31.6	27.7	29.4	48.5
L66-1359	43.7	33.5	41.3	44.8	27.2	52.1	27.9	29.9	42.4	33.1	48.3
L66L-144	42.3	28.3	42.0	43.5	27.4	50.7	32.4	31.5	37.3	38.6	51.8
L66L-191	36.7	21.1	37.1	41.7	22.7	44.2	25.8	31.1	31.2	28.4	44.7
L66L-333	37.5	23.3	35.2	45.3	25.5	44.9	27.6	20.4	31.2	25.2	45.3
Md62-3223	38.0	25.8	36.8	42.0	26.1	45.6	27.9	31.5	35.0	36.4	42.8
C.V.(%)	6.6	4.5	15.7	10.3	14.3	13.0	--	22.5	17.5	23.3	5.4
L.S.D.(5%)	3.0	2.3	n.s.	n.s.	6.4	8.6	--	11.1	10.2	12.8	4.3
Row Sp.(in.)		36	36	36	15	30	30	15	15	15	38
Rows/Plot		1	3	3	5	3	3	5	5	5	3
Reps		4	4	4	3	4	3	3	3	3	3
					RANK						
Cutler	3	4	6	8	5	1	3	6	4	2	2
Cutler 71	5	6	3	9	8	7	2	8	3	5	5
Kent	9	8	9	5	1	4	7	7	8	3	9
C1474	4	3	4	3	2	9	9	1	9	7	2
L66-1359	1	1	2	2	4	2	4	5	1	6	4
L66L-144	2	2	1	4	3	3	1	2	2	1	1
L66L-191	8	9	5	7	9	8	8	4	6	8	7
L66L-333	7	7	8	1	7	6	6	9	6	9	6
Md62-3223	5	5	7	5	6	5	4	2	5	4	8
	12 Tests				1969-70 MEAN YIELD				a		
Cutler	42.2	36.4	38.0	41.3		51.5	38.5		33.9		43.1
Cutler 71	40.2	30.6	37.0	33.7		46.5	37.7		38.8		41.5
Kent	39.0	35.4	38.3	44.1		46.0	34.7		34.5		37.8
C1474	40.6	37.2	37.9	42.6		44.6	34.9		33.7		42.3
					RANK						
Cutler	1	2	2	3		1	1		3		1
Cutler 71	3	4	4	4		2	2		2		3
Kent	4	3	1	1		3	4		1		4
C1474	2	1	3	2		4	3		4		2

I=Irrigated
* Not included in the mean
a=Snow Hill in 1969
b=after barley
w=after wheat

Central Mean	Ohio Columbus *	Indiana Lafayette	Indiana Worthington	Indiana Evansville
16 Tests 1970 YIELD (bu/a)				
43.7	63.4	41.9	53.7	41.2
43.5	47.3	46.5	53.3	43.1
43.1	57.1	41.7	50.1	39.9
43.6	61.1	41.1	48.2	48.1
45.0	47.6	47.6	53.5	45.3
44.9	57.2	49.4	53.8	45.0
42.1	57.9	37.1	48.2	47.1
41.3	45.7	37.8	44.6	39.3
39.6	53.2	37.9	44.8	39.9
7.7	--	7.9	8.9	15.0
2.3	--	5.7	n.s.	n.s.
	28	38	38	40
	1	3	3	3
	4	3	3	3
		RANK		
3	1	4	2	6
5	8	3	4	5
6	5	5	5	7
4	2	6	6	1
1	7	2	3	3
2	4	1	1	4
7	3	9	6	2
8	9	8	9	9
9	6	7	8	7
37 Tests 1969-70 MEAN YIELD				
44.7	60.6	52.2	55.6	45.0
44.3	46.6	52.6	50.9	44.6
44.0	49.5	49.5	54.5	41.3
45.1	59.4	48.8	52.6	48.5
		RANK		
2	1	2	1	2
3	4	1	4	3
4	3	3	2	4
1	2	4	3	1

Neb. Mead I	Kansas Powhattan	Kansas Manhattan I	Kansas Ottawa	Kansas Columbus *	Texas Lubbock *I
IELD (bu/a)					
34.4	47.2	65.3	24.6	13.6	36.1
36.1	46.6	70.2	22.2	13.6	40.7
33.8	46.8	63.6	26.4	15.1	40.9
38.2	41.1	74.3	20.4	18.8	38.7
38.0	47.6	73.0	26.7	19.2	41.4
40.2	46.1	71.2	23.8	16.2	37.8
28.0	47.0	63.2	29.8	36.6	39.0
35.2	43.4	67.9	26.5	17.0	34.1
33.0	44.5	58.1	24.4	19.6	35.0
8.8	6.1	7.7	6.1	--	12.1
7.4	4.1	7.6	2.7	4.2	7.7
30	30	30	30	30	40
4	3	3	3	3	4
3	4	4	3	3	3
RANK					
6	2	6	5	8	7
4	5	4	8	8	3
7	4	7	4	7	2
2	9	1	9	4	5
3	1	2	2	3	1
1	6	3	7	6	6
9	3	8	1	1	4
5	8	5	3	5	9
8	7	9	6	2	8
) MEAN YIELD					
	47.0	63.5	39.9	22.9	44.1
	46.0	62.8	39.8	20.9	47.9
	46.5	62.0	40.0	21.0	50.7
	44.0	73.2	40.1	23.6	47.3
RANK					
	1	2	3	2	4
	3	3	4	4	2
	2	4	2	3	1
	4	1	1	1	3

Strain	East Coast Mean	N.J. Center-ton	Delaware George-town	George-town I	Taney-town *b	Cl vi
	6 Tests				1970 YIELD	
Cutler	40.1	26.0	36.9	40.9	26.7	5
Cutler 71	38.0	24.7	38.9	36.1	25.0	4
Kent	35.9	21.7	34.6	42.0	31.9	4
C1474	38.2	27.7	37.8	43.9	27.9	4
L66-1359	43.7	33.5	41.3	44.8	27.2	5
L66L-144	42.3	28.3	42.0	43.5	27.4	5
L66L-191	36.7	21.1	37.1	41.7	22.7	4
L66L-333	37.5	23.3	35.2	45.3	25.5	4
Md62-3223	38.0	25.8	36.8	42.0	26.1	4
C.V.(%)	6.6	4.5	15.7	10.3	14.3	1
L.S.D.(5%)	3.0	2.3	n.s.	n.s.	6.4	
Row Sp.(in.)		36	36	36	15	
Rows/Plot		1	3	3	5	
Reps		4	4	4	3	
					RANK	
Cutler	3	4	6	8	5	
Cutler 71	5	6	3	9	8	
Kent	9	8	9	5	1	
C1474	4	3	4	3	2	
L66-1359	1	1	2	2	4	
L66L-144	2	2	1	4	3	
L66L-191	8	9	5	7	9	
L66L-333	7	7	8	1	7	
Md62-3223	5	5	7	5	6	
	12 Tests				1969-70 MEAN	
Cutler	42.2	36.4	38.0	41.3		5
Cutler 71	40.2	30.6	37.0	33.7		4
Kent	39.0	35.4	38.3	44.1		4
C1474	40.6	37.2	37.9	42.6		4
					RANK	
Cutler	1	2	2	3		
Cutler 71	3	4	4	4		
Kent	4	3	1	1		
C1474	2	1	3	2		

I=Irrigated
* Not included in the mean
a=Snow Hill in 1969
b=after barley
w=after wheat

Ky. Henderson *	Illinois Urbana	Girard	Edgewood	Trenton
	1970 YIELD (bu/a)			
51.6	47.7	45.2	52.2	50.0
51.2	51.1	42.4	49.3	48.5
52.4	52.1	38.8	52.0	52.1
51.0	53.2	51.4	55.2	49.6
49.2	50.0	52.1	49.9	49.1
51.9	53.8	50.5	49.6	49.9
45.1	48.8	42.2	45.2	45.9
51.3	52.2	44.2	43.0	44.1
47.0	49.2	36.3	48.6	43.6
--	7.1	10.3	7.8	5.8
--	6.3	6.7	6.7	4.8
30	30	30	38	36
4	4	3	4	4
3	3	4	3	3
	RANK			
3	9	4	2	2
5	5	6	6	6
1	4	8	3	1
6	2	2	1	4
7	6	1	4	5
2	1	3	5	3
9	8	7	8	7
4	3	5	9	8
8	7	9	7	9
	1969-70 MEAN YIELD			
47.9	44.5	50.3	48.2	51.1
48.8	46.3	47.4	49.0	51.9
48.1	45.9	44.5	50.8	52.9
48.8	45.9	53.6	52.5	52.9
	RANK			
4	4	2	4	4
1	1	3	3	3
3	2	4	2	1
1	2	1	1	1

Illinois		Missouri				Kansas				Texas
Eldorado	Carbondale	Columbia	Mt. Vernon	Portageville	Neb. Mead	Powhattan	Manhattan	Ottawa	Columbus	Lubbock
				I	I		I		*	*I
1970 YIELD (bu/a)										
54.8	45.3	33.5	36.5	25.0	34.4	47.2	65.3	24.6	13.6	36.1
50.7	42.4	36.3	34.7	22.6	36.1	46.6	70.2	22.2	13.6	40.7
54.1	47.0	31.5	36.7	22.7	33.8	46.8	63.6	26.4	15.1	40.9
51.4	41.8	34.7	27.9	20.8	38.2	41.1	74.3	20.4	18.8	38.7
55.0	42.4	37.5	30.7	21.4	38.0	47.6	73.0	26.7	19.2	41.4
53.6	46.4	36.1	26.7	22.4	40.2	46.1	71.2	23.8	16.2	37.8
49.3	45.6	25.4	39.5	31.0	28.0	47.0	63.2	29.8	36.6	39.0
51.2	43.1	30.1	35.2	22.2	35.2	43.4	67.9	26.5	17.0	34.1
50.3	41.1	31.2	34.2	17.2	33.0	44.5	58.1	24.4	19.6	35.0
2.5	6.3	8.6	12.2	17.4	8.8	6.1	7.7	6.1	--	12.1
2.5	4.8	4.3	5.9	6.9	7.4	4.1	7.6	2.7	4.2	7.7
36	30	15	15	38	30	30	30	30	30	40
4	4	4	4	4	4	3	3	3	3	4
3	3	3	4	3	3	4	4	3	3	3
RANK										
2	4	5	3	2	6	2	6	5	8	7
7	6	2	5	4	4	5	4	8	8	3
3	1	6	2	3	7	4	7	4	7	2
5	8	4	8	8	2	9	1	9	4	5
1	6	1	7	7	3	1	2	2	3	1
4	2	3	9	5	1	6	3	7	6	6
9	3	9	1	1	9	3	8	1	1	4
6	5	8	4	6	5	8	5	3	5	9
8	9	7	6	9	8	7	9	6	2	8
1969-70 MEAN YIELD										
55.4	43.2		42.3	30.6		47.0	63.5	39.9	22.9	44.1
52.5	43.0		38.7	28.2		46.0	62.8	39.8	20.9	47.9
55.0	46.6		42.7	27.4		46.5	62.0	40.0	21.0	50.7
53.2	43.9		33.3	25.7		44.0	73.2	40.1	23.6	47.3
RANK										
1	3		2	1		1	2	3	2	4
4	4		3	2		3	3	4	4	2
2	1		1	3		2	4	2	3	1
3	2		4	4		4	1	1	1	3

Strain	East Coast Mean	N.J.	Delaware		Maryland						
		Center-ton	George-town	George-town	Taney-town	Clarks-ville	Queens-town	Queens-town	Poplar Hill	Poplar Hill	Link-wood
				I	*b		*	*b	b	*w	
	6 Tests				MATURITY (date)						
Cutler†	9-27	9-13	10-3	10-6	10-31	9-28	9-17	10-20	10-1	10-20	9-19
Cutler 71	-1.2	0	- 2	-6	0	0	+1	+1	0	0	+ 1
Kent	+0.5	0	+ 1	-8	+4	+3	+5	+4	+ 1	+4	+ 6
C1474	0.0	0	+ 4	-4	+5	-2	-2	+3	+ 3	+3	- 1
L66-1359	-1.7	0	- 9	+1	0	-2	-3	0	0	0	0
L66L-144	-2.7	-1	-10	-2	-2	-3	-3	-2	0	-1	0
L66L-191	-0.3	+1	- 8	-4	+3	+1	+7	+3	+ 2	+5	+ 6
L66L-333	-1.3	+1	-10	-3	+3	+2	+1	+3	0	+2	+ 2
Md62-3223	-1.3	-2	0	-5	0	-2	0	+4	0	+2	+ 1
Wayne (III)		-5	--	--	-4	-3	--	-2	--	-5	--
Hill (V)		--	+ 7	+3	--	--	--	+2	+19	+7	+20
Date Pltd.	6-2	5-27	6-8	6-4	7-6	5-22	5-26	6-20	6-17	7-8	5-28
†Days to mat.	117	109	117	124	117	129	114	122	106	104	114
					*		*	*		*	
	6 Tests				LODGING (score)						
Cutler	1.5	1.0	1.1	1.6	1	3	1	1	1	1.0	1.1
Cutler 71	1.6	1.2	1.4	1.6	1	3	1	1	1	1.0	1.3
Kent	1.3	1.0	1.1	1.5	1	2	1	1	1	1.0	1.0
C1474	1.4	1.0	1.0	1.4	1	3	1	1	1	1.0	1.0
L66-1359	1.4	1.0	1.0	1.6	1	3	1	1	1	1.0	1.0
L66L-144	1.7	1.0	1.0	1.9	1	3	1	1	2	1.0	1.3
L66L-191	2.0	1.0	1.1	2.0	1	4	1	1	2	1.5	1.6
L66L-333	1.7	1.5	1.1	1.4	1	3	1	1	2	1.0	1.1
Md62-3223	1.5	1.0	1.0	1.9	1	3	1	1	1	1.0	1.1
					*		*	*		*	
	6 Tests				HEIGHT (inches)						
Cutler	36	34	30	39	30	40	34	30	32	31	40
Cutler 71	38	35	32	41	31	43	35	30	33	30	43
Kent	37	35	30	42	33	42	30	32	33	33	39
C1474	39	36	34	45	34	45	31	33	32	35	42
L66-1359	35	32	29	40	30	38	32	31	32	30	38
L66L-144	35	30	28	39	30	39	32	30	33	29	40
L66L-191	41	38	37	45	34	41	35	34	38	33	47
L66L-333	35	32	29	39	30	38	33	32	31	32	40
Md62-3223	34	34	28	39	28	38	33	29	29	26	36

I=Irrigated
* Not included in the mean
b=after barley
w=after wheat

Central Mean	Ohio Columbus	Indiana Lafayette	Indiana Worthington	Indiana Evansville
	*			
13 Tests	MATURITY (date)			
10-1	10-4	10-4	9-28	9-29
- 1.1	+5	0	- 1	0
+ 4.2	+6	+3	+ 3	+7
- 5.1	+5	-2	- 3	-3
- 5.3	-2	-4	- 5	-3
- 5.5	-2	-4	- 6	-4
+ 2.8	-2	-2	- 1	+7
- 1.7	+4	-1	- 2	-2
- 1.7	+7	-1	0	0
-11.0	-1	-9	-10	-8
--	--	--	--	--
5-22	5-19	5-21	5-25	5-29
132	138	136	126	123
	*			
14 Tests	LODGING (score)			
2.2	4.7	2.8	2.5	1.2
2.3	4.7	3.2	2.3	2.0
2.2	4.7	2.5	2.8	1.8
2.2	4.2	3.2	2.7	1.7
2.1	4.0	3.3	3.2	1.7
2.2	4.7	3.3	3.0	1.8
2.8	4.5	3.7	3.0	1.8
2.6	4.7	3.5	3.3	1.5
2.1	5.0	2.7	3.0	1.5
	*			
16 Tests	HEIGHT (inches)			
40	44	48	47	46
41	46	51	47	51
39	44	48	45	45
43	47	52	51	48
38	43	46	43	45
38	44	45	44	44
44	45	50	46	51
39	42	46	44	43
38	43	46	44	42

e-	Neb. Mead	Kansas Powhattan	Kansas Manhattan	Kansas Ottawa	Kansas Columbus	Texas Lubbock
	I*		I		*	I*
JRITY (date)						
	--	10-10	10-7	10-11	10-7	9-16
	--	+ 2	+ 1	+1	0	+ 2
	--	+ 6	+ 6	-2	+ 1	+ 5
	10-5	- 8	- 4	-4	-12	0
	10-5	+ 3	- 6	-1	- 1	- 7
	10-4	+ 1	- 4	-2	- 1	- 7
	--	+ 7	+ 7	+4	+ 8	+ 7
	--	+ 1	+ 3	+2	0	0
	--	+ 3	0	0	+ 8	+ 2
	--	-10	- 7	-9	- 3	- 5
	--	--	+15	--	--	+23
	5-27	5-18	5-11	5-20	5-27	5-22
	--	145	149	144	133	117
					*	*
SING (score)						
	3.5		2.2		1.3	1.0
	3.2		2.3		1.3	1.0
	3.5		2.5		1.2	1.5
	2.3		2.2		1.1	1.5
	2.2		2.5		1.1	1.0
	1.8		2.5		1.3	1.5
	4.2		3.8		1.5	2.0
	4.0		3.0		1.1	1.5
	3.0		2.6		1.1	1.0
					*	*
SHT (inches)						
	39	27	44	24	31	28
	39	28	45	26	32	27
	39	28	44	26	26	29
	44	25	51	25	30	27
	38	28	42	24	27	27
	39	25	43	23	30	26
	42	30	50	29	34	38
	39	27	46	24	24	32
	37	27	49	24	24	28

Strain	East Coast Mean	N.J. Center-ton	Delaware George-town	George-town	Taney-town
				I	*b
	6 Tests				MATURITY (
Cutler†	9-27	9-13	10-3	10-6	10-31
Cutler 71	-1.2	0	- 2	-6	0
Kent	+0.5	0	+ 1	-8	+4
C1474	0.0	0	+ 4	-4	+5
L66-1359	-1.7	0	- 9	+1	0
L66L-144	-2.7	-1	-10	-2	-2
L66L-191	-0.3	+1	- 8	-4	+3
L66L-333	-1.3	+1	-10	-3	+3
Md62-3223	-1.3	-2	0	-5	0
Wayne (III)		-5	--	--	-4
Hill (V)		--	+ 7	+3	--
Date Pltd.	6-2	5-27	6-8	6-4	7-6
†Days to mat.	117	109	117	124	117
					*
	6 Tests				LODGING (s
Cutler	1.5	1.0	1.1	1.6	1
Cutler 71	1.6	1.2	1.4	1.6	1
Kent	1.3	1.0	1.1	1.5	1
C1474	1.4	1.0	1.0	1.4	1
L66-1359	1.4	1.0	1.0	1.6	1
L66L-144	1.7	1.0	1.0	1.9	1
L66L-191	2.0	1.0	1.1	2.0	1
L66L-333	1.7	1.5	1.1	1.4	1
Md62-3223	1.5	1.0	1.0	1.9	1
					*
	6 Tests				HEIGHT (ir
Cutler	36	34	30	39	30
Cutler 71	38	35	32	41	31
Kent	37	35	30	42	33
C1474	39	36	34	45	34
L66-1359	35	32	29	40	30
L66L-144	35	30	28	39	30
L66L-191	41	38	37	45	34
L66L-333	35	32	29	39	30
Md62-3223	34	34	28	39	28

I=Irrigated
* Not included in the mean
b=after barley
w=after wheat

Ky. Henderson	Illinois Urbana	Girard	Edgewood	Trenton
	MATURITY (date)			
	10-10	10-3	10-3	9-27
	- 1	- 2	- 3	- 4
	+ 5	+ 3	+ 4	+ 4
	- 5	- 6	- 7	- 5
	-15	- 8	- 9	- 6
	-10	- 8	-11	- 7
	0	- 1	- 3	+ 1
	- 1	- 1	- 7	- 2
	- 1	- 4	- 7	- 3
	-18	-11	-15	-13
	+19	+15	+13	+16
5-27	5-20	5-21	5-27	5-24
	143	135	129	126
*				
	LODGING (score)			
1.3	1.9	2.0	2.4	1.5
2.0	2.0	2.1	2.7	1.4
1.3	2.2	2.0	2.0	1.4
2.0	2.8	2.1	2.4	1.4
1.2	1.8	2.5	1.9	1.3
1.0	2.4	2.6	2.0	1.4
2.7	2.5	2.4	2.5	1.4
2.5	2.8	2.5	2.2	1.3
1.7	1.6	2.6	2.2	1.4
*				
	HEIGHT (inches)			
47	44	52	44	42
48	46	51	46	45
44	43	48	41	42
45	49	53	48	43
40	41	47	41	38
42	43	47	44	38
48	50	52	43	49
43	45	48	41	39
42	42	47	40	39

Illinois		Missouri				Kansas				Texas
Eldo-rado	Car-bondale	Col-umbia	Mt. Vernon	Portage-ville	Neb. Mead	Pow-hattan	Man-hattan	Ot-tawa	Col-umbus	Lubbock
		*	*	I	I*		I		*	I*
				MATURITY (date)						
9-22	9-24			9-18	--	10-10	10-7	10-11	10-7	9-16
- 3	-2			- 2	--	+ 2	+ 1	+1	0	+ 2
+ 5	+5			+ 6	--	+ 6	+ 6	-2	+ 1	+ 5
- 5	-5			- 9	10-5	- 8	- 4	-4	-12	0
- 8	0			- 7	10-5	+ 3	- 6	-1	- 1	- 7
- 8	-1			- 7	10-4	+ 1	- 4	-2	- 1	- 7
+ 3	+2			+13	--	+ 7	+ 7	+4	+ 8	+ 7
- 4	-5			- 3	--	+ 1	+ 3	+2	0	0
- 6	+2			- 5	--	+ 3	0	0	+ 8	+ 2
-12	-7			-13	--	-10	- 7	-9	- 3	- 5
+15	--			+ 9	--	--	+15	--	--	+23
5-21	5-27	6-29	5-8	5-26	5-27	5-18	5-11	5-20	5-27	5-22
124	120	--	--	115	--	145	149	144	133	117
									*	*
				LODGING (score)						
2.5	1	3.4	1.4	2.2	3.5		2.2		1.3	1.0
3.3	1	3.6	1.4	2.2	3.2		2.3		1.3	1.0
2.1	1	3.1	1.1	2.2	3.5		2.5		1.2	1.5
2.7	1	3.6	1.4	1.5	2.3		2.2		1.1	1.5
1.8	1	3.6	1.0	1.8	2.2		2.5		1.1	1.0
2.4	1	3.5	1.0	1.7	1.8		2.5		1.3	1.5
2.9	2	3.8	2.0	3.0	4.2		3.8		1.5	2.0
2.7	1	3.7	2.2	2.3	4.0		3.0		1.1	1.5
2.3	1	3.2	1.1	1.7	3.0		2.6		1.1	1.0
									*	*
				HEIGHT (inches)						
46	28	41	35	31	39	27	44	24	31	28
47	30	42	39	30	39	28	45	26	32	27
45	27	42	34	29	39	28	44	26	26	29
49	33	42	41	30	44	25	51	25	30	27
45	26	38	34	31	38	28	42	24	27	27
44	28	39	33	30	39	25	43	23	30	26
48	36	42	45	37	42	30	50	29	34	38
45	28	39	39	30	39	27	46	24	24	32
45	27	37	35	31	37	27	49	24	24	28

Strain	East Coast Mean	N.J.	Delaware		Maryland						
		Center-ton	George-town	George-town I	Taney-town *b	Clarks-ville	Queens-town *	Queens-town *b	Poplar Hill b	Poplar Hill *w	Link-wood
	6 Tests				SEED QUALITY (score)						
Cutler	2.4	1.5	2.4	2.8	1.7	3.5	3	2.3	1.0	1.0	3
Cutler 71	2.3	1.5	2.1	2.8	1.7	2.8	3	3.0	1.3	1.3	3
Kent	2.2	1.8	2.5	2.9	1.7	1.3	3	3.0	1.8	1.8	3
C1474	2.4	2.0	2.6	2.5	1.3	2.5	3	2.3	1.5	1.5	3
L66-1359	2.3	2.0	2.6	2.6	1.3	2.0	3	2.0	1.5	1.5	3
L66L-144	2.4	1.8	2.5	3.0	1.7	2.5	3	2.0	1.7	1.7	3
L66L-191	2.0	1.8	2.1	2.9	1.3	2.3	2	4.0	1.0	1.0	2
L66L-333	1.9	2.5	2.0	2.4	1.7	1.5	2	3.3	1.2	1.2	2
Md62-3223	2.2	1.8	1.9	2.5	2.0	2.8	3	3.0	1.3	1.3	3
					*		*	*		*	
	6 Tests				SEED WEIGHT (cg)						
Cutler	17.9	14.8	20.0	21.8	17.2	14.6	14.9	15.8	17.1	16.2	19.3
Cutler 71	18.0	16.8	20.0	20.3	16.9	14.8	15.6	15.3	16.3	17.7	19.9
Kent	16.8	14.2	18.5	18.4	17.4	15.1	15.7	15.6	16.8	17.0	17.8
C1474	17.2	15.2	19.4	19.3	15.3	13.5	14.6	15.3	17.2	15.2	18.5
L66-1359	18.4	16.2	19.8	20.9	15.8	16.0	15.0	15.1	17.6	17.1	19.6
L66L-144	18.8	16.5	20.8	21.5	15.4	15.7	15.0	15.6	17.8	16.9	20.7
L66L-191	15.2	13.2	17.4	16.4	13.2	12.8	14.9	15.5	14.4	14.7	17.1
L66L-333	14.4	13.0	15.4	17.0	13.1	12.1	12.1	13.7	13.2	12.7	15.8
Md62-3223	17.4	14.8	20.0	20.9	15.3	14.5	14.2	15.8	16.6	15.1	17.7
	4 Tests				PROTEIN (%)						
Cutler	42.1	43.8		43.7		40.3					40.7
Cutler 71	42.1	44.0		43.1		40.5					40.6
Kent	42.0	44.5		43.3		40.1					39.9
C1474	43.8	46.2		44.1		42.5					42.3
L66-1359	41.4	43.9		42.3		39.8					39.6
L66L-144	40.9	43.1		41.2		39.2					40.1
L66L-191	43.2	47.1		43.1		40.7					41.8
L66L-333	42.6	45.8		43.9		39.4					41.1
Md62-3223	41.8	44.0		41.7		40.9					40.6
	4 Tests				OIL (%)						
Cutler	21.3	19.1		21.9		21.8					22.4
Cutler 71	21.2	18.7		22.3		21.4					22.4
Kent	21.3	18.5		21.8		21.9					23.1
C1474	21.5	20.3		21.8		20.7					23.1
L66-1359	22.4	20.5		22.8		22.4					23.8
L66L-144	22.6	21.1		23.1		22.8					23.5
L66L-191	20.8	17.9		21.8		21.2					22.3
L66L-333	20.1	18.1		20.5		20.3					21.6
Md62-3223	21.7	18.7		22.3		21.8					23.8

I=Irrigated
* Not included in the mean
b=after barley
w=after wheat

Central Mean	Ohio Columbus	Indiana Lafayette	Indiana Worthington	Indiana Evansville
	*			
16 Tests	SEED QUALITY (score)			
2.5	3.0	2.0	2.0	3.5
2.5	3.0	2.0	2.0	3.5
2.7	3.0	1.5	2.0	4.0
2.6	3.0	2.0	2.0	3.5
2.6	3.7	1.5	1.5	3.0
2.5	3.7	1.5	1.5	3.0
2.3	1.2	1.5	2.0	3.0
1.9	2.5	1.5	1.5	3.0
2.5	3.0	2.0	2.0	3.5
	*			
13 Tests	SEED WEIGHT (cg)			
18.6	19.6	21.0	21.3	16.0
18.3	19.7	20.7	21.2	16.8
18.3	18.9	19.9	20.0	16.3
17.9	18.8	19.6	19.5	16.6
18.8	20.1	21.3	20.4	16.7
18.8	18.9	20.4	20.0	16.8
15.9	17.9	17.4	15.9	14.0
14.2	17.4	15.9	15.2	13.2
16.8	19.1	18.5	18.3	14.9
	*			
10 Tests	PROTEIN (%)			
40.9	42.6			43.0
40.9	41.5			42.4
40.4	40.8			41.8
43.0	43.1			44.1
39.8	42.2			41.2
39.5	42.0			39.9
40.6	42.2			42.1
41.0	42.6			42.3
40.7	41.1			42.1
	*			
10 Tests	OIL (%)			
21.7	21.5			20.9
21.7	21.6			20.5
22.2	21.8			21.6
22.0	21.0			21.2
23.1	22.3			22.6
22.8	21.6			22.3
22.6	22.1			22.0
21.1	20.3			20.2
22.5	21.6			21.8

Neb. Mead	Pow-hattan	Man-hattan	Ot-tawa	Col-umbus	Texas Lubbock
I		I		*	*I
ALITY (score)					
1.4	1.8	1.8	3.7	3.3	4
1.5	2.2	2.2	4.2	3.8	4
1.7	1.5	1.9	3.5	3.7	4
1.4	2.9	2.6	4.4	3.5	3
1.3	2.4	2.7	4.2	2.1	3
1.6	2.5	2.8	3.6	3.0	3
1.7	2.0	1.4	1.9	2.7	3
1.8	1.3	1.6	2.2	3.0	2
1.5	2.4	2.3	3.4	4.1	4
				*	*
WEIGHT (cg)					
16.0	19.1	19.0	17.4	19.9	16.6
16.4	18.6	18.8	17.1	17.8	16.9
17.8	19.2	17.5	17.4	21.5	17.0
17.5	18.6	18.4	16.1	22.1	16.8
18.6	18.7	21.0	18.2	23.8	19.3
19.6	19.4	20.2	18.1	20.4	18.0
17.1	15.1	17.0	17.2	20.8	15.7
14.6	13.4	16.5	13.4	21.7	13.5
16.6	17.9	18.0	16.8	18.1	17.3
TEIN (%)					
40.8	40.7	39.9	43.5		
40.0	39.6	39.4	43.8		
39.9	39.5	39.3	43.4		
43.2	41.7	41.5	46.5		
39.6	38.4	38.4	41.1		
39.5	38.3	37.9	40.9		
40.9	39.0	40.0	42.6		
40.9	39.1	41.3	43.8		
39.1	39.2	39.1	43.4		
IL (%)					
21.4	21.9	22.3	20.5		
21.7	22.2	22.8	20.2		
22.2	21.9	22.6	20.7		
20.9	22.2	23.0	20.5		
22.2	23.5	23.6	22.9		
21.5	23.4	23.6	22.5		
21.4	22.2	22.6	21.0		
20.6	21.9	21.5	19.7		
22.2	23.0	23.6	21.2		

Strain	East Coast Mean	N.J. Center-ton	Delaware George-town	George-town I	Taney-town *b
	6 Tests			SEED QUALITY	
Cutler	2.4	1.5	2.4	2.8	1.7
Cutler 71	2.3	1.5	2.1	2.8	1.7
Kent	2.2	1.8	2.5	2.9	1.7
C1474	2.4	2.0	2.6	2.5	1.3
L66-1359	2.3	2.0	2.6	2.6	1.3
L66L-144	2.4	1.8	2.5	3.0	1.7
L66L-191	2.0	1.8	2.1	2.9	1.3
L66L-333	1.9	2.5	2.0	2.4	1.7
Md62-3223	2.2	1.8	1.9	2.5	2.0
	6 Tests			* SEED WEIGHT	
Cutler	17.9	14.8	20.0	21.8	17.2
Cutler 71	18.0	16.8	20.0	20.3	16.9
Kent	16.8	14.2	18.5	18.4	17.4
C1474	17.2	15.2	19.4	19.3	15.3
L66-1359	18.4	16.2	19.8	20.9	15.8
L66L-144	18.8	16.5	20.8	21.5	15.4
L66L-191	15.2	13.2	17.4	16.4	13.2
L66L-333	14.4	13.0	15.4	17.0	13.1
Md62-3223	17.4	14.8	20.0	20.9	15.3
	4 Tests			PROTEIN (	
Cutler	42.1	43.8		43.7	
Cutler 71	42.1	44.0		43.1	
Kent	42.0	44.5		43.3	
C1474	43.8	46.2		44.1	
L66-1359	41.4	43.9		42.3	
L66L-144	40.9	43.1		41.2	
L66L-191	43.2	47.1		43.1	
L66L-333	42.6	45.8		43.9	
Md62-3223	41.8	44.0		41.7	
	4 Tests			OIL (%)	
Cutler	21.3	19.1		21.9	
Cutler 71	21.2	18.7		22.3	
Kent	21.3	18.5		21.8	
C1474	21.5	20.3		21.8	
L66-1359	22.4	20.5		22.8	
L66L-144	22.6	21.1		23.1	
L66L-191	20.8	17.9		21.8	
L66L-333	20.1	18.1		20.5	
Md62-3223	21.7	18.7		22.3	

I=Irrigated
* Not included in the mean
b=after barley
w=after wheat

Ky. Hen-derson *	Illinois Ur-bana	Gi-rard	Edge-wood	Tren-ton
	SEED QUALITY (score)			
3.0	2.1	2.3	1.8	2.6
3.5	2.5	2.1	2.7	2.4
3.0	2.3	2.0	2.1	2.8
3.5	2.2	2.0	1.9	2.7
3.0	2.2	2.0	1.9	2.5
2.5	2.1	2.0	1.7	2.5
2.5	1.9	1.6	1.8	1.6
2.0	1.9	1.5	1.8	1.6
3.0	2.1	1.9	1.8	2.2
*				
	SEED WEIGHT (cg)			
16.6	17.6	19.1	19.6	18.4
17.7	17.5	18.1	19.0	17.4
16.3	18.5	18.3	18.3	18.3
16.2	17.8	17.1	18.4	17.4
18.2	17.8	18.4	16.8	18.0
18.1	18.7	18.6	16.1	18.4
14.6	16.7	15.7	14.8	14.5
13.9	14.4	13.6	13.0	12.6
15.7	16.4	15.1	15.5	15.8
*				
	PROTEIN (%)			
40.5	40.9	38.1		
40.5	39.3	42.6		
40.7	39.1	41.3		
43.3	42.0	44.4		
39.9	39.1	41.9		
39.0	38.6	41.2		
41.5	39.2	42.5		
42.9	40.2	42.7		
40.6	39.3	42.2		
*				
	OIL (%)			
22.2	22.0	22.3		
21.5	22.6	21.6		
22.7	22.7	22.0		
21.8	22.4	21.9		
24.0	23.6	22.9		
23.4	23.1	22.9		
23.7	24.7	22.3		
20.6	21.4	20.9		
23.7	23.6	21.6		

Illinois		Missouri			Neb.					Texas
Eldo-rado	Car-bondale	Col-umbia	Mt. Vernon	Portage-ville	Mead	Pow-hattan	Man-hattan	Ot-tawa	Col-umbus	Lubbock
				I	I		I		*	*I
				SEED QUALITY (score)						
3.2	4	1.8	4.0	1.8	1.4	1.8	1.8	3.7	3.3	4
3.3	2	1.5	3.5	2.0	1.5	2.2	2.2	4.2	3.8	4
3.5	5	2.0	5.0	2.2	1.7	1.5	1.9	3.5	3.7	4
2.9	4	1.5	4.0	1.7	1.4	2.9	2.6	4.4	3.5	3
2.3	5	2.0	4.5	2.0	1.3	2.4	2.7	4.2	2.1	3
2.5	4	1.5	4.5	2.0	1.6	2.5	2.8	3.6	3.0	3
2.2	3	1.7	4.5	4.5	1.7	2.0	1.4	1.9	2.7	3
2.2	1	1.5	3.5	1.7	1.8	1.3	1.6	2.2	3.0	2
2.8	4	1.6	4.0	1.8	1.5	2.4	2.3	3.4	4.1	4
									*	*
				SEED WEIGHT (cg)						
18.0	19.3				16.0	19.1	19.0	17.4	19.9	16.6
17.8	18.7				16.4	18.6	18.8	17.1	17.8	16.9
18.3	18.5				17.8	19.2	17.5	17.4	21.5	17.0
17.2	17.9				17.5	18.6	18.4	16.1	22.1	16.8
18.5	19.8				18.6	18.7	21.0	18.2	23.8	19.3
17.8	20.6				19.6	19.4	20.2	18.1	20.4	18.0
14.9	16.9				17.1	15.1	17.0	17.2	20.8	15.7
14.4	14.3				14.6	13.4	16.5	13.4	21.7	13.5
16.3	18.9				16.6	17.9	18.0	16.8	18.1	17.3
				PROTEIN (%)						
41.5		40.9		39.8	40.8	40.7	39.9	43.5		
41.5		41.0		39.4	40.0	39.6	39.4	43.8		
40.8		40.3		38.7	39.9	39.5	39.3	43.4		
43.0		43.9		39.9	43.2	41.7	41.5	46.5		
40.4		39.5		38.7	39.6	38.4	38.4	41.1		
40.3		39.4		38.6	39.5	38.3	37.9	40.9		
41.1		40.8		38.1	40.9	39.0	40.0	42.6		
41.8		41.3		36.3	40.9	39.1	41.3	43.8		
42.7		41.4		38.4	39.1	39.2	39.1	43.4		
				OIL (%)						
22.6		20.6		22.3	21.4	21.9	22.3	20.5		
22.2		21.1		22.3	21.7	22.2	22.8	20.2		
22.9		21.6		23.7	22.2	21.9	22.6	20.7		
22.2		21.0		24.2	20.9	22.2	23.0	20.5		
23.8		21.9		24.4	22.2	23.5	23.6	22.9		
23.1		21.9		24.0	21.5	23.4	23.6	22.5		
22.6		22.3		24.9	21.4	22.2	22.6	21.0		
21.1		19.9		23.7	20.6	21.9	21.5	19.7		
23.6		21.0		23.5	22.2	23.0	23.6	21.2		

Strain	Parentage	Generation Composited
1. Clark 63		13 F_3 lines
2. Cutler		
3. Kent		
4. C1483	C1266(Har. x Kent sib C1079) x C1265(Har. x C1079)	F_7
5. H124B-24110	(H20833-7 x Henry) x (Blackhawk x PI 84.073-1)	F_5
6. H124C-1661	Same as above	F_5
7. H127-6742	Mukden x Mandarin (Ottawa)	F_5
8. H127-67410	Mukden x Mandarin (Ottawa)	F_5
9. H128-1836	Mukden x Mandarin (Ottawa)	F_5
10. H131-7383	Harosoy 63 x Wayne	F_5
11. H131-8755	Harosoy 63 x Wayne	F_5
12. H133-5511	Hawkeye 63 x Wayne	F_5
13. L63-0123-C5-2*	$Clark^4$ x PI 84.946-2(BSR resistant)	F_7
14. L67-592	$Clark^6$ x Higan	F_3
15. L67-6301*	$Clark^6$ x PI 84.946-2	F_5
16. L68-0417	$Clark^5$ x PI 84.946-2	F_7
17. L68-0423	$Clark^5$ x PI 84.946-2	F_7
18. L68-0433	$Clark^5$ x PI 84.946-2	F_7
19. Md62-3303	Selection from Bulk Population	
20. Md66-1041	1st Cycle Intermates	F_5
21. Md66-1258	2nd Cycle Intermates	F_6
22. Md66-1337	2nd Cycle Intermates	F_6

Since most of these tests were planted in unbordered plots and since six of the twenty-two entries were early Group III maturity, the yield data probably have little meaning. Many of these strains should be retested in the proper maturity group. Md62-3303, Md66-1258, and C1483 performed especially well.

* In 1969 P.T. IV

Regional Summary

Strain	Yield	Rank	Maturity	Lodging	Height	Seed Quality	Seed Weight	Seed Composition	
								Protein	Oil
No. of Tests	9	9	7	9	9	9	8	6	6
Clark 63	41.5	10	- 0.9	2.7	43	2.5	16.4	40.5	22.0
Cutler	47.0	4	9-28	2.5	43	2.7	18.6	40.8	21.9
Kent	44.3	5	+ 5.5	2.3	41	2.8	17.9	40.7	22.2
C1483	47.4	3	+ 0.5	2.4	50	2.8	17.5	41.9	22.1
H124B-24110	32.8	20	-12.8	2.7	44	3.0	17.8	45.1	19.8
H124C-1661	33.8	19	-13.8	3.1	38	2.9	16.9	44.9	19.0
H127-6742	31.2	21	-13.7	3.0	38	2.9	18.4	45.7	20.0
H127-67410	29.2	22	-14.3	2.9	36	2.7	18.1	45.4	20.1
H128-1836	34.1	18	-13.2	3.1	41	3.0	18.1	45.6	18.8
H131-7383	44.0	6	- 7.2	3.0	49	2.9	16.5	41.6	22.3
H131-8755	37.3	16	-14.0	2.9	46	2.9	15.3	42.0	20.9
H133-5511	36.0	17	- 5.6	3.7	52	2.6	17.1	42.8	20.8
L63-0123-C5-2	40.0	13	- 1.7	2.5	41	2.1	16.8	42.0	22.0
L67-592	42.7	9	- 2.3	2.2	35	2.1	17.7	41.1	22.0
L67-6301	40.1	12	- 1.4	2.8	41	2.3	16.8	41.7	21.5
L68-0417	43.8	7	- 2.1	2.5	41	2.7	19.4	41.7	21.8
L68-0423	41.0	11	- 3.1	2.5	40	2.5	17.6	41.5	21.7
L68-0433	39.8	15	- 1.4	2.7	40	2.4	16.5	41.6	21.6
Md62-3303	50.3	1	+ 1.3	2.8	37	2.3	16.9	39.7	23.2
Md66-1041	39.9	14	+ 3.6	2.4	45	2.8	17.0	40.2	22.3
Md66-1258	48.6	2	+ 1.3	2.2	42	2.6	19.0	40.6	21.7
Md66-1337	43.3	8	+ 5.1	1.8	40	2.5	15.8	40.1	22.7

Disease Data

Strain	BB	BP	BS	BSR		DM	FE_2	PR	
	Ames Iowa n	Ames Iowa n	Laf. Ind. n	Laf. Ind. n [1]	Urb. Ill. n	Worth. Ind. n	Laf. Ind. a	Laf. Ind. a	Ames Iowa a
Clark 63	3	0	5	58	4	4	5	R	H
Cutler	3	+	3	22	4	4	1	S	S
Kent	3	+	4	20	4	2	1	S	S
C1483	3	+	3	16	4	3	1	S	S
H124B-24110	3	+	4	42	4	2	3	R	H
H124C-1661	2	+	3	48	4	3	5	R	R
H127-6742	4	+	5	58	4	2	3	R	H
H127-67410	4	+	4	46	4	3	4	R	H
H128-1836	3	+	3	30	3	3	3	R	R
H131-7383	3	0	4	21	4	4	3	H	H
H131-8755	4	+	4	32	4	3	5	R	H
H133-5511	3	+	4	44	4	3	4	R	H
L63-0123-C5-2	3	+	4	36	1.4	4	5	S	S
L67-592	3	+	3	78	2.5	2	5	S	S
L67-6301	3	+	3	60	1.7	4	5	S	S
L68-0417	3	+	4	22	1.6	4	5	S	S
L68-0423	3	+	3	46	1.6	4	5	S	S
L68-0433	3	+	4	39	1.5	4	5	S	S
Md62-3303	4	+	3	95	4	4	1	S	S
Md66-1041	2	+	4	24	4	5	5	S	S
Md66-1258	3	+	5	11	4	4	1	S	S
Md66-1337	3	+	2	24	4	4	5	S	S

[1] Percent of plants with browning

Descriptive and Shattering Data

Strain	Descriptive Code	Shattering			Chlorosis
		Miss. Stoneville	Kansas Manhattan		Iowa
		2 wk.	2 wk.	4 wk.	Ames
Clark 63	PTNBr DYB1	1	1	1.0	1
Cutler	PTNBr SYB1	5	1	1.0	3
Kent	PTNBr IYB1	5	1	1.0	3
C1483	PGNBr DYBf	4	1	3.3	2
H124B-24110	WTNBr DYB1	5	5	5.0	1
H124C-1661	WGNBr DYY	5	5	5.0	1
H127-6742	PGNBr SYIb	5	5	5.0	2
H127-67410	PGNBr SYBf	5	5	5.0	3
H128-1836	PGNBr SYG	5	5	5.0	5
H131-7383	PTNBr SYB1	4	1	3.8	2
H131-8755	PTNBr SYB1	5	5	5.0	1
H133-5511	PGNBr DYG	5	1	1.0	2
L63-0123-C5-2	PTNBr DYBr	2	1	1.0	2
L67-592	PTNBr DYB1	2	1	1.0	2
L67-6301	PTNBr DYB1	2	1	1.0	2
L68-0417	PTNBr DYB1	2	1	1.0	2
L68-0423	PTNBr DYB1	2	1	1.0	2
L68-0433	PTNBr DYG	3	1	1.0	1
Md62-3303	WTNBr SYB1	2	1	1.0	2
Md66-1041	PTNTn DYB1	2	1	1.0	3
Md66-1258	PTNBr SYB1	2.5	1	1.0	4
Md66-1337	WTNBr SYLb1	1	1	1.0	3

Strain	Mean	Del.	Maryland		Ohio	Indiana		Illinois		Mo.	Neb.	Kansas	
		George-town	Queens-town	Link-wood	Col-umbus	Wor-thing-ton	Evans-ville	Edge-wood	Eldo-rado	Col-umbia	Mead	Man-hat-tan	Col-umbus
		I	*		*						I	I	*
	9 Tests			1970 YIELD (bu/a)									
Clark 63	41.5	45.6	28.6	45.2	40.0	48.2	42.6	43.4	55.4	27.5	34.1	72.7	8.5
Cutler	47.0	56.0	34.4	48.7	55.1	56.3	46.0	52.2	67.0	37.8	34.9	71.5	13.6
Kent	44.3	54.7	29.5	42.2	44.7	54.7	44.9	48.9	61.4	37.3	28.4	70.2	11.9
C1483	47.4	46.5	28.7	46.4	37.0	48.7	59.6	53.0	72.6	35.7	37.0	74.9	14.7
H124B-24110	32.8	42.1	34.7	33.3	42.9	30.4	45.1	40.5	37.6	26.2	31.4	41.7	13.0
H124C-1661	33.8	35.5	24.5	30.8	35.1	29.1	39.6	38.8	36.2	25.0	31.0	38.6	6.3
H127-6742	31.2	36.7	27.1	29.8	31.4	38.0	35.3	37.5	34.8	25.1	29.0	45.9	9.0
H127-67410	29.2	35.0	24.0	26.6	29.8	28.4	30.1	36.7	39.5	26.7	26.7	42.4	7.9
H128-1836	34.1	42.9	29.6	34.5	30.2	28.1	41.8	35.9	45.2	24.9	26.8	50.5	10.2
H131-7383	44.0	41.8	29.7	47.0	40.3	48.4	56.2	49.1	50.3	31.0	46.9	69.4	15.3
H131-8755	37.3	43.1	32.5	36.5	36.7	38.8	49.6	48.5	42.6	29.0	33.8	51.0	12.5
H133-5511	36.0	36.0	35.2	41.3	36.3	43.6	39.5	41.6	37.3	25.9	40.2	54.1	15.3
L63-0123-C5-2	40.0	47.6	31.5	44.4	39.7	33.9	42.1	44.3	56.5	36.1	30.9	64.4	12.5
L67-592	42.7	49.6	39.2	47.1	34.8	48.1	41.0	50.1	57.4	30.0	38.5	64.7	10.8
L67-6301	40.1	47.3	33.8	46.3	39.6	36.9	43.4	45.6	51.8	30.1	30.2	69.5	10.8
L68-0417	43.8	51.3	28.8	47.8	38.4	43.4	44.5	44.5	59.9	35.8	38.0	73.1	13.6
L68-0423	41.0	49.4	35.1	48.4	38.4	42.4	42.6	48.7	60.5	25.5	30.6	61.4	11.3
L68-0433	39.8	51.2	26.7	46.5	43.3	45.9	33.2	43.7	55.8	29.7	30.4	61.1	14.2
Md62-3303	50.3	52.3	38.9	50.9	38.8	60.7	50.7	52.0	56.6	32.6	40.0	56.5	14.2
Md66-1041	39.9	47.0	33.8	41.8	34.5	46.0	48.5	45.6	51.8	28.3	31.5	58.4	19.8
Md66-1258	48.6	56.0	37.0	48.7	36.7	62.3	53.3	57.0	70.1	34.3	38.8	65.9	18.1
Md66-1337	43.3	48.6	33.8	44.2	34.4	55.1	51.0	43.3	67.1	34.9	28.8	60.0	18.7
C.V.(%)	11.6	9.2	--	7	--	16.8	10.4	13.1	9.6	11.3	14.6	10.1	--
L.S.D.(5%)	4.8	8.9	--	5.0	--	15.5	9.7	12.4	10.6	5.7	10.2	12.6	1.4
Row Sp.(in.)		36	30	38	28	38	40	38	36	15	30	30	30
Rows/Plot		1	3	3	1	1	1	1	1	4	1	1	1
Reps		2	3	3	2	2	2	2	2	2	2	2	2

I=Irrigated
* Not included in the mean

Strain	Mean	Del.	Maryland		Ohio	Indiana		Illinois		Mo.	Neb.	Kansas	
		George-town	Queens-town	Link-wood	Col-umbus	Wor-thing-ton	Evans-ville	Edge-wood	Eldo-rado	Col-umbia	Mead	Man-hat-tan	Col-umbus
		I	*		*						I	I	*
	9 Tests	YIELD RANK											
Clark 63	10	14	18	11	6	8	13	15	12	15	9	3	20
Cutler	4	1	7	2	1	3	8	3	4	1	8	4	9
Kent	5	3	15	14	2	5	10	7	5	2	20	5	14
C1483	3	13	17	9	12	6	1	2	1	5	7	1	6
H124B-24110	20	17	6	19	4	20	9	18	19	17	12	21	11
H124C-1661	19	21	21	20	16	21	18	19	21	21	13	22	22
H127-6742	21	19	19	21	20	17	20	20	22	20	18	19	19
H127-67410	22	22	22	22	22	22	22	21	18	16	22	20	21
H128-1836	18	16	14	18	21	16	16	22	16	22	21	18	18
H131-7383	6	18	13	7	5	7	2	6	15	9	1	7	4
H131-8755	16	15	11	17	13	15	6	9	17	13	10	17	12
H133-5511	17	20	4	16	15	12	19	17	20	18	2	16	4
L63-0123-C5-2	13	10	12	12	7	19	15	13	10	3	14	10	12
L67-592	9	7	1	6	17	9	17	5	8	11	5	9	16
L67-6301	12	11	8	10	8	18	12	10	13	10	17	6	16
L68-0417	7	5	16	5	10	13	11	12	7	4	6	2	9
L68-0423	11	8	5	4	10	14	13	8	6	19	15	11	15
L68-0433	15	6	20	8	3	11	21	14	11	12	16	12	7
Md62-3303	1	4	2	1	9	2	5	4	9	8	3	15	7
Md66-1041	14	12	8	15	18	10	7	10	13	14	11	14	1
Md66-1258	2	1	3	2	13	1	3	1	2	7	4	8	3
Md66-1337	8	9	8	13	19	4	4	16	3	6	19	13	2

I=Irrigated
* Not included in the mean

Strain	Mean	Del.	Maryland		Ohio	Indiana		Illinois		Mo.	Neb.	Kansas	
		George-town	Queens-town	Link-wood	Col-umbus	Wor-thing-ton	Evans-ville	Edge-wood	Eldo-rado	Col-umbia	Mead	Man-hat-tan	Col-umbus
		I	*		*					*	I*	I	*
	7 Tests	MATURITY (date)											
Clark 63	- 0.9	+ 7	- 2	0	- 2	- 1	- 3	- 4	- 4			- 1	-6
Cutler	9-28	9-30	9-17	9-19	10-4	9-28	10-1	10-1	9-21			10-7	10-8
Kent	+ 5.5	+ 7	+ 7	+ 6	+ 6	+ 5	+ 6	+ 5	+ 4			+ 6	-2
C1483	+ 0.5	- 2	+ 4	0	+ 6	+ 4	+ 3	0	+ 1			- 2	-2
H124B-24110	-12.8	- 7	-11	-13	-19	-14	-10	-14	-15			-17	-8
H124C-1661	-13.8	- 7	-11	-14	-19	-13	-12	-14	-15			-19	-8
H127-6742	-13.7	- 8	-13	-14	-18	-12	-12	-16	-15			-19	-8
H127-67410	-14.3	- 9	-14	-14	-21	-13	-13	-16	-15			-21	-8
H128-1836	-13.2	-12	-12	-14	-18	-12	-13	-14	-13			-15	-7
H131-7383	- 7.2	- 6	- 4	- 7	-10	- 4	-10	- 9	- 7			- 7	-6
H131-8755	-14.0	- 8	- 7	-13	-21	-14	-12	-16	-15			-20	-7
H133-5511	- 5.6	- 4	- 6	- 9	- 9	- 3	- 8	- 7	- 4			- 5	-4
L63-0123-C5-2-	1.7	+ 5	- 1	0	- 2	- 1	- 1	- 6	- 5			- 4	-4
L67-592	- 2.3	+ 5	- 5	0	- 6	- 4	- 3	- 5	- 4			- 5	-4
L67-6301	- 1.4	+ 5	- 1	0	-14	- 1	- 1	- 5	- 4			- 4	-4
L68-0417	- 2.1	+ 2	0	0	- 1	- 1	- 3	- 5	- 3			- 4	-4
L68-0423	- 3.1	+ 2	- 2	- 1	- 3	- 5	- 2	- 6	- 7			- 3	-6
L68-0433	- 1.4	+ 3	- 4	0	- 2	- 1	- 2	- 4	- 3			- 3	-2
Md62-3303	+ 1.3	+ 4	- 1	0	- 3	+ 3	+ 1	- 4	- 1			+ 6	+1
Md66-1041	+ 3.6	+ 6	+ 4	+ 2	+ 3	+ 6	+ 7	- 3	+ 2			+ 5	+3
Md66-1258	+ 1.3	+ 2	+ 1	0	+ 2	+ 3	+ 1	- 1	+ 2			+ 2	0
Md66-1337	+ 5.1	+ 6	+ 6	+ 3	+ 8	+ 6	+ 9	+ 5	+ 2			+ 5	0
Wayne (III)		--	--	--	- 1	-10	-10	-13	-11	10-9	10-2	- 7	--
Hill (V)		+10	--	+20	--	--	--	+15	+16	--	--	+15	--
Date Planted		6-4	5-26	5-28	5-19	5-25	5-29	5-27	5-21	6-29	5-27	5-11	5-27

I=Irrigated
* Not included in the mean

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

Franklin Park, New Jersey. The trial was planted on June 22 in a fairly wet seedbed. Planting was delayed by two weeks of rain and wet soil. Moisture was adequate through July. August and September were dry and hot. With the exception of the first week in September, rainfall was well below normal until early October. Late planting caused plants to be short. Hot, dry weather late in the growing season hastened maturity.

Cooperator: Alex Puskas, Somerset, New Jersey.

Adelphia, New Jersey. The planting was made on June 2 in dry soil. A shower two days later helped germination. Total rainfall for June through September was 12.86 inches. Total rainfall for July, August and September was 7.88 inches with 4.8 inches of that falling in two storms on July 4 and August 23. In general, the growing season can be characterized as dry. Lack of rainfall reduced yields and hastened maturity. Mean temperatures the fourth week in September were in the mid-80's with highs near 100°. These temperatures, coupled with the lack of moisture caused a sudden maturity in most varieties.

Cooperator: E. C. Visinski, Superintendent, Soils and Crops Research Center.
Soil Type: Freehold loam.
Fertilizer: 15-30-30
Herbicide: 1#/A Treflan

Centerton, New Jersey. Plots were planted on May 27 in a seedbed with fairly good moisture. Rainfall from planting through September totaled 11.25 inches. During this period, four rainfalls accounted for 4.66 inches. All other precipitation came in showers ranging from a trace to .7i inch. Temperatures were high during much of the season and moisture stress was evident much of the time. Maturity was early because of heat and drought. Plants were small and made little growth. Nearly all varieties matured together.

Cooperator: J. Steinke, Research Coordinator, South Jersey Research and Development Center.
Soil Type: Sassafrass sandy loam.
Fertilizer: 25-50-50.
Herbicide: None.

Georgetown, Delaware. Generally the growing season was excellent through August except for considerable cloudiness in late July and early August. September and October were unusually warm and dry setting records. Rainfall during September was only 1.13 inches, and during the first three weeks in October 0.63 inches. Plots were irrigated on August 19 (2 inches) and again on September 5 (2 inches).

Cooperator: E. L. Wisk
Soil Type: Norfolk sandy loam.
Fertilizer: 0-45-90.
Herbicide: 3/4#/A Treflan.
Soil Analysis: Irr.: pH, 6.1; P, VH; K, VH; Ca, 500; Mg, H.
Not Irr.: pH, 6.0; P, VH; K, M; Ca, 420; Mg, M.

Taneytown, Maryland--After Barley. Early growing conditions were very good and the tests got off to an excellent start. However, a drouth in late August and early September severely limited the yields in these tests. A complete canopy was found

in most plots about one month after planting. Excellent weed control was maintained throughout the growing season.

Cooperator: Earle Stonesifer.
Soil Type: Penn-Reading Loam.
Fertilizer: 500#/A 3-9-18
Herbicide: 2#/A Lorox
Soil Analysis: pH, 6.4; P, 205 H; K, 264 H; Mg, 224 + VH.

Clarksville, Maryland. Growing conditions were very good throughout growing season with the exception of heavy rains and winds during the last week of July. At that time, severe lodging occurred in most of the variety plots. This provided a good reading on early lodging resistance and certain lines especially L66L-108 were obviously superior to the bulk of the lines being tested. The soil was in red clover sod for the previous year and was in an excellent state of tilth. Weed control was very good.

Cooperator: Tom Blaney.
Soil Type: Manor Silt Loam.
Fertilizer: 500#/A 5-20-20.
Herbicide: 3#/A Vernam + 6 qt/A Dyanap.
Soil Analysis: pH, 6.2; P, 135 M; K, 180 M; Mg, 224 H.

Queenstown, Maryland. Early growth and development was excellent. Essentially no rain in July, August, and September. Consequently earlier than normal maturity, small seed, and poor yields.

Cooperator: University of Maryland and Wye Institute.
Soil Type: Loam.
Soil Analysis: pH, 6.0; P, 145 H; K, 258 H; Mg, 142 H.

Queenstown, Maryland--After Barley. A very dry growing season was found throughout July, August, and September. Barely satisfactory stands were found in these tests due to a lack of moisture after planting. Weed control was good. Less than two inches of rain fell on these plots from July 30 to October 1.

Cooperator: Lew Smith.
Soil Type: Mattapex Silt Loam.
Fertilizer: 400 lbs. 10-20-20.
Herbicide: 6 qt/A Dyanap at cracking.
Soil Analysis: pH, 6.6; OM, 1.8; P, 140 H; K, 90 M; Mg, 224 + VH.

Poplar Hill, Maryland. Growing conditions were generally fair to good with drouth stresses occuring in late August and September. Weed control was poor in after-barley study where crabgrass became a problem and required some hand hoeing in the 15" rows. Weed control in the after-wheat test was excellent.

Cooperator: Ron Mulford.
Soil Type: Downer Sandy Loam.
Fertilizer: 400#/A 10-20-20.
Herbicide: 6 qt/A Dyanap after barley; 1 pt/A Treflan after wheat.
Soil Analysis: pH, 6.0; P, 310 VH; K, 120 M; Mg, 210 H.

Linkwood, Maryland. Early growth and development excellent. Late season moisture deficient. Maturity earlier than normal. No frost until November 18.

Cooperator: James Johnson.
Soil Type: Sassafras Sandy Loam.

Fertilizer: 300#/A 0-15-30
Herbicide: Treflan, pre-emerge.
Soil Analysis: pH, 6.3; P, 200 H; K, 153 M; Mg, 146 H.

Ottawa, Ontario, Canada. Tests were planted May 15. Early season temperatures were near normal but rainfall was below normal. Plots were irrigated once in each of June, July, and August. Growth was good. In comparison with 1969, lodging was not as extensive.

Cooperator: Ottawa Research Station.
Soil Type: Grenville Loam.
Fertilizer: 400#/A 10-20-30 + 300 #/A NH3 NO3.
Herbicide: None.
Soil Analysis: pH, 6.5.

Kemptville, Ontario, Canada. The months of April and May were slightly warmer and wetter than normal but June was cooler and drier than normal. The months of July, August, and September had cooler days and warmer nights than usual while rainfall was higher than normal in the three months. The maturity of beans was not affected by a fall frost since we did not have a frost until October 18. All things considered, this was a fairly good crop year in Eastern Ontario.

Cooperator: Kemptville College of Agricultural Technology.
Soil Type: Grenville sandy loam.
Fertilizer: 700#/A 0-15-30, fall; 100#/A nitrogen, spring.
Soil Analysis: pH, 6.6; OM, medium; P, high plus; K, high plus; Mg, high plus.

Elora, Ontario, Canada. Planting date was May 25. June and early July conditions were above average temperatures and average rainfall, evenly distributed. Some damage from Linuron occurred after emergence. Flowering occurred one week earlier than normal for most varieties. A three week period without rain occurred immediately after first flowering. Two irrigations with a total application of 1/2 inch of water were applied during this period. Late August and September were very overcast with average temperatures. Maturity was one to two weeks earlier than normal. Plants were tall and considerable lodging occurred.

Cooperator: Crop Science Department, University of Guelph.
Soil Type: London Loam.
Fertilizer: 480#/A 5-20-20, fall applied.
Herbicide: 3/4#/A (active) Treflan ppi + 3/4#/A (active) Linuron preemerge.
Soil Analysis: pH, 7.6; OM, medium; P, M; K, H-; Ca, H; Mg, H.

Ridgetown, Ontario, Canada. Emergence was rapid and uniform. Above normal temperatures and adequate rainfall from the end of May to mid August resulted in bush growth and above average plant height. Drouth conditions occurred during the latter part of August and early September. Bacterial blight was found throughout all plots and some stem canker was present, particularly in the varieties Beeson and Amsoy 71.

Cooperator: Ridgetown College of Agricultural Technology.
Soil Type: Brookston Clay Loam.
Fertilizer: 900#/A 3-11-11.
Herbicide: 4#/A active Amiben

Harrow, Ontario, Canada. The tests were seeded on May 28. Uniform stands were obtained and growth was rapid during June and July. Heavy rains in July caused a considerable amount of lodging. Precipitation during August and September was much

below average. This, combined with early lodging resulted in delayed maturity and lower yields. Variability in U.P. II was very high. The first killing frost (November 16) occurred after all plots were harvested.

Cooperator: Canada Department of Agriculture Research Station.
Soil Type: Brady Sandy Loam.
Fertilizer: 500#/A 5-10-15.
Herbicide: 2 1/2#/A Amiben.

Hoytville, Ohio. Yields were generally below normal due to a later than optimum planting date and a continued dependence on reserve soil moisture as the growing season progressed. Diseases were not of major importance.

Cooperator: J. Trotter.
Soil Type: Hoytville Clay.
Fertilizer: None.
Herbicide: None.
Soil Analysis: pH, 6.5; P, 69; K, 450; Mg, 1093; Mn, 35.

Wooster, Ohio. Soil moisture conditions near normal during May and June, below normal during July, August, and September, and above normal from mid-October to end of harvest season. Temperatures were near normal throughout the growing season.

Cooperator: Glenn Gerber.
Soil Type: Wooster silt loam.
Fertilizer: None.
Herbicide: None.
Soil Analysis: pH, 6.5; P, 122; K, 358; Mg, 593; Mn, 136.

Columbus, Ohio. Soil moisture adequate to excess (late May) during entire growing season. Temperatures slightly below normal for May to August and above normal for September to November. Major diseases consisted of pythium root rot and viruses, but damage appeared to be about the same for all the varieties.

Soil Type: Miami-Brookston silt loam.
Fertilizer: 500#/A of 0-20-20.
Herbicide: Amiben, pre-emergence.
Soil Analysis: pH, 6.5; P, 93; K, 288; Mg, 735; Mn, 91.

East Lansing, Michigan. No data submitted.

Petersburg, Michigan. Test failed.

Knox, Indiana. Planting was June 12, about two weeks later than normal for this location. Soil conditions were very good, emergence rapid, and stands were even. There were 6.17, 4.62, and 1.68 inches of rain in June, July, and August. Temperatures exceeded 90° on 1, 6, and 2 days in June, July, and August. Growth was excellent, particularly of group II strains. Because of consistent rains following maturity, plots were not harvested until November 6. Yields of group I strains were about average for the location, but yields of group II strains were the highest ever recorded for the location.

Cooperator: Frank Pulver.
Soil Type: Maumee loam.
Fertilizer: 300#/A 4-10-10.
Herbicide: 1 qt/A Lasso.
Soil Analysis: pH, 6.0; P, 41#/A; K, 270#/A.

Bluffton, Indiana. Planting was earlier than normal on May 19. Rainfall in June was 1.75 inches, 2.55 inches below normal. Rain in July was 4.36 inches, 1.07 above normal; and in August 2.85 inches. There were 3, 4, and 1 days above 90° temperatures in June, July, and August. Plots were sprayed with $MnSO_4$ on June 18. Growth was somewhat uneven in mid-June, probably due to the limited moisture. Plant growth improved in July and August with above normal rainfall. Plots were harvested on October 3, as soon as group III strains had matured. Yields were the highest ever recorded for the location.

Cooperator: Gerald and Larry Bayless.
Soil Type: Nappanee silt loam.
Fertilizer: 400#/A 6-11-37 plowdown.
Herbicide: 9#/A Amiben.
Soil Analysis: pH, 6.0; P, 54#/A; K, 375#/A.

Lafayette, Indiana. Planting was on May 21, the optimum time at this location. Soil conditions were good and emergence was rapid. Rainfall for June, July, and August was 2.01, 6.62, and 1.08 inches. There were 1, 7, and 2 days during June, July, and August when temperatures exceeded 90°. Early growth was excellent, and there was very little lodging in the plots. Plots were generally free of disease, except for stem canker which was evident in some areas. Consistent rains during September, October, and November interfered with harvest which was not completed until November 24. Yields of group II varieties were good, but later maturing varieties were lower in yield, possibly due to the lack of rain in August.

Cooperator: O. W. Luetkemeier
Soil Type: Chalmers silty clay loam.
Fertilizer: 585 #/A 0-0-60 plowdown; 187#/A 5-20-20; 4% Mn in row.
Herbicide: 1 qt/A Treflan.
Soil Analysis: pH, 6.8; P, 40#/A; K, 270#/A.

Greenfield, Indiana. Planting May 27 was about one week later than normal for this location. Rainfall was 3.56 in June, .94 inches below normal; 8.76 inches in July, 5.16 above normal, and 1.96 inches in August, 1.07 below normal. Growth was good to fair early in the season and by August plots looked very good. There were 2, 13, and 5 days in June, July, and August during which the temperature exceeded 90°. Harvest was delayed until November 5 because of rain. Yields were about average for the location.

Cooperator: Mrs. Raymond Roney
Soil Type: Brookston-Crosby complex.
Fertilizer: 270#/A 6-24-24.
Herbicide: None.
Soil Analysis: pH, 6.8; P, 23#/A; K, 210#/A.

Worthington, Indiana. Planting was May 25, about one week later than normal for the location. Planting conditions in moist soil and emergence were excellent. Rainfall of 5.59, 3.18, and 4.05 inches in June, July, and August was .68 above normal in June and August and .25 below normal for July. There were 10, 7, and 7 days of temperatures above 90° in June, July, and August. Dense stands due to excellent emergence and rapid early growth with the above normal June rainfall resulted in severe lodging of all plots at the location. Fall rains interfered with harvest which was not completed until November 25. In spite of the early lodging, yields were excellent for the location.

Cooperator: Frederic Sloan.
Soil Type: Genesee silt loam

Fertilizer: 400#/A 0-10-40.
Herbicide: 1.3 pt/A Treflan.
Soil Analysis: pH, 7.6; P, 58#/A; K, 180 #/A.

Evansville, Indiana. Planting May 29 was approximately two weeks late for this location. Planting conditions and emergence were good. Rainfall was 5.94, 3.49, and 2.82 inches in June, July, and August; 2.20 inches above normal for June and about normal for the rest of the growing season. Temperatures exceeded 90° 2, 12, and 9 days in June, July, and August. Manganese deficiency was noticed the end of June but promptly corrected by application of $MnSO_4$. Persistent rainfall delayed harvest, which was not completed until November 11. Yields were about average for the location.

Cooperator: Bernard Wagner.
Soil Type: Montgomery silty clay loam.
Fertilizer: 1000#/A 8-8-8.
Herbicide: 1.5 pt/A Treflan.
Soil Analysis: pH, 6.2; P, 60#/A; K, 300#/A.

Henderson, Kentucky.

Ashland, Wisconsin. The soybeans were planted June 10. Temperatures for the growing season were above normal for every month but May. May temperatures averaged 1.7°F below normal due primarily to excessive rainfall. June rainfall was 2.62 inches below normal resulting in some uneveness in emergence and slow growth. Killing frost came three weeks later than normal permitting all varieties to mature.

Cooperator: Wisconsin Agricultural Experiment Station.
Soil Type: Clay loam.
Fertilizer: 300#/A 6-24-24.
Herbicide: None.

Spooner, Wisconsin. The soybean nursery was planted May 28 under ideal soil conditions but 2.5 inches rainfall the following two days compacted soil and made emergence rather difficult and irregular. Some erosion occurred down the rows which washed up some seed. Temperatures were very near normal in May but about 3° above normal in June, and rainfall was 2 1/2 inches below normal. Distribution of rainfall was very good in June. The weather was excellent in July; temperatures were 2° above normal and rainfall 1.12 inches above normal with very good distribution. Temperatures were normal in August but rainfall was 2.4 inches below normal. The nursery was irrigated twice, on August 13 and 24, an application of 1 1/2 inches water on each date. September had normal temperatures and rainfall was 1.1 inches above normal. The rate of maturing was prolonged due to frequent showers and cloudy conditions. The first killing frost of the season occurred on September 28.

Soil Type: Pence sandy loam.
Fertilizer: None.
Herbicide: None.
Soil Analysis: pH, 7.1; OM, 20 T; P, 115; K, 230.

Durand, Wisconsin. Soybeans were planted May 26. Stands were excellent. Temperature averaged slightly above normal during May and June and during the rest of the season slightly below normal. Rainfall averaged below normal during most of the season. Local showers resulted in average yields being obtained.

Cooperator: Anton Sam.
Soil Type: Sandy loam.

Madison, Wisconsin. Madison soybeans were planted May 19. Stands were excellent. Temperature averaged slightly above normal during May and June and slightly below normal during the rest of the growing season. Rainfall was normal during May and 1.7, 1.0, and 2.4 inches below normal during June, July, and August. Rainfall during September was 5.5 inches above normal but arrived too late. Maturity due to July and August drouth was about 7-10 days early.

Soil Type: Miami silt loam.
Fertilizer: 300#/A 0-20-20.
Herbicide: 2#/A Amiben.
Soil Analysis: pH, 6.3; OM, 20; P, 125; K, 175.

Dekalb, Illinois. Good seedbed, good moisture. High fertility, oats in 1969. Plenty of moisture all year long. Excellent weed control. Considerable lodging, good plant height. Earlier planting date than normal at that location. Some green clover worm damage but parasites killed them off before much damage. Good seed quality. Some pod shattering in preliminary I and uniform test I.

Cooperator: R. R. Bell, Northern Illinois Research Center.
Soil Type: Flanagan silt loam.
Fertilizer: None.
Herbicide: 1 qt/A Treflan.
Soil Analysis: pH, 6.4; P_1, 49; P_2, 87; K, 519.

Pontiac, Illinois. Wet weather delayed planting until June 13. Wet weather all year long. Some reps in low area resulting in considerable rep to rep variability. Uniform test on bean ground and preliminary test on corn ground. In general a poor test because of late planting and low spots. Planted named varieties in 7" rows for yield comparison. Averaged 8 bu/A higher yield than 38" rows. Very late harvest because of wet weather (November 8).

Cooperator: Donald Alltop.
Soil Type: Dodgeville silt loam.
Fertilizer: None.
Herbicide: None (hand weeded).
Soil Analysis: pH, 5.7; P_1, 21; P_2, 30; K, 252.

Urbana, Illinois. Planting was timely on May 20 in a good seedbed. Stands and growth were good. Light to heavy bacteria blight occurred and local areas of heavy alternaria leaf spot. Rains delayed harvest of Uniform Tests III and IV. Yields were good.

Cooperator: M. G. Oldham, Illinois Agricultural Experiment Station.
Soil Type: Thorp and cullo silt loam.
Fertilizer: None.
Herbicide: 24 oz/A Treflan, broadcast, Preplant.
Soil Analysis: pH, 6.2; P_1, 74; P_2, 125+; K, 281.

Girard, Illinois. Planting was on May 21 in a cloddy field. Stands and growth were excellent throughout the season. Yields were disappointing in comparison to growth and appearance of the field. Corsoy started to lodge the end of July. General bacterial blight, slight downy mildew, and small areas of severe alternaria leaf spot.

Cooperator: Lloyd Brothers.
Soil Type: Harrison silt loam.
Fertilizer: None.
Herbicide: 2 qt/A, banded.
Soil Analysis: pH, 6.5; P_1, 30; P_2, 103; K, 194.

Edgewood, Illinois. Planting was timely in an excellent seedbed, moist to near the surface and good stands were obtained. Late June and early July were dry and growth was severely but unevenly stunted on this drouthy, clay-pan soil. Later season rainfall was excellent and yields were the highest ever at this location. There was some early stunting and killing which could have been only partly PR since PR resistant lines were affected. BS was observed on lower leaves in June.

Cooperator: John A. Wilson.
Soil Type: Cisne silt loam.
Fertilizer: 150#/A Potash before planting.
Herbicide: 7#/A granular Amiben broadcast at planting.
Soil Analysis: pH, 6.5; P_1, 54; P_2, 107; K, 178.

Trenton, Illinois. Planting was at uneven depth in a variable and uneven seedbed (from moist-fine to dry-cloddy in adjacent rows) and stands were irregular. Four-row plots and heavy growth compensated in part for this. There was some stunting and plant-kill observed in June possibly from the herbicide. DM, BSR, and BB were observed by August. Rainfall was adequate throughout the season and yields were good.

Cooperator: Fred and Don Bergmann.
Soil Type: Harrison silt loam.
Fertilizer: 400#/A 4-12-24.
Herbicide: 1 1/2#/A Lorox broadcast pre-emerge.
Soil Analysis: pH, 6.2; P_1, 35; P_2, 125; K, 211.

Eldorado, Illinois. Planting was timely in a good seedbed and stands were good but early growth in some plots was poor because of excessive rain. Killing resembling PR occurred but PR-resistant Beeson and Amsoy 71 were affected. Leaf spot diseases, BS, DM, and Alternaria, were present in moderate amounts, along with some SC in August. Growth was not quite as heavy as usual here but still heavy lodging occurred and good yields were obtained.

Cooperator: Marshall Grisham.
Soil Type: Harco silt loam.
Fertilizer: 150#/A 7-21-7 at planting.
Herbicide: 1/2 gal/A Amiben banded at planting.
Soil Analysis: pH, 6.4; P_1, 43; P_2, 100; K, 248.

Carbondale, Illinois. Planting was on May 27 in an excellent seedbed. Emergence was very good. Growth was excellent during the early part of the growing season. Dry weather during July may have slightly reduced yield. The center two rows of four-row plots were harvested from three replications. Seed quality was very poor. The group II's were extremely bad with group III's and IV's slightly improved in this factor. Yields were very good.

Soil Type: Stoy silt loam.
Fertilizer: 0-110-180.
Herbicide: 1 qt/A Treflan incorporated.
Soil Analysis: pH, 6.4; OM, 1.3%; P_1, 100; K, 360.

Crookston, Minnesota. No data because of very poor stands.

Morris, Minnesota. Stands were good. Weed control very good. Development of plants normal. Rainfall about normal, though some drouth stress late in summer. Tests appeared to be reliable. Performance fairly typical of the area. Plots all ripened well ahead of frost.

Cooperator: D. D. Warnes.
Soil Type: Baines silt loam.
Fertilizer: None.
Herbicide: 3/4#/A Treflan preplant; 2#/A Amiben preemergence.

St. Paul, Minnesota. Stands uneven because of heavy soil crusting following a hard rain just after planting. Rainfall slight in June. About 1.5 inches of irrigation water applied by overhead sprinklers in late June. Rainfall for July and August about normal, though slight drouth stress in late August. Lodging excessive and plants were slow to achieve threshing condition. Reliability of the tests in this location only fair.

Soil Type: Waukegan silt loam.
Fertilizer: None.
Herbicide: 3/4#/A Treflan.

Lamberton, Minnesota. Moisture and temperatures generally favorable throughout the season, though there was some drouth stress in late August. Stands were good. Weed control was good. All plots ripened ahead of frost date. No disease problems evident. Generally good tests.

Cooperator: W. W. Nelson.
Soil Type: Webster clay loam.
Fertilizer: Medium phosphorus application.
Herbicide: 3/4#/A Treflan preplant, 2#/A Amiben preemergence.

Waseca, Minnesota. Moisture and temperature conditions favorable all season. Good stands. Good weed control. Considerable phytophthora root rot developed in the varieties that are especially susceptible. As usual, the Waseca tests were generally reliable. This is our most consistent location in Minnesota.

Cooperator: W. E. Lueschen.
Soil Type: Le Sueur silty clay loam.
Fertilizer: None.
Herbicide: 3/4#/A Treflan preplant, 2#/A Amiben preemergence.

Sutherland, Iowa. This nursery was planted June 1 with good soil moisture. Precipitation was well below normal throughout the growing season. Weed control was excellent and general growth response and yield were fair. This nursery was considered adequate for making strain comparison.

Cooperator: Northwest Iowa Experiment Association.
Soil Type: Primghat silt loam.
Fertilizer: None.
Herbicide: Treflan.
Soil Analysis: pH, 6.4; P, 13; K, 172.

Kanawha, Iowa. The nursery was planted May 18 with good soil moisture, and in a well prepared seed bed. Temperatures during the growing season were near normal. Precipitation was 3.03 inches below normal in June and 3.15 inches below normal in August. The remaining months of the growing season had near normal precipitation. Plots were kept weed free and growth was fair. This location was considered good for making strain comparisons.

Cooperator: Northern Iowa Experimental Association.
Soil Type: Webster silty clay loam.
Fertilizer: 0-40-40.
Herbicide: Treflan.

Soil Analysis: pH, 5.8; OM, High; P, 61; K, 146.

Waverly, Iowa. This nursery is in northeastern Iowa on flat, Tripoli silt loam. The nursery was planted June 3. Moisture was adequate for the growing season. Plots were kept weed free and agronomic responses were considered good for making strain comparisons.

Cooperator: Elston Buls.
Soil Type: Tripoli silt loam.
Fertilizer: None.
Herbicide: Treflan.
Soil Analysis: pH, 7.0; OM, high; P, 14; K, 59.

Sloan, Iowa. This nursery is located in west central Iowa on flat Salix silt loam. The nursery was planted May 11. Precipitation was below normal throughout the growing season. Growth, yield, and general response were fairly good. This location was considered good for making strain comparisons.

Cooperator: George Campbell.
Soil Type: Salix silt loam.
Fertilizer: None.
Herbicide: Treflan.
Soil Analysis: pH, 6.3; OM, high; P, 16; K, 439.

Ames, Iowa. Soil moisture was fair at planting time. Moisture levels were good throughout the growing season. Temperatures during the growing season were near normal. Plots were kept weed free. Growth and general yield response were good. This nursery was considered good for making strain comparisons.

Cooperator: Agronomy Farm, Agricultural Experiment Station.
Soil Type: Nicollet silt loam.
Fertilizer: 0-80-80.
Herbicide: Amiben broadcast.
Soil Analysis: pH, 6.4; OM, high; P, 67; K, 156.

Clarence, Iowa. This nursery is located in east central Iowa on highly productive soil. Planting was completed on May 8. 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: Treflan.
Soil Analysis: pH, 7.1; OM, high; P, 84#/A; K, 248#/A.

Stuart, Iowa. This nursery is located in south central Iowa. Planting was completed on May 22. Precipitation was below normal in June and July and better than normal in August. Growth, yield, and general response were fair. Strains were not injured by frost. This nursery was considered good for making strain comparisons.

Cooperator: Eugene Kading.
Soil Type: Sharpsburg silt loam.
Fertilizer: None.
Herbicide: Treflan
Soil Analysis: pH, 6.1; P, 48; K, 443.

Ottumwa, Iowa. This nursery is in southeastern Iowa on flat, very productive Haig silty clay loam. The nursery was planted May 22. Temperatures were normal and adequate moisture was available 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: None.
Herbicide: Treflan.
Soil Analysis: pH, 6.0; OM, medium; P, 52#/A; K, 240#/A.

Red Oak, Iowa. This nursery is located in southwest Iowa and is typical of the folling terrain frequented by terraces. Drouth persisted throughout the growing season. Temperatures were normal. The nursery was not considered good for making strain comparisons. No data submitted from this location.

Cooperator: Howard Jackson.
Soil Type: Marshall silt loam.
Fertilizer: None.
Herbicide: Treflan.
Soil Analysis: pH, 6.4; OM, High; P, 36#/A; K, 614#/A.

Spickard, Missouri. The May 6 planting was timely and in a good seedbed. Early growth was good but summer rainfall was extremely limiting. The rains were very persistent after the early maturity, and harvesting was delayed. Consequently weathering caused deterioration of seed quality and loss of yield, especially of the earlier varieties.

Cooperator: University of Missouri.
Soil Type: Seymour silt loam.
Herbicide: 2#/A Amiben.

Columbia, Missouri. Unusually wet weather delayed planting until June 29. The ground was worked too wet so the seedbed was not the best. However stands were acceptable. July and early August rainfall were below normal but growth was good due to adequate stored moisture. September and October again were exceptionally wet which caused delayed harvesting. Seed quality however, did not deteriorate very much here because of the later maturity when the temperature was lower.

Cooperator: University of Missouri.
Soil Type: Mexico silt loam.
Fertilizer: 50-100-150.
Herbicide: 2#/A Amiben.
Soil Analysis: pHw, 7.0; pHs, 6.3; OM, 1.8%; P_2 (P_2O_5) 200; P_1 (P_2O_5), 45; K, 140; Ca, 4300; Mg, 280.

Mount Vernon, Missouri. The seedbed appeared to be reasonably good at the May 8 planting but some of the stands were not as good as expected. The nutsedge was vigorous but was eliminated by cultivation and hoeing. Early growth was good but .19" rain on June 21 was the last in June and only .13" and 1.71" fell in July and August. There was considerable charcoal rot; it was most evident in the early varieties. Maturity of most plots (at least of some plants) was delayed--the pods were mature but the stems and leaves were still green. Broad bean mottle virus was transferred from some of these plants. Seed quality was terrible in general but there were some pretty good ones in IVS and V. However, the alydus bug damage in these was more obvious.

Cooperator: University of Missouri.
Soil Type: Huntington silt loam.
Herbicide: 2 1/2#/A Amiben.

Portageville, Missouri. Growing conditions in 1970 were poor for early and mid season soybeans (Group IV and V) because of extremes in temperature and rainfall. Temperatures were above normal and rainfall below normal in July and August. Rainfall was 5.9, 0.8, 2.1, and 6.4 inches in June, July, August, and September, respectively with 30 year averages of 4.0, 3.8, 3.1, and 3.4, respectively. These conditions were conducive to seedling and root diseases early in the growing season and poor seed set later in the growing season. Plots were irrigated on July 8, July 15, July 27, and September 1 with approximately one inch of water each date. Small infection of cyst nematodes were noticed late in the growing season and probably had little effect on seed yields.

Cooperator: University of Missouri Agricultural Experiment Station.
Soil Type: Tiptonville silt loam.
Fertilizer: None.
Herbicide: Treflan.
Soil Analysis: pH, 5.9; OM, 2.1 (Med.); N, Medium; P, 307 (VVH); K, 350 (VVH); Ca, 3600 (H); Mg, 400 (H).

Portage la Prairie, Manitoba, Canada. Above normal temperatures and rainfall throughout most of the growing season resulted in rapid plant development and fair yields of well matured beans. A dry spell during August prevented yields from going much above 30 bushels per acre. Weed control was good during the entire season.

Cooperator: Special Crops Substation, Canada Agriculture.
Soil Type: Riverdale silty clay loam.
Fertilizer: None.
Herbicide: None.

Winnipeg, Manitoba, Canada. Total precipitation and mean temperatures were near normal during the growing season. However, the soybeans appeared to be suffering from moisture stress in August. There was no significant rainfall from July 14 to August 29. Moisture stress may account for low yields for late maturing varieties.

Cooperator: University of Manitoba.
Soil Type: Riverdale silty clay.
Fertilizer: None.
Herbicide: None.

Morden, Manitoba, Canada. Above normal rainfall from April through July caused flooding and therefore uneven emergence and poor stands. Weed control was inadequate due to the high moisture conditions except for Wild Oats and Setaria which were well controlled by the Trifluralin. Drouth and high temperatures during August also affected plant development and yield. Above normal temperatures occurred throughout the growing season resulting in well matured beans.

Cooperator: Research Station, Canada Agriculture.
Soil Type: Morden heavy clay loam.
Fertilizer: 350#/A 27-14-0.
Herbicide: 1#/A Trifluralin.

Fargo, North Dakota. The nurseries at Fargo were grown under non-irrigation conditions and moisture was limiting during the pod filling stage of growth. This drouth stress (only 0.5 inches of moisture during July and 1.25 inches during

August with above average temperatures) reduced yields from the previous year. A marginal frost of 30°F occurred September 13 and September 27 which affected the plants and hastened leaf drop, but did not completely kill the plants. The killing frost was not until October 9 (27°F). However, I feel the earlier frosts caused a higher than normal variability in bean ripening although I have no conclusive data on this.

Soil Type: Fargo clay.
Fertilizer: None.
Herbicide: 4#/A Amiben.

Oakes, North Dakota. Nurseries were grown under sprinkler irrigation and water added as visually needed. Irrigation was not as uniform as desired because of wind intensity and direction. Multiple row plots should be grown again because of lodging differences among lines. This was the first year for climatological data from this site so deviations from normal are not available. Killing frost occurred Oct. 9 (27°F).

Cooperator: R. Sletteland--Supervisor.
Soil Type: Sandy loam.
Herbicide: None.

Revillo, South Dakota. Excellent growing conditions during the entire season. Excessive rainfall caused need for some hand weed control but no yield loss resulted. Yields were slightly above the expected average for the area. All C.V. values were under 10% and uniformity was generally quite favorable in all tests. No injury from diseases or insects and seed quality was excellent.

Soil Type: Forman clay loam.
Fertilizer: None.
Herbicide: 4#/A Ramrod granules.

Brookings, South Dakota. Yields were about average for the area but variability was excessive due to late summer drouth. Planting was delayed because of too much spring moisture but stands and weed control were excellent. Seed quality was very good in spite of a delay in harvest caused by persistent wet weather in the fall. No insect or disease problems.

Soil Type: Vienna loam.
Fertilizer: 0-30-40.
Herbicide: 3#/A Amiben.

Centerville, South Dakota. Yields were slightly below average because of severe midsummer drouth but yields were acceptable. Some differential drouth injury was observed by the C.V. values of 10.5 and 12.6%. Weed control with Treflan was excellent and stands were ideal. Harvest was delayed because of excessive late summer and fall rain and many green seeds were found in some varieties which resumed growth after fall rain began. Seed quality was well below average for all entries.

Soil Type: Poinsett sandy loam.
Fertilizer: 0-40-0.
Herbicide: 1#/A Treflan liquid.

Elk Point, South Dakota. Yields were well below average because of severe midsummer drouth although conditions were quite favorable in the spring. Excellent weed control was obtained with Ramrod and stand was perfect. Uniformity was not good because of differential drouth injury common on this sandy loam soil, and the C.V. values of 13% and 11.7% bear this out. Harvest was delayed because of extemely wet

conditions in the fall. Seed quality was not very good.

Soil Type: Sarpy River Wash sandy loam.
Fertilizer: None.
Herbicide: 4#/A granular Ramrod.

Concord, Nebraska. Excellent sub-soil moisture was present at planting time. Due to soil crusting, somewhat erratic stands resulted. Early season growth was excellent. Drouth conditions prevailed during July and August when only about one inch of precipitation was received. Severe stress was placed on all varieties but due to good sub-soil moisture, the entries produced a good pod set. The first fall frost arrived ten days before normal so Uniform III entries were immature at frost date. Insects or diseases caused no problems. Good weed control was achieved with herbicides and cultivation.

Cooperator: Russell Moomaw, Extension Agronomist.
Soil Type: Judson silt loam.
Fertilizer: 50#/A P_2O_5.
Herbicide: 2.5#/A Lasso.
Soil Analysis: pH, 6.5; OM, 3.5; N, 20 ppm (low); P, 20 ppm (med); K, 450 ppm (Very High).

Mead, Nebraska. Subsoil moisture level low at beginning of season and very dry and hot weather occurred in late June and July. Growth was slow until first irrigation in July. Three irrigations of alternate rows with intervals between applications were applied on 7-2, 7-6; 7-20, 7-27; and 8-20, 8-21 with two to four inches applied per complete irrigation. Rainfall was above normal and temperatures below normal in September and October. Rainstorm with 120 m.p.h. winds on August 2 caused heavy leaf damage and severe lodging of many genotypes. Frost occurred October 10.

Soil Type: Sharpsburg silty clay loam.
Fertilizer: 40#/A P_2O_5.
Herbicide: 2#/A Amiben.

Powhattan, Kansas. Excessive precipitation (9") occurred from May 18 (planting date) until June 15, but emergence was not hindered. Severe drouth (2.9" precipitation) occurred during the period, June 18 to August 15, causing Group II to drop leaves prematurely. From August 15 until October 1, 7.6" of rain occurred to cause harvest delay and severe seed quality problem. Purple seed stain developed at harvest time.

Cooperator: Bob Sloan.
Soil Type: Grundy silt clay loam.
Fertilizer: 16#/A N, 48#/A P.
Herbicide: 1#/A Treflan, 1.8#/A Amiben.
Soil Analysis: pH, 6.4; OM, 3.1%; P, 29#/A; K, 395 #/A.

Manhattan, Kansas (Dryland).

Manhattan, Kansas (Irrigated). Germination and emergence was delayed due to a hard rain on the same day of planting (May 11). Approximately 11.42" of rainfall occurred after planting until June 20. From June 21 until August 20, 1.48" of precipitation occurred. In addition, 4" of water were added at each of four times, July 3, July 20, August 10, and August 28. Blooming started on June 16 for Group III and June 21 for Group IV varieties and approximate 1/2 bloom occurred around July 20. During harvest, August 20 until October 9, over 12.3" of rain fell causing poor seed quality.

Cooperator: C. Swallow, Superintendent.
Soil Type: Sarpy Fine sandy loam.
Fertilizer: 16#/A N, 48#/A P.
Herbicide: 1#/A Treflan, 1.8#/A Amiben.
Soil Analysis: pH, 7.7; OM, 1.1%; P, 45#/A; K, 305#/A.

Ottawa, Kansas. Excessive rainfall (8.1") occurred during the period May 23 to June 19, but emergence was not hindered. Approximately 1.1" of precipitation fell from June 20 until August 20. Harvest was delayed due to rains (12.25") during August 20 until October 8. Seed quality was poor on Group III and early Group IV strains. Purple seed stain, moldy seeds, and shriveled seeds (drouth) were the greatest problems.

Cooperator: Cliff Gruver.
Soil Type: Wooden silt loam.
Fertilizer: 32#/A N, 96#/A P.
Herbicide: 1#/A Treflan, 1.8#/A Amiben.
Soil Analysis: pH, 6.0; OM, 2.4%; P, 14#/A; K, 252#/A.

Columbus, Kansas. Soybean yields were reduced by a period of very dry weather during July and August. Less than three inches of rain fell during the entire period. Then in September over 13 inches of rain fell. The result was very low yields of poor quality seed. The later maturing strains recovered better than earlier ones and produced higher yields. Time of maturity was affected by the season. In some instances earlier types actually matured later than the later types.

Cooperator: Southeast Kansas Branch Experiment Station.
Soil Type: Silt loam.
Fertilizer: 18-46-60 before planting.
Herbicide: Treflan 1 qt/A.
Soil Analysis: pH, 6.6; P_2O_5, 36; K_2O, 186.

Lubbock, Texas. The 1970 growing season was one of the driest on record; as only 1.6 inches of rainfall was recorded for June, July, and August. Soybeans were irrigated five times, with an average of 3-4 inches of water per irrigation. Summer temperatures were near or slightly over 100°F in much of July and August, so plants had a continuing need for irrigation water. There was no significant insect or disease damage.

Cooperator: Texas A&M University Agricultural Research and Extension Center.
Soil Type: Amarillo loam.
Fertilizer: 40#/A P_2O_5 (0-46-0).
Herbicide: None.
Soil Analysis: pH, 8.1; OM, 1.2%; P_2O_5, Low to Very Low; K_2O, Very High (1000#/A); Ca, Very High (14000+#/A).

Davis, California. The planting date, June 14, was a week later than last year due to the unseasonal cool weather. The seed was inoculated and placed into good soil moisture but emergence was slow. Because of the very late maturity of Group II at this location in previous tests it was dropped this year. Unlike the last three seasons rabbits were not a pest and spider mite readings were low. Irrigations were made every two weeks. Temperatures were below normal. Average yields were slightly higher than in 1968 and 1969.

Cooperator: P. F. Knowles and J. E. Dille.
Soil Type: Yolo Silty Clay.
Fertilizer: None.
Herbicide: None.

Five Points, California. No data submitted.

MORSOY

Morsoy soybeans originated as an F_7 selection from the cross Acme x L48-7289 at the Research Station, Canada Department of Agriculture, Morden, Manitoba. Prior to licensing in January 1970, Morsoy was identified as CM30. It is classified in the earliest maturity grouping, Group 00. It is similar in maturity to Altona under Manitoba conditions but four days later than Altona in Ontario. It will probably be most useful as a full season variety in Manitoba, the northern areas of Ontario, Quebec, and the U.S.A. It could also be useful for late planting in areas with longer growing seasons.

Morsoy was bred for high yield, high oil content, and improved pod and plant height. It is equal or superior in these characteristics to Altona, Flambeau, and Portage. Its improved pod height should result in less loss at harvest than occurs with the other varieties.

It has a purple flower. Seed coat is yellow with a dull luster and a light imperfect black hilum color. The pod is brown.

AMSOY 71

1963 -- Cross CX407 [Amsoy (A1-109) x C1253] made in the field by A. H. Probst at the Purdue Agricultural Experiment Station, Lafayette, Indiana. C1253 is a phytophthora root-rot resistant selection from Blackhawk x Harosoy.

1963-1965 -- Backcrosses to Amsoy, BC_1 through BC_7, made by A. H. Probst and student assistant in the greenhouse and field. All PR inoculations in this period and subsequently were made by F. A. Laviolette and Kirk Athow, Purdue Botany and Plant Pathology Department.

1966 -- F_1 BC_7 grown in the greenhouse. Ten of 23 plants were PR-resistant.

1966,Fall -- F_3. Progenies of 343 F_2 plants were tested for PR and 70 were observed to be homozygous resistant. Sixty-eight were planted in F_3 plant rows in Puerto Rico by Dr. E. E. Hartwig, USDA, Stoneville, Mississippi and harvested by Dr. C. A. Brim, USDA, North Carolina State University.

1967 -- F_4. Sixty-one lines entered in Amsoy BC_7 test at Lafayette. Twelve lines retained for further testing. Also, three F_4 plant selections were retained from each of these 12 lines.

1968 -- The twelve lines were entered in the 1968 Cooperative Amsoy BC_7 test grown at Ames, Iowa; Dekalb, Illinois; Harrow, Ontario; Columbus, Ohio; and Lafayette and Bluffton, Indiana. This test was coordinated by J. R. Wilcox. On the basis of this test CX407BC_7-50, -53, -310, and -326 were retained for further testing. Also, in 1968 lines CX407BC_7-53, -307, and -310 were composited as C1477 and entered in Uniform Test II. C1477 averaged 0.6 bu. per acre above Amsoy over the 33 locations.

1969 -- CX407BC_7-50, -53, -310, and -326 were entered in Uniform Test II. Each of these lines averaged above Amsoy in yield over the 29 locations and were very similar to Amsoy in other respects. There were

no consistent, detectable differences between these four lines in any year of testing.

Seed from the three F_4 plant rows of each of the above four lines was composited and the resulting four lots, CX407BC$_7$-50, -53, -310, and -326, were multiplied separately on the Purdue Agronomy Farm to produce breeders seed. They produced about 46, 49, 54, and 53 bushels of uncleaned seed, respectively. There were no detectable phenotypic differences in these four lines.

1970 -- CX407BC$_7$-50, -53, -310, and -326 lots of seed were composited, designated CX407BC$_7$, and entered in Uniform Test II. There were 181 bushels of cleaned 1969 seed which was divided among several states for 1970 planting as follows:

State	Allotment
Illinois	49.0
Ontario	0.5
Ohio	36.0
Michigan	4.0
Minnesota	5.0
South Dakota	2.5
Iowa	40.0
Nebraska	6.5
Missouri	1.5
Indiana	36.0
Total	181.0

CX407BC$_7$ was named Amsoy 71 and released August 5, 1970.

CUTLER 71

1965-1966 -- Cross CX414 (Cutler x Kent-Rps rxp-SL5) and three subsequent backcrosses were made at Purdue by A. H. Probst and Gerald Gentry, student assistant. A sister line of Kent is one of the parents of Cutler, thus only three backcrosses were made to recover phytophthora resistant Cutler.

1966,Fall -- Of 18 F_1 BC$_3$ plants, 10 were heterozygous resistant to phytophthora root rot. Seed production was very low.

1967 -- F_2 grown in the greenhouse and inoculated with phytophthora by F. A. Laviolette. Of the total F_2 population, 31 plants were homozygous resistant and were planted in F_3 plant rows in the field.

1968 -- The above 31 lines were entered along with Cutler in CX414BC$_3$ Test at Evansville, Indiana. There were no significant differences in yield between the 31 lines or Cutler. The range of yield for the 31 lines was 45.3 to 52.6 bu/A with Cutler averaging 49.7. There were no distinct observable differences for agronomic or chemical characteristics between the lines and only small differences from Cutler. The phytophthora resistant lines averaged slightly taller and lodged slightly more than Cutler. This would be expected if there were some depression in growth of Cutler due to phytophthora.

The six highest yielding lines, CX414BC$_3$-36, -65, -107, -129, -152, and -161, were composited and designated C1481. These six lines originated from four different F_1 plants. The six lines averaged 51.5 bushels per acre and Cutler averaged 49.7. The six lines averaged slightly lower than Cutler in protein and oil content. The C1481 composited seed totalling 43.5 pounds was used as the initial source of breeders seed. It was rechecked for phytophthora resistance prior to compositing.

1969 -- C1481 entered in Uniform Test IV. At 27 locations it averaged 44.5 bushels per acre and Cutler 45.4. At two locations C1481 was significantly below Cutler in yield and in three, C1481 was significantly above Cutler. At the remaining locations yield differences were either non-significant, or did not differ significantly. Breeders seed was multiplied at Lafayette to 74 bushels of cleaned seed.

1970 -- C1481 grown in Uniform Test IV. The 1969 breeder's seed was distributed to cooperating states as follows:

State	Allotment
Delaware	2.0
Illinois	16.5
Indiana	6.5
Kansas	15.5
Kentucky	4.0
Maryland	2.0
Missouri	25.0
Nebraska	2.5
Total	74.0

C1481 was named Cutler 71 and released February 15, 1971.