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U. S. REGIONAL SOYBEAN LABORATORY
URBANA, ILLINOIS

RESULTS OF THE COOPERATIVE UNIFORM SOYBEAN TESTS, 1947 PART I. NORTH CENTRAL STATES

UNITED STATES DEPARTMENT OF AGRICULTURE
AGRICULTURAL RESEARCH ADMINISTRATION
BUREAU OF PLANT INDUSTRY
SOILS, AND AGRICULTURAL ENGINEERING,
DIVISION OF FORAGE CROPS AND DISEASES
COOPERATING WITH
STATE AGRICULTURAL EXPERIMENT STATIONS

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RESULTS OF THE COOPERATIVE UNIFORM SOYBEAN TESTS

PART I. NORTH CENTRAL STATES[1/]

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1947
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Compiled by

Staff of the U. S. Regional Soybean Laboratory

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1/ This annual report of activity at the Soybean Laboratory, as well as of that at the state stations with which the Laboratory cooperates, is a progress report and as such may contain statements which may or may not be verified by subsequent experiments. The fact that any statement has been made herein does not necessarily constitute publication. For this reason citation to particular statements in the Report should not be published unless permission has been granted previously by the Laboratory or the state station concerned.

INTRODUCTION

The cooperative work of the U. S. Regional Soybean Laboratory has been directed toward the breeding of improved varieties and strains of soybeans for industrial use. Uniform soybean nurseries have been grown extensively in the North Central States for the purpose of evaluating the new strains produced through the breeding program. Several superior strains have resulted from this breeding and selection work, and at present four of these are being considered for release by cooperating experiment stations. The pedigrees of these strains have been included in the report.

Nine uniform test groups have been established, the first five of which include strains of proper maturity for the North Central States. The other four groups contain strains adapted to the southern part of the United States, and a summary of performance of these will be found in Part II of this report, which is published separately.

Uniform Test, Group 0, contains the strains that will bloom and mature under the longer days encountered during summer in the Dakotas, Minnesota, and northern Wisconsin. Group I contains strains generally adapted to South Dakota, the southern parts of Minnesota, Wisconsin, and Michigan, and northern Ohio. Groups II, III, and IV, respectively, include strains adapted to locations farther south in the North Central States and to other areas of similar latitude. In general, each group is arranged to include strains differing in maturity by not over 10 to 15 days. Maturity of the strains is expressed as so many days earlier or later than some well-known check or reference variety in the group.

Temperature and rainfall graphs with brief statements of weather conditions at many of the 1947 nursery locations are presented to aid in interpreting the performance of strains under climatic conditions occurring in each locality. The spring of 1947 was marked by unusually heavy rainfall, seriously delaying planting at many of the nursery locations. During the growing season climatic conditions were extremely variable, some locations having ideal growing conditions, whereas other localities experienced such severe droughts during the period of seed development that shriveled seed of unusual composition resulted. Harvesting conditions were excellent in October, permitting most of the nurseries to be harvested under ideal conditions.

COOPERATING AGENCIES AND PERSONNEL
FOR THE
NORTH CENTRAL REGION

Bureau of Plant Industry, Soils, and Agricultural Engineering:
Division of Forage Crops and Diseases: W. J. Morse, J. L. Cartter, F. I. Collins, C. V. Feaster, David Heusinkveld, O. A. Krober, D. F. McAlister, A. H. Probst, L. C. Saboe, C. R. Weber, J. L. Weihing, and L. F. Williams.

Illinois Agricultural Experiment Station
Agronomy Department: W. L. Burlison and C. M. Woodworth

Iowa Agricultural Experiment Station
Farm Crops Department: I. J. Johnson, M. G. Weiss

Kansas Agricultural Experiment Station
Agronomy Department: J. W. Zahnley

Michigan Agricultural Experiment Station
Agronomy Department: L. V. Nelson

Minnesota Agricultural Experiment Station
Agronomy Department: J. W. Lambert

Missouri Agricultural Experiment Station
Field Crops Department: W. C. Etheridge

Nebraska Agricultural Experiment Station
Agronomy Department: F. D. Keim

North Dakota Agricultural Experiment Station
Agronomy Department: T. E. Stoa

Ohio Agricultural Experiment Station
Agronomy Department: J. L. Haynes, L. E. Thatcher

Purdue Agricultural Experiment Station
Agronomy Department: G. H. Cutler, H. H. Kramer

South Dakota Agricultural Experiment Station
Agronomy Department: M. W. Adams

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

LOCATION OF COOPERATIVE NURSERIES

Location	Cooperator	Uniform Group Tests					Prel. Tests			
		O	I	II	III	IV	O	I	G-IV	L-IV
Ottawa, Ontario	Central Exp. Farm	x								
Georgetown, Del.	Georgetown Substa., Del.A.E.S.				x	x				
Beltsville, Md.	Forage Crops & Diseases, U.S.D.A.				x	x				
Blacksburg, Va.	Va. Agr. Exp. Sta.					x				
Holgate, Ohio	N.W. Br. Ohio Agr. Exp. Sta.			x						
Wooster, Ohio	Ohio Agr. Exp. Sta.		x							
Columbus, Ohio	Ohio State University		x	x	x			x		
Bath, Michigan	Michigan Agr. Exp. Sta.	x								
E. Lansing, Mich.	Mich. Agr. Exp. Sta.			x						
Walkerton, Ind.	Elburt Place			x			x			
Bluffton, Ind.	Gerald Bayless			x						
Lafayette, Ind.	Purdue Agr. Exp. Sta.			x	x					
Greenfield, Ind.	Benjamin Roney			x	x					
Worthington, Ind.	Frederic Sloan			x	x	x			x	
Vincennes, Ind	Charles Schenk					x			x	
Evansville, Ind.	Bernard Wagner					x			x	x
Spooner, Wis.	Branch, Wis. Agr. Exp. Sta.	x					x			
Eau Claire, Wis.	Eau Claire County Farm	x	x				x			
Madison, Wis.	Wis. Agr. Exp. Sta.		x	x				x		
Compton, Ill.	Clarence Ackland		x	x						
Dwight, Ill.	Frank Roeder			x	x					
Urbana, Ill.	Ill. Agr. Exp. Sta.			x	x	x				
Clayton, Ill.	Russell S. Davis				x	x				
Stonington, Ill.	Frank Garwood & Sons				x	x				
Edgewood, Ill.	John Wilson				x	x			x	x
Freeburg, Ill.	Loren Wilderman				x	x				x
Eldorado, Ill.	Cyril Wagner				x	x				x
Morris, Minn.	Branch, Minn. Agr. Exp. Sta.	x								
St. Paul, Minn.	Minn. Agr. Exp. Sta.	x	x					x		
Waseca, Minn.	S.E. Branch, Minn. Agr.Exp.Sta.		x							
Cresco, Iowa	Howard Co. Agr. Exp. Assn.		x							
Kanawha, Iowa	N. Iowa Agr. Exp. Assn.		x	x						
Marcus, Iowa	John Sand			x						
Hudson, Iowa	Strayer Seed Farms			x						
Ames, Iowa	Iowa Agr. Exp. Sta.			x	x					
Ottumwa, Iowa	Ronald Lamis				x					
Shelbyville, Mo.	Ralph Van Houten & Sons				x	x				
Columbia, Mo.	Mo. Agr. Exp. Sta.				x	x			x	x
Park River, N.D.	Walsh Co. Agr. & Training School	x								
Fargo, N.D.	N.D. Agr. Exp. Sta.	x					x			
Rosholt, S.D.	I. Voss	x								
Brookings, S.D.	S.D. Agr. Exp. Sta.		x							
Centerville, S.D.	Guy Brooks			x						
Wakefield, Nebr.	University of Nebraska			x						
Lincoln, Nebr.	Nebr. Agr. Exp. Sta.			x	x					
Manhattan, Kans.	Kans. Agr. Exp. Sta.				x	x				
Thayer, Kans.	S.E. Kans. A. E. Field					x				
Corvallis, Ore.	Oregon Agr. Exp. Sta.	x								

MAP OF THE NORTH CENTRAL STATES SHOWING LOCATION OF THE COOPERATIVE UNIFORM SOYBEAN TESTS, 1947.

METHODS

All Uniform Tests have been planted in replicated rod-row plots, using either a lattice or a randomized block design with four replications. Row widths used at the different test locations have varied from 18 to 42 inches, depending upon the width in common use or the equipment available for handling the crop. Seeding rates have also varied with locations, the most prevalent rates being 150 to 200 viable seeds per row. Rates within this range have given satisfactory stands throughout the region under normal soil and weather conditions at planting time.

Yields were taken on individual replications after the seed had been dried to a uniform moisture content basis.

Chemical composition was determined for each strain at each location in Groups 0 and I, and for some locations in Groups II, III, and IV. Chemical composition was determined for the remaining locations in Groups II, III, and IV on composite samples prepared by combining equal weights of seed from each location. The location composites were prepared by combining equal weights of seed of each of the strains in a Group Test at an individual location. Percentage composition of the seed is expressed on a dry basis (moisture free). Seed weight for each strain was determined on the variety composite or by individual locations, and was recorded as weight (in grams) per 100 seeds.

Lodging notes were recorded on a scale of 1 to 5 according to the following criteria:

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

Height was determined as the average length of plants in a plot from the ground to the top extremity at time of maturity.

Maturity was taken as the date when the leaves had dropped, the pods were ripe, and the stems were fairly dry. Maturity in all summaries is expressed as days earlier (-) or later (+) than a standard or reference variety. Reference varieties used for the different Uniform Tests are as follows: Group 0, Mandarin (Ottawa); Group I, Mandarin (Ottawa); Group II, Richland; Group III, Lincoln; and Group IV, Gibson.

Seed Quality was rated from 1 to 5 according to the following scale:

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

The factors considered in estimating seed quality were: Development of seed; wrinkling; damage; and color for the variety.

Calculating Means. In most cases where the lodging and seed quality notes were 1, indicating no difference between strains at a location, these locations were not included in the mean.

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

Code Letter	State	Code Letter	State
L	Illinois	Au	Alabama
C	Indiana	R	Arkansas
A	Iowa	Fl	Florida
K	Kansas	Ga	Georgia
E	Michigan	La	Louisiana
M	Minnesota	D	Mississippi
S	Missouri	N	North Carolina
U	Nebraska	Ok	Oklahoma
F	North Dakota	SC	South Carolina
H	Ohio	UT	Tennessee
B	South Dakota	TS	Texas
W	Wisconsin	V	Virginia

UNIFORM TEST, GROUP O

The Group O Test consisted of six named varieties and five selections from hybrids. The origin of these varieties and strains is as follows:

Variety or Strain	Source or Originating Agency	Origin
Capital	Central Exp. Farm, Ottawa	Sel. from Strain 171 x A.K. (Harrow)
Flambeau	Wis. Agr. Exp. Station	Sel. from Manchu
Goldsoy	Ontario Agr. College	Sel. from O.A.C. 211
Kabott	Central Exp. Farm, Ottawa	Sel. from Intr. from Ninguta, Manchuria
Mandarin (Ott.)	Central Exp. Farm, Ottawa	Sel. from Mandarin
Montreal Manchu	T. B. MacCauley, Montreal	Sel. from Manchu
F372-8	N.D. Agr.Exp.Sta. & U.S.R.S.L.	Sel. from Illini x Mandarin
F457-18	N.D. Agr.Exp.Sta. & U.S.R.S.L.	Sel. from Cayuga x Hudson Manchu
F457-28	N.D. Agr.Exp.Sta. & U.S.R.S.L.	Sel. from Cayuga x Hudson Manchu
H106-461	Ohio Agr.Exp.Sta. & U.S.R.S.L.	Sel. from Mukden x Mandarin
W4-623	Wis. Agr.Exp.Sta. & U.S.R.S.L.	Sel. from Richland x Kabott

No new strains were entered in Group O in 1947. Data for 10 locations are summarized in tables 1 to 4. Rosholt, in the extreme northeast section of South Dakota, was a new location entered for the first time in 1947. The order of yield rank has not changed much from the 1946 data, but Montreal Manchu exceeded Capital in yield this year, whereas Capital exceeded Montreal Manchu by two bushels in 1946. Capital was relatively later and had a relatively higher oil content in 1947 than in 1946. Maturity data were available from seven locations in 1947 and only four in 1946.

The two-year summaries in tables 5 and 6 present data for eleven strains. Capital has the highest average yield and the highest percentage of oil. Its worst fault is its susceptibility to lodging. Montreal Manchu has proven to be a good variety in these tests. It is tall, relatively erect, early, and has a fairly good oil content. These two strains should compete well with Mandarin, being taller, earlier, and higher yielding.

Goldsoy has yielded as well in proportion to its maturity as have the above strains. It is quite short and lodges rather badly for such a short strain. For a very early variety, Flambeau continues to be the best strain available. The new selections in this test have not yielded well enough to justify their release.

Table 1. Summary of agronomic and chemical data for the strains in the Uniform Test, Group O, 1947.

Strain	Mean Yield Bu/A.	Lodging	Height Inches	Maturity[1]	Seed Quality	Seed Weight	Percentage of Protein	Percentage of Oil	Iodine Number of Oil
No. of Tests	10	5	9	7	8	10	10	10	10
Montreal Manchu	25.0	2.4	31	-2.3	1.6	16.1	41.6	20.5	131.7
Capital	24.1	2.4	29	-1.0	2.1	12.9	40.9	21.4	131.6
Mandarin (Ott.)	23.9	1.2	27	0	2.5	18.0	42.2	20.6	128.4
Goldsoy	23.1	2.5	24	-5.7	2.3	18.1	42.7	19.8	132.6
H106-461	23.1	1.9	30	-0.6	2.3	14.6	42.5	20.6	128.5
Flambeau	21.8	2.2	27	-9.0	1.9	15.5	38.1	20.5	129.2
F457-28	21.5	1.5	27	-3.7	1.9	15.1	42.5	19.8	128.7
W4-623	21.3	1.8	26	-5.6	2.1	17.7	41.4	20.7	129.8
Kabott	20.7	1.7	24	-10.3	1.8	18.9	43.4	19.9	130.9
F372-8	20.4	1.8	32	-3.4	1.8	15.5	42.9	20.3	130.1
F457-18	20.1	1.9	27	-3.9	2.3	13.8	44.0	19.8	128.1
Mean	22.3	1.9	28		2.1	16.0	42.0	20.4	130.0

[1]Days earlier (-) or later (+) than Mandarin (Ottawa). Mandarin (Ottawa) required 124 days to mature.

Table 2. Summary of yield in bushels per acre and yield rank for the strains in the Uniform Test, Group O, 1947.

Strain	Mean of 10 Tests	Ottawa Ont.	Bath Mich.	Spooner Wis.	Eau Claire Wis.	St. Paul Minn.	Morris Minn.	Fargo N.D.	Park River N.D.	Rosholt S.D.	Corvallis Oreg.
Montreal Manchu	25.0	33.5	29.3	27.2	22.7	26.7	19.6	26.9	28.9	13.7	21.0
Capital	24.1	29.8	34.7	24.4	22.8	26.2	18.4	21.2	26.1	17.6	20.2
Mandarin (Ott.)	23.9	30.4	35.0	26.2	21.0	28.2	19.2	22.0	24.8	13.5	18.2
Goldsoy	23.1	30.4	39.9	19.4	19.6	18.5	19.5	27.9	27.5	12.5	16.2
H106-461	23.1	30.1	39.2	24.0	17.8	22.7	17.1	20.6	25.2	16.8	17.4
Flambeau	21.8	26.4	34.8	22.1	20.0	17.5	19.5	24.3	27.2	11.3	15.1
F457-28	21.5	30.3	32.4	21.5	16.0	20.9	16.6	22.7	27.8	13.2	13.2
W4-623	21.3	26.5	34.0	21.2	17.9	22.1	18.1	23.4	24.6	11.2	14.3
Kabott	20.7	25.2	36.0	21.8	14.7	20.1	17.1	22.8	29.1	8.2	12.3
F372-8	20.4	28.7	29.6	20.9	15.2	21.3	15.8	22.8	25.1	10.7	13.4
F457-18	20.1	25.9	31.5	20.8	15.5	18.9	16.5	23.9	28.3	11.9	7.8
Mean	22.3	28.8	34.2	22.7	18.5	22.1	17.9	23.5	26.8	12.8	15.4
Coef. of Var. (%)		--	--	9.1	17.3	--	--	--	--	10.8	--
Bu.Nec.for Sig.(5%)		3.2	--	2.9	4.6	4.2	--	--	--	2.0	--

	Yield Rank									
Montreal Manchu	1	11	1	2	2	1	2	2	3	1
Capital	6	6	3	1	3	5	10	7	1	2
Mandarin (Ottawa)	2	4	2	3	1	4	9	10	4	3
Goldsoy	2	1	11	5	10	2	1	5	6	5
H106-461	5	2	4	7	4	7	11	8	2	4
Flambeau	9	5	5	4	11	2	3	6	8	6
F457-28	4	8	7	8	7	9	8	4	5	9
W4-623	8	7	8	6	5	6	5	11	9	7
Kabott	11	3	6	11	8	7	6	1	11	10
F372-8	7	10	9	10	6	11	6	9	10	8
F457-18	10	9	10	9	9	10	4	3	7	11

Table 3. Summary of lodging and height data for the strains in the Uniform Test, Group O, 1947.

Strain	Mean of 5 Tests	Ottawa Ontario	Bath Mich.	Spooner Wis.	Eau Claire Wis.	St. Paul Minn.	Fargo N. D.	Park River N. D.	Ros-holt S.D.	Corval-lis Oregon
Montreal Manchu	2.4	2.0	2.2	4.0	1.0	3.0		1.0	1.0	
Capital	2.4	1.5	3.0	2.5	2.0	3.0		1.0	1.0	
Mandarin (Ott.)	1.2	1.0	2.0	1.0	1.0	1.0		1.0	1.0	
Goldsoy	2.5	4.0	2.4	1.7	2.3	2.0		1.0	1.0	
H106-461	1.9	1.0	2.0	2.2	1.3	3.0		1.0	1.0	
Flambeau	2.2	2.0	2.5	2.5	1.8	2.0		1.0	1.0	
F457-28	1.5	1.0	2.1	2.2	1.0	1.0		1.0	1.0	
W4-623	1.8	2.0	2.6	1.0	1.3	2.0		1.0	1.0	
Kabott	1.7	2.0	2.4	1.0	1.3	2.0		1.0	1.0	
F372-8	1.8	1.0	2.0	3.0	1.0	2.0		1.0	1.0	
F457-18	1.9	1.0	2.3	2.7	1.3	2.0		1.0	1.0	
Mean	1.9	1.7	2.3	2.2	1.4	2.1		1.0	1.0	

	Mean of 9 Tests	Height								
Montreal Manchu	31	41	39	32	27	32	26	24	26	29
Capital	29	37	37	30	26	30	26	25	26	28
Mandarin (Ott.)	27	34	31	33	22	29	23	25	24	26
Goldsoy	24	34	29	25	21	28	23	22	22	16
H106-461	30	39	35	30	28	33	26	26	29	27
Flambeau	27	36	32	28	24	30	24	23	27	22
F457-28	27	40	32	29	21	30	24	23	24	22
W4-623	26	35	33	26	21	31	23	24	24	21
Kabott	24	31	29	24	22	29	22	23	22	18
F372-8	32	45	39	32	23	35	25	27	28	30
F457-16	27	36	32	29	22	32	25	25	25	21
Mean	28	37	33	29	23	31	24	24	25	24

Table 4. Summary of maturity data, days earlier (-) or later (+) than Mandarin (Ottawa), and percentage oil for the strains in the Uniform Test, Group 0, 1947.

Strain	Mean of 7 Tests	Ottawa Ont.	Bath Mich.	Spooner Wis.	Eau Claire Wis.	St. Paul Minn.	Morris Minn.	Fargo N.D.	Park River N.D.	Rosholt S.D.	Corvallis Oreg.
Montreal Manchu	-2.3	-2		-5	-2	-2			+1	+1	-7
Capital	-1.0	-2		-6	-1	-2			+5	0	-1
Mandarin (Ott.)	0	0		0	0	0			0	0	0
Goldsoy	-5.7	-5		-8	-3	-9			-6	-1	-8
H106-461	-0.6	+2		-5	0	-2			-1	+1	+1
Flambeau	-9.0	-9		-16	-9	-10			-5	-2	-12
F457-28	-3.7	-2		-4	-4	-6			-5	-2	-3
W4-623	-5.6	-9		-14	-4	-5			-3	+1	-5
Kabott	-10.3	-16		-17	-6	-14			-7	-2	-10
F372-8	-3.4	-3		-8	-3	-5			-4	-1	0
F457-18	-3.9	0		-9	-6	-8			-5	-2	+3
Date planted		5/29		5/28	5/22	5/28			5/24	5/31	5/7
Mand.(Ott.) matured		10/1		9/28	9/17	9/23			9/27	9/20	9/30
Days to mature	124	125		123	118	118			126	112	146

	Mean of 10 Tests	Percentage Oil									
Montreal Manchu	20.5	20.4	19.7	19.7	20.0	20.1	21.1	21.4	19.4	22.8	20.1
Capital	21.4	22.1	22.0	20.6	21.3	21.5	21.3	22.1	19.6	23.3	20.5
Mandarin (Ott.)	20.6	20.4	21.0	20.0	20.1	20.5	20.8	21.9	19.2	22.3	19.7
Goldsoy	19.8	19.1	19.6	19.2	19.1	19.2	19.7	21.9	19.5	22.0	19.0
H106-461	20.6	20.0	20.7	19.6	19.1	20.6	21.2	22.0	20.1	23.0	19.4
Flambeau	20.5	20.7	19.7	20.3	20.5	20.5	20.3	22.4	19.4	21.5	19.4
F457-28	19.8	20.2	20.1	19.5	19.7	19.9	19.3	20.7	19.5	21.0	18.4
W4-623	20.7	20.8	20.6	20.6	20.2	20.8	20.8	21.8	19.5	22.0	19.6
Kabott	19.9	19.2	19.9	20.6	19.3	20.0	19.6	21.3	19.0	21.1	18.6
F372-8	20.3	20.4	19.7	19.4	20.3	20.8	20.7	21.9	19.4	22.1	18.7
F457-18	19.8	20.1	19.1	19.8	20.0	19.7	19.9	20.7	19.3	21.3	18.5
Mean	20.4	20.3	20.2	19.9	20.0	20.3	20.4	21.6	19.4	22.0	19.3

Table 5. Two-year summary of agronomic and chemical data for the strains in the Uniform Test, Group O, 1946-47.

Strain	Mean Yield Bu/A	Lodging	Height Inches	Maturity[1]	Seed Quality	Seed Weight	Percentage of Protein	Percentage of Oil	Iodine Number of Oil
No. of Tests	17	8	15	11	11	17	18	18	18
Capital	25.0	2.3	29	-2.4	2.2	12.4	40.1	20.6	134.3
Montreal Manchu	24.5	1.8	30	-3.2	1.8	15.9	41.3	19.5	135.0
Mandarin (Ottawa)	23.7	1.2	26	0	2.6	17.3	41.9	19.8	131.9
Goldsoy	22.6	2.3	23	-6.9	2.2	17.8	42.3	19.4	134.9
H106-461	21.8	1.6	29	-1.1	2.2	13.9	42.3	19.8	131.6
Flambeau	21.5	2.2	26	-11.8	2.1	15.1	39.5	19.6	132.2
W4-623	21.3	1.6	25	-7.0	2.2	17.2	41.1	19.9	132.7
F457-28	20.7	1.4	27	-5.6	2.0	14.5	41.7	19.2	132.0
Kabott	20.6	1.8	24	-12.4	1.8	18.6	42.8	19.4	132.9
F457-18	20.0	1.9	27	-5.1	2.3	13.7	43.4	19.3	131.3
F372-8	19.0	1.5	31	-4.6	1.8	14.8	42.3	19.8	133.1
Mean	21.8	1.8	27		2.1	15.6	41.7	19.6	133.0

[1] Days earlier (-) or later (+) than Mandarin (Ottawa). Mandarin (Ottawa) required 125 days to mature.

Table 6. Two-year summary of yield in bushels per acre and yield rank for the strains in the Uniform Test, Group O, 1946-47.

Strain	Mean of 17 Tests	Ottawa Ontario	Spooner Wis.	St. Paul Minn.	Morris Minn.	Fargo N. D.	Park River N. D.	Corvallis Oregon
Capital	25.0	33.8	17.3	17.4	22.7	21.8	24.1	22.4
Montreal Manchu	24.5	33.3	19.0	17.8	21.7	24.0	24.7	23.1
Mandarin (Ottawa)	23.7	29.9	18.0	18.6	21.9	21.5	21.9	22.1
Goldsoy	22.6	29.5	15.5	14.8	21.8	23.9	23.5	16.9
H106-461	21.8	29.6	15.4	16.3	17.9	19.4	21.0	19.0
Flambeau	21.5	28.4	16.6	14.2	22.7	20.8	22.9	16.8
W4-623	21.3	28.3	16.4	16.7	19.4	22.5	21.7	16.3
F457-28	20.7	29.0	16.8	13.7	18.6	19.2	23.1	15.9
Kabott	20.6	27.2	18.3	15.7	18.2	19.0	23.5	17.0
F457-18	20.0	26.5	17.3	14.1	20.8	21.0	23.5	11.4
F372-8	19.0	28.9	15.3	16.0	16.2	19.5	20.9	14.7
Mean	21.8	29.5	16.9	15.9	20.2	21.1	22.8	17.8

	Yield Rank						
Capital	1	4	3	1	4	2	2
Montreal Manchu	2	1	2	5	1	1	1
Mandarin (Ottawa)	3	3	1	3	5	8	3
Goldsoy	4	9	8	4	2	3	6
H106-461	5	10	5	10	9	10	4
Flambeau	8	7	9	1	7	7	7
W4-623	9	8	4	7	3	9	8
F457-28	6	6	11	8	10	6	9
Kabott	10	2	7	9	11	3	5
F457-28	11	4	10	6	6	3	11
F372-8	7	11	6	11	8	11	10

PRELIMINARY TEST, GROUP O

The Preliminary Test, Group O, consisted of three named varieties and fifteen selections from hybrids. The origin of these varieties and strains is as follows:

Variety or Strain	Source or Originating Agency	Origin
Capital	Central Exp. Farm, Ottawa	Sel. from Strain 171 x A.K. (Harrow)
Flambeau	Wis. Agr. Exp. Station	Sel. from Manchu
Mandarin (Ottawa)	Central Exp. Farm, Ottawa	Sel. from Mandarin
O-10	Central Exp. Farm, Ottawa	Sel. from a natural cross in Manchu
O-255	Central Exp. Farm, Ottawa	Sel. from Strain 171 x A.K. (Harrow)
M305-2	Central Exp. Farm, Ottawa	Sel. from variety Moscow
F357-5	N. Dak. A.E.S. & U.S.R.S.L.	Sel. from Mandell x Mandarin
F372-9	N. Dak. A.E.S. & U.S.R.S.L.	Sel. from Illini x Mandarin
F427-14	N. Dak. A.E.S. & U.S.R.S.L.	Sel. from Cayuga x Mandarin
W4-610	Wis. A.E.S. & U.S.R.S.L.	Sel. from Richland x Kabott
W4-631	Wis. A.E.S. & U.S.R.S.L.	Sel. from Richland x Kabott
W5S-2070	Wis. A.E.S. & U.S.R.S.L.	Sel. from Mukden x Kabott
W5S-4123	Wis. A.E.S. & U.S.R.S.L.	Sel. from Richland x Kabott
W5S-4135	Wis. A.E.S. & U.S.R.S.L.	Sel. from Richland x Kabott
W5S-4141	Wis. A.E.S. & U.S.R.S.L.	Sel. from Kabott x Goldsoy
W5S-4142	Wis. A.E.S. & U.S.R.S.L.	Sel. from Kabott x Goldsoy
W5S-4143	Wis. A.E.S. & U.S.R.S.L.	Sel. from Mukden x Pagoda
W5S-4149	Wis. A.E.S. & U.S.R.S.L.	Sel. from Lincoln x Pagoda

The fifteen experimental strains in this test have been entered from the breeding programs of the northern states and Canada. These preliminary tests act as a screening process and help to insure that the strains entering the Uniform tests are of suitable maturity and are agronomically promising. The test this year was grown at five locations, but the one at Ottawa is not reported because of adverse weather conditions there. The test at Walkerton, Indiana, was grown on a muck soil much south of Group O territory, but the yield results (table 8) indicate that varieties have responded about the same at Walkerton as at Spooner and Eau Claire, Wisconsin. Maturity indices were available from only two locations (table 9), but these agree in indicating that all the strains entered were early enough for Group O. The Spooner maturity data are probably a better indication of the future performance of these strains in Group O than are those from Walkerton, since Walkerton is so much farther south and was planted a month later than normal. The strains from Ottawa have done exceptionally well, the first four and the seventh highest yielders having come from that station. Mandarin (Ottawa) is the latest strain in the test and should be one of the highest yielders if not frosted. The strain O-255 looks promising. It is of the same parentage as Capital which performed so well in 1946. O-255 is as tall as Capital and Mandarin (Ottawa), resists lodging better, is earlier, and has averaged as high in oil content as Mandarin (Ottawa) and Capital. Strain W4-610 also merits trial in the Uniform group test in 1948. It is high in oil, early, and erect, but is rather short.

Table 7. Summary of agronomic and chemical data for the strains in the Preliminary Test, Group O, 1947.

Strain	Mean Yield Bu/A	Lodging	Height Inches	Maturity[1]	Seed Quality	Seed Weight	Percentage of Protein	Percentage of Oil	Iodine Number of Oil
No. of Tests	4	3	4	2	3	4	4	4	4
Mandarin (Ottawa)	24.0	1.9	25	0	2.3	19.1	43.1	20.4	127.8
O-255	23.7	1.4	25	-6	2.3	14.0	41.4	20.3	130.9
Capital	22.4	2.6	25	-3	2.0	12.9	41.2	20.4	131.9
M305-2	21.8	1.5	23	-12	1.7	19.4	41.5	19.2	128.3
W4-610	21.5	1.3	23	-9	2.0	20.5	42.1	21.1	129.2
W4-631	21.5	1.7	25	-9	1.3	18.6	43.0	20.9	130.1
O-10	21.4	1.6	26	-8	2.3	14.8	43.4	19.6	135.1
W5S-4142	21.2	1.8	23	-14	1.7	18.8	42.3	20.5	130.9
W5S-4135	21.1	1.5	23	-11	1.7	19.1	42.3	20.7	132.6
W5S-4141	20.9	2.5	25	-8	2.0	18.9	43.2	19.8	132.0
Flambeau	20.7	1.9	24	-13	2.0	16.0	43.2	20.3	127.8
F357-5	20.1	2.3	25	-8	3.3	16.6	43.4	19.4	130.1
W5S-4143	18.6	1.3	27	-13	2.7	16.2	43.7	20.1	122.2
W5S-4123	18.6	1.3	23	-15	2.7	17.3	43.3	19.9	130.1
W5S-2070	18.5	1.2	27	-11	3.0	16.3	43.9	20.3	122.3
F372-9	18.4	1.0	23	-9	1.7	15.5	42.5	21.0	129.3
W5S-4149	18.1	1.4	24	-6	2.0	14.8	41.3	21.5	129.7
F427-14	17.8	2.2	24	-5	2.3	16.4	43.6	19.3	128.8
Mean	20.6	1.7	24		2.2	17.0	42.7	20.3	129.4

[1] Days earlier (-) or later (+) than Mandarin (Ottawa). Mandarin (Ottawa) required 115 days to mature.

Table 8. Summary of yield in bushels per acre and yield rank for the strains in the Preliminary Test, Group O, 1947.

Strain	Yield					Yield Rank			
	Mean of 4 Tests	Walkerton Ind.	Spooner Wis.	Eau Claire Wis.	Fargo N.D.	Walkerton Ind.	Spooner Wis.	Eau Claire Wis.	Fargo N.D.
Mandarin (Ottawa)	24.0	24.9	27.1	20.4	23.4	1	1	2	10
O-255	23.7	18.6	26.8	20.0	29.5	6	2	3	1
Capital	22.4	20.6	26.0	20.0	22.8	3	3	3	11
M305-2	21.8	19.2	22.8	19.9	25.3	4	10	5	6
W4-610	21.5	18.3	24.1	18.2	25.5	8	4	8	5
W4-631	21.5	20.7	20.9	18.2	26.1	2	14	8	3
O-10	21.4	18.6	23.2	21.8	22.0	6	9	1	14
W5S-4142	21.2	18.9	21.2	18.2	26.3	5	13	8	2
W5S-4135	21.1	16.5	23.6	18.8	25.6	12	7	7	4
W5S-4141	20.9	18.0	24.1	16.7	24.9	9	4	16	7
Flambeau	20.7	16.4	23.8	18.1	24.3	13	6	11	8
F357-5	20.1	17.9	22.0	17.8	22.5	10	11	12	13
W5S-4143	18.6	14.9	22.0	17.4	20.0	15	11	13	15
W5S-4123	18.6	14.9	18.4	17.3	23.6	15	18	14	9
W5S-2070	18.5	14.9	20.7	19.1	19.1	15	15	6	16
F372-9	18.4	15.1	20.5	15.3	22.6	14	16	17	12
W5S-4149	18.1	14.0	23.6	17.1	17.6	18	7	15	18
F427-14	17.8	17.9	20.1	13.9	19.1	10	17	18	16
Mean	20.6	17.8	22.8	18.2	23.3				
Coef. of Var. (%)		12.9	10.4	13.2	--				
Bu. Nec. for Sig. (5%)		3.3	3.3	3.4	--				

Table 9. Summary of maturity data, days earlier (-) or later (+) than Mandarin (Ottawa), and percentage oil for the strains in the Preliminary Test, Group O, 1947.

Strain	Maturity			Oil				
	Mean of 2 Tests	Walkerton Ind.	Spooner Wis.	Mean of 4 Tests	Walkerton Ind.	Spooner Wis.	Eau Claire Wis.	Fargo N.D.
Mandarin (Ottawa)	0	0	0	20.4	21.1	19.4	19.7	21.4
O-255	-6	-5	-7	20.3	19.6	20.3	20.5	20.6
Capital	-3	-2	-4	20.4	20.8	20.9	20.5	19.2
M305-2	-12	-8	-15	19.2	19.1	19.2	18.6	19.7
W4-610	-9	-5	-12	21.1	20.8	20.9	21.5	21.1
W4-631	-9	-6	-11	20.9	21.1	20.9	20.6	21.1
O-10	-8	-7	-8	19.6	18.8	20.0	19.6	20.1
W5S-4142	-14	-8	-19	20.5	20.4	20.6	19.9	21.0
W5S-4135	-11	-6	-16	20.7	20.7	20.7	20.5	21.0
W5S-4141	-8	-6	-10	19.8	19.7	19.7	18.9	21.0
Flambeau	-13	-10	-15	20.3	20.1	19.7	20.0	21.5
F357-5	-8	-9	-7	19.4	19.4	18.6	18.6	21.0
W5S-4143	-13	-7	-19	20.1	20.0	19.9	19.6	21.0
W5S-4123	-15	-8	-22	19.9	19.2	19.5	19.9	20.9
W5S-2070	-11	-5	-16	20.3	20.1	20.0	19.8	21.3
F372-9	-9	-7	-11	21.0	20.5	20.0	20.9	22.5
W5S-4149	-6	-6	-6	21.5	22.0	21.4	21.1	21.5
F427-14	-5	-4	-5	19.3	18.7	19.3	19.2	20.1
Mean				20.3	20.1	20.1	20.0	20.9
Date planted		6/22	5/28					
Mand. (Ott.) matured		10/4	9/30					
Days to mature	115	104	125					

UNIFORM TEST, GROUP I

The Group I Test consisted of four named varieties and nine selections from hybrids. The origin of these varieties and strains is as follows:

Variety or Strain	Source or Originating Agency	Origin
Earlyana	Purdue Agr. Exp. Station	Sel. from a natural hybrid
Habaro	U. S. Dept. of Agriculture	P.I. 20405
Mandarin (Ott.)	Central Exp. Farm, Ottawa	Sel. from Mandarin
Wis. Manchu 3	Wis. Agr. Exp. Station	Sel. from Manchu
A3K884	Iowa Agr.Exp.Sta. & U.S.R.S.L.	Sel. from Mukden x Richland
A4-1128-7	Iowa Agr.Exp.Sta. & U.S.R.S.L.	Sel. from Dunfield x Linman 533
A4-1715-32	Iowa Agr.Exp.Sta. & U.S.R.S.L.	Sel. from Mandarin x Richland
A4-2015-3	Iowa Agr.Exp.Sta. & U.S.R.S.L.	Sel. from Ontario x Richland
A4-2728-2	Iowa Agr.Exp.Sta. & U.S.R.S.L.	Sel. from Manchuria 13-177 x L34R12
H5	Ohio Agr.Exp.Sta. & U.S.R.S.L.	Sel. from Mukden x Mandarin
H5S	Ohio Agr.Exp.Sta. & U.S.R.S.L.	Sel. from Mukden x Mandarin
H113-461	Ohio Agr.Exp.Sta. & U.S.R.S.L.	Sel. from Mukden x Mandarin
H115-461	Ohio Agr.Exp.Sta. & U.S.R.S.L.	Sel. from Mukden x Mandarin

Data were reported from ten locations for Group I. These results are recorded in tables 10 to 13. Conditions were generally above average for these tests in 1947. Yields at Columbus, Ohio, were extremely high, and those for Cresco, Iowa, the best for several years. Only one new strain was added in 1947, H5S, an elite seed stock of H5. This stock has performed about the same as the original H5.

Strain H5 has been tested in Group I for five years. Most of the available data for this five-year period have been summarized in tables 18 and 19. These data indicate that H5 is about equal to Earlyana in yield, height, and oil content. They also show H5 to be about five days earlier and more resistant to lodging than Earlyana. Although H5 is the earliest strain in Group I, it is as tall as Earlyana, the latest strain.

Strain H5 has inherited a tall growth habit from its Mukden parent and some earliness from Mandarin. This strain has white flowers, gray pubescence, and yellow seed with a colorless hilum similar to Mandarin. The seed is about the same size as Earlyana and is of better quality. From the data in table 19 it can be seen that H5 has performed best at Ithaca, Strongsville, Wooster, Columbus, and Waseca. Since this strain has been increased for release, an outline of its origin and development has been prepared.

OUTLINE OF THE ORIGIN AND DEVELOPMENT OF H5

1937 - The cross, LX378, between Mukden and Mandarin, was made at Urbana, Illinois.
1938 - The F1 generation was grown at Urbana.
1939 - The F2 generation was grown at Urbana. In field appearance and seed quality this was one of the most attractive of a large number of F2 populations grown that year. Ripe plants were harvested and composited at weekly intervals.
1940 - F3 Earlier composites were space planted at Strongsville in northern Ohio. A number of plant selections were made from this material.
1941 - F4 Plant rows were grown at Strongsville from the selections made in 1940. Row 32 appeared very promising and uniform. The most attractive rows were harvested for further testing.
1942 - F5 The strains harvested at Strongsville in 1941 were grown at Strongsville and Wooster in replicated tests.
1943 - F6 Strain LX378-32 was entered in Group I as H5 and tested at nine locations. It proved to be a week earlier than Earlyana and to be just about equal to Earlyana in yield, height, and oil content.
1944 - F7 H5 was again tested in Group I at nine locations. Single plant selections were made to start a pure seed increase program.
1945 - F8 H5 was tested in Group I at 11 locations. Plant rows from the selections made in 1944 were grown at Columbus. Those which seemed to be uniform and typical of H5 were harvested and composited to form a source of pure seed for increase. This amounted to 4-1/2 pounds.
1946 - F9 H5 was tested at nine locations in Group I. The 4-1/2 pounds of seed produced in 1945 were increased at Wooster and Columbus, Ohio, to 330 pounds. A summary of the 39 tests in which it had been grown in the period 1943-1946 indicated that it was about equal to Earlyana in yield, height, and oil content but was 4-1/2 days earlier and stood up better. Based on this performance, a program of increase was authorized.
1947 - F10 H5 and the pure seed stock (designated H5S) were entered in Group I and grown at 10 locations. The performance of these two stocks was essentially the same in 1947.

The 330 pounds of seed produced in 1946 were increased at Croton, Ohio, by the Ohio Seed Corn Producers to approximately 100 bushels.

Strain A4-2728-2, which had the highest average yield in the 1946 tests, was much poorer in 1947. It was again high in oil content, however. In the two-year summary tables 14 and 15 this strain and A4-2015-3 are the highest in oil content. With the exception of A3K884, the other experimental strains in these summaries have not proven to be sufficiently superior to justify their release.

Strain A3K884 from the cross Mukden x Mandarin was again outstanding in 1947. This strain has been tested for three years in the Group I tests. In table 16 it can be seen that A3K884 has been superior in yield and lodging resistance to Wis. Manchu 3, Earlyana, and Habaro, the strains with which it will compete commercially. This strain has also proven to be earlier than Wis. Manchu 3 and Earlyana. It is of about the same maturity as Habaro but is much taller and has a higher oil content.

In the yield summary (table 17) it can be seen that A3K884 has yielded well at all locations except Ithaca and Strongsville. This strain should replace some of the Earlyana and Manchu 3 and probably much of the Habaro in northern Iowa and southern Minnesota.

Strain A3K884 has white flowers and gray pubescence and an erect habit of growth similar to Richland and Hawkeye.

In 1945, eleven plant selections were made from this strain and grown in plant rows in 1946. There was enough variation among these plant rows to justify yield testing all of them in 1947. Accordingly, these eleven lines, A6K-935 to A6K-945, were entered in a yield test at four locations in northern Iowa in 1947. The average agronomic and chemical data for these strains are presented in table 20. Strain A6K-937 was highest in yield and next to the highest in percentage of oil. As this strain has been selected for increase, the yield data for A6K-937 and certain other strains in this test are presented for individual locations in table 21. Strain A6K-937 has exceeded A3K884 at all locations except Kanawha. Since this strain has been considered for increase and release, the following outline of its origin and development has been prepared.

OUTLINE OF THE ORIGIN AND DEVELOPMENT OF A6K-937

1938 - Cross AX1415 was made between Mukden and Richland.
1939 - F1 Space planted.
1940 - F2 Bulked.
1942 - F3 Bulked hybrid population of AX1415 was grown at Ames and a large number of early plants were selected.
1943 - F4 Single plant progenies were grown at Kanawha, Iowa. Row 84 in series 8 was bulked and formed line number A3K884.
1944 - F5 A3K884 was yield tested in the Iowa Preliminary Yield Test at Kanawha.
1945 - F6 A3K884 was tested in the Uniform Group I Test. Eleven single plant selections were made in Iowa.
1946 - F7 A3K884 was again tested in the Uniform Group I Test. Ten plants were selected at Kanawha from each of the progeny rows grown from the eleven single plant selections made in 1945. Progeny rows were then bulked.
1947 - F8 A3K884 was tested as before in the Uniform Group I Test. The eleven progenies, A6K-935 to A6K-945 inclusive, were tested together with A3K884 and check varieties in the A3K884 Strain Test at four northern Iowa locations. Line A6K-937 was increased.

Table 10. Summary of agronomic and chemical data for the strains in the Uniform Test, Group I, 1947.

Strain	Mean Yield Bu/A.	Lodging	Height Inches	Maturity[1]	Seed Quality	Seed Weight	Percentage of Protein	Percentage of Oil	Iodine Number of Oil
No. of Tests	10	10	9	7	9	10	10	10	10
A3K884	28.8	1.9	34	+9.7	1.8	16.1	42.9	20.8	126.2
Earlyana	28.2	3.0	37	+10.4	1.9	15.2	44.2	20.4	129.8
H113-461	27.8	2.0	37	+6.9	2.7	15.8	44.1	19.6	127.9
Wis. Manchu 3	27.7	2.9	36	+12.0	2.2	16.5	42.6	20.9	130.7
A4-1715-32	27.1	2.0	34	+7.0	1.9	15.1	42.4	20.6	128.7
H5	27.0	2.0	37	+5.0	1.9	14.4	43.5	20.7	128.3
Habaro	27.0	2.3	28	+9.0	1.9	17.6	43.9	19.8	130.0
H5S	26.8	2.3	38	+5.4	1.9	14.6	43.1	20.6	128.5
A4-2015-3	26.6	1.8	32	+11.1	2.1	15.4	41.6	21.4	127.1
A4-2728-2	26.1	1.8	32	+8.9	2.9	18.3	42.8	21.4	129.6
A4-1128-7	26.1	1.8	32	+7.3	1.6	16.7	43.1	20.8	127.6
Mandarin (Ott.)	25.9	1.4	26	0	2.0	17.4	43.0	20.7	127.0
H115-461	25.3	1.6	34	+5.0	2.9	14.9	42.4	20.2	124.3
Mean	27.0	2.1	34		2.1	16.0	43.0	20.6	128.1

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

Table 11. Summary of yield in bushels per acre and yield rank for the strains in the Uniform Test, Group I, 1947.

Strain	Mean of 10 Tests	Wooster Ohio	Columbus Ohio	Eau Claire Wis.	Madison Wis.	Comp-ton Ill.	St. Paul Minn.	Waseca Minn.	Cresco Iowa	Kanawha Iowa	Brookings S.D.
A3K884	28.8	31.8	47.6	19.7	27.2	33.7	26.7	34.4	25.0	25.2	16.2
Earlyana	28.2	32.7	42.6	19.4	28.1	34.6	21.0	33.7	27.9	25.9	16.2
H113-461	27.8	35.0	45.6	17.7	26.8	34.1	23.6	29.8	25.0	25.0	15.5
Wis. Manchu 3	27.7	28.8	46.0	21.8	27.1	33.3	23.5	30.5	26.5	25.3	13.7
A4-1715-32	27.1	29.8	40.0	20.6	26.1	31.8	26.1	30.6	24.3	25.3	16.7
H5	27.0	33.1	41.8	21.3	23.4	34.0	22.7	31.1	24.5	23.6	14.7
Habaro	27.0	33.7	44.1	22.5	26.3	30.5	23.0	29.6	22.6	22.8	14.6
H5S	26.8	28.9	43.8	23.8	23.6	30.8	23.7	30.5	24.4	23.9	14.6
A4-2015-3	26.6	28.4	47.5	17.0	26.3	34.6	23.5	27.1	24.3	24.5	12.9
A4-2728-2	26.1	27.9	38.1	18.3	27.0	30.9	22.8	31.3	24.3	24.8	15.5
A4-1128-7	26.1	28.4	37.0	19.0	24.0	31.5	24.7	29.9	23.6	26.3	16.4
Mandarin (Ott.)	25.9	30.7	35.4	18.9	22.0	27.9	27.5	29.9	25.4	23.4	17.5
H115-461	25.3	32.8	33.3	22.3	21.8	30.3	25.0	26.0	25.4	19.8	15.9
Mean	27.0	30.9	41.8	20.2	25.4	32.1	24.1	30.3	24.9	24.3	15.4
Coef. of Var. (%)		10.5	7.0	13.2	5.2	8.2	--	--	6.3	8.8	8.5
Bu. Nec. for Sig.(5%)		4.5	5.6	3.9	1.9	3.8	3.2	n.s.	2.2	3.1	1.8

	Yield Rank									
A3K884	6	1	7	2	5	2	1	5	5	4
Earlyana	5	7	8	1	1	13	2	1	2	4
H113-461	1	4	12	5	3	7	10	6	6	7
Wis. Manchu 3	10	3	4	3	6	8	6	2	4	12
A4-1715-32	8	9	6	8	7	3	5	9	3	2
H5	3	8	5	11	4	12	4	7	10	9
Habaro	2	5	2	6	11	10	11	13	12	10
H5S	9	6	1	10	10	6	6	8	9	11
A4-2015-3	11	2	13	6	1	8	12	10	8	13
A4-2728-2	13	10	11	4	9	11	3	11	7	8
A4-1128-7	12	11	9	9	8	5	8	12	1	3
Mandarin (Ott.)	7	12	10	12	13	1	8	3	11	1
H115-461	4	13	3	13	12	4	13	3	13	6

Table 12. Summary of lodging and height data for the strains in the Uniform Test, Group I, 1947.

Strain	Mean of 10 Tests	Wooster Ohio	Columbus Ohio	Eau Claire Wis.	Madison Wis.	Compton Ill.	St. Paul Minn.	Waseca Minn.	Cresco Iowa	Kanawha Iowa	Brookings S.D.
A3K884	1.9	3.3	1.3	1.8	1.5	2.0	4.0	2.0	1.0	1.0	1.1
Earlyana	3.0	4.0	3.0	3.3	2.3	3.0	5.0	3.0	2.5	1.5	2.0
H113-461	2.0	3.8	1.8	2.0	1.3	2.8	2.0	2.0	1.3	1.0	1.5
Wis. Manchu 3	2.9	3.5	3.0	3.0	2.5	3.0	5.0	3.0	2.0	1.3	3.0
A4-1715-32	2.0	2.3	1.8	2.0	1.3	2.8	4.0	2.0	1.3	1.0	1.1
H5	2.0	3.0	2.0	2.3	1.5	2.8	2.0	3.0	1.0	1.0	1.6
Habaro	2.3	4.0	2.0	2.0	2.0	2.8	3.0	3.0	1.5	1.0	1.4
H5S	2.3	4.0	1.8	2.3	2.5	3.0	3.0	3.0	1.5	1.0	1.1
A4-2015-3	1.8	4.0	1.8	1.3	1.5	2.0	3.0	1.0	1.0	1.0	1.0
A4-2728-2	1.8	4.0	1.5	2.0	1.3	2.0	2.0	2.0	1.0	1.0	1.6
A4-1128-7	1.8	4.0	1.0	1.5	1.0	2.8	2.0	2.0	1.0	1.0	1.5
Mandarin (Ott.)	1.4	4.0	1.0	1.5	1.0	1.8	1.0	1.0	1.0	1.0	1.0
H115-461	1.6	3.5	1.0	1.3	1.3	2.0	2.0	2.0	1.0	1.0	1.2
Mean	2.1	3.6	1.8	2.0	1.6	2.5	2.9	2.2	1.3	1.1	1.5

	Mean of 9 Tests	Height								
A3K884	34	36	32	38	37	34	35	37	33	28
Earlyana	37	39	39	39	39	34	39	40	35	28
H113-461	37	38	36	41	39	35	36	41	35	30
Wis. Manchu 3	36	38	38	39	36	34	37	38	34	30
A4-1715-32	34	35	33	34	36	32	35	38	33	27
H5	37	39	36	41	39	35	37	40	36	30
Habaro	28	27	27	30	30	30	29	27	28	22
H5S	38	39	35	41	40	35	37	42	36	33
A4-2015-3	32	36	30	35	35	32	32	35	31	25
A4-2728-2	32	33	34	32	35	31	33	34	31	24
A4-1128-7	32	35	29	34	35	31	33	35	31	26
Mandarin (Ott.)	26	27	25	29	28	28	28	27	24	22
H115-461	34	33	34	35	37	34	33	36	30	30
Mean	34	35	33	36	36	33	34	36	32	27

Table 13. Summary of maturity data, days earlier (-) or later (+) than Mandarin (Ottawa), and percentage oil for the strains in the Uniform Test, Group I, 1947.

Strain	Mean of 7 Tests	Wooster Ohio	Columbus Ohio	Eau Claire Wis.	Madison Wis.	Champaign Ill.	St. Paul Minn.	Waseca Minn.	Cresco Iowa	Kanawha Iowa	Brookings S.D.
A3K884	+9.7		+12		+13	+8	+5		+10	+8	+12
Earlyana	+10.4		+12		+14	+15	+5		+11	+8	+8
H113-461	+6.9		+8		+9	+6	+3		+7	+7	+8
Wis. Manchu 3	+12.0		+17		+14	+14	+6		+11	+11	+11
A4-1715-32	+7.0		+13		+6	+8	+3		+8	+4	+7
H5	+5.0		+5		+7	+6	0		+6	+5	+6
Habaro	+9.0		+9		+12	+7	+5		+9	+8	+13
H5S	+5.4		+6		+8	+6	0		+6	+5	+7
A4-2015-3	+11.1		+14		+13	+12	+5		+11	+10	+13
A4-2728-2	+8.9		+13		+10	+11	+2		+8	+9	+9
A4-1128-7	+7.3		+11		+7	+10	+1		+9	+5	+8
Mandarin (Ott.)	0		0		0	0	0		0	0	0
H115-461	+5.0		+6		+6	+5	0		+7	+5	+6
Date planted			5/12		5/16	5/21	5/28		5/31	5/21	7/4
Mand. (Ott.) matured			9/7		9/8	9/16	9/24		9/22	9/15	9/20
Days to mature	117*		118		115	118	119		114	117	78

	Mean of 10 Tests	Percentage Oil									
A3K884	20.8	19.8	21.1	20.4	21.7	21.8	20.5	20.4	19.3	21.7	20.9
Earlyana	20.4	20.3	20.7	20.0	22.0	20.8	19.3	19.8	19.3	21.2	21.0
H113-461	19.6	18.9	20.5	19.1	20.6	20.0	19.0	19.1	18.2	20.3	20.5
Wis. Manchu 3	20.9	20.1	21.5	20.4	21.9	21.7	20.3	20.1	19.6	22.1	20.8
A4-1715-32	20.6	19.4	21.5	20.2	21.1	21.2	20.3	20.4	19.2	21.9	21.2
H5	20.7	19.8	21.2	20.1	21.2	21.4	20.1	20.3	19.5	21.8	21.1
Habaro	19.8	19.3	21.3	19.3	21.1	19.6	19.0	19.0	18.6	20.4	20.4
H5S	20.6	19.9	21.2	20.8	21.2	20.8	19.8	20.3	19.3	21.7	21.1
A4-2015-3	21.4	20.2	22.3	20.7	22.4	22.4	20.8	21.3	20.2	22.5	21.6
A4-2728-2	21.4	19.6	23.0	19.6	22.4	22.3	20.8	20.9	20.0	22.8	22.1
A4-1128-7	20.8	20.0	22.6	19.9	21.9	21.2	20.5	19.9	18.8	21.8	21.0
Mandarin (Ott.)	20.7	19.9	20.8	19.9	20.3	20.6	20.8	21.0	19.8	21.8	22.3
H115-461	20.2	19.6	22.4	19.3	20.5	20.5	19.8	19.4	18.7	20.8	20.7
Mean	20.6	19.8	21.5	20.0	21.4	21.1	20.1	20.1	19.3	21.6	21.1

*Brookings not included.

Table 14. Two-year summary of agronomic and chemical data for the strains in the Uniform Test, Group I, 1946-47.

Strain	Mean Yield Bu/A.	Lodging	Height Inches	Maturity[1]	Seed Quality	Seed Weight	Percentage of Protein	Percentage of Oil	Iodine Number of Oil
No. of Tests	20	18	18	16	15	20	20	20	20
A3K884	27.8	1.8	33	+9.1	1.7	16.1	42.0	20.6	128.6
A4-2728-2	27.3	2.0	31	+8.7	2.6	18.4	42.1	21.0	132.1
H113-461	27.2	1.9	35	+7.5	2.3	16.2	43.5	19.5	130.7
Wis. Manchu 3	27.2	2.9	35	+11.4	2.1	16.9	42.1	20.4	133.3
Earlyana	27.0	2.8	35	+9.9	2.0	15.2	43.4	20.2	132.6
H5	26.3	2.0	35	+5.6	1.6	14.6	43.1	20.1	130.9
A4-1715-32	26.1	1.9	32	+7.1	1.8	15.2	41.9	20.3	130.9
Habaro	26.1	2.1	26	+8.6	1.8	17.9	43.5	19.5	131.8
A4-2015-3	25.9	1.7	31	+10.2	1.7	15.8	41.0	21.1	129.6
A4-1128-7	25.9	1.8	31	+7.0	1.6	16.7	42.5	20.3	130.8
Mandarin (Ott.)	25.6	1.4	24	0	1.9	17.6	42.7	20.2	129.2
H115-461	24.9	1.6	32	+4.6	2.3	15.1	41.8	19.9	128.1
Mean	26.4	2.0	32		1.6	16.3	42.5	20.3	130.7

[1]Days earlier (-) or later (+) than Mandarin (Ottawa). Mandarin (Ottawa) required 113 days to mature.

Table 15. Two-year summary of yield in bushels per acre and yield rank for the strains in the Uniform Test, Group I, 1946-47.

Strain	Mean of 20 Tests	Wooster Ohio	Columbus Ohio	Madison Wis.	Compton Ill.	Waseca Minn.	Cresco Iowa	Kanawha Iowa	Brookings S.D.
A3K884	27.8	26.7	45.5	25.3	32.0	30.9	19.6	30.6	22.6
A4-2728-2	27.3	25.6	41.5	25.8	31.6	30.9	20.7	31.0	20.4
H113-461	27.2	28.9	46.0	25.3	31.6	28.9	19.7	30.0	18.7
Wis. Manchu 3	27.2	26.2	45.4	25.1	32.3	29.2	21.4	31.5	17.3
Earlyana	27.0	26.9	43.0	25.1	32.1	30.3	20.8	31.9	18.7
H5	26.3	27.1	43.8	23.5	30.1	28.8	20.1	29.1	17.1
A4-1715-32	26.1	26.3	40.4	24.0	29.7	29.0	18.4	30.2	20.4
Habaro	26.1	26.7	43.6	23.5	30.6	27.7	18.2	28.9	17.9
A4-2015-3	25.9	25.3	46.7	23.7	32.7	26.8	18.3	29.1	18.1
A4-1128-7	25.9	24.2	37.6	24.0	29.7	30.2	18.4	31.3	19.9
Mandarin (Ott.)	25.6	25.8	40.0	21.2	29.3	28.2	20.8	28.4	18.9
H115-461	24.9	26.0	37.9	21.3	29.5	25.7	20.1	25.9	18.2
Mean	26.4	26.3	42.6	24.0	30.9	28.9	19.7	29.8	19.0

	Yield Rank							
A3K884	4	3	2	4	1	8	5	1
A4-2728-2	10	8	1	5	1	4	4	2
H113-461	1	2	2	5	7	7	7	6
Wis. Manchu 3	7	4	4	2	5	1	2	11
Earlyana	3	7	4	3	3	2	1	6
H5	2	5	9	8	8	5	8	12
A4-1715-32	6	9	6	9	6	9	6	2
Habaro	4	6	9	7	10	12	10	10
A4-2015-3	11	1	8	1	11	11	8	9
A4-1128-7	12	12	6	9	4	9	3	4
Mandarin (Ott.)	9	10	12	12	9	2	11	5
H115-461	8	11	11	11	12	5	12	8

Table 16. Three-year summary of agronomic and chemical data for the strains in the Uniform Test, Group I, 1945-47.

Strain	Mean Yield Bu/A.	Lodging	Height Inches	Maturity[1]	Seed Quality	Seed Weight	Percentage of Protein	Percentage of Oil	Iodine Number of Oil
No. of Tests	31	28	27	20	21	31	31	31	31
A3K884	28.6	1.8	34	+9.0	1.6	15.8	41.9	20.2	128.8
H113-461	27.5	1.9	36	+7.2	2.2	16.1	43.2	19.1	131.2
H5	27.3	2.1	36	+6.1	1.6	14.4	43.0	19.8	131.2
Wis. Manchu 3	27.0	3.0	35	+10.9	2.1	16.8	41.6	20.1	134.0
Mandarin (Ott.)	26.9	1.3	26	0	1.6	17.7	42.7	19.8	129.3
Earlyana	26.8	2.9	36	+9.9	2.0	14.9	43.0	19.9	133.3
Habaro	26.5	2.3	28	+8.9	1.8	17.5	43.3	19.1	132.3
Mean	27.2	2.2	33		1.8	16.2	42.7	19.7	131.4

[1]Days earlier (-) or later (+) than Mandarin (Ottawa). Mandarin (Ottawa) required 111 days to mature.

Table 17. Three-year summary of yield in bushels per acre and yield rank for the strains in the Uniform Test, Group I, 1945-47.

Strain	Mean of 31 Tests	Ithaca N.Y.	Strongsville Ohio	Wooster Ohio	Columbus Ohio	East Lansing Mich.	Eau Claire Wis.	Madison Wis.
Years Tested		1946	1945	1945-1947	1945-1947	1945-1946	1945 1947	1945-1947
A3K884	28.6	25.6	20.4	28.9	41.7	32.0	25.5	30.2
H113-461	27.5	27.3	21.8	29.9	40.7	30.0	23.2	28.9
H5	27.3	26.6	22.4	28.7	39.4	30.5	24.8	28.7
Wis. Manchu 3	27.0	24.7	22.5	27.7	38.5	26.0	24.3	29.4
Mandarin (Ott.)	26.9	26.1	21.6	27.4	38.7	28.0	23.2	25.7
Earlyana	26.8	26.5	18.7	27.6	37.5	27.8	21.4	29.0
Habaro	26.5	28.0	20.0	28.3	40.0	27.3	21.8	29.1
Mean	27.2	26.4	21.1	28.4	39.5	28.8	23.5	28.7

	Yield Rank						
A3K884	6	5	2	1	1	1	1
H113-461	2	3	1	2	3	4	5
H5	3	2	3	4	2	2	6
Wis. Manchu 3	7	1	5	6	7	3	2
Mandarin (Ott.)	5	4	7	5	4	4	7
Earlyana	4	7	6	7	5	7	4
Habaro	1	6	4	3	6	6	3

Table 17. (Continued)

Strain	Compton Ill.	St. Paul Minn.	Waseca Minn.	Cresco Iowa	Kanawha Iowa	Brookings S. D.
Years Tested	1946-1947	1945 1947	1945-1947	1945-1947	1945-1947	1945-1947
A3K884	32.0	26.1	28.9	18.7	32.4	22.3
H113-461	31.6	23.9	28.0	18.2	30.6	19.1
H5	30.1	23.8	28.2	18.6	31.0	19.1
Wis. Manchu 3	32.3	24.8	27.8	18.2	31.5	18.2
Mandarin (Ott.)	29.3	28.9	26.9	19.7	30.1	21.4
Earlyana	32.1	21.8	28.6	18.6	31.8	19.7
Habaro	30.6	19.4	26.4	17.4	31.0	19.1
Mean	31.1	24.1	27.8	18.5	31.2	19.8

	Yield Rank					
A3K884	3	2	1	2	1	1
H113-461	4	4	4	5	6	4
H5	6	5	3	3	4	4
Wis. Manchu 3	1	3	5	5	3	7
Mandarin (Ott.)	7	1	6	1	7	2
Earlyana	2	6	2	3	2	3
Habaro	5	7	7	7	4	4

Table 18. Five-year summary of yield in bushels per acre and yield rank for the strains in the Uniform Test, Group I, 1943-47.

Strain	Mean of 49 Tests	Ithaca N.Y.	Strongsville Ohio	Wooster Ohio	Columbus Ohio	East Lansing Mich.	Eau Claire Wis.	Madison Wis.
Years Tested		1946	1943-1945	1943 1945-7	1945-1947	1944-1946	1943-5 1947	1943-1947
Wis. Manchu 3	27.6	24.7	25.3	29.0	38.5	25.9	21.4	29.7
Earlyana	27.4	26.5	24.8	29.2	37.5	26.8	20.2	28.8
Habaro	27.2	28.0	25.4	29.6	40.0	25.6	20.3	28.6
H5	27.1	26.6	26.2	29.4	39.4	27.7	21.1	28.0
Mandarin (Ott.)	26.7	26.1	25.8	29.2	38.7	25.9	20.4	25.9
Mean	27.2	26.4	25.5	29.3	38.8	26.4	20.7	28.2

	Yield Rank						
Wis. Manchu 3	5	4	5	4	3	1	1
Earlyana	3	5	3	5	2	5	2
Habaro	1	3	1	1	5	4	3
H5	2	1	2	2	1	2	4
Mandarin (Ott.)	4	2	3	3	3	3	5

Table 19. Five-year summary of agronomic and chemical data for the strains in the Uniform Test, Group I, 1943-47.

Strain	Mean Yield Bu/A.	Lodging	Height Inches	Maturity[1]	Seed Quality	Seed Weight	Percentage of Protein	Percentage of Oil	Iodine Number of Oil
No. of Tests	49	45	45	36	34	49	49	49	49
Wis. Manchu 3	27.6	2.9	35	+11.2	1.9	16.9	41.5	20.1	134.3
Earlyana	27.4	2.8	36	+11.2	1.9	15.0	42.8	19.8	134.0
Habaro	27.2	2.1	29	+8.8	1.7	18.2	43.4	19.0	132.5
H5	27.1	2.1	36	+6.4	1.5	14.7	42.9	19.7	131.6
Mandarin (Ott.)	26.7	1.4	26	0	1.6	18.0	42.9	19.7	129.1
Mean	27.2	2.3	32		1.7	16.6	42.7	19.7	132.3

[1]Days earlier (-) or later (+) than Mandarin (Ottawa). Mandarin (Ottawa) required 111 days to mature.

Table 18. (Continued)

Strain	Compton Ill.	St. Paul Minn.	Waseca Minn.	Cresco Iowa	Kanawha Iowa	Brookings S. D.
Years Tested	1946-1947	1943-5 1947	1943-1947	1944-1947	1944-1947	1943-1947
Wis. Manchu 3	32.3	27.6	29.6	19.3	33.4	21.3
Earlyana	32.1	26.2	30.2	19.5	34.0	22.7
Habaro	30.6	24.9	29.9	18.3	32.9	22.0
H5	30.1	27.4	29.8	19.2	32.3	19.8
Mandarin (Ott.)	29.3	28.0	29.5	20.0	30.9	22.7
Mean	30.9	26.8	29.8	19.3	32.7	21.7

	Yield Rank					
Wis. Manchu 3	1	2	4	3	2	4
Earlyana	2	4	1	2	1	1
Habaro	3	5	2	5	3	3
H5	4	3	3	4	4	5
Mandarin (Ott.)	5	1	5	1	5	1

Table 20. Summary of agronomic and chemical data for the strains in the A3K884 Strain Test at Cresco, Hudson, Kanawha, and Marcus, Iowa, 1947.

Strain	Mean Yield Bu/A.	Lodging	Height Inches	Maturity[1]	Seed Quality	Seed Weight	Percentage of Protein	Percentage of Oil	Iodine Number of Oil
No. of Tests	4	4	4	4	4	4	4	4	4
A6K-937	28.2	1.4	35	+9	1.1	15.7	41.5	21.9	123.4
Hawkeye	28.0	1.3	35	+14	1.1	16.9	42.6	21.5	123.2
A6K-942	27.3	1.1	35	+8	1.1	16.2	42.9	21.3	123.0
A6K-941	26.6	1.4	36	+11	1.4	15.5	42.0	21.2	122.4
A6K-938	26.5	1.3	35	+10	1.3	16.4	42.3	21.5	122.9
A6K-935	26.4	1.3	34	+9	1.2	16.0	42.2	22.6	123.4
A6K-936	26.4	1.3	35	+9	1.1	16.5	42.1	21.6	122.2
A3K884	26.3	1.1	34	+9	1.2	15.8	43.0	21.4	123.0
Earlyana	26.3	2.3	34	+9	1.6	14.7	43.9	21.1	127.5
A6K-944	26.2	1.1	36	+10	1.1	16.4	41.9	21.9	123.1
A6K943	26.0	1.2	34	+9	1.3	16.3	42.0	21.8	123.5
A6K-940	25.9	1.2	35	+10	1.2	16.8	41.5	21.5	122.0
A6K-945	25.8	1.0	34	+8	1.2	15.0	41.0	22.2	124.4
A6K-939	25.0	1.1	34	+9	1.3	15.8	42.2	21.1	121.7
Richland	24.8	1.3	32	+13	1.1	16.0	42.1	20.7	123.0
H5S	24.4	1.5	37	+6	1.2	13.4	45.3	20.8	125.0
Wis. Manchu 3	23.9	2.4	35	+11	1.4	17.0	42.6	21.3	126.9
Mandarin (Ott.)	21.7	1.0	24	0	1.3	16.8	42.4	21.2	123.0
Habaro	20.8	1.3	27	+10	1.3	18.2	44.9	19.6	126.9
R. from Mandarin	19.7	1.3	37	+3	2.2	15.6	45.4	20.5	125.6
Mean	25.3	1.3	34		1.3	16.1	42.7	21.3	123.8

[1]Days earlier (-) or later (+) than Mandarin (Ottawa). Mandarin (Ottawa) required 114 days to mature.

Table 21. Summary of yield in bushels per acre and yield rank for certain strains in the A3K884 Strain Test, 1947.

Strain	Yield					Yield Rank			
	Mean of 4 Tests	Cresco Iowa	Kanawha Iowa	Marcus Iowa	Hudson Iowa	Cresco Iowa	Kanawha Iowa	Marcus Iowa	Hudson Iowa
A6K-937	28.2	27.1	28.2	25.0	32.4	1	3	1	2
Hawkeye	28.0	26.1	27.2	24.9	33.7	2	4	2	1
A3K884	26.3	25.1	30.6	22.1	27.3	4	1	5	4
Earlyana	26.3	24.9	28.9	22.2	29.1	5	2	4	3
Richland	24.8	22.8	26.9	24.0	25.4	9	6	3	5
H5S	24.4	25.3	27.0	20.5	24.9	3	5	7	6
Wis. Manchu 3	23.9	24.7	26.5	22.1	22.5	6	7	5	7
Mandarin (Ott.)	21.7	23.9	24.4	18.4	20.1	7	9	8	8
Habaro	20.8	23.4	24.8	15.9	19.4	8	8	9	9
Mean	24.9	24.8	27.2	21.7	26.1				
Coef. of Var.(%)	9.5	8.0	10.4	5.3	11.6				
Bu. Nec. for Sig. (5%)	2.5	2.8	4.1	1.7	4.5				

PRELIMINARY TEST, GROUP I

The origin of the strains in the Preliminary Test, Group I, is as follows:

Variety or Strain	Source or Originating Agency	Origin
Mandarin (Ottawa)	Central Exp. Farm, Ottawa	Sel. from Mandarin
A3K884	Iowa A.E.S. & U.S.R.S.L.	Sel. from Mukden x Richland
C616	Ind. A.E.S. & U.S.R.S.L.	Sel. from Habaro x Mandarin
H2768	Ohio A.E.S. & U.S.R.S.L.	Sel. from Richland x Scioto
H2804	Ohio A.E.S. & U.S.R.S.L.	Sel. from Richland x Scioto
H6150	Ohio A.E.S. & U.S.R.S.L.	Sel. from Lincoln x (Linc. x Rich.)
H6403	Ohio A.E.S. & U.S.R.S.L.	Sel. from Lincoln x (Linc. x Rich.)
L4-8015	Ill. A.E.S. & U.S.R.S.L.	Sel. from Chief x Richland
M1	Minn. A.E.S. & U.S.R.S.L.	Sel. from Lincoln x (Linc. x Rich.)
M2	Minn. A.E.S. & U.S.R.S.L.	Sel. from Lincoln x (Linc. x Rich.)
M3	Minn. A.E.S. & U.S.R.S.L.	Sel. from Lincoln x (Linc. x Rich.)
M4	Minn. A.E.S. & U.S.R.S.L.	Sel. from Lincoln x (Linc. x Rich.)
M5	Minn. A.E.S. & U.S.R.S.L.	Sel. from Lincoln x (Linc. x Rich.)
W5-2175	Wis. A.E.S. & U.S.R.S.L.	Sel. from Mandarin x L6-12
W5-2260	Wis. A.E.S. & U.S.R.S.L.	Sel. from Ontario x Richland
W5-2306	Wis. A.E.S. & U.S.R.S.L.	Sel. from Lincoln x Richland
W5-2307	Wis. A.E.S. & U.S.R.S.L.	Sel. from Lincoln x Richland
W5-3638	Wis. A.E.S. & U.S.R.S.L.	Sel. from Lincoln x Richland

Data for this test were received from Columbus, Ohio; Madison, Wisconsin; and St. Paul, Minnesota. The yield ranks (table 23) from Columbus and Madison seem to agree rather well, while those from St. Paul do not agree well with the other two. The same may be said of the maturity dates (table 24). For this reason, some caution should be used in interpreting the mean values given in the summary in table 22. There seems to be a general tendency for the earlier strains in this test to be lower in yield and higher in oil, and this must be considered in evaluating the strains. Although H6150 was highest in yield, it is evident from the maturity data in table 24 that this strain is too late for Group I and belongs in Group II. H2728 is also probably too late for Group I.

W5-2307 and H6403 seem to be the best of the later experimental strains and M1, W5-2175 and M2 the best of the earlier strains for entry in the Uniform Group I tests.

Table 22. Summary of agronomic and chemical data for the strains in the Preliminary Test, Group I, 1947.

Strain	Mean Yield Bu/A	Lodging	Height Inches	Maturity [1]	Seed Quality	Seed Weight	Percentage of Protein	Percentage of Oil	Iodine Number of Oil
No. of Tests	3	3	3	3	3	3	3	3	3
H6150	35.8	2.6	38	+19	1.7	16.7	41.4	21.3	133.3
A3K884	32.7	2.4	36	+11	2.0	16.0	43.0	20.9	126.7
W5-2307	32.3	1.5	35	+13	2.0	15.6	41.2	21.6	128.9
H6403	32.2	1.4	36	+11	2.3	15.9	42.7	21.6	133.2
H2804	31.8	2.0	35	+13	1.7	17.0	43.5	20.4	134.0
W5-3638	31.6	1.9	35	+7	2.0	14.0	41.6	21.6	132.7
M1	30.9	1.6	33	+6	2.0	14.3	41.6	21.6	130.2
W5-2175	30.6	2.4	36	+3	2.0	13.1	41.7	21.1	132.6
H2768	30.4	2.0	37	+15	2.0	16.4	44.6	20.4	135.8
C616	29.8	1.8	28	+5	2.0	18.3	43.3	20.9	129.8
M5	29.5	1.3	29	+6	2.3	16.0	41.6	22.3	132.9
L4-8015	29.3	2.9	34	+11	2.0	15.2	42.1	21.8	126.5
M3	29.1	1.7	32	+4	2.0	14.3	41.1	22.7	131.2
M2	28.3	1.3	29	+5	2.3	15.8	39.8	22.8	132.1
W5-2260	28.2	1.7	28	+6	2.0	17.5	41.2	21.3	124.9
Mandarin (Ott.)	27.4	1.3	28	0	1.7	16.7	42.6	20.6	126.7
W5-2306	27.4	1.4	31	+2	1.7	14.4	41.0	21.8	129.2
M4	26.2	1.3	28	0	2.0	13.9	40.6	22.4	132.7
Mean	30.2	1.8	33		2.0	15.6	41.9	21.5	130.7

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

Table 23. Summary of yield in bushels per acre and yield rank for the strains in the Preliminary Test, Group I, 1947.

Strain	Yield				Yield Rank		
	Mean of 3 Tests	Columbus Ohio	Madison Wis.	St. Paul Minn.	Columbus Ohio	Madison Wis.	St. Paul Minn.
H6150	35.8	53.6	34.8	18.9	1	1	18
A3K884	32.7	44.5	29.1	24.4	3	5	13
W5-2307	32.3	45.9	29.1	21.9	2	5	15
H6403	32.2	42.9	32.7	21.0	4	2	17
H2804	31.8	41.9	30.2	23.4	5	3	14
W5-3638	31.6	39.4	27.4	28.1	8	8	5
M1	30.9	40.1	27.2	25.3	6	9	10
W5-2175	30.6	37.5	23.8	30.4	9	15	1
H2768	30.4	39.9	30.2	21.2	7	3	16
C616	29.8	35.6	25.1	28.8	11	12	2
M5	29.5	35.6	24.3	28.7	11	14	3
L4-8015	29.3	34.6	28.7	24.6	13	7	12
M3	29.1	36.2	23.0	28.2	10	17	4
M2	28.3	32.0	26.3	26.7	15	10	7
W5-2260	28.2	31.2	25.6	27.7	17	11	6
Mandarin (Ott.)	27.4	34.3	22.9	25.1	14	18	11
W5-2306	27.4	31.9	24.5	25.7	16	13	9
M4	26.2	28.8	23.6	26.2	18	16	8
Mean	30.2	38.1	27.1	25.4			
Coef. of Var. (%)		8.8	6.7	--			
Bu. Nec. for Sig. (5%)		4.7	2.6	3.6			

Table 24. Summary of maturity data, days earlier (-) or later (+) than Mandarin (Ottawa), and percentage oil for the strains in the Preliminary Test, Group I, 1947.

Strain	Maturity				Oil			
	Mean of 3 Tests	Columbus Ohio	Madison Wis.	St. Paul Minn.	Mean of 3 Tests	Columbus Ohio	Madison Wis.	St. Paul Minn.
H6150	+19	+25	+25	+7	21.3	21.4	22.2	20.2
A3K884	+11	+15	+14	+3	20.9	20.6	21.4	20.6
W5-2307	+13	+19	+15	+4	21.6	21.9	22.2	20.7
H6403	+11	+16	+14	+4	21.6	22.0	22.2	20.5
H2804	+13	+20	+16	+4	20.4	20.2	21.0	20.0
W5-3638	+7	+16	+10	0	21.6	21.9	22.1	20.8
M1	+6	+12	+7	0	21.6	22.6	21.6	20.6
W5-2175	+3	+8	+4	-2	21.1	21.7	20.9	20.8
H2768	+15	+23	+17	+5	20.4	20.1	20.9	20.2
C616	+5	+7	+6	+1	20.9	22.0	20.9	19.9
M5	+6	+13	+6	-2	22.3	22.8	22.4	21.6
L4-8015	+11	+20	+11	+3	21.8	21.9	22.5	20.9
M3	+4	+10	+3	-1	22.7	23.7	22.7	21.8
M2	+5	+10	+3	+1	22.8	23.9	23.5	20.9
W5-2260	+6	+13	+4	0	21.3	22.3	21.3	20.3
Mandarin (Ott.)	0	0	0	0	20.6	21.4	20.0	20.4
W5-2306	+2	+7	+2	-2	21.8	22.6	22.0	20.7
M4	0	+8	-1	-6	22.4	23.2	22.4	21.6
Mean					21.5	22.0	21.8	20.7
Date planted		5/12	5/16	5/28				
Mand. (Ott.) matured		9/5	9/8	9/25				
Days to mature	117	116	115	120				

UNIFORM TEST, GROUP II

The Group II Test consisted of ten named varieties and four selections from hybrids. The origin of these strains and varieties is as follows:

Variety or Strain	Source or Originating Agency	Origin
Bavender Special	Mr. Bavender, Whitten, Iowa	Sel. from Mukden x N.C. var.
Hawkeye	Iowa Agr. Exp. Sta. & U.S.R.S.L.	Sel. from Mukden x Richland
Dunfield	Purdue Agr. Exp. Sta.	P.I.36846
Earlyana	Purdue Agr. Exp. Sta.	Sel. from a natural hybrid
Illini	Illinois Agr. Exp. Sta.	Sel. from A.K.
Korean	Dominion Exp. Sta., Ontario	Introduction from Orient
Lincoln	Ill. Agr. Exp. Sta. & U.S.R.S.L.	Sel. from Mandarin x Manchu
Mingo	Ohio Agr. Exp. Sta.	Sel. from Manchu
Mukden	Iowa Agr. Exp. Sta.	P.I.50523Q
Richland	Purdue Agr. Exp. Sta.	P.I.70502-2
A3-176	Iowa Agr. Exp. Sta. & U.S.R.S.L.	Sel. from Illini x Dunfield
A5-2683	Iowa Agr. Exp. Sta. & U.S.R.S.L.	Sel. from A3-176
A45-251	Iowa Agr. Exp. Sta. & U.S.R.S.L.	Sel. from Mukden x Richland
L3-8417	Ill. Agr. Exp. Sta. & U.S.R.S.L.	Sel. from Chief x Richland

Three new strains were entered in Group II in 1947. Strain A3-176 has performed very well in Group III and is somewhat early for that group, so in 1947 it and a selection from it (A5-2683) were also entered in Group II. From the data in tables 25 to 28 it is evident that these strains are well adapted in the area in which this group is tested. Further discussion of these strains is presented under Group III. The other new strain is the one called Korean. This is a short-growing variety about as early as Richland and with exceptionally large seed. It has yielded relatively well for its maturity. It was introduced from Ontario by Mr. E. T. Rickard of Champaign, Illinois, and has been grown to a small extent in Illinois. Mr. Rickard secured the strain from the Dominion Experiment Station, Harrow, Ontario. They had received it as an introduction from Korea.

Bavender Special has been tested for two years and has been highest in yield each year. It has averaged one and one-half bushels above Lincoln for this period. It is several days earlier and has lower oil content than Lincoln. The one serious fault of this strain is its pronounced tendency to lodge.

This is the first time that the name "Hawkeye" has appeared in these reports, but the progenitors of this strain have been tested in this group since 1943. The original strain, A45-251, from the cross Mukden x Richland, was tested first in 1943. In 1945 selections from it, A3-107 and A3-108, were also entered, and in 1946 five selections from A3-107 and two selections from A3-108 were included in the test. Seed of these seven strains was increased in 1946 in several states. Pure seed from five of these strains, A4-107-4, A4-107-5, A4-107-7, A4-107-12, and A4-108-12, was composited to form the variety Hawkeye. This seed, amounting to about 700 bushels, was divided among the interested states, and in 1947 about 30,000 bushels of seed were grown for distribution to producers. Since the performance of Hawkeye has been almost identical with that of the original strain (table 25), data from 1943-45 for this strain have been averaged with those of Hawkeye in the five-year summary tables 29 and 30. These tables summarize all the available data on Hawkeye and seven other named varieties for the period 1943-47. From these tables it can be seen that Hawkeye has averaged about a bushel less than Lincoln and about four bushels more than Richland. It has equaled Richland in lodging resistance. Hawkeye should largely replace Richland in the next few years. It should also replace some acreage of Lincoln, Mukden, and other later varieties in the northern part of Group II territory.

Table 25. Summary of agronomic and chemical data for the strains in the Uniform Test, Group II, 1947.

Strain	Mean Yield Bu/A.	Lodging	Height Inches	Maturity[1]	Seed Quality	Seed Weight	Percentage of Protein	Percentage of Oil	Iodine Number of Oil
No. of Tests	19	18	18	13	16	19	19	19	19
Bavender Spec.	31.3	2.9	33	+5.8	2.1	15.5	42.3	20.2	134.6
A5-2683	30.5	2.0	35	+7.2	1.2	13.6	40.8	22.0	128.5
A3-176	29.8	2.0	34	+6.6	1.2	13.8	40.7	22.2	128.3
Hawkeye	29.8	1.4	33	+1.1	1.2	16.3	41.5	22.1	130.7
A45-251	29.6	1.3	34	+1.2	1.3	16.0	40.9	22.2	124.9
Lincoln	29.6	2.0	35	+7.8	1.6	12.9	40.8	21.9	133.4
Korean	28.7	1.7	28	-2.0	1.7	20.7	42.2	21.1	126.9
Mingo	28.6	2.9	35	+8.3	2.1	13.8	42.0	20.7	131.7
Mukden	27.6	2.0	36	+4.4	1.8	13.4	43.7	20.5	128.0
L3-8417	27.1	1.3	33	-1.8	1.6	12.3	40.2	22.1	128.5
Dunfield	26.5	2.6	35	+7.9	1.6	14.5	39.9	21.9	127.0
Earlyana	26.3	2.3	34	-5.5	2.6	14.5	42.7	21.2	129.2
Illini	26.3	2.8	37	+8.5	1.4	12.3	41.1	20.9	131.4
Richland	25.9	1.5	30	0	1.3	15.6	41.1	21.4	124.3
Mean	28.4	2.1	34		1.6	14.7	41.4	21.5	129.1

[1]Days earlier (-) or later (+) than Richland. Richland required 125 days to mature.

Table 26. Summary of yield in bushels per acre and yield rank for the strains in the Uniform Test, Group II, 1947.

Strain	Mean of 19 Tests	Hol-gate Ohio	Colum-bus Ohio	East Lansing Mich.	Walker-ton Ind.	Bluff-ton Ind.	Lafay-ette Ind.	Green-field Ind.	Worth-ington Ind.	Madi-son Wis.
Bavender Spec.	31.3	20.2	50.8	18.7	27.3	40.7	43.7	45.2	38.4	32.2
A5-2683	30.5	14.8	52.7	16.5	34.8	36.9	40.5	43.5	36.4	30.3
A3-176	29.8	14.5	48.3	17.5	34.3	34.9	40.2	40.2	32.3	31.0
Hawkeye	29.8	20.9	46.7	17.9	33.6	35.9	41.8	42.0	36.8	29.2
A45-251	29.6	17.5	46.3	16.5	34.7	36.9	37.7	41.3	35.8	28.9
Lincoln	29.6	13.9	51.4	14.4	34.8	38.0	41.9	42.0	37.7	29.6
Korean	28.7	19.0	40.9	20.3	29.6	38.2	38.9	42.9	31.3	31.1
Mingo	28.6	17.8	47.9	15.0	27.8	34.7	41.5	40.6	35.6	29.3
Mukden	27.6	14.7	49.9	15.1	25.8	33.9	40.1	39.6	32.8	28.4
L3-8417	27.1	17.3	42.5	17.3	27.1	35.5	39.3	39.0	33.9	27.6
Dunfield	26.5	12.2	47.1	16.0	23.8	32.2	31.4	40.9	33.6	26.8
Earlyana	26.3	22.2	35.7	20.1	23.9	33.2	31.5	37.2	28.9	26.9
Illini	26.3	12.9	35.7	15.6	25.1	33.0	33.9	35.0	30.3	26.4
Richland	25.9	15.3	39.3	11.9	24.4	33.0	34.4	39.8	32.3	26.6
Mean	28.4	16.7	45.4	16.6	29.1	35.5	38.3	40.6	34.0	28.9
Coef. of Var. (%)		11.7	9.5	--	10.8	5.0	8.3	7.6	6.3	8.0
Bu. Nec. for Sig.(5%)		2.8	6.2	--	4.5	2.5	4.5	4.4	3.0	2.0

	Yield Rank								
Bavender Spec.	3	3	3	8	1	1	1	1	1
A5-2683	9	1	7	1	4	5	2	4	4
A3-176	11	5	5	4	8	6	9	10	3
Hawkeye	2	8	4	5	6	3	4	3	7
A45-251	6	9	7	3	4	10	6	5	8
Lincoln	12	2	13	1	3	2	4	2	5
Korean	4	11	1	6	2	9	3	12	2
Mingo	5	6	12	7	9	4	8	6	6
Mukden	10	4	11	10	10	7	11	9	9
L3-8417	7	10	6	9	7	8	12	7	10
Dunfield	14	7	9	14	14	14	7	8	12
Earlyana	1	13	2	13	11	13	13	14	11
Illini	13	13	10	11	12	12	14	13	14
Richland	8	12	14	12	12	11	10	10	13

Table 26. (Continued)

Strain	Compton Ill.	Dwight Ill.	Urbana Ill.	Kanawha Iowa	Marcus Iowa	Hudson Iowa	Ames Iowa	Centerville S. D.	Wakefield Nebr.	Lincoln Nebr.
Bavender Spec.	33.6	23.8	35.0	27.8	26.9	40.4	35.5	21.3	15.7	17.4
A5-2683	38.0	24.6	36.5	27.5	25.0	38.5	36.0	18.6	13.1	16.0
A3-176	42.3	22.4	36.0	26.2	23.7	40.4	33.9	18.5	14.3	15.7
Hawkeye	38.3	21.5	33.7	25.3	23.7	33.0	32.9	19.5	16.7	16.2
A45-251	40.6	21.6	36.1	25.8	24.0	34.3	31.3	20.5	16.9	15.9
Lincoln	34.9	21.5	35.3	24.2	25.3	32.2	33.4	17.7	15.8	17.6
Korean	36.9	19.1	33.2	25.5	22.8	40.3	29.4	17.0	14.9	14.7
Mingo	28.1	19.8	34.4	24.2	24.6	38.9	34.0	18.4	14.6	16.4
Mukden	36.3	19.9	32.6	25.4	21.8	33.3	29.5	17.9	13.4	14.9
L3-8417	32.8	20.5	29.3	22.4	24.0	32.1	26.0	18.6	16.0	12.9
Dunfield	30.7	19.5	32.2	24.1	24.1	27.8	33.0	19.7	13.6	14.2
Earlyana	38.0	16.1	31.1	24.6	21.3	36.7	26.5	17.9	15.5	12.3
Illini	34.1	17.6	34.1	24.8	24.4	33.4	32.4	19.3	14.2	16.5
Richland	31.1	18.9	32.9	22.3	22.1	26.0	29.1	19.3	16.1	17.6
Mean	35.4	20.5	33.7	25.0	23.8	34.8	31.6	18.7	15.1	15.6
C.V. (%)	12.8	11.0	6.9	7.6	4.7	14.3	7.4	12.9	10.8	12.5
B.N.f.S (5%)	6.5	3.2	3.3	2.7	1.6	7.1	3.3	3.4	3.2	2.8

	Yield Rank									
Bavender Spec.	10	2	5	1	1	1	2	1	6	3
A5-2683	4	1	1	2	3	5	1	7	14	7
A3-176	1	3	3	3	9	1	4	9	10	9
Hawkeye	3	5	8	7	9	10	7	4	2	6
A45-251	2	4	2	4	7	7	9	2	1	8
Lincoln	8	5	4	10	2	11	5	13	5	1
Korean	6	11	9	5	11	3	11	14	8	11
Mingo	14	9	6	10	4	4	3	10	9	5
Mukden	7	8	11	6	13	9	10	11	13	10
L3-8417	11	7	14	13	7	12	14	7	4	13
Dunfield	13	10	12	12	6	13	6	3	12	12
Earlyana	4	14	13	9	14	6	13	11	7	14
Illini	9	13	7	8	5	8	8	5	11	4
Richland	12	12	10	14	12	14	12	5	3	1

Table 27. Summary of lodging and height data for the strains in the Uniform Test, Group II, 1947.

Strain	Mean of 18 Tests	Hol-gate Ohio	Colum-bus Ohio	East Lansing Mich.	Walker-ton Ind.	Bluff-ton Ind.	Lafay-ette Ind.	Green-field Ind.	Worth-ington Ind.	Madi-son Wis.
Bavender Spec.	2.9	4.0	3.3	1.0	3.5	2.8	2.5	3.5	3.8	3.0
A5-2683	2.0	2.5	2.3	1.0	2.8	2.0	1.3	2.0	2.8	2.0
A3-176	2.0	2.8	2.3	1.0	2.5	1.8	1.0	3.0	2.3	2.0
Hawkeye	1.4	1.0	1.8	1.0	1.8	1.0	1.0	1.3	1.8	1.8
A45-251	1.3	1.0	1.5	1.0	1.8	1.3	1.0	1.3	1.3	2.0
Lincoln	2.0	2.5	2.5	1.0	2.3	1.5	1.0	2.8	2.3	2.3
Korean	1.7	2.5	1.3	1.0	2.0	2.3	1.0	1.3	2.0	2.3
Mingo	2.9	3.5	3.0	1.0	3.3	3.0	2.0	3.0	3.3	3.5
Mukden	2.0	2.0	2.5	1.0	2.5	2.0	1.5	2.0	2.3	2.5
L3-8417	1.3	1.3	1.0	1.0	1.5	1.8	1.0	1.0	1.8	2.0
Dunfield	2.6	3.8	2.8	1.0	3.0	2.3	2.5	3.0	3.0	3.0
Earlyana	2.3	2.8	2.3	1.0	3.0	2.5	2.0	3.0	3.5	2.8
Illini	2.8	3.8	3.0	1.0	2.8	2.8	2.0	3.0	3.0	3.0
Richland	1.5	1.0	1.8	1.0	2.0	1.0	1.0	2.3	1.5	1.8
Mean	2.1	2.5	2.2	1.0	2.5	2.0	1.5	2.3	2.5	2.4

	Mean of 18 Tests	Height							
Bavender Spec.	33	26	38	27	33	33	37	31	40
A5-2683	35	30	41	28	34	38	41	33	41
A3-176	34	28	41	27	31	35	41	33	40
Hawkeye	33	28	39	24	33	35	38	33	40
A45-251	34	26	39	25	33	36	38	33	42
Lincoln	35	28	40	26	36	36	40	37	42
Korean	28	26	30	25	25	30	30	28	35
Mingo	35	29	38	24	37	38	42	35	42
Mukden	36	27	41	28	34	38	40	37	44
L3-8417	33	27	37	27	33	34	40	33	41
Dunfield	35	28	40	28	33	36	40	35	41
Earlyana	34	28	37	28	33	35	37	32	43
Illini	37	31	40	26	36	39	43	37	43
Richland	30	24	35	23	29	31	34	30	36
Mean	34	28	38	26	33	35	39	33	41

Table 27. (Continued)

Strain	Compton Ill.	Dwight Ill.	Urbana Ill.	Kanawha Iowa	Marcus Iowa	Hudson Iowa	Ames Iowa	Centerville S. D.	Wakefield Nebr.	Lincoln Nebr.
Bavender Spec.	4.0	2.5	2.3	2.8	2.0	4.5	3.5	1.2	2.3	1.0
A5-2683	3.0	2.3	2.0	1.0	1.3	3.0	2.5	1.0	1.5	1.3
A3-176	2.5	2.0	1.8	1.5	1.5	2.8	2.0	1.0	1.5	1.3
Hawkeye	2.3	1.0	1.0	1.0	1.0	2.0	1.3	1.0	1.3	1.0
A45-251	2.3	1.0	1.0	1.0	1.0	1.8	1.0	1.0	1.5	1.0
Lincoln	2.0	2.0	2.0	1.8	1.5	2.8	2.3	1.0	2.0	1.5
Korean	3.5	1.5	2.0	1.0	1.0	2.3	1.0	1.0	1.8	1.0
Mingo	3.8	2.3	2.8	3.0	2.3	3.8	4.0	1.4	2.5	1.3
Mukden	3.0	2.0	2.0	1.0	1.3	3.0	1.8	1.1	2.5	1.0
L3-8417	2.0	1.3	1.0	1.0	1.0	1.3	1.0	1.4	1.5	1.0
Dunfield	3.3	1.8	3.0	2.0	1.5	3.5	3.0	1.9	2.0	1.3
Earlyana	3.3	1.8	2.0	1.5	1.3	3.3	1.8	1.9	1.5	1.0
Illini	3.0	2.5	2.8	2.8	2.8	3.0	3.0	1.9	3.0	2.3
Richland	2.8	1.3	1.3	1.0	1.0	2.3	1.0	1.0	1.0	1.0
Mean	2.9	1.8	1.9	1.6	1.5	2.8	2.1	1.3	1.9	1.2

	Height									
Bavender Spec.	40	36	33	35	31	35	35	30	28	23
A5-2683	41	38	35	35	34	34	36	31	30	25
A3-176	39	37	34	35	33	35	35	27	29	23
Hawkeye	40	34	34	34	33	36	34	31	29	25
A45-251	41	35	35	34	32	36	35	28	30	25
Lincoln	41	34	35	36	33	39	36	28	29	26
Korean	34	27	29	28	28	30	26	24	24	21
Mingo	40	37	37	37	36	40	37	33	30	25
Mukden	43	38	39	39	36	41	37	34	32	27
L3-8417	38	36	33	33	31	33	31	31	29	23
Dunfield	39	37	37	37	35	39	37	32	28	25
Earlyana	40	32	34	36	32	38	33	31	29	26
Illini	42	38	40	39	36	44	38	35	33	29
Richland	36	31	32	31	30	32	30	27	27	24
Mean	40	35	35	35	33	37	34	30	29	25

Table 28. Summary of maturity data, days earlier (-) or later (+) than Richland, for the strains in the Uniform Test, Group II, 1947.

Strain	Mean of 13 Tests	Walkerton Ind.	Lafayette Ind.	Worthington Ind.	Madison Wis.	Compton Ill.	Dwight Ill.	Urbana Ill.	Kanawha Iowa	Marcus Iowa	Hudson Iowa	Ames Iowa	Centerville S.D.	Wakefield Nebr.
Bavender Special	+5.8	+4	+12	+4	+11	+7	+7	+6	+4	+7	+4	+7	+4	-2
A5-2683	+7.2	+4	+19	+6	+8	+6	+7	+7	+5	+9	+4	+7	+9	+3
A3-176	+6.6	+4	+19	+5	+5	+5	+6	+7	+5	+9	+3	+7	+8	+3
Hawkeye	+1.1	0	+2	-1	+3	+3	0	0	+1	+1	-1	+1	+4	+1
A45-251	+1.2	0	+3	-1	+3	+4	+1	+1	+1	+2	-1	+1	+2	0
Lincoln	+7.8	+6	+15	+4	+11	+6	+10	+7	+6	+9	+6	+8	+9	+5
Korean	-2.0	-2	-3	+3	-1	-2	-4	-1	-2	-1	-3	-4	-4	-2
Mingo	+8.3	+8	+19	+7	+13	+9	+9	+6	+8	+10	+7	+10	+1	+1
Mukden	+4.4	+2	+10	+3	+8	+6	+5	+7	+3	+3	+2	+3	+4	+1
L3-8417	-1.8	-2	0	+4	-1	-6	0	-4	0	0	-5	-3	-1	-6
Dunfield	+7.9	+7	+18	+4	+11	+8	+6	+8	+7	+10	+8	+10	+4	+2
Earlyana	-5.5	-4	-5	-8	-7	-2	-6	-7	-3	-4	-5	-4	-4	-13
Illini	+8.5	+8	+20	+6	+11	+8	+8	+8	+7	+10	+7	+9	+5	+4
Richland	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Date planted		5/27	5/14	6/11	5/16	5/21	5/14	5/24	5/21	5/20	5/31	5/16	5/27	6/6
Richland matured		10/4	9/19	9/26	9/29	9/30	9/22	9/22	9/27	9/24	9/30	9/22	9/25	9/25
Days to mature	125	130	128	107	136	132	131	121	129	127	122	129	121	111

Table 29. Five-year summary of agronomic and chemical data for the strains in the Uniform Test, Group II, 1943-47.

Strain	Mean Yield Bu/A.	Lodging	Height Inches	Maturity[1]	Seed Quality	Seed Weight	Percentage of Protein	Percentage of Oil	Iodine Number of Oil
No. of Tests	93	89	90	72	71	88	91	91	91
Lincoln	32.5	2.2	38	+7.2	1.4	14.2	40.2	20.9	136.3
Hawkeye	31.6	1.6	35	+0.1	1.4	17.0	41.4	20.9	130.0
Mingo	29.9	3.0	38	+7.3	1.9	15.2	41.9	20.1	134.7
Illini	29.5	3.0	42	+8.2	1.6	13.0	40.3	19.8	135.2
Mukden	29.1	2.2	38	+4.2	1.4	14.8	43.0	19.6	131.0
Earlyana	28.0	2.7	36	-5.5	2.0	15.2	42.7	20.5	132.1
Dunfield	27.9	2.9	38	+7.4	1.4	15.0	39.3	20.5	131.2
Richland	27.8	1.6	32	0	1.5	16.4	40.5	20.4	129.1
Mean	29.5	2.4	37		1.6	15.1	41.2	20.3	132.5

[1]Days earlier (-) or later (+) than Richland. Richland required 124 days to mature.

Table 30. Five-year summary of yield in bushels per acre and yield rank for the strains in the Uniform Test, Group II, 1943-47.

Strain	Mean of 93 Tests	New Brunswick N.J.	Holgate Ohio	Columbus Ohio	East Lansing Mich.	Monroe Mich.	Walkerton Ind.	Bluffton Ind.	Lafayette Ind.	Greenfield Ind.	Worthington Ind.
Years Tested		1944 1946	1943-1947	1943 1945-7	1943-1947	1943 1945-6	1943-1947	1943 1945-7	1943-1947	1944-1947	1946-1947
Lincoln	32.5	24.4	21.0	42.4	21.2	31.0	33.3	38.4	41.4	38.7	38.5
Hawkeye	31.6	25.5	21.7	42.7	21.7	29.3	32.8	36.8	39.2	34.7	36.0
Mingo	29.9	25.0	21.4	37.7	18.7	29.1	30.9	35.6	39.0	35.9	33.1
Illini	29.5	24.1	19.1	35.6	19.0	30.6	29.2	32.0	38.1	33.3	30.0
Mukden	29.1	23.7	18.9	39.8	21.5	25.5	29.9	35.6	38.7	30.0	32.6
Earlyana	28.0	21.9	21.2	35.3	22.9	23.0	28.1	33.4	31.9	30.9	30.3
Dunfield	27.9	22.2	18.5	38.0	17.0	25.7	27.4	31.7	34.4	30.6	30.8
Richland	27.8	21.9	19.1	39.4	17.4	25.1	27.7	33.6	34.4	32.3	30.1
Mean	29.5	23.6	20.1	38.9	19.9	27.4	29.9	34.6	37.1	33.3	32.7

	Yield Rank									
Lincoln	3	4	2	4	1	1	1	1	1	1
Hawkeye	1	1	1	2	3	2	2	2	3	2
Mingo	2	2	6	6	4	3	3	3	2	3
Illini	4	5	7	5	2	5	7	5	4	8
Mukden	5	7	3	3	6	4	3	4	8	4
Earlyana	7	3	8	1	8	6	6	8	6	6
Dunfield	6	8	5	8	5	8	8	6	7	5
Richland	7	5	4	7	7	7	5	6	5	7

Table 30. (Continued)

Strain	Madison Wis.	Compton Ill.	Dwight Ill.	Urbana Ill.	Kanawha Iowa	Marcus Iowa	Hudson Iowa	Ames Iowa	Centerville S.D.	Wakefield Nebr.	Lincoln Nebr.
Years Tested	1943-1947	1943-1947	1943-1947	1943-1947	1943-1947	1944-1947	1943-1947	1943-1947	1946-1947	1943-5 1947	1946-1947
Lincoln	34.3	31.1	26.5	34.2	34.0	37.5	40.7	37.9	18.6	26.4	22.1
Hawkeye	33.4	30.0	24.8	33.7	35.0	34.8	39.8	38.7	18.4	26.9	21.2
Mingo	32.2	28.2	23.4	32.5	32.1	33.6	37.1	36.2	17.5	22.9	21.0
Illini	30.2	28.7	24.2	32.5	31.6	37.4	37.8	36.3	17.7	23.3	18.5
Mukden	31.5	28.5	22.9	31.9	31.0	30.5	36.9	34.2	16.6	22.7	18.5
Earlyana	29.5	28.5	21.5	28.2	32.7	29.4	35.1	32.8	17.9	24.7	18.5
Dunfield	30.1	27.0	22.3	32.9	29.4	33.7	33.9	35.7	17.2	21.7	19.9
Richland	28.3	26.2	22.4	32.6	30.3	31.5	30.6	33.1	18.6	24.9	21.5
Mean	31.2	28.5	23.5	32.3	32.0	33.6	36.5	35.6	17.8	24.2	20.2

	Yield Rank										
Lincoln	1	1	1	1	2	1	1	2	1	2	1
Hawkeye	2	2	2	2	1	3	2	1	3	1	3
Mingo	3	6	4	5	4	5	4	4	6	6	4
Illini	5	3	3	5	5	2	3	3	5	5	6
Mukden	4	4	5	7	6	7	5	6	8	7	6
Earlyana	7	4	8	8	3	8	6	8	4	4	6
Dunfield	6	7	7	3	8	4	7	5	7	8	5
Richland	8	8	6	4	7	6	8	7	1	3	2

UNIFORM TEST, GROUP III

The Group III Test consisted of five named varieties and six selections from hybrids. The origin of these varieties and strains is as follows:

Variety or Strain	Source or Originating Agency	Origin
Chief	Illinois Agr. Exp. Station	Sel. from Illini x Manchu
Dunfield	Purdue Agr. Exp. Station	P.I. 36846
Illini	Illinois Agr. Exp. Station	Sel. from A.K.
Lincoln	Ill. Agr.Exp.Sta. & U.S.R.S.L.	L6-685 (Mandarin x Manchu)
Pennsoy	Penn. Agr. Exp. Station	Natural cross from Manchuria 13-177
A3-176	Iowa A.E.S. & U.S.R.S.L.	Sel. from Illini x Dunfield
A5-2683	Iowa A.E.S. & U.S.R.S.L.	Sel. from A3-176
A5-268	Iowa A.E.S. & U.S.R.S.L.	Sel. from Mukden x Linman 533
L3-2010	Ill. Agr. Exp. Sta. & U.S.R.S.L.	Sel. from C167 x L7-1355
L3-2140	Ill. Agr. Exp. Sta. & U.S.R.S.L.	Sel. from Chief x L7-1355
LX579-93	Ill. Agr. Exp. Sta. & U.S.R.S.L.	Sel. from Chief x Dunfield

Four new strains, LX579-93, L3-2140, A5-268, and A5-2683, were entered in the 1947 Group III tests. The data for this test are summarized in tables 31 to 34. Strain LX579-93 was among the highest in oil content in 1947, but in most other respects it was a disappointment. At many locations it developed a duddy condition and lodged much more than its height would indicate. Strain L3-2140 averaged third highest in yield and was high at several locations, but it appears to be somewhat inferior to L3-2010 in most respects. Since it is rather late for Group III, it might be better to test it in Group IV. Strain A5-268 was not outstanding in any respect. It was the earliest strain in the test and perhaps belongs in Group II rather than in Group III.

Strain A5-2683, from the cross Illini x Dunfield, is a selection from A3-176, which has been tested for four years in Group III, and in Group II for one year. Selection A3-176 has a very good record in Group III, and it has been suggested that this strain, or a selection from it, be increased, named, and released. In 1946, seed of A5-2683, which seems to be the best of the two available lines from A3-176 on the basis of the Iowa Elite Tests in 1946 and 1947, was increased to 80 pounds and in 1947 was further increased to 50 bushels.

An outline of the origin and development of A5-2683 has been prepared to serve as a guide in discussing this strain.

OUTLINE OF THE ORIGIN AND DEVELOPMENT OF A5-2683

1938 - Cross, A X 1311, made between Illini and Dunfield.
1939 - F1-space planted.
1940 - F2-space planted. Pedigree 31-02; plant 2 was one of 41 plants selected from cross 31.
1941 - F3-Line number 847 was tested in the Iowa Pedigree Selection Test and saved from among 41 F3 lines of cross 31. Twelve single plants were selected from line 847 from which one was selected to carry on the line.
1942 - F4-Line number 266 from plant 847-1 was tested in the Iowa Pedigree Selection Test. Two plant selections (out of 12), 266-1 and 266-2, were saved from entry number 266.
1943 - F5 Lines 175 and 176 which came from plants 266-1 and 266-2, respectively, were tested in the Iowa Pedigree Selection Test. Twelve single plant selections were made from each line.
1944 - F6-Bulk seed from line 176 was tested under the number A3-176 in the Uniform Group III Test. Twelve single plant selections from 1943 (F5) line 176 were bulked to form entry 342 in the Iowa Pedigree Selection Test. Five single plant selections were saved from 342.
1945 - F7-Bulked seed of 342 was tested in the Uniform Group III Test as A3-176. Entry 342 was again tested in the Iowa Pedigree Selection Test. Two selections, 342-2 and 342-3 were saved; these were given numbers A5-2682 and A5-2683, respectively, in 1946.
1946 - F8-Entry A3-176 was tested as in 1945. The two selections, A5-2682 and A5-2683 were tested in Iowa Late Elite Tests. First increase of seed -- 80 pounds.
1947 - F9-Lines A3-176 from 1945 (F7) and A5-2683 were entered in both the Uniform Group II and III Tests. Iowa entered A5-2682 as an extra variety in the above tests for a comparison of sister lines and progenitor. Seed of A5-2683 was increased the second time to 50 bushels.

In the Uniform Group III tests in 1947, A5-2683 has proven to be somewhat superior to A3-176 in yield, slightly taller, slightly later, and somewhat higher in oil content. It just about equalled Lincoln in average yield, lodging resistance, height, and maturity, and was .4 percent higher in oil content.

The average data for Group III for the last four years are presented in tables 36 and 38. A3-176 has averaged somewhat less in yield, slightly shorter, slightly earlier, slightly higher in oil content, and about the same in lodging resistance. In the summary of yields for the four-year period, table 36, it will be noticed that A3-176 has performed best at Ames and Ottumwa. Although it is first in average yield at Manhattan, this advantage is all due to the unusually high yield in 1946 when it exceeded other strains by 7 bushels. In the other three years it was inferior to Lincoln. If the selection A5-2683 maintains the increased yield over A3-176 shown in the 1947 tests, it would seem that this strain would compete very well with Lincoln in the northern part of the Group III territory. In general, A3-176 has shown up best in the northern locations, but A5-2683 seems to be more widely adapted than its parent.

L3-2010 has continued to perform well in Group III. It was highest in yield at eight of the seventeen locations and averaged highest in yield in the mean of all locations, Tables 35 and 37 for 1946 and 1947. Of the same maturity as Chief, it is rather late for Group III. Probably it should be entered in Group IV since it has exceeded Chief in yield at most of the locations where Group IV is grown. Its poorest records are at Columbus, Dwight, and Ames, the three most northern locations in Group III. This strain has slightly exceeded Lincoln in oil content for the two-year period, and has resisted lodging somewhat better than Chief.

Table 31. Summary of agronomic and chemical data for the strains in the Uniform Test, Group III, 1947.

Strain	Mean Yield Bu/A	Lodging	Height Inches	Maturity [1]	Seed Quality	Seed Weight	Percentage of Protein	Percentage of Oil	Iodine Number of Oil
No. of Tests	19	16	17	15	17	18	18	18	18
L3-2010	28.9	2.2	40	+7.7	1.9	13.9	38.8	22.9	131.0
Chief	27.7	2.6	42	+6.9	1.7	12.2	40.7	21.3	130.2
L3-2140	27.3	2.3	42	+6.3	1.8	12.4	40.1	22.1	129.5
Lincoln	27.3	1.9	33	0	1.7	13.6	40.4	22.7	133.1
A5-2683	27.1	1.9	32	-0.9	1.6	13.5	41.0	23.1	131.5
A3-176	25.8	1.9	31	-1.2	1.5	14.5	41.5	22.8	130.4
Pennsoy	25.2	2.5	33	+0.9	2.0	14.0	43.5	20.7	125.7
A5-268	24.9	2.2	35	-2.5	2.0	14.4	43.1	21.9	127.2
Illini	24.8	2.8	36	+0.5	1.6	12.6	41.6	21.1	131.2
Dunfield	24.1	2.4	33	+0.1	2.2	15.0	40.8	22.3	123.9
LX579-93	23.8	2.5	32	-0.4	2.2	12.8	40.1	22.8	131.3
Mean	26.1	2.3	35		1.8	13.5	41.1	22.2	129.5

[1] Days earlier (-) or later (+) than Lincoln. Lincoln required 119 days to mature.

Table 32. Summary of yield in bushels per acre and yield rank for the strains in the Uniform Test, Group III, 1947.

Strain	Mean of 19 Tests	George-town Del.	Belts-ville Md.	Colum-bus Ohio	Lafay-ette Ind.	Green-field Ind.	North-ington Ind.	Dwight Ill.	Urbana Ill.	Clay-ton Ill.
L3-2010	28.9	26.9	22.5	49.0	51.4	36.5	39.2	22.1	36.5	14.7
Chief	27.7	26.9	22.9	47.2	47.6	39.3	46.1	17.8	34.7	14.2
L3-2140	27.3	26.0	24.0	51.4	44.8	38.2	40.0	18.7	35.2	13.9
Lincoln	27.3	25.5	18.8	47.0	46.6	41.1	37.2	21.5	35.0	14.8
A5-2683	27.1	20.5	20.4	49.3	46.3	38.3	39.9	19.2	32.6	16.4
A3-176	25.8	19.1	19.8	41.1	47.0	39.0	34.9	18.8	32.8	12.7
Pennsoy	25.2	25.7	20.7	46.4	42.4	36.8	35.8	19.8	30.7	11.0
A5-268	24.9	16.6	21.1	42.7	45.6	37.3	37.2	20.4	32.1	13.2
Illini	24.8	18.6	20.4	39.1	41.8	34.6	34.2	21.6	29.8	13.1
Dunfield	24.1	19.1	17.5	44.9	39.8	37.1	37.7	16.6	30.9	12.2
LX579-93	23.8	17.3	17.7	43.2	42.1	39.9	37.6	18.0	28.8	14.2
Mean	26.1	22.0	20.5	45.6	45.0	38.0	38.2	19.5	32.6	13.7
Coef. of Var.		--	--	--	11.1	6.0	8.7	10.2	8.1	13.5
Bu. Nec. for Sig.(5%)		2.7	--	--	not sig.	2.3	4.8	2.9	3.8	2.7

	Yield Rank								
L3-2010	1	3	3	1	10	4	1	1	3
Chief	1	2	4	2	3	1	10	4	4
L3-2140	3	1	1	7	6	2	8	2	6
Lincoln	5	9	5	4	1	7	3	3	2
A5-2683	6	6	2	5	5	3	6	6	1
A3-176	7	8	10	3	4	10	7	5	9
Pennsoy	4	5	6	8	9	9	5	9	11
A5-268	11	4	9	6	7	7	4	7	7
Illini	9	7	11	10	11	11	2	10	8
Dunfield	7	11	7	11	8	5	11	8	10
LX579-93	10	10	8	9	2	6	9	11	4

Table 32. (Continued)

Strain	Stonington Ill.	Edgewood Ill.	Freeburg Ill.	Eldorado Ill.	Ames Iowa	Ottumwa Iowa	Shelbyville Mo.	Columbia Mo.	Lincoln Nebr.	Manhattan Kans.
L3-2010	28.8	30.6	28.6	29.4	32.1	24.2	14.7	26.2	19.0	17.0
Chief	26.7	27.6	24.0	29.5	28.1	23.1	14.4	22.2	17.3	16.3
L3-2140	25.3	27.6	25.1	26.7	27.1	26.0	14.3	23.2	16.7	15.1
Lincoln	26.1	28.4	27.9	26.0	29.5	22.0	15.1	21.5	17.4	17.3
A5-2683	26.4	29.9	22.4	27.5	32.0	22.6	15.9	20.8	16.9	17.1
A3-176	26.4	28.4	22.3	24.1	30.4	25.2	15.1	19.0	16.5	17.0
Pennsoy	25.9	16.1	21.8	24.6	31.3	21.1	15.4	23.9	15.7	13.8
A5-268	23.1	18.7	21.0	24.3	30.3	22.2	15.6	20.4	16.2	16.0
Illini	26.8	22.4	24.0	26.7	26.9	22.9	12.7	20.6	17.5	17.2
Dunfield	19.9	25.3	20.4	23.3	27.4	21.2	12.7	19.2	15.8	16.6
LX579-93	23.1	25.0	19.0	24.5	29.2	23.5	13.2	21.4	15.3	20.0
Mean	25.3	25.5	23.3	26.0	29.5	23.1	14.5	21.7	16.8	16.7
Coef. of Var.	7.6	10.7	9.4	7.1	7.6	11.0	10.8	7.3	7.7	--
Bu./Sig.	2.8	3.9	3.2	2.7	3.2	3.6	2.3	1.6	1.9	--

	Yield Rank									
L3-2010	1	1	1	2	1	3	6	1	1	5
Chief	3	5	4	1	8	5	7	4	4	8
L3-2140	8	5	3	4	10	1	8	3	6	10
Lincoln	6	3	2	6	6	9	4	5	3	2
A5-2683	4	2	6	3	2	7	1	7	5	4
A3-176	4	3	7	10	4	2	4	11	7	5
Pennsoy	7	11	8	7	3	11	3	2	10	11
A5-268	9	10	9	9	5	8	2	9	8	9
Illini	2	9	4	4	11	6	10	8	2	3
Dunfield	11	7	10	11	9	10	10	10	9	7
LX579-93	9	8	11	8	7	4	9	6	11	1

Table 33. Summary of lodging and height data for the strains in the Uniform Test, Group III, 1947.

Strain	Mean of 16 Tests [1]	Georgetown Del.	Beltsville Md.	Columbus Ohio	Lafayette Ind.	Greenfield Ind.	Worthington Ind.	Dwight Ill.	Urbana Ill.	Stonington Ill.
L3-2010	2.2	1.0	3.0	2.8	1.8	2.0	2.0	2.0	2.5	2.5
Chief	2.6	1.0	3.5	3.0	2.0	2.5	3.8	2.3	2.8	2.7
L3-2140	2.3	1.0	3.0	2.5	2.0	2.5	2.8	2.3	2.8	2.3
Lincoln	1.9	1.0	3.0	2.3	1.0	2.0	2.8	2.0	1.8	2.0
A5-2683	1.9	1.0	3.0	1.8	1.0	3.3	3.3	2.0	1.0	2.5
A3-176	1.9	1.0	3.0	2.0	1.3	2.8	3.8	1.8	1.0	2.0
Pennsoy	2.5	1.0	3.5	2.8	2.3	3.5	3.3	2.3	2.0	2.3
A5-268	2.2	1.0	4.0	2.3	1.8	2.5	3.5	2.0	1.5	2.5
Illini	2.8	1.0	3.0	2.8	2.0	3.0	3.3	3.0	2.5	2.3
Dunfield	2.4	1.0	4.0	3.0	2.0	3.5	3.0	2.0	2.0	2.0
LX579-93	2.5	1.0	4.0	2.0	2.0	3.8	2.8	2.8	2.0	2.5
Mean	2.3	1.0	3.4	2.5	1.7	2.9	3.1	2.2	2.0	2.3

	Mean of 17 Tests	Height							
L3-2010	40	30	45	51	52	47	47	40	34
Chief	42	34	52	53	56	52	44	43	37
L3-2140	42	39	49	49	57	49	45	44	37
Lincoln	33	29	41	40	43	38	35	35	31
A5-2683	32	27	36	39	45	36	38	33	31
A3-176	31	24	36	38	44	35	36	32	29
Pennsoy	33	26	40	39	45	35	40	33	32
A5-268	35	27	39	41	45	37	41	36	36
Illini	36	33	41	43	47	39	42	37	34
Dunfield	33	28	39	39	43	35	38	34	30
LX579-93	32	26	38	40	46	36	38	33	31
Mean	35	29	41	43	48	40	40	36	33

[1] Georgetown and Shelbyville not included in the mean.

Table 33. (Continued)

Strain	Edgewood Ill.	Freeburg Ill.	Eldorado Ill.	Ames Iowa	Ottumwa Iowa	Shelbyville Mo.	Columbia Mo.	Lincoln Nebr.	Manhattan Kans.
L3-2010	3.0	2.5	2.3	2.5	2.3	1.0	1.0	1.8	1.5
Chief	3.0	2.3	2.5	3.3	3.0	1.0	1.0	1.8	2.2
L3-2140	2.8	2.3	2.3	3.3	2.8	1.0	1.0	1.0	1.7
Lincoln	3.0	1.5	1.0	2.5	2.0	1.0	1.0	1.0	1.4
A5-2683	2.8	1.5	1.5	1.8	2.0	1.0	1.0	1.0	1.3
A3-176	2.8	1.5	1.8	1.5	1.5	1.0	1.0	1.0	1.3
Pennsoy	3.8	2.3	2.0	3.0	2.5	1.0	1.0	1.3	2.5
A5-268	3.0	1.3	1.8	2.3	2.5	1.0	1.0	1.0	1.7
Illini	3.8	2.3	2.3	3.3	3.3	1.0	1.8	2.3	3.0
Dunfield	3.8	2.3	2.0	2.8	2.8	1.0	1.0	1.0	1.6
LX579-93	4.3	2.0	1.8	3.0	3.5	1.0	1.0	1.0	2.0
Mean	3.3	2.0	1.9	2.7	2.6	1.0	1.1	1.3	1.8
					Height				
L3-2010	49	32	45	41	32	31	36	31	33
Chief	49	32	48	45	33	33	34	31	35
L3-2140	50	35	46	46	35	34	35	33	35
Lincoln	39	30	34	35	28	26	30	25	29
A5-2683	35	26	35	34	28	28	26	24	27
A3-176	34	25	32	32	27	26	25	25	25
Pennsoy	36	28	36	37	28	28	29	25	29
A5-268	39	29	37	38	31	29	29	28	28
Illini	42	30	37	37	32	27	29	28	29
Dunfield	37	30	36	35	28	27	29	25	28
LX579-93	35	25	35	35	27	26	27	24	23
Mean	40	29	38	38	30	29	30	27	29

Table 34. Summary of maturity, days earlier (-) or later (+) than Lincoln for the strains in the Uniform Test, Group III, 1947.

Strain	Mean of 15 Tests	George-town Del.	Belts-ville Md.	Lafay-ette Ind.	Worth-ington Ind.	Dwight Ill.	Urbana Ill.	Edge-wood Ill.
L3-2010	+7.7	+23	+10	+11	+8	+7	+5	+5
Chief	+6.9	+22	+10	+8	+9	+4	+5	+4
L3-2140	+6.3	+20	+10	+9	+9	+3	+5	+5
Lincoln	0	0	0	0	0	0	0	0
A5-2683	-0.9	-10	-2	+4	+3	-3	0	-3
A3-176	-1.2	-12	-2	+3	+2	-3	+1	-3
Pennsoy	+0.9	0	+7	+3	+4	-1	-1	-3
A5-268	-2.5	-6	-2	+3	0	-6	-1	-6
Illini	+0.5	-4	+4	+6	+3	-1	+2	-1
Dunfield	+0.1	-6	+4	+2	+1	-4	+1	-1
LX579-93	-0.4	-10	+7	+5	+3	-4	+2	-2
Date planted		5/27	6/6	5/14	6/11	5/14	5/24	6/6
Lincoln matured		9/18	10/1	10/4	9/30	10/2	9/30	9/27
Days to mature	119	114	117	143	111	141	129	113

Table 34. (Continued)

Strain	Freeburg Ill.	Eldorado Ill.	Ames Iowa	Ottumwa Iowa	Shelbyville Mo.	Columbia Mo.	Lincoln Nebr.	Manhattan Kans.
L3-2010	+2	+4	+6	+4	+13	+9	0	+8
Chief	+3	+6	+5	+4	+8	+6	+2	+8
L3-2140	0	+2	+6	+4	+10	+5	0	+6
Lincoln	0	0	0	0	0	0	0	0
A5-2683	-2	0	-1	+1	-4	-9	+2	+11
A3-176	-3	0	-2	+2	-4	-9	+2	+10
Pennsoy	-2	0	+1	+2	+4	+2	-3	0
A5-268	-6	-2	-2	-3	-2	-8	+1	+2
Illini	-2	+2	0	+1	-1	-5	-2	+5
Dunfield	-3	+2	0	+1	+2	-1	-2	+5
LX579-93	-5	0	-1	+1	-5	-10	+2	+11
Date planted	6/4	5/24	5/16	6/27	6/11	5/19	6/10	6/10
Lincoln matured	9/27	9/18	9/30	10/17	9/20	9/10	10/4	9/20
Days to mature	115	117	137	112	101	114	116	102

Table 35. Two-year summary of yield in bushels per acre and yield rank for the strains in the Uniform Test, Group III, 1946-47.

Strain	Mean of 40 Tests	George-town Del.	Belts-ville Md.	Colum-bus Ohio	Green-field Ind.	Worth-ington Ind.	Dwight Ill.	Urbana Ill.	Clay-ton Ill.
L3-2010	29.6	29.8	25.9	38.9	33.0	35.8	23.7	35.0	25.9
Lincoln	28.9	28.2	25.9	42.6	37.1	37.1	24.8	34.6	24.0
Chief	28.3	29.4	27.0	41.1	31.8	41.3	21.3	30.8	24.8
Pennsoy	26.8	29.0	27.9	40.7	33.3	35.2	24.1	30.5	21.5
A3-176	26.4	23.2	24.2	40.7	33.0	32.5	23.6	32.3	22.6
Illini	24.9	22.0	23.0	38.0	29.6	30.0	24.1	29.1	19.2
Dunfield	24.4	21.9	19.3	36.1	30.0	33.1	20.3	27.9	21.3
Mean	27.0	26.2	24.7	39.7	32.5	35.0	23.1	31.5	22.8

	Yield Rank							
L3-2010	1	3	5	3	3	4	1	1
Lincoln	4	3	1	1	2	1	2	3
Chief	2	2	2	5	1	6	4	2
Pennsoy	3	1	3	2	4	2	5	5
A3-176	5	5	3	3	6	5	3	4
Illini	6	6	6	7	7	2	6	7
Dunfield	7	7	7	6	5	7	7	6

Table 36. Four-year summary of yield in bushels per acre and yield rank for the strains in the Uniform Test, Group III, 1944-47.

Strain	Mean of 73 Tests	Green-field Ind.	Dwight Ill.	Urbana Ill.	Clay-ton Ill.	Ston-ington Ill.	Edge-wood Ill.
Lincoln	28.9	36.2	24.3	33.5	25.4	29.9	25.5
Chief	27.8	31.4	19.3	31.2	24.0	26.9	23.0
A3-176	27.3	32.6	23.8	33.1	23.6	29.6	20.8
Illini	25.6	31.0	23.6	28.8	20.6	27.7	19.9
Dunfield	24.9	28.1	19.5	28.7	23.5	24.1	22.7
Mean	26.9	31.9	22.1	31.1	23.4	27.6	22.4

	Yield Rank					
Lincoln	1	1	1	1	1	1
Chief	3	5	3	2	4	2
A3-176	2	2	2	3	2	4
Illini	4	3	4	5	3	5
Dunfield	5	4	5	4	5	3

Table 35. (Continued)

Strain	Stonington Ill.	Edgewood Ill.	Freeburg Ill.	Ames Iowa	Ottumwa Iowa	Shelbyville Mo.	Columbia Mo.	Lincoln Nebr.	Manhattan Kans.
L3-2010	27.3	28.9	28.4	23.0	28.4	19.7	31.3	24.5	19.3
Lincoln	28.8	29.4	29.1	33.8	26.7	19.7	21.9	23.6	18.8
Chief	25.9	28.8	25.8	32.8	25.5	18.8	26.9	19.3	16.1
Pennsoy	25.7	22.0	23.6	33.5	24.8	18.5	25.6	21.8	14.6
A3-176	26.8	26.8	22.1	34.2	28.0	17.4	23.1	21.8	17.8
Illini	25.7	23.5	21.9	29.7	26.2	16.0	21.0	20.7	16.7
Dunfield	21.1	26.5	22.4	30.6	25.9	16.6	22.5	20.8	16.8
Mean	25.9	26.6	24.8	32.5	26.5	18.1	24.6	21.8	17.2

	Yield Rank								
L3-2010	2	2	2	4	1	1	1	1	1
Lincoln	1	1	1	2	3	1	6	2	2
Chief	4	3	3	5	6	3	2	7	6
Pennsoy	5	7	4	3	7	4	3	3	7
A3-176	3	4	6	1	2	5	4	3	3
Illini	5	6	7	7	4	7	7	6	5
Dunfield	7	5	5	6	5	6	5	5	4

Table 36. (Continued)

Strain	Freeburg Ill.	Ames Iowa	Ottumwa Iowa	Columbia Mo.	Lincoln Nebr.	Manhattan Kans.
Lincoln	27.8	37.5	29.4	20.5	23.0	22.8
Chief	25.2	34.5	26.9	24.5	20.2	21.6
A3-176	23.7	38.7	30.4	21.4	22.4	23.2
Illini	21.2	34.3	27.5	18.4	21.3	20.3
Dunfield	23.0	33.1	26.8	20.7	21.1	21.2
Mean	24.2	35.6	28.2	21.1	21.6	21.8

	Yield Rank					
Lincoln	1	2	2	4	1	2
Chief	2	3	4	1	5	3
A3-176	3	1	1	2	2	1
Illini	5	4	3	5	3	5
Dunfield	4	5	5	3	4	4

Table 37. Two-year summary of agronomic and chemical data for the strains in the Uniform Test, Group III, 1946-47.

Strain	Mean Yield Bu/A	Lodging	Height Inches	Maturity [1]	Seed Quality	Seed Weight	Percentage of Protein	Percentage of Oil	Iodine Number of Oil
No. of Tests	40	36	37	32	34	39	39	39	39
L3-2010	29.6	2.4	42	+7.3	2.0	13.6	38.3	22.1	133.3
Lincoln	28.9	2.1	36	0	1.8	14.2	40.8	21.9	134.6
Chief	28.3	2.8	44	+7.2	1.8	12.7	40.7	20.9	132.6
Pennsoy	26.8	2.7	36	+1.7	2.2	15.0	43.3	20.3	127.8
A3-176	26.4	2.1	33	-1.9	1.9	14.9	41.5	21.9	131.3
Illini	24.9	3.0	38	+0.9	1.7	14.2	41.4	20.5	132.8
Dunfield	24.4	2.7	35	+0.2	2.2	15.4	40.7	21.5	127.1
Mean	27.0	2.5	38		1.9	14.3	41.0	21.3	131.4

[1] Days earlier (-) or later (+) than Lincoln. Lincoln required 120 days to mature.

Table 38. Four-year summary of agronomic and chemical data for the strains in the Uniform Test, Group III, 1944-47.

Strain	Mean Yield Bu/A	Lodging	Height Inches	Maturity [1]	Seed Quality	Seed Weight	Percentage of Protein	Percentage of Oil	Iodine Number of Oil
No. of Tests	73	65	64	57	62	71	71	71	71
Lincoln	28.9	2.2	35	0	1.6	14.0	40.4	21.6	134.8
Chief	27.8	2.8	44	+7.6	1.8	12.5	40.3	20.6	133.1
A3-176	27.3	2.1	33	-1.5	1.7	14.5	40.8	21.8	131.3
Illini	25.6	3.0	38	+1.2	1.6	13.7	40.8	20.4	133.2
Dunfield	24.9	2.8	35	-0.5	2.0	15.0	39.8	21.5	128.1
Mean	26.9	2.6	37		1.7	13.9	40.4	21.2	132.1

[1] Days earlier (-) or later (+) than Lincoln. Lincoln required 122 days to mature.

UNIFORM TEST, GROUP IV

The Group IV test consisted of three named varieties and eight selections from hybrids. The origin of these varieties and strains is as follows:

Variety or Strain	Source or Originating Agency	Origin
Chief	Ill. Agr. Exp. Station	Sel. from Illini x Manchu
Gibson	Purdue Agr. Exp. Station	Sel. from Midwest x Dunfield
Patoka	Purdue Agr. Exp. Station	Sel. from P.I. 70218-2
C463	Purdue Agr.Exp.Sta. & U.S.R.S.L.	Sel. from Dunfield x Mansoy
C499	Purdue Agr.Exp.Sta. & U.S.R.S.L.	Sel. from C143 x CX531-468-3-3-2-3
C500	Purdue Agr.Exp.Sta. & U.S.R.S.L.	Sel. from C143 x CX531-468-3-3-2-3
C502	Purdue Agr.Exp.Sta. & U.S.R.S.L.	Sel. from C143 x CX531-468-3-3-2-3
C508	Purdue Agr.Exp.Sta. & U.S.R.S.L.	Sel. from Patoka x L7-1355
L3-2926	Ill.Agr.Exp.Sta. & U.S.R.S.L.	Sel. from Dunfield x T117
L3-3427	Ill.Agr.Exp.Sta. & U.S.R.S.L.	Sel. from Scioto x Mukden
S3-1166	Mo. Agr. Exp. Sta. & U.S.R.S.L.	Sel. from L7-1355 x Scioto

Six new strains, C499, C500, C502, L3-2926, L3-3427, and S3-1166, were entered in the 1947 Group IV tests (tables 39 to 42). Of these, C499 and C502 appear to be most promising. Strain C499 is rather low in oil, however, and probably C502 is the better strain. L3-3427, L3-2926, and S3-1166 have lodged more than is desirable for new strains. None of the new strains appears to be equal to C508 which has again been outstanding in performance in Group IV. In the two-year summaries (tables 43 and 45) C508 has an excellent record. It is seldom that one strain yields so much more than others when so many tests are averaged. In the two-year summary it has averaged first at 10 of the 14 locations listed and second at the remaining four.

In addition to high yield, C508 has a high oil content and resistance to lodging. This strain from the cross Patoka x L7-1355 is very similar to Patoka in field appearance and seed type, but is somewhat taller than Patoka. It is rather short for soils of low fertility, however.

Strain C463 has been tested for five years in a total of 56 tests (tables 44 and 46). Since this strain has been increased for possible release, an outline history of its origin and development has been prepared to aid in the discussion of this strain.

OUTLINE OF THE ORIGIN AND DEVELOPMENT OF C463

1936 - F1 Natural crosses, Dunfield x Mansoy and T117 x Mansoy, were grown at Urbana, Illinois.

1937 - F2 Plant selections were made in F2 populations at Urbana.

1938 - F3 800 plant rows were grown from 1937 selections at Urbana.

1939 - F4 115 strains were tested in a yield test at Urbana.(Selections L8-748, etc.)

1940 - F5 85 best strains were tested at London Mills, Urbana, Clayton, Stonington, and Edgewood, Illinois; Lafayette, Indiana; Columbia, Missouri; and Columbus, Ohio.

1941 - F6 On the basis of the 1940 results, 40 of the best strains were tested at Columbus, Ohio; at two locations in southern Indiana; at seven locations in Illinois; and at Columbia, Missouri. Plant selections were made from the most promising strains at Evansville and North Vernon, Indiana; Urbana, Illinois; and Columbia, Missouri.

1942 - F7 Plant rows were grown at North Vernon and Evansville, Indiana; Urbana, Illinois; and Columbia, Missouri. Most of the plant rows at Urbana were lost due to unfavorable harvesting conditions.

1943 - F8 51 of the best plant rows harvested in 1942 from North Vernon and Evansville were tested at Evansville and North Vernon, Indiana. These strains were assigned numbers C415 to C471.

1944 - F9 Five of the best selections from T117 x Mansoy and 16 of the best selections from Dunfield x Mansoy were tested at Evansville and Wheatland, Indiana; Urbana and Edgewood, Illinois; Columbia, Missouri; and Blacksburg, Virginia.

1945 - F10 One selection from T117 x Mansoy and seven selections from Dunfield x Mansoy were entered in the Uniform Group IV Test. Three of the latter, C461, C463, and C464, were selections from the strain L8-748. Strain C463 was the highest in yield and in percentage of oil of these eight selections. It was also above the average in lodging resistance.

1946 - F11 The eight strains tested in 1945 were again tested in Group IV at 14 locations. C463 seemed to be the best all-around strain and was chosen for increase and possible release as a new variety for the area where Chief is grown. Plant rows of selections from C463 were grown at Lafayette, Indiana, and the best of these harvested and composited to produce a stock of pedigreed seed for increase. Approximately two bushels of this seed were made available for distribution to interested states. This was divided as follows:

Indiana - 50 pounds
Illinois - 40 pounds
Missouri - 30 pounds Kansas - 8 #

1947 - F12 C463 was again tested in Group IV. The agronomic and chemical data for 1947 are given in tables 39 to 42 of this report. A summary of the data for the five-year period, 1943-1947, is given in tables 44 and 46. These data indicate that C463 has averaged about a bushel higher in yield than Chief and that it stands as well as Patoka and better than Chief. It is about the same maturity as Patoka, a day later than Chief, and has a higher oil content than Chief, Patoka or Gibson. In spite of the increased oil content, the protein percentage is about as high as Gibson and Chief but lower than that of Patoka. C463 has inherited the low iodine number of its oil from the Dunfield parent and has the lowest iodine number of any strain adapted to the southern part of the Group IV area. C463 has also inherited from its Dunfield parent white flower color, gray pubescence, and light colored pods. Pure seed was increased in Indiana, Illinois, Missouri and Kansas to a total of about 150 bushels.

Table 39. Summary of agronomic and chemical data for the strains in the Uniform Test, Group IV, 1947.

Strain	Mean Yield Bu/A.	Lodging	Height Inches	Maturity[1]	Seed Quality	Seed Weight	Percentage of Protein	Percentage of Oil	Iodine Number of Oil
No. of Tests	15	12	13	13	12	14	14	14	14
C508	28.9	1.5	33	-1.5	1.7	16.8	41.5	22.2	127.4
C502	27.0	1.6	35	-1.2	1.5	15.4	40.4	22.4	128.2
C499	26.6	1.7	38	-0.3	1.2	17.3	42.9	20.7	126.4
L3-3427	26.4	2.5	39	+1.2	1.9	14.1	40.9	21.7	131.7
C463	25.7	1.8	37	-4.2	1.5	14.4	41.5	22.0	124.2
Patoka	25.4	1.8	32	-2.8	1.7	16.9	43.7	20.3	130.6
Gibson	25.3	2.5	36	0	1.6	14.1	41.0	20.6	131.4
L3-2926	25.1	2.3	36	+0.2	2.0	15.3	41.5	21.5	123.2
C500	25.0	1.7	37	-2.2	1.9	17.7	43.8	20.9	123.3
S3-1166	24.9	2.6	41	+0.7	2.1	16.6	41.3	21.8	128.4
Chief	24.6	2.2	41	-4.8	2.3	12.2	41.6	21.3	130.0
Mean	25.9	2.0	37		1.8	15.5	41.8	21.4	127.7

[1]Days earlier (-) or later (+) than Gibson. Gibson required 128 days to mature.

Table 40. Summary of yield in bushels per acre and yield rank for the strains in the Uniform Test, Group IV, 1947.

Strain	Mean of 15 Tests	George-town Del.	Belts-ville Md.	Blacks-burg Va.	Worth-ington Ind.	Vin-cennes Ind.	Evans-ville Ind.	Urbana Ill.	Clay-ton Ill.
C508	28.9	30.8	23.9	28.2	43.0	29.5	44.4	37.1	18.5
C502	27.0	28.6	15.3	29.7	41.7	32.5	38.9	32.4	19.1
C499	26.6	33.8	18.8	24.8	41.5	27.7	39.5	31.6	16.5
L3-3427	26.4	33.4	13.2	21.4	33.0	29.8	40.9	34.0	18.9
C463	25.7	28.7	22.4	26.5	38.1	24.7	36.1	33.3	13.9
Patoka	25.4	26.7	17.8	26.4	39.3	29.3	34.5	30.5	18.8
Gibson	25.3	28.3	13.0	17.5	38.0	27.4	36.2	32.2	14.6
L3-2926	25.1	30.2	16.2	20.5	37.1	28.2	32.1	32.3	18.7
C500	25.0	26.7	18.3	26.8	36.4	34.7	33.4	31.2	15.5
S3-1166	24.9	26.1	19.7	20.9	36.1	24.2	39.0	31.1	14.7
Chief	24.6	23.8	24.0	24.7	41.6	23.3	32.2	31.2	14.6
Mean	25.9	28.8	18.4	24.3	38.7	28.3	37.0	32.4	16.7
Coef. of Var.(%)		--	--	--	8.6	12.9	7.9	8.8	12.6
Bu.Nec.for Sig.(5%)		4.0	--	--	4.9	5.3	4.3	2.4	3.0

	Yield Rank							
C508	3	2	2	1	4	1	1	5
C502	6	9	1	2	2	5	4	1
C499	1	5	6	4	7	3	7	6
L3-3427	2	10	8	11	3	2	2	2
C463	5	3	4	6	9	7	3	11
Patoka	8	7	5	5	5	8	11	3
Gibson	7	11	11	7	8	6	6	9
L3-2926	4	8	10	8	6	11	5	4
C500	8	6	3	9	1	9	8	7
S3-1166	10	4	9	10	10	4	10	8
Chief	11	1	7	3	11	10	8	9

Table 40. (Continued)

Strain	Stonington Ill.	Edgewood Ill.	Freeburg Ill.	Eldorado Ill.	Shelbyville Mo.	Columbia Mo.	Manhattan Kans.	Thayer Kans.
C508	30.5	30.5	26.9	33.4	15.8	24.3	17.1	15.3
C502	28.3	32.4	26.7	26.9	14.7	23.2	14.7	17.8
C499	29.0	30.7	30.0	27.3	13.9	21.7	12.6	15.2
L3-3427	30.7	31.5	27.8	27.0	15.3	23.6	15.7	18.3
C463	26.4	29.1	27.5	26.0	15.0	20.8	16.5	15.5
Patoka	26.1	24.4	26.9	27.8	14.8	22.9	14.2	15.4
Gibson	30.8	31.1	26.7	28.2	14.1	23.3	17.4	18.7
L3-2926	28.6	27.9	27.5	26.0	14.1	21.8	15.2	15.3
C500	24.5	27.6	23.8	24.9	14.4	22.2	14.6	16.4
S3-1166	23.7	30.2	30.2	24.6	14.9	23.2	15.3	17.4
Chief	25.5	26.3	23.8	26.0	15.7	20.9	15.4	17.7
Mean	27.6	29.2	27.1	27.0	14.8	22.5	15.3	16.6
C.V.(%)	7.7	10.0	7.9	7.0	10.4	7.5	--	--
B.N.f.S.(5%)	3.1	4.2	3.1	2.7	2.2	2.4	--	--

	Yield Rank							
C508	3	5	6	1	1	1	2	9
C502	6	1	8	6	7	4	8	3
C499	4	4	2	4	11	9	11	11
L3-3427	2	2	3	5	3	2	4	2
C463	7	7	4	7	4	11	3	7
Patoka	8	11	6	3	6	6	10	8
Gibson	1	3	8	2	9	3	1	1
L3-2926	5	8	4	7	9	8	7	9
C500	10	9	10	10	8	7	9	6
S3-1166	11	6	1	11	5	4	6	5
Chief	9	10	10	7	2	10	5	4

Table 41. Summary of lodging and height data for the strains in the Uniform Test, Group IV, 1947.

Strain	Mean of 12 Tests	George-town Del.	Belts-ville Md.	Blacks-burg Va.	Worth-ington Ind.	Vin-cennes Ind.	Evans-ville Ind.
C508	1.5	1.0	3.0	1.3	1.0	1.0	2.1
C502	1.6	1.0	3.0	1.8	1.3	1.3	2.1
C499	1.7	1.0	3.0	2.3	1.5	1.3	2.1
L3-3427	2.5	1.0	3.0	2.3	3.5	2.5	2.8
C463	1.8	1.0	3.0	2.3	1.8	1.5	2.3
Patoka	1.8	1.0	3.5	1.3	1.5	1.5	2.4
Gibson	2.5	1.0	3.0	2.3	3.0	2.8	3.3
L3-2926	2.3	1.0	3.5	2.3	2.8	2.5	2.8
C500	1.7	1.0	3.0	2.0	1.8	1.0	2.3
S3-1166	2.6	1.0	3.0	2.8	3.0	2.3	3.4
Chief	2.2	1.0	3.0	2.8	2.5	2.0	2.9
Mean	2.0	1.0	3.1	2.1	2.2	1.8	2.6

	Mean of 13 Tests	Height					
C508	33	29	43	36	35	31	44
C502	35	29	40	40	39	36	44
C499	38	31	44	39	42	38	45
L3-3427	39	31	44	40	43	38	54
C463	37	29	44	40	43	36	46
Patoka	32	29	39	32	34	31	42
Gibson	36	28	45	36	39	36	44
L3-2926	36	29	41	35	40	38	43
C500	37	29	42	41	41	38	46
S3-1166	41	28	46	50	49	38	46
Chief	41	34	51	42	49	44	53
Mean	37	30	44	39	41	37	46

Table 41. (Continued)

Strain	Urbana Ill.	Edge-wood Ill.	Free-burg Ill.	Eldorado Ill.	Shelby-ville Mo.	Colum-bia Mo.	Man-hattan Kans.	Thayer Kans.
C508	1.5	2.0	1.0	2.0	1.0	1.0	1.0	2.0
C502	2.0	2.0	1.0	1.8	1.0	1.0	1.2	1.0
C499	1.8	2.0	1.3	2.0	1.0	1.0	1.6	1.0
L3-3427	2.5	3.3	2.0	3.3	1.0	1.0	2.6	1.0
C463	1.8	3.0	1.3	2.0	1.0	1.0	1.1	1.0
Patoka	2.0	2.5	1.3	2.0	1.0	1.0	1.1	2.0
Gibson	2.8	2.8	2.8	3.0	1.0	1.0	2.2	1.0
L3-2926	2.8	3.0	2.0	2.3	1.0	1.0	1.6	1.0
C500	1.8	2.3	1.3	2.0	1.0	1.0	1.0	1.0
S3-1166	2.8	3.0	2.5	3.3	1.3	1.5	2.3	1.0
Chief	2.3	3.0	2.3	2.3	1.0	1.0	1.6	1.0
Mean	2.2	2.6	1.7	2.4	1.0	1.0	1.6	1.2

Height

C508	34	33	27	40	26	29	26	20
C502	34	38	30	40	28	31	32	25
C499	39	43	30	45	32	31	33	21
L3-3427	39	42	32	47	30	31	36	21
C463	36	41	30	42	28	29	31	20
Patoka	32	33	28	38	26	28	29	20
Gibson	36	40	30	44	30	31	33	21
L3-2926	37	40	30	42	31	31	32	22
C500	36	40	30	42	29	31	32	28
S3-1166	41	47	35	48	34	37	40	27
Chief	41	45	31	46	33	33	34	22
Mean	37	40	30	43	30	31	33	22

Table 42. Summary of maturity data, days earlier (-) or later (+) than Gibson, for the strains in the Uniform Test, Group IV, 1947.

Strain	Mean of 13 Tests	George-town Del.	Belts-ville Md.	Blacks-burg Va.	Worth-ington Ind.	Vin-cennes Ind.	Evans-ville Ind.
C508	-1.5	+5	+6	+5	-2	0	-3
C502	-1.2	-8	+6	+2	-4	0	-4
C499	-0.3	+2	+2	-1	0	-1	-4
L3-3427	+1.2	+5	+6	+1	-3	0	-2
C463	-4.2	-9	+4	+3	-5	-5	-8
Patoka	-2.8	+4	+2	-2	-3	-1	-6
Gibson	0	0	0	0	0	0	0
L3-2926	+0.2	+5	+8	+3	-3	+1	-5
C500	-2.2	-8	+6	+2	-3	-3	-5
S3-1166	+0.7	+6	+8	+5	-3	-2	-2
Chief	-4.8	+5	-2	+1	-7	-4	-7
Date planted		5/27	6/6	5/21	5/28	6/10	6/10
Gibson matured		10/5	10/16	9/28	10/11	10/10	10/9
Days to mature 128		131	132	130	136	122	121

Table 42. (Continued)

Strain	Urbana Ill.	Edge-wood Ill.	Free-burg Ill.	Eldorado Ill.	Shelby-ville Mo.	Colum-bia Mo.	Man-hattan Kans.	Thayer Kans.
C508	-7	-3	-2	-9	-7	0	-2	-1
C502	-3	+2	-1	-5	-2	+2	-1	-3
C499	-3	+2	+1	-1	-2	+2	0	-5
L3-3427	+2	+1	+2	+2	0	0	+2	+8
C463	-8	-3	-5	-9	-4	-1	-4	-3
Patoka	-7	-4	-1	-9	-6	0	-3	-4
Gibson	0	0	0	0	0	0	0	0
L3-2926	-3	+1	-1	-4	0	+1	-1	+3
C500	-5	-1	-2	-5	-4	+1	-2	-2
S3-1166	-2	0	+3	0	-2	0	-2	-3
Chief	-7	-6	-5	-8	-10	-7	-6	-4
Date planted	5/24	6/6	6/4	5/24	6/11	5/19	6/10	6/8
Gibson mat.	10/13	10/8	10/7	10/2	10/9	9/24	10/4	9/27
Days to mat.	142	124	125	131	130	128	116	111

Table 43. Two-year summary of yield in bushels per acre and yield rank for the strains in the Uniform Test, Group IV, 1946-47.

Strain	Mean of 32 Tests	George-town Del.	Belts-ville Md.	Blacks-burg Va.	Worth-ington Ind.	Vin-cennes Ind.	Evans-ville Ind.
C508	30.3	31.5	24.7	26.9	39.5	31.5	43.0
C463	27.2	30.2	23.5	26.0	36.7	24.1	38.5
Patoka	26.7	28.1	20.5	26.3	36.3	30.4	34.8
Chief	26.4	27.0	26.7	22.0	40.3	23.4	37.2
Gibson	25.1	27.6	18.9	19.7	35.6	22.3	37.1
Mean	27.1	28.9	22.9	24.2	37.7	26.3	38.1
				Yield Rank			
C508		1	2	1	2	1	1
C463		2	3	3	3	3	2
Patoka		3	4	2	4	2	5
Chief		5	1	4	1	4	3
Gibson		4	5	5	5	5	4

Table 44. Five-year summary of yield in bushels per acre and yield rank for the strains in the Uniform Test, Group IV, 1943-47.

Strain	Mean of 56 Tests	George-town Del	Belts-ville Md,	Blacks-burg Va.	Worth-ington Ind.	Vin-cennes Ind.	Evans-ville Ind.	Urbana Ill.	Clay-ton Ill.	Ston-ington Ill.
Years Tested		1945-1947	1945-1947	1947	1945-1947	1945-1947	1943-1947	1944-1947	1945-1947	1945-1947
C463	26.9	30.2	26.8	26.5	37.0	30.3	35.5	33.4	22.1	27.2
Chief	26.0	28.9	28.7	24.7	39.5	29.0	33.6	32.3	20.3	27.4
Patoka	25.6	28.0	24.7	26.4	35.7	31.6	33.1	31.9	22.1	28.6
Gibson	23.9	28.0	21.7	17.5	32.9	25.9	32.3	29.1	20.3	24.5
Mean	25.6	28.8	25.5	23.8	36.3	29.2	33.6	31.7	21.2	26.9
					Yield Rank					
C463		1	2	1	2	2	1	1	1	3
Chief		2	1	3	1	3	2	2	3	2
Patoka		3	3	2	3	1	3	3	1	1
Gibson		3	4	4	4	4	4	4	3	4

Table 43. (Continued)

Strain	Urbana Ill.	Clayton Ill.	Stonington Ill.	Edgewood Ill.	Freeburg Ill.	Shelbyville Mo.	Columbia Mo.	Manhattan Kans.
C508	35.4	32.6	30.5	33.7	29.3	20.1	28.4	18.5
C463	29.8	25.1	26.1	32.4	25.7	19.5	24.8	18.0
Patoka	29.8	24.6	26.9	28.6	27.7	19.4	27.4	15.5
Chief	29.1	21.9	26.8	31.1	23.9	21.1	25.6	15.1
Gibson	25.8	21.1	26.4	30.3	23.6	18.8	23.1	18.7
Mean	30.0	25.1	27.3	31.2	26.0	19.8	25.9	17.2
	Yield Rank							
C508	1	1	1	1	1	2	1	2
C463	2	2	5	2	3	3	4	3
Patoka	2	3	2	5	2	4	2	4
Chief	4	4	3	3	4	1	3	5
Gibson	5	5	4	4	5	5	5	1

Table 44. (Continued)

Strain	Edgewood Ill.	Freeburg Ill.	Eldorado Ill.	Elsberry Mo.	Sikeston Mo.	Shelbyville Mo.	Columbia Mo.	Lathrop Mo.	Milo Mo.	Manhattan Kans.	Thayer Kans.
Years Tested	1944-1947	1945-1947	1947	1946	1945 1946	1945-1947	1944 1946-7	1945 1946	1946	1945-1947	1945 1947
C463	26.7	22.2	26.0	35.1	32.6	18.9	22.9	23.5	11.1	19.6	14.3
Chief	24.4	22.8	26.0	30.4	30.8	19.6	22.0	19.5	10.4	17.4	15.6
Patoka	21.8	24.6	27.8	35.6	31.8	17.8	22.5	17.0	11.4	16.9	14.4
Gibson	23.8	20.7	28.2	27.4	30.0	18.2	21.5	19.1	11.3	19.0	17.5
Mean	24.2	22.6	27.0	32.1	31.3	18.6	22.2	19.8	11.1	18.2	15.5
	Yield Rank										
C463	1	3	3	2	1	2	1	1	3	1	4
Chief	2	2	3	3	3	1	3	2	4	3	2
Patoka	4	1	2	1	2	4	2	4	1	4	3
Gibson	3	4	1	4	4	3	4	3	2	2	1

Table 45. Two-year summary of agronomic and chemical data for the strains in the Uniform Test, Group IV, 1946-47.

Strain	Mean Yield Bu/A	Lodging	Height Inches	Maturity [1]	Seed Quality	Seed Weight	Percentage of Protein	Percentage of Oil	Iodine Number of Oil
No. of Tests	32	27	29	27	27	31	31	31	31
C508	30.3	1.9	35	-0.2	1.9	17.2	42.0	21.8	128.5
C463	27.2	2.1	39	-2.3	1.6	14.6	41.2	21.5	127.2
Patoka	26.7	2.2	33	-2.0	2.0	18.0	44.3	20.0	131.2
Chief	26.4	2.7	44	-3.6	2.2	12.9	41.3	20.7	131.6
Gibson	25.1	2.7	38	0	1.8	14.0	40.9	20.4	132.5
Mean	27.1	2.3	38		1.9	15.3	41.9	20.9	130.2

[1] Days earlier (-) or later (+) than Gibson. Gibson required 128 days to mature.

Table 46. Five-year summary of agronomic and chemical data for the strains in the Uniform Test, Group IV, 1943-47.

Strain	Mean Yield Bu/A	Lodging	Height Inches	Maturity [1]	Seed Quality	Seed Weight	Percentage of Protein	Percentage of Oil	Iodine Number of Oil
No. of Tests	56	45	47	42	47	47	54	54	54
C463	26.9	2.2	38	-2.2	1.7	14.2	40.5	21.2	128.8
Chief	26.0	2.7	43	-3.2	2.1	12.9	40.9	20.5	132.2
Patoka	25.6	2.2	32	-2.2	1.9	17.7	43.6	20.1	132.0
Gibson	23.9	2.7	37	0	1.8	13.8	40.5	20.0	133.9
Mean	25.6	2.5	38		1.9	14.7	41.4	20.5	131.7

[1] Days earlier (-) or later (+) than Gibson. Gibson required 129 days to mature.

PRELIMINARY TEST, GROUP C-IV

The Preliminary Group C-IV Test consisted of four named varieties and 28 selections from hybrids. The origin of these varieties and strains is as follows:

Variety or Strain	Source or Originating Agency	Origin
Chief	Ill. Agr. Exp. Sta.	Sel. from Illini x Manchu
Gibson	Purdue Agr. Exp. Sta.	Sel. from Midwest x Dunfield
Lincoln	Ill. Ag.Exp.Sta. & U.S.R.S.L.	Sel. from Mandarin x Manchu
Patoka	Purdue Agr. Exp. Sta.	Sel. from P.I. 70218-2
C463 (L8-748-4)	Purdue A.E.S. & U.S.R.S.L.	Sel. from Dunfield x Mansoy
C474 (X1139-15-2)	Purdue A.E.S. & U.S.R.S.L.	Sel. from C143* x X531-468-3-3-2
C477 (X1139-36-1)	Purdue A.E.S. & U.S.R.S.L.	Sel. from C143* x X531-468-3-3-2
C482 (X1339-72-1)	Purdue A.E.S. & U.S.R.S.L.	Sel. from Dunfield x C143
C483 (X1339-82-5)	Purdue A.E.S. & U.S.R.S.L.	Sel. from Dunfield x C143
C484 (X1439-34-4)	Purdue A.E.S. & U.S.R.S.L.	Sel. from Dunfield x Richland
C487 (X1539-105-3)	Purdue A.E.S. & U.S.R.S.L.	Sel. from Dunfield x Patoka
C488 (X1639-31-1)	Purdue A.E.S. & U.S.R.S.L.	Sel. from Patoka x X531-468-3-3-2
C489 (X1639-66-4)	Purdue A.E.S. & U.S.R.S.L.	Sel. from Patoka x X531-468-3-3-2
C490 (X1639-82-2)	Purdue A.E.S. & U.S.R.S.L.	Sel. from Patoka x X531-468-3-3-2
C494 (X1839-134-2)	Purdue A.E.S. & U.S.R.S.L.	Sel. from Patoka x X531-265-2-1-1
C496 (X2239-6-2)	Purdue A.E.S. & U.S.R.S.L.	Sel. from C143 x X531-468-3-3-2-3
C497 (X2239-6-3)	Purdue A.E.S. & U.S.R.S.L.	Sel. from C143 x X531-468-3-3-2-3
C498 (X2239-20-3)	Purdue A.E.S. & U.S.R.S.L.	Sel. from C143 x X531-468-3-3-2-3
C499 (X2239-46-1)	Purdue A.E.S. & U.S.R.S.L.	Sel. from C143 x X531-468-3-3-2-3
C500 (X2239-46-3)	Purdue A.E.S. & U.S.R.S.L.	Sel. from C143 x X531-468-3-3-2-3
C501 (X2239-47-3)	Purdue A.E.S. & U.S.R.S.L.	Sel. from C143 x X531-468-3-3-2-3
C502 (X2239-50-5	Purdue A.E.S. & U.S.R.S.L.	Sel. from C143 x X531-468-3-3-2-3
C508 (LX590-13)	Purdue A.E.S. & U.S.R.S.L.	Sel. from Patoka x L7-1355
C520 (X1339-71-9)	Purdue A.E.S. & U.S.R.S.L.	Sel. from C143 x Dunfield
C521 (X1339-79-10)	Purdue A.E.S. & U.S.R.S.L.	Sel. from C143 x Dunfield
C522 (X1339-90-1)	Purdue A.E.S. & U.S.R.S.L.	Sel. from C143 x Dunfield
C523 (X1339-90-2)	Purdue A.E.S. & U.S.R.S.L.	Sel. from C143 x Dunfield
C525 (X1339-90-4)	Purdue A.E.S. & U.S.R.S.L.	Sel. from C143 x Dunfield
C529 (X1339-90-10)	Purdue A.E.S. & U.S.R.S.L.	Sel. from C143 x Dunfield
C534 (X1439-55-9)	Purdue A.E.S. & U.S.R.S.L.	Sel. from Dunfield x Richland
C537 (X1539-109-5)	Purdue A.E.S. & U.S.R.S.L.	Sel. from Dunfield x Patoka
C538 (X1539-109-6)	Purdue A.E.S. & U.S.R.S.L.	Sel. from Dunfield x Patoka

*C143 is P.I. 70218-2-6-7.

The 32 strains included in this test were grown at Worthington, Indiana, in 1946, and at three locations in Indiana and one location each in Illinois and Missouri in 1947. Chief, Patoka, Gibson, Lincoln, C463, and C508 were included as check varieties. The other 26 strains are selections from segregating lines on which agronomic and chemical data had been obtained for several years and at several locations in Indiana. With the exception of several early strains, these lines are of rather typical Group IV maturity.

The two-year summary of agronomic data is presented in table 47. The yield data by locations and the yield rank are given in tables 48 and 49, respectively.

A number of these lines are very promising in that they yield well above the check varieties of comparable maturity, have a high oil content, good lodging resistance, appropriate height, and produce good quality seed. A number of the varieties have a rather low iodine number of oil. Strains C499, C500, C502, and C508 have appeared rather impressive in the nursery plots because of their marked lodging resistance coupled with average height. It is interesting to note that C502 and C508 have also been among the highest yielding varieties as well as being very high in oil content, about 2% higher than the average of Chief, Patoka, and Gibson. C463, a strain that has been rather outstanding over a period of years, yielded lower than usual but continues to be superior to the check varieties in several important characters.

Table 47. Two-year summary of agronomic and chemical data for the strains in the Preliminary Group C-IV, 1946-47.

Strain	Mean Yield Bu/A.	Lodging	Height Inches	Maturity[1]	Seed Quality	Seed Weight	Percentage of Protein	Percentage of Oil	Iodine Number of Oil
No. of Tests	6	6	6	6	6	5	6	6	6
C501	35.0	2.1	42	+1.2	1.2	14.0	42.5	21.3	129.1
C490	34.4	1.9	39	+0.3	1.3	16.5	43.8	21.0	128.3
C508*	33.9	1.6	37	-2.2	1.8	16.2	41.2	22.2	128.7
C483	33.7	2.0	45	-0.3	1.5	14.7	43.0	20.6	124.2
C474	33.4	1.7	43	+3.0	1.4	16.3	43.4	20.9	126.8
C494	33.0	2.1	34	+0.8	1.0	12.8	41.6	20.3	133.9
C502*	32.9	1.7	38	-2.8	1.8	15.0	41.3	22.4	128.2
C499*	32.6	1.7	40	-1.3	1.0	16.8	43.2	20.7	126.4
C534	31.5	2.6	39	-6.7	2.0	15.5	41.7	21.7	125.4
C484	31.5	1.9	39	+0.8	1.5	17.2	44.5	20.3	128.5
C522	31.4	1.9	40	-5.2	1.5	15.3	44.0	21.2	127.1
C488	31.4	2.4	38	-2.2	1.5	16.3	42.4	21.6	129.0
Chief*	31.4	2.8	47	-6.3	1.9	12.6	42.7	20.5	130.2
Patoka*	31.3	2.2	35	-3.0	1.8	17.3	45.3	20.3	130.7
C500*	31.3	1.8	40	-3.5	1.8	17.7	44.0	21.1	124.8
C477	31.0	2.2	40	+1.8	1.3	14.3	43.9	20.0	128.3
C489	30.8	2.5	38	-3.8	1.9	16.8	42.0	22.0	128.6
C529	30.5	2.1	39	-5.5	2.0	16.2	41.7	21.5	125.6
C525	30.3	2.3	43	-5.5	1.7	14.5	43.2	20.9	130.2
C496	30.2	2.3	44	+1.0	2.0	15.4	41.7	21.4	127.3
C487	30.2	2.1	37	-6.8	2.0	15.7	41.5	21.9	130.0
C498	30.1	2.1	40	-3.8	2.2	16.4	43.7	21.5	127.3
C463*	30.1	2.2	40	-4.8	1.6	13.7	41.4	21.6	124.8
C521	29.6	2.1	35	-5.0	2.1	12.8	41.1	21.6	129.8
Gibson*	29.3	2.8	39	0	1.5	13.6	42.5	20.2	130.0
C497	29.2	2.4	42	-0.7	1.5	14.5	42.5	20.6	129.8
C537	28.6	1.8	36	-8.0	2.8	17.1	42.7	21.4	125.4
C523	28.4	1.9	39	-8.2	1.6	12.5	43.4	20.1	127.2
C482	27.8	2.5	40	-3.8	1.6	14.1	42.8	21.2	126.0
Lincoln	27.4	2.1	36	-13.8	2.8	14.3	42.1	21.9	133.1
C520	25.7	2.5	35	-7.7	2.3	15.7	41.6	22.9	129.0
C538	22.7	2.2	38	-10.2	2.9	15.2	44.4	21.3	123.2
Mean	30.6	2.1	39		1.8	15.2	42.7	21.2	128.0

[1] Days earlier (-) or later (+) than Gibson. Gibson required 128 days to mature.
* These strains also entered in the Uniform Test, Group IV.

Table 48. Two-year summary of yield in bushels per acre for the strains in the Preliminary Group C-IV, 1946-47.

Strain	Mean of 6 Tests	1946 Worthington Ind.	1947 Worthington Ind.	Vincennes Ind.	Evansville Ind.	Edgewood Ill.	Columbia Mo.
C501	35.0	38.8	45.1	33.1	41.8	27.8	23.5
C490	34.4	38.8	44.1	34.3	40.2	25.8	23.1
C508	33.9	32.7	48.6	26.0	47.0	24.1	25.0
C483	33.7	40.2	47.2	26.9	39.9	26.4	21.6
C474	33.4	38.1	45.0	26.4	42.9	26.5	21.5
C494	33.0	36.9	46.6	29.3	39.3	25.6	20.3
C502	32.9	38.9	44.8	27.7	37.6	25.5	22.9
C499	32.6	37.5	42.6	26.1	39.4	29.2	20.8
C534	31.5	37.3	41.1	27.3	35.4	26.3	21.5
C484	31.5	30.2	43.5	29.4	39.1	25.5	21.0
C522	31.4	35.7	39.9	28.4	38.4	26.1	20.0
C488	31.4	33.0	41.3	27.0	37.2	26.4	23.5
Chief	31.4	36.5	42.2	24.7	42.0	23.8	19.2
Patoka	31.3	32.2	39.9	28.8	40.6	23.3	22.9
C500	31.3	41.0	41.9	25.4	35.4	23.5	20.3
C477	31.0	33.8	38.6	29.5	36.8	26.5	20.9
C489	30.8	36.1	40.3	25.1	36.3	25.3	21.9
C529	30.5	33.5	42.6	24.2	39.6	23.0	20.2
C525	30.3	37.6	40.9	24.7	36.1	21.4	21.3
C496	30.2	35.9	37.9	24.2	36.7	27.3	19.4
C487	30.2	34.8	38.6	22.5	37.6	26.9	20.6
C498	30.1	35.5	39.2	22.6	34.3	28.3	20.7
C463	30.1	32.0	36.8	26.7	38.0	26.1	20.9
C521	29.6	33.2	38.9	26.3	32.6	28.2	18.3
Gibson	29.3	26.8	40.6	27.4	35.2	26.0	19.8
C497	29.2	35.5	37.1	28.1	32.7	22.8	19.2
C537	28.6	34.5	37.9	23.0	31.2	24.4	20.3
C523	28.4	35.5	35.1	19.9	36.8	24.0	19.0
C482	27.8	30.0	33.9	25.1	33.7	25.3	18.7
Lincoln	27.4	31.0	33.8	19.9	37.0	23.1	19.5
C520	25.7	32.1	34.6	20.8	25.9	21.4	19.6
C538	22.7	32.6	29.1	16.2	24.1	16.0	17.9
Mean	30.6	34.9	40.3	25.8	36.9	24.9	20.8
Coef. of Var. (%)		14.8	8.8	14.2	11.2	11.9	8.8
Bu. Nec. for Sig. (5%)	2.9	6.9	4.5	5.1	5.8	4.2	2.6

Table 49. Summary of yield rank for the strains in the Preliminary Group C-IV, 1946-47.

Strain	1946	1947				
	Worthington Ind.	Worthington Ind.	Vincennes Ind.	Evansville Ind.	Edgewood Ill.	Columbia Mo.
C501	4	4	2	4	4	2
C490	4	7	1	6	15	4
C508	24	1	18	1	22	1
C483	2	2	13	7	9	8
C474	6	5	15	2	7	9
C494	10	3	5	10	16	18
C502	3	6	9	14	17	5
C499	8	9	17	9	1	15
C534	9	14	11	23	11	9
C484	30	8	4	11	17	12
C522	14	18	7	12	12	22
C488	23	13	12	16	9	2
Chief	11	11	22	3	24	27
Patoka	26	18	6	5	26	5
C500	1	12	19	23	25	18
C477	20	22	3	18	7	13
C489	12	17	20	21	19	7
C529	2	9	24	8	28	21
C525	7	15	22	22	30	11
C496	13	24	24	20	5	26
C487	18	22	28	14	6	17
C498	15	20	27	26	5	16
C463	28	27	14	13	12	13
C521	22	21	16	29	3	31
Gibson	32	16	10	25	14	23
C497	15	26	8	28	29	27
C537	19	24	26	30	21	18
C523	15	28	30	18	23	29
C482	31	30	20	27	19	30
Lincoln	29	31	30	17	27	25
C520	27	29	29	31	30	24
C538	25	32	32	32	32	32

Table 50. Summary of maturity data, days earlier (-) or later (+) than Gibson, for the strains in the Preliminary Group C-IV, 1946-47.

Strain	Mean of 6 Tests	1946 Worthington Ind.	1947 Worthington Ind.	1947 Vincennes Ind.	1947 Evansville Ind.	1947 Edgewood Ill.	1947 Columbia Mo.
C501	+1.2	-1	+2	+2	0	0	+4
C490	+0.3	-2	+1	0	-2	+1	+4
C508	-2.2	0	-2	-1	-4	-5	-1
C483	-0.3	-4	-1	0	0	+1	+2
C474	+3.0	0	+2	+1	+3	+2	+10
C494	+0.8	-1	+2	0	-1	+1	+4
C502	-2.8	-7	-4	-1	-5	-1	+1
C499	-1.3	-5	0	-3	-3	+1	+2
C534	-6.7	-7	-9	-5	-8	-9	-2
C484	+0.8	-2	+1	+1	0	0	+5
C522	-5.2	-7	-9	-2	-8	-5	0
C488	-2.2	-3	-2	-2	-6	0	0
Chief	-6.3	-4	-7	-5	-7	-7	-8
Patoka	-3.0	-3	-3	-1	-5	-5	-1
C500	-3.5	-5	-6	-4	-5	-2	+1
C477	+1.8	-2	+3	+1	+4	+1	+4
C489	-3.8	-8	-3	-3	-5	-2	-2
C529	-5.5	-6	-9	-3	-9	-5	-1
C525	-5.5	-6	-7	-3	-7	-4	-6
C496	+1.0	0	+1	0	-1	+2	+4
C487	-6.8	-8	-8	-5	-10	-7	-3
C498	-3.8	-8	-7	-3	-5	+2	-2
C463	-4.8	-3	-6	-5	-8	-6	-1
C521	-5.0	-5	-10	-2	-8	-5	0
Gibson	0	0	0	0	0	0	0
C497	-0.7	-4	-1	0	-3	0	+4
C537	-8.0	-7	-7	-5	-9	-13	-7
C523	-8.2	-7	-10	-7	-9	-8	-8
C482	-3.8	-8	-6	-1	-5	-3	0
Lincoln	-13.8	-11	-16	-11	-15	-18	-12
C520	-7.7	-7	-10	-3	-9	-10	-7
C538	-10.2	-6	-10	-6	-11	-13	-15
Date planted		5/30	5/28	6/10	6/10	6/6	5/22
Gibson matured		10/14	10/11	10/11	10/9	10/8	9/24
Days to mat. 128		137	136	123	121	124	125

PRELIMINARY TEST L-IV

Most of the strains in the Preliminary Group L-IV are in the F8 or F9 generation of crosses made in 1938 or 1939. These strains have been tested at either Urbana or Freeburg in 1944; at Edgewood or at Edgewood, Illinois, and Columbia, Missouri, in 1946; and at Evansville, Indiana; Edgewood, Freeburg, and Eldorado, Illinois; and Columbia, Missouri, in 1947. The strains, Chief, C463, C508, and S100 were included as checks on maturity, yield, lodging resistance, and percentage of oil.

The parentage of the strains in this test is indicated in Table 51. It is interesting to note that of the 37 selections (including the released strains Chief and S100) 28 selections have Dunfield as a parent or grandparent. (C167 and C171 are from a Dunfield x Midwest cross.) This is probably due in part to the fact that the selection for high oil exercised in the past has tended to favor selections from Dunfield and Scioto crosses since these were the parents with the higher oil content.

The highest yielding strain in this test was the check strain C508. The next highest was L3-2010 which has been entered in Group III. This strain probably should be entered in Group IV also. Like Chief, it is about midway between Group III and IV in maturity. The third highest yielding strain, L3-3427, was entered in Group IV for the first time in 1947. It should be noted that all three of these high yielding strains are also high in oil content. C508 is more resistant to lodging than the other two. Its only fault is its short habit of growth. It seems that the most promising strains in this group have already been entered in the group tests but L3-6644 or L3-3313 may be considered in 1948.

Table 51. Summary of agronomic and chemical data for the strains in the Preliminary Group L-IV, 1947.

Strain	Parentage	Mean Yield Bu/A.	Lodging	Height Inches	Maturity [1]	Seed Quality
No. of Tests		5	5	5	5	5
C508	Patoka x L7-1355	30.3	1.4	31	-3.2	1.6
L3-2010	C167 x L7-1355	29.5	2.3	40	-6.0	1.5
L3-3427	Scioto x Mukden	29.3	2.5	40	+0.4	2.0
L3-6663	L7-1355 x Scioto	29.2	2.6	43	-1.4	1.8
L3-6444	C171 x L7-1355	28.9	2.3	43	-3.8	1.7
L3-3313	Dunfield x M13-177	28.5	2.5	38	-1.8	1.6
C463	Dunfield x Mansoy	28.4	1.8	37	-5.4	1.4
L3-2509	Richland x C171	28.3	2.3	40	-0.8	1.6
L3-6552	T117 x C171	28.1	1.9	38	-5.8	1.6
L3-6715	L7-1355 x C171	28.1	2.4	45	-4.2	1.2
L3-6424	C171 x Chief	28.0	2.6	45	-1.8	1.9
L3-2991	Dunfield x Illini	27.7	2.5	43	+0.4	1.8
L3-3516	Mandell x Dunfield	27.5	2.8	42	+3.6	1.3
S100	Rogue in Illini	27.3	2.1	42	+5.2	1.4
L3-2993	Dunfield x Illini	27.2	2.2	45	+1.2	1.5
L3-6742	Chief x L7-1355	27.2	2.1	44	-5.2	1.8
L3-3279	Dunfield x M13-177	27.2	1.6	42	-1.0	1.4
L3-6640	Macoupin x Mt.Carmel	27.1	1.7	34	+6.8	1.4
L3-2213	Chief x T117	27.0	1.9	40	-6.0	1.8
L3-2014	C167 x L7-1355	27.0	2.0	42	-6.8	1.7
L3-2142	Chief x L7-1355	26.9	2.3	44	-6.4	2.1
L3-6693	Mt.Carmel x C171	26.9	1.8	32	-3.4	1.3
L3-3518	Mandell x Dunfield	26.8	2.3	43	+2.4	1.4
L3-6693	L7-1355 x C167	26.8	2.1	45	+0.4	1.3
L3-6823	Patoka x Dunfield	26.8	2.5	40	+4.0	1.9
Chief	Illini x Manchu	26.7	2.4	43	-8.2	1.6
L3-6764	Chief x Dunfield	26.5	2.0	38	-3.4	2.0
L3-6587	M13-177 x L7-1355	26.4	2.1	41	-6.4	1.6
L3-6816	Patoka x Dunfield	26.3	2.1	38	-3.6	1.9
L3-3213	Dunfield x Scioto	26.2	2.7	40	+2.2	1.2
L3-2926	Dunfield x T117	26.2	2.1	37	-2.2	1.7
L3-3088	Dunfield x Scioto	26.0	2.6	41	-1.2	1.6
L3-2259	Chief x Scioto	26.0	2.1	42	-7.0	2.3
L3-2904	Dunfield x T117	25.9	2.0	42	-2.0	1.9
L3-3110	Dunfield x Scioto	25.8	2.6	41	-0.6	2.2
L3-6532	T117 x C171	25.8	2.1	34	-5.2	1.4
L3-6443	C171 x L7-1355	25.1	2.5	45	-4.8	2.3
L3-2921	Dunfield x T117	24.6	2.3	37	+0.6	1.8
L3-6527	T117 x C171	23.2	2.3	34	-7.6	1.6
Mean		27.1	2.2	40		1.7

[1] Days earlier (-) or later (+) than Gibson. Gibson required 125 days to mature.

Table 51. (Continued)

Strain	Seed Weight	Percentage of Protein	Percentage of Oil	Iodine Number of Oil
No. of Tests	5	5	5	5
C508	15.8	41.6	22.8	126.8
L3-2010	13.6	38.8	23.7	130.6
L3-3427	14.3	40.1	22.6	131.4
L3-6663	16.3	41.6	22.4	128.8
L3-6444	13.5	40.3	22.6	129.4
L3-3313	13.8	39.2	22.6	124.9
C463	14.0	41.2	22.5	123.2
L3-2509	14.3	40.8	22.6	127.6
L3-6552	14.3	41.4	21.9	125.2
L3-6715	13.0	43.3	21.7	127.5
L3-6424	13.8	40.5	22.4	128.4
L3-2991	13.9	39.7	21.8	129.8
L3-3516	12.6	40.4	21.7	130.3
S100	13.6	41.8	20.1	128.7
L3-2993	12.9	39.6	22.6	129.4
L3-6742	12.8	40.5	22.1	127.5
L3-3279	13.6	40.2	22.7	125.9
L3-6640	14.0	43.8	20.6	131.7
L3-2213	11.1	40.2	20.9	131.2
L3-2014	12.0	38.1	23.2	127.6
L3-2142	11.9	40.6	22.8	128.7
L3-6893	14.9	43.6	21.5	128.6
L3-3518	12.7	40.1	21.9	130.3
L3-6693	13.5	41.2	21.7	126.9
L3-6823	15.7	42.4	21.5	125.8
Chief	11.6	40.7	22.2	128.2
L3-6764	13.6	40.1	22.6	128.5
L3-6587	12.9	41.1	22.2	124.1
L3-6816	14.3	40.8	23.4	127.8
L3-3213	13.9	40.9	22.7	129.9
L3-2926	14.3	40.7	22.3	122.6
L3-3088	12.7	40.4	22.7	128.7
L3-2259	13.0	41.1	22.8	132.5
L3-2904	14.7	42.3	22.0	123.7
L3-3110	14.4	40.2	23.0	129.2
L3-6532	14.0	41.0	22.4	128.8
L3-6443	13.6	41.4	22.0	126.6
L3-2921	14.0	41.2	21.9	125.9
L3-6527	11.7	40.6	22.2	127.5
Mean	13.6	40.9	22.2	128.0

Table 52. Summary of yield in bushels per acre and yield rank for the strains in the Preliminary Group L-IV, 1947.

Strain	Yield (Bu/A)						Yield Rank				
	Mean of 5 Tests	Evansville Ind.	Edgewood Ill.	Freeburg Ill.	Eldorado Ill.	Columbia Mo.	Evansville Ind.	Edgewood Ill.	Freeburg Ill.	Eldorado Ill.	Columbia Mo.
C508	30.3	41.7	27.8	31.7	26.3	23.9	1	4	3	5	6
L3-2010	29.5	37.8	24.0	29.9	30.0	25.7	12	30	8	1	1
L3-3427	29.3	38.6	27.7	31.4	25.7	23.0	7	5	5	10	14
L3-6663	29.2	39.9	26.4	31.0	25.4	23.4	4	14	6	12	11
L3-6444	28.9	37.9	24.3	32.5	26.0	23.6	11	29	1	8	10
L3-3313	28.5	34.0	26.4	31.7	28.2	22.2	27	14	3	3	22
C463	28.4	38.1	26.1	32.1	23.6	22.3	9	17	2	22	19
L3-2509	28.3	32.9	27.6	27.8	29.2	23.9	31	6	23	2	6
L3-6552	28.1	33.6	26.6	28.8	26.7	24.6	30	12	15	4	3
L3-6715	28.1	38.0	24.9	28.6	24.2	24.6	10	24	16	18	3
L3-6424	28.0	40.1	28.6	27.0	22.1	22.3	2	1	30	33	19
L3-2991	27.7	35.6	25.7	30.2	23.1	23.8	22	19	7	27	8
L3-3516	27.5	36.6	28.5	29.5	20.6	22.4	18	2	11	37	17
S100	27.3	37.2	26.1	27.4	25.7	20.3	17	17	25	10	33
L3-2993	27.2	37.4	26.6	28.0	22.9	21.2	15	12	22	29	30
L3-6742	27.2	37.6	27.6	27.3	23.5	20.0	13	6	27	23	34
L3-3279	27.2	33.8	24.8	28.4	26.1	22.8	29	26	20	7	15
L3-6640	27.1	39.2	28.2	26.3	23.4	18.4	5	3	34	25	39
L3-2213	27.0	37.6	25.5	26.9	24.0	21.1	13	21	32	19	31
L3-2014	27.0	34.9	25.7	29.0	24.0	21.5	24	19	13	19	29
L3-2142	26.9	38.9	21.9	27.0	25.0	21.7	6	34	30	14	27
L3-6893	26.9	32.0	24.9	29.6	26.0	21.9	34	24	9	8	24
L3-3518	26.8	37.3	25.2	29.6	23.5	18.6	16	23	9	23	38
L3-6693	26.8	38.2	26.9	27.4	21.7	19.7	8	10	25	35	35
L3-6823	26.8	36.6	25.4	28.6	21.3	22.0	18	22	16	36	23
Chief	26.7	40.0	22.5	25.5	23.7	21.9	3	32	38	21	24
L3-6764	26.5	36.4	27.3	24.1	23.1	21.8	20	8	39	27	26
L3-6587	26.4	32.2	21.4	29.4	25.3	23.7	32	35	12	13	9
L3-6816	26.3	35.8	26.3	26.2	22.3	20.8	21	16	35	31	32
L3-3213	26.2	34.6	22.4	28.3	22.2	23.4	26	33	21	32	11
L3-2926	26.2	32.2	24.8	27.3	25.0	21.6	32	26	27	14	28
L3-3088	26.0	35.6	27.3	26.5	22.1	18.7	22	8	33	33	37
L3-2259	26.0	34.7	23.6	28.5	20.4	22.6	25	31	19	38	16
L3-2904	25.9	28.9	26.7	27.5	22.4	24.2	38	11	24	30	5
L3-3110	25.8	31.2	20.6	27.1	25.0	25.1	36	36	29	14	2
L3-6532	25.8	33.9	20.1	28.9	26.2	19.7	28	37	14	6	35
L3-6443	25.1	31.3	19.7	28.6	23.4	22.4	36	38	16	25	17
L3-2921	24.6	31.1	24.4	25.6	19.6	22.3	37	28	36	39	19
L3-6527	23.2	25.1	17.4	25.6	24.7	23.2	39	39	37	17	13
Mean	27.1	35.6	24.8	28.4	24.1	22.2					
Coef. of Var. (%)		11.0	14.2	11.1	9.5	15.2					
Bu. Nec. for Sig. (5%)		5.5	4.9	4.4	3.2	4.7					

Table 53. Summary of maturity data, days earlier (-) or later (+) than Gibson, for the strains in the Preliminary Group L-IV, 1947.

Strain	Mean of 5 Tests	Evansville Ind.	Edgewood Ill.	Freeburg Ill.	Eldorado Ill.	Columbia Mo.
C508	-3.2	-4	-5	+1	-6	-2
L3-2010	-6.0	-7	-8	-1	-10	-4
L3-3427	+0.4	-1	0	+4	+2	-3
L3-6663	-1.4	-3	-4	+3	-1	-2
L3-6444	-3.8	-6	-2	-1	-7	-3
L3-3313	-1.8	-4	-2	+1	-3	-1
C463	-5.4	-8	-3	-5	-9	-2
L3-2509	-0.8	-1	+1	+1	-5	0
L3-6552	-5.8	-5	-4	-7	-10	-3
L3-6715	-4.2	-4	-4	-1	-9	-3
L3-6424	-1.8	-4	0	+1	-2	-4
L3-2991	+0.4	-3	+1	+2	+3	-1
L3-3516	+6.2	+5	+2	+7	+7	+10
S100	+5.2	+6	+2	+6	+6	+6
L3-2993	+1.2	-2	+1	+3	+4	0
L3-6742	-5.2	-7	-3	-4	-8	-4
L3-3279	-1.0	-1	0	-3	-1	0
L3-6640	+6.8	+3	+5	+7	+7	+12
L3-2213	-6.0	-7	-2	-7	-10	-4
L3-2014	-6.8	-7	-6	-6	-11	-4
L3-2142	-6.4	-7	-6	-6	-9	-4
L3-6893	-3.4	-6	-1	-1	-8	-1
L3-3518	+2.4	0	+2	+4	+2	+4
L3-6693	+0.4	-1	+3	+3	-2	-1
L3-6823	+4.0	+1	+3	+4	+6	+6
Chief	-8.2	-8	-8	-7	-10	-8
L3-6764	-3.4	-6	+1	-5	-5	-2
L3-6587	-6.4	-7	-6	-6	-10	-3
L3-6816	-3.6	-4	0	-2	-10	-2
L3-3213	+2.2	0	0	+4	+4	+3
L3-2926	-2.2	-4	-1	-1	-5	0
L3-3088	-1.2	-2	0	+1	-1	-4
L3-2259	-7.0	-7	-8	-5	-9	-6
L3-2904	-2.0	-5	+1	0	-4	-2
L3-3110	-0.6	0	0	+1	-2	-2
L3-6532	-5.2	-5	-5	-4	-9	-3
L3-6443	-4.8	-6	-3	-2	-9	-4
L3-2921	+0.6	-3	+2	+2	0	+2
L3-6527	-7.6	-8	-7	-7	-12	-4
Date planted		6/10	6/6	6/4	5/24	5/22
Gibson matured		10/9	10/8	10/8	10/2	9/24
Days to mature	125	121	124	126	131	125

Table 54. Chemical composition of soybean seed grown at each of the Uniform Test locations for 1947, the two-year means for 1946-47, and the three-year means for 1945-47 (composite sample or mean of all strains grown in each respective Group Test).

Location	1947			Two-Year Mean			Three-Year Mean		
	Percentage of Protein	Percentage of Oil	Iodine Number of Oil	Percentage of Protein	Percentage of Oil	Iodine Number of Oil	Percentage of Protein	Percentage of Oil	Iodine Number of Oil
Group 0 (Mean of 11 strains in 1947, 17 in 1946, and 16 in 1945)									
Ottawa, Ontario	42.7	20.3	129.9	42.9	19.2	134.6	--	--	--
Ithaca, N.Y.	43.8	20.0	132.5	43.9	18.7	135.2	--	--	--
Bath, Mich.	43.5	20.2	129.7	--	--	--	--	--	--
Spooner, Wis.	45.0	19.9	129.5	45.5	18.7	131.8	44.3	18.6	133.6
Eau Claire, Wis.	45.5	20.0	128.0	--	--	--	--	--	--
Morris, Minn.	42.1	20.4	127.8	41.0	20.1	133.1	--	--	--
St. Paul, Minn.	42.9	20.3	129.6	--	--	--	--	--	--
Park River, N.D.	42.1	19.4	132.4	41.7	18.9	134.8	41.4	19.0	134.5
Fargo, N.D.	37.8	21.6	130.5	39.1	20.9	132.8	37.4	20.9	133.2
Rosholt, S.D.	40.6	22.0	128.1	--	--	--	--	--	--
Corvallis, Oregon	41.6	19.3	134.2	40.8	19.7	135.0	41.3	18.8	135.0
Group I (Mean of 13 strains in 1947, and 16 in 1946 and 1945)									
Ithaca, N.Y.	43.0	20.6	133.9	42.7	19.4	135.5	--	--	--
Wooster, Ohio	45.1	19.8	130.8	43.5	20.0	132.4	43.0	19.9	131.3
Columbus, Ohio	42.9	21.5	129.1	42.6	20.9	131.1	42.4	20.5	130.1
Eau Claire, Wis.	44.7	20.0	129.8	--	--	--	--	--	--
Madison, Wis.	40.5	21.4	126.1	41.4	20.9	128.4	41.1	20.7	129.6
Compton, Ill.	43.1	21.1	124.7	42.6	20.9	127.7	--	--	--
St. Paul, Minn.	41.9	20.1	128.8	--	--	--	--	--	--
Waseca, Minn.	43.7	20.1	130.4	41.2	20.9	131.6	41.0	20.4	132.1
Cresco, Iowa	45.9	19.3	126.1	46.0	18.6	129.9	45.0	19.0	130.2
Kanawha, Iowa	42.0	21.6	125.9	41.7	21.1	128.9	41.6	20.3	132.0
Brookings, S.D.	40.7	21.1	129.7	41.3	20.1	133.2	41.1	19.7	134.4
Group II (Composite of 14 strains in 1947, 30 in 1946, and 18 in 1945)									
Ithaca, N.Y.	42.1	20.3	136.1	--	--	--	--	--	--
Holgate, Ohio	41.9	19.4	133.2	39.2	20.0	134.0	39.6	20.3	132.3
Columbus, Ohio	43.4	22.0	130.3	42.5	20.9	131.6	42.8	20.3	131.0
E. Lansing, Mich.	41.2	20.1	132.6	41.3	20.1	132.8	41.9	19.1	135.2
Walkerton, Ind.	45.1	20.1	126.9	43.5	20.1	130.5	43.3	19.8	131.3
Bluffton, Ind.	41.4	21.5	129.5	41.3	21.1	130.5	41.4	20.8	130.4
Lafayette, Ind.	43.5	21.3	127.2	42.9	21.1	130.1	42.8	20.8	130.1
Greenfield, Ind.	43.1	20.8	129.4	42.8	20.4	131.1	42.4	20.3	131.1
Worthington, Ind.	44.6	20.9	127.1	--	--	--	--	--	--
Madison, Wis.	39.9	21.8	129.3	39.5	21.6	131.8	39.6	20.9	133.2
Compton, Ill.	42.7	21.2	129.2	42.4	20.7	131.0	41.7	20.6	131.7
Dwight, Ill.	42.4	21.8	126.6	41.3	21.6	129.3	40.8	21.4	130.2
Urbana, Ill.	40.7	22.1	126.7	40.1	21.9	130.0	40.4	21.6	130.0
Kanawha, Iowa	40.7	22.0	127.7	40.2	21.4	130.5	40.6	20.8	132.0
Marcus, Iowa	37.3	23.4	127.7	38.3	22.5	130.4	39.9	21.5	131.2
Hudson, Iowa	42.2	21.4	128.1	42.1	20.9	130.3	42.5	20.4	130.9
Ames, Iowa	41.6	22.0	128.9	41.4	21.4	130.5	41.7	21.0	131.0
Centerville, S.D.	41.2	21.3	129.2	--	--	--	--	--	--
Wakefield, Nebr.	41.2	22.3	124.3	--	--	--	--	--	--
Lincoln, Nebr.	39.6	22.3	122.4	39.8	22.1	126.5	--	--	--

Table 54. (Continued)

Location	1947			Two-Year Mean			Three-Year Mean		
	Percent-age of Protein	Percent-age of Oil	Iodine Number of Oil	Percent-age of Protein	Percent-age of Oil	Iodine Number of Oil	Percent-age of Protein	Percent-age of Oil	Iodine Number of Oil
Group III (Composite of 11 strains in 1947, 10 in 1946, and 13 in 1945)									
Georgetown, Del.	41.7	23.9	131.5	41.2	22.7	131.8	41.4	22.2	131.2
Columbus, Ohio	42.9	21.1	132.6	41.8	20.2	132.5	41.8	20.0	132.3
Lafayette, Ind.	42.1	21.8	130.3	--	--	--	--	--	--
Greenfield, Ind.	42.4	21.4	131.2	41.5	20.4	131.1	41.4	20.3	131.7
Worthington, Ind.	43.1	21.5	129.7	42.3	20.5	130.5	42.5	20.4	129.7
Dwight, Ill.	41.7	22.4	131.0	40.7	21.9	132.0	40.2	21.7	132.3
Urbana, Ill.	39.6	22.8	130.5	39.0	22.1	131.1	39.2	21.9	131.1
Clayton, Ill.	42.1	20.8	133.7	42.6	20.3	133.7	42.3	20.1	133.8
Stonington, Ill.	41.4	21.3	132.9	41.6	20.5	132.6	41.2	20.6	132.8
Edgewood, Ill.	42.8	22.4	131.5	42.4	21.7	132.6	--	--	--
Freeburg, Ill.	39.5	23.6	128.3	40.1	22.3	130.3	41.0	21.2	132.2
Eldorado, Ill.	40.1	24.0	127.5	--	--	--	--	--	--
Ames, Iowa	40.0	22.7	130.7	39.8	21.5	131.5	40.0	21.0	132.6
Ottumwa, Iowa	41.6	21.0	133.3	41.0	20.4	133.3	40.0	20.9	133.2
Shelbyville, Mo.	42.9	21.2	124.2	42.3	20.9	127.3	41.8	20.9	127.9
Columbia, Mo.	40.2	23.8	121.6	41.2	21.9	127.4	40.5	21.5	129.9
Lincoln, Nebr.	37.5	23.4	127.6	38.0	22.5	129.0	38.2	22.1	128.3
Manhattan, Kans.	42.4	21.0	124.9	42.1	20.9	127.6	40.6	21.6	127.0
Group IV (Composite of 11 strains in 1947, 16 in 1946, and 18 in 1945)									
Georgetown, Del.	42.3	23.1	128.5	42.4	21.8	130.3	41.8	22.0	129.6
Blacksburg, Va.	41.6	21.1	130.1	40.4	20.7	131.3	40.7	20.5	131.5
Worthington, Ind.	43.1	20.6	128.8	42.3	20.0	130.6	42.2	20.0	131.4
Vincennes, Ind.	42.0	21.3	127.1	41.8	20.7	129.7	41.3	20.4	130.4
Evansville, Ind.	41.8	21.5	128.8	41.5	20.9	130.2	41.4	20.9	130.1
Urbana, Ill.	40.6	21.2	128.0	39.9	21.1	130.1	39.7	20.7	132.4
Clayton, Ill.	42.4	20.1	131.6	42.6	19.8	133.0	42.0	19.4	134.3
Stonington, Ill.	41.5	20.3	130.5	41.8	20.3	132.3	41.2	20.2	133.5
Edgewood, Ill.	43.4	20.9	128.7	42.5	20.6	131.1	--	--	--
Freeburg, Ill.	41.2	22.5	127.3	41.2	21.4	130.8	41.9	20.3	133.2
Eldorado, Ill.	41.1	23.3	127.4	--	--	--	--	--	--
Shelbyville, Mo.	44.6	19.9	124.8	42.4	20.6	127.5	41.7	20.5	129.3
Columbia, Mo.	40.7	22.6	121.7	41.5	21.3	126.7	40.4	20.8	130.4
Manhattan, Kans.	44.3	19.7	123.0	43.3	19.9	127.6	41.4	20.6	128.4

SOYBEAN DISEASE INVESTIGATIONS IN 1947[1]

The 1947 season was unusual in many ways. While most of the familiar diseases of soybeans were present, the disease picture presented many reversals in the scale of relative importance from the standpoint of both prevalence and severity. Brown stem rot (Cephalosporium sp.) and bud blight (virus), two of our most important soybean diseases in the past three years, did relatively little damage in 1947. Brown stem rot was prevalent throughout the Midwest, but was apparently checked by the unseasonably high August temperatures. Bud blight was reduced in both prevalence and severity. Brown spot (Septoria glycines) has steadily advanced in importance, and in 1947 was more damaging than any other leaf-spot disease in Illinois. With reference to leaf spots, it is interesting to note the changing picture in the incidence of bacterial leaf spots in the past few years. In 1943 and 1944, bacterial pustule (Xanthomonas phaseoli var. sojensis) was the most common disease of soybeans in Illinois, while bacterial blight (Pseudomonas glycines) was of minor importance. In 1947 bacterial blight had become the most common of all soybean diseases. The cool, wet, spring weather of the past few seasons may explain the advance of bacterial blight, but there is no satisfactory explanation for the recession of bacterial pustule; nor can we explain the disappearance of wildfire, a disease rather well distributed in the Midwest a few years ago but now largely confined to the southern states.

In the past year, a search for germ plasm embodying resistance to brown stem rot and bud blight was started. All available introductions and varieties (about 1200) were grown at Weldon, Illinois, on a field that has consistently produced uniform brown stem rot infection, and at Oblong, Illinois, where severe epidemics of bud blight have developed naturally in the past four or five years. At Oblong the bud blight infection was unusually light and not sufficiently uniform to provide an adequate test. A number of the introductions were free of the disease, but these will have to be retested under epidemic conditions before they are established as resistant material.

None of the material at Weldon showed immunity to brown stem rot. Because of the unseasonably high temperatures during August, the disease progressed so slowly that it was impossible to evaluate plants on a comparative basis. The experiment will be repeated next season on the same land with the object of discovering at least comparative resistance that would be practicable for use in the breeding program.

With regard to brown stem rot, it was notable that the leaf symptoms which usually appear early in September were absent this year in Illinois and the Midwest generally. A comparison of outdoor temperatures in August during the past three years shows that in 1947 the average daily temperatures were consistently much higher than in the two previous years when leaf symptoms were present. It was notable, too, that brown stem rot in 1947 did not progress upward in infected soybean stems during the month of August, whereas in previous years the stems showed internal browning to the tops of the plants in September when leaf symptoms appeared. It has been shown in greenhouse experiments that the disease progresses best at low temperatures (60° - 70°F), and that temperatures above 80°F suppress the disease. The organism grows slowly, however, even at favorable temperatures, but sporulates most abundantly at low temperatures. It has been demonstrated that spores can be carried through the vessels of the stem.

From the above facts and available knowledge of the disease, the only theory we have to explain the rapid invasion of the plant is as follows: During several

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1/ Project 123, Division of Forage Crops and Diseases.

days of favorably low temperature, spores are produced and carried upward in the vascular system to subsequently germinate and spread the mycelium upward through the stem. Further experimental work must be done, however, to substantiate this theory as it is based largely on supporting evidence at present.

Since there has been no known source of resistance to bacterial blight for use in a breeding program, a field of 1,100 introductions at Urbana was inoculated with the bacterial blight organism. An excellent epidemic resulted, and extreme variations in amount and severity of infection were obvious. About 50 introductions showed very light infection, and from these were selected three that appeared highly resistant. Subsequent trial inoculations in the greenhouse gave further evidence of high resistance in these three introductions. In connection with bacterial blight inoculations, best results are obtained when soybeans are inoculated early, about the stage when two to four trifoliate leaves have developed.

In Wisconsin the work on downy mildew (Peronospora manshurica) continues. Further studies on the systemic phase of the disease were handicapped by adverse weather and the consequent lack of good plant material during the past season.

The Purdue station has taken up the pod and stem blight problem, with special interest on the life cycle and pathogenicity of the organism (Diaporthe).

In Minnesota the work is concerned with root rots and seedling blights. Fifteen races of Rhizoctonia have been tested for pathogenicity and found to vary tremendously in this respect. They ranged from 100 percent to 0 percent in causing damping off of soybean seedlings. Moreover, the metabolic products from cultures of strongly pathogenic races reduced seed germination and inhibited root development in soybean seedlings.

Charcoal rot (Macrophomina phaseoli) caused field losses in Missouri only under environmental conditions extremely unfavorable to the host plant. Mr. James M. Crall is continuing his work on this problem at the Missouri station. He also found that the leaf spot caused by Phyllosticta glycineum was widespread in southeastern Missouri and caused some serious damage.

In conclusion, the development in Illinois of three rather unusual diseases this year should be mentioned. For example, the cold, wet weather during the early summer favored the development of Rhizoctonia root and basal stem rot, a trouble not commonly found in Illinois. Late in the season during the drought there was an unusual amount of charcoal rot, especially on the sandier soils of western Illinois. Another middle and late season disease of great prevalence was Alternaria leaf spot. Ordinarily this is not a common disease but appears when soybeans are handicapped by the lack of moisture and other unfavorable conditions.

WEATHER CONDITIONS AND GENERAL GROWTH RESPONSES AT MOST OF THE NURSERY LOCATIONS DURING THE 1947 SEASON

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

Temperature and rainfall at most of the nursery locations for the 1947 season are presented in graphs at the end of this section of the report. The daily mean temperatures and rainfall are taken from "Climatological Data" published by the Weather Bureau. The arc is the normal mean monthly temperature for the location.

Beltsville, Maryland Temperatures at Beltsville, Maryland, during the 1947 growing season were above normal except for a cold period early in May, another during the latter part of July, and a third during the last nine days of September. A killing frost occurred September 28, and was followed by unseasonably high temperatures during most of October, a mean temperature of 65 setting an all-time record for the month.

Rainfall was above normal except in April and October. Rain was recorded on 16 days during May; total, 7.20 inches. June rainfall totaled 5.47 inches, of which 3.37 inches fell June 13 and 14. Rain was well distributed in July; total, 4.52 inches. A rain of 3.38 inches fell August 26 and 27, with a high wind which laid the soybeans flat; total for August 6.49 inches. Rain was well distributed in September until the last five days of the month; total, 3.58 inches. Only .25 inches fell between September 25 and October 29. October total was 1.57 inches, a low record for the month.

Strongsville, Ohio The spring was excessively wet. The soybeans were planted on June 18, the first date that soil was dry enough to permit working. After that came a prolonged drought which prevented normal development. The plants were very short, and the stands were in general not very satisfactory. Although the yields were low, the general quality of the soybeans was good. In general they were very poor tests.

Holgate, Ohio The spring was exceedingly wet and delayed the planting until the latter part of June. From planting on the weather was rather favorable. The tests were the best ever had at Holgate until the frost hit them. Not even the early varieties matured normally. All seed was extremely green at harvest. The stands were good and the plots were free of weeds, disease, and insects.

Wooster, Ohio The distribution of spring rainfall delayed planting until late in June. From June until frost in late September, the growing conditions were in general favorable. The soybeans made excellent growth, and the yields would have been much higher had not the early frost stopped development. The plots were weed free and very little disease was observed in the nursery.

Columbus, Ohio All cooperative uniform soybean tests were planted on May 12, 1947. This was the only day in May that soil and weather conditions would permit soybean planting at Columbus. On the evening of May 12, two inches of rain fell. A total of 5.5 inches of rainfall occurred from the time the soybeans were planted until they emerged. In spite of this excessive rainfall, the stands in the nursery were satisfactory. The remainder of the season was in general very favorable. No serious weed, disease, or insect problems were encountered. The average yields at Columbus were the highest ever recorded.

Bath, Michigan The Group O planting was made at the Bath Muck Farm on June 5. The spring and summer growing season was very good with moisture and temperature conditions favorable until the middle of September. A series of light frosts starting around September 15, and then a killing frost on September 22, made it impossible to take reliable maturity notes.

East Lansing, Michigan Group I and Group II plantings were made at East Lansing on June 6. It was difficult to fit a seed bed earlier on account of wet weather, and after planting there were more rains and low temperatures for another ten days. Many of the beans rotted in the ground, and the resulting stands were very uneven. The test was replanted on June 18, which is very late for this location. After July 20 the nursery suffered from a prolonged drought which lasted until late in the summer. The first frost was about two weeks earlier than the normal frost date.

Walkerton, Indiana Uniform Group II was grown on mineral soil which received 200 pounds of 0-12-12 and 50 pounds of 66% manganese sulfate per acre in the row. This test was planted May 27 following an extended period of rainfall. Cool weather and considerable rain followed planting, and stands were only fair on most varieties, and rather poor on A3-176, A5-2683, and Dunfield.

Uniform Test, Preliminary Group O was planted June 23 on muck soil. This soil was rather wet throughout the growth period, and growth was rather poor and yields low, but still good for such a short season and poor growth conditions. Killing frost occurred September 26 without noticeable damage to any varieties on muck. Light frost occurred September 26 on the mineral soil and did slight damage to varieties later than Richland.

April, May, and June rainfall was excessive and totaled 25 inches above normal. July was cool with well distributed rainfall. August rainfall was only one-half normal, and temperatures were high, being 100°F on several days, and above 90° for over half of the month. Cool, wet weather delayed maturity in September. October was generally warm and dry.

There was much bacterial blight present; other diseases were insignificant.

Bluffton, Indiana This was an excellent nursery. It was planted June 12, about two weeks later than normal, but growth was rapid and time of maturity was about the same as usually obtained for late May planting. There was excessive rainfall in June with temperatures well below average. July was cool with about normal rainfall. Precipitation in August amounted to only 0.52 inches, occurring in insignificant showers. August temperatures were very high. Temperatures and precipitation were about normal for September and October. Diseases were not serious. This nursery was harvested under ideal conditions.

Lafayette, Indiana This was an excellent nursery. It was planted and harvested under ideal conditions. Stands were excellent, and lodging was not excessive in any test. Rainfall was well above normal in June, August, and September but only about one-half of normal in July. Temperatures averaged about 4°F below normal in May, June, and July but were well above normal in August, 4 days being 100°F or above, and 10 days being 95° or above. Late September and most of October had ideal weather for maturing and harvesting beans.

Diseases were not serious. Downy mildew was abundant, pod and stem blight, and bud blight were present in small amounts. Bacterial blight was present but not serious; the same was the case with brown spot.

Richland was comparatively earlier than Lincoln and other midseason varieties. A3-176 and A5-2683 were later than Lincoln, and the lower portion of the main stems remained green for a considerable period after the leaves dropped.

Greenfield, Indiana This was an excellent nursery. It was planted June 12, about two weeks late, but maturity was about the same as for late May planting. Lodging was rather excessive due to a wind and rain storm in early September. May and June rainfall was about normal with rains occurring frequently. July rainfall was twice normal. August, September, and October had about normal rainfall with fairly uniform distribution. June and July were cool. August was especially hot early but about normal later. September and October had about normal temperatures. Diseases were practically unnoticeable. Harvest was very ideal.

Worthington, Indiana This was a good nursery. It was planted and harvested under ideal conditions. Stands were a little variable in spots, probably due to heavy rain shortly after planting. Group IV tests were planted May 28, and Group II and III tests June 11, which are considered appropriate planting dates for each Group in this part of Indiana. Rainfall was excessive in April, May, June, and September, but well below average in August and October. Late September and most of October were free of rainfall which brought about rapid maturity and excellent harvest conditions. Temperatures were about normal in June, below normal in July, and well above normal in August but no temperatures of 100°F were reported. Temperatures were about normal in September but well above normal in October.

There was some bacterial blight, pustule, and downy mildew in this plot but none was serious.

Richland stems remained rather green after maturity of the pods. This was not the case with Hawkeye which matured uniformly.

Vincennes, Indiana There was considerable variability in growth and some variable stands in this nursery. Yields were 25-35% lower than normally obtained on this soil. Planting was fully two weeks late, June 10, but soil conditions were rather ideal. Precipitation was well above normal in June and September, but very deficient in July and August. Showers were light but frequent in July but rather infrequent and light in August. Temperatures were well below normal in July, but exceptionally high in August with four successive days ranging from 103°F to 107°F and two successive days of 100°F. Twenty days had temperatures of 95° or above. Temperatures were about normal in September but high in October. This nursery was harvested under ideal conditions.

Bud blight was noticeably present but not nearly as abundant as in 1946. Downy mildew and bacterial blight were the other most prevalent diseases but were not considered serious.

Evansville, Indiana This was an excellent nursery. It was planted June 10, which is two to three weeks late for this area of the state, but the soil was in excellent tilth, moisture was ample, and growth was rapid and abundant.

Rainfall was normal but frequent in May. It was also normal in July, September, and October, but excessive in June, and only two-thirds normal in August, but well distributed at weekly intervals. A flash rain and heavy windstorm August 14 lodged all varieties badly and accounts for the high lodging scores reported. June and July were cool with no temperatures above normal. August temperatures were above normal with nine days reaching 95°F or above, four

successive days had temperatures of 97, 98, 99, and 100°F. September temperatures were above normal, being above 90°F for several consecutive days in each of the first three weeks. October was warm and dry until the last week. This helped to hasten maturity. Although most varieties were mature by October 6, harvest was not until November 13 and 14. Harvest conditions were fair at this date, the ground was somewhat wet but the plants were rather dry and threshed fairly well. Excessive weathering accounts to a large extent for the generally poor seed quality obtained with most varieties.

Bacterial blight, bacterial pustule, and frog eye leaf spot were the most prevalent diseases but were not serious. Downy mildew and brown spot were observed in small amounts.

Spooner, Eau Claire, and Madison, Wisconsin The soybean nurseries in Wisconsin were planted approximately at the normal time of planting in 1947. The weather during May and June was cold and wet. As a result, the beans made very slow growth. July was about normal, although a little on the dry side. The temperature during August averaged about eight degrees above normal with about three weeks during which the daily temperature went over 90° almost every day. During this period the soybeans suffered considerably from dry weather. The varieties of Group II maturity suffered more than the Group I varieties at Madison. There were light frosts at Madison on the 25th, 26th, and 27th of September which destroyed about one-third of the leaf surface of varieties which were still immature. October was very dry, and mean temperature was about 10° above normal. All varieties matured satisfactorily. The bean size is much smaller this year in most varieties compared with other years. This is largely a result of the dry, hot weather in August. At both Eau Claire and Spooner the weather conditions were essentially the same as at Madison. Killing frosts occurred both at Eau Claire and Spooner on September 22. At Eau Claire the Group 0 varieties matured satisfactorily and also the earlier half of the varieties in Group I. The later varieties in Group I were damaged by frost at Eau Claire. At Eau Claire the hot, dry weather during August affected the Group 0 varieties to a greater extent than it did the Group I varieties.

Compton, Illinois The Compton plot was planted May 21 on a very fertile field following pasture in 1946. Heavy rains and cold weather after planting delayed emergence for several weeks and resulted in rather thin stands in a few rows. Stands generally were good and growth excellent. Rainfall through June and July was ample, but from the end of July to the 21st of September, there was only about an inch of rain, and temperatures were much above normal. Over two inches of rain fell September 21, but this was too late to benefit soybeans. Some early varieties produced very badly shriveled seed due to the heat and drought. Yields generally were good, however, probably because high organic matter in the soil permitted retention of the ample July rains. A frost September 26 killed about half of the leaves on the later varieties, such as Lincoln, and a killing frost September 30 killed everything. Only Lincoln, Illini, and strains of similar maturity were appreciably reduced in yield, and the warm, dry weather in October permitted the beans to dry out rapidly and produce seed of good quality.

Dwight, Illinois The tests at Dwight were planted May 13 on land of high fertility. The warm spell which permitted planting was followed by cold, wet weather which slowed development of the beans. This rainy spell continued until June 10 and was followed by a drought until August 31. The slow, early growth and the drought resulted in the shortest plants and lowest yields in the history of the field. The extremely high temperatures in August and most of September resulted in shriveled seed in many early strains. Rainfall from August 30 on

was ample but too late to greatly benefit any but the latest strains. The temperature in late September was not low enough to kill the plants, and the warm weather in October permitted the later strains in Group III to produce fairly good yields.

Urbana, Illinois The tests at Urbana were planted May 24 under good conditions, but heavy and continued rainfall caused rather thin stands. This wet weather continued through June. July and August were very dry, but a good one and one-half inch rain in late August saved the crop. The plants were wilting regularly every day before this, and had it not been for the rain, the above average temperatures prevailing throughout August and early September would have resulted in only half a crop. Another inch of rain September 22 further aided the later strains. There was practically no more rain until the end of October, and this dry spell, coupled with the above-average temperatures prevailing in October, resulted in good quality seed and good yields for the later strains. In contrast to 1946, the Group III and IV tests yielded more than Group II.

Clayton, Illinois In contrast to many locations the weather was drier than normal at Clayton until the middle of May, but from then until early July the weather was the wettest on record. Practically no field work was done, and the tests were not planted until July 7. From then on there was practically no rain until September 22, and this dry spell was accompanied by above average temperature for most of the period. This dry period was broken by two and one-half inches of rain September 22, in time to benefit the late strains somewhat. Group IV yielded substantially more than Group III as a result. Growth was short, but considering the late planting and adverse weather, the yields were fairly good.

Stonington, Illinois Wet weather delayed planting at Stonington until June 24, but in spite of the late planting, growth was good. The weather was very dry until September, and temperatures were above average during August and September. The test was planted on a very fertile soil, and average yields of 25 and 27 bushels for Groups III and IV resulted. Seed quality was quite satisfactory.

Edgewood, Illinois The tests were planted June 6 on the same field as the 1946 plot. The fertility level was much above average for this hardpan soil, and although the rainfall was not nearly as adequate as the almost perfect season of 1946, the average yields of 25.5 and 29.2 for Groups III and IV were only three and five bushels less than the high yields of 28.6 and 34.0 obtained in 1946. This indicates the possibilities on these soils if fertility is restored by proper management.

Freeburg, Illinois The tests at Freeburg were planted June 4 on fertile soil in excellent condition. Temperatures were relatively favorable throughout the growing season, resulting in rather rank growth and rather severe lodging in the later strains. Rainfall was ample in June but rather sparse in July and early August. The yields would have been good but a fairly uniform epidemic of bud blight reduced the Group III and IV average yields to 23.3 bushels and 27.1 bushels, respectively. A more severe epidemic in 1946 resulted in yields of 25.5 and 25.8 bushels.

Eldorado, Illinois The heavy spring rains prevalent elsewhere did not occur at Eldorado, and the test planted May 24 on a fertile soil germinated well and made excellent growth. There was little lodging. Although the May and June rains

were very moderate compared with those experienced at other locations, the July rains were more adequate than those at most other locations. Temperatures throughout most of the growing season were above normal, and these very high temperatures in August, together with the low rainfall, resulted in shriveled seed from some of the earlier varieties. September rainfall was adequate, and seed quality was good on the later strains.

Morris, St. Paul, and Waseca, Minnesota The 1947 uniform nursery trials in Minnesota were all planted the last week of May. Growing conditions were favorable up to early August when a period of drought and extremely high temperatures prevailed. Rain and cooler temperatures, however, came late in August, and the crop developed normally from then until September 22 when a heavy frost killed most of the leaves. An unusually dry, warm October ripened the beans and permitted timely harvesting. A small hailstorm at University Farm in late August damaged the leaves and pods slightly and apparently opened the way for some fungal infections within the pods, resulting in a considerable number of moldy beans.

Cresco, Iowa This nursery represents the northeast section of Iowa and the soils of Carrington Plastic Till phase. The nursery planted May 31 grew very well until the drought in July and August. The growing conditions were very good through June, and as a consequence, the nursery strains were much taller than is normally expected. While most of the strains at the other locations were measuring 5 to 10 inches shorter, the strains in the Cresco nursery were 5 to 10 inches taller than normally expected. The first killing frost occurred September 30, but most strains were sufficiently advanced so that no particular damage resulted. The 1947 results appeared to be the best in the past four years at this location.

Kanawha, Iowa This nursery, located in north central Iowa, was planted May 21 on fertile Webster silty clay loam. Growing conditions were subnormal, particularly as regards the drought which continued through July and August. The data representing this nursery were considered to be good in spite of somewhat abnormal rain and drought. Frost occurred September 26, but only slight defoliation resulted. In the main the nursery was considered to be good.

Marcus, Iowa This location represents the northwest section of Iowa which had the best growing conditions in the state when considering the state as a whole with its generally prevalent and excessive spring rains and the drought following. The nursery was considered very good. The performance of known varieties did not deviate much from the expected normal results. There is always less lodging on the Marshall silt loam which is characteristic of this area. Although a frost occurred on September 22 which defoliated the upper half of the plants, the beans matured near normal and were harvested October 18 under excellent conditions. The nursery was planted May 20.

Hudson, Iowa The nursery here was the poorest of all nurseries in Iowa. The excessive rains immediately following May 31, the planting date, together with poor cultivation followed by drought in July and August, made it necessary to trim some rows to either four or eight feet. These factors contributed to higher than normal coefficients of variability on the Hudson nursery, and made the data from these plots for strain comparisons only a fair estimate of their true performance.

Ames, Iowa This nursery suffered the most abnormal season in many years. Sleet, snow, and temperatures at 31°F on May 28 after all beans were planted and some were up, followed by excessive rains until June 30, immediately followed by little rain until August 28, coupled with high temperatures, made for poor growing conditions. In spite of subversive weather, soybeans did well. The experiments while not normal were considered good. Plants were short. Coefficients of variability were remarkably low. The first killing frost occurred late, November 6.

Ottumwa, Iowa This nursery which is located in southeastern Iowa on Haig silt loam was not planted until June 27. Much of the breeding nursery was not planted because of the late date. After planting the nursery was subjected to droughty conditions through most of July and August. Although stands were good, conditions in general were poor. The data while not particularly variable nor erratic, could be considered only fair when making strain comparisons. Even though planting was late, the first killing frost in the fall was likewise late, November 6. No strains were killed by frost.

Shelbyville, Missouri The weather conditions at Shelbyville were adverse for soybeans throughout the season. Precipitation was above normal and temperatures below normal until the middle of July. The nursery was planted on June 11 during a very brief period in which there was little precipitation. The soil was so cool and wet that emergence and growth were very slow. A drought beginning about the first of August and continuing through September further damaged the crop. The seed set was very poor, and the yields averaged only about one-half as high as the 1946 yields.

Columbia, Missouri Precipitation was above normal during April, the first part of May, and June. The temperatures during this period were generally low, and the soil was slow in warming. The nursery, planted the latter part of May, made slow progress as a result of the excessive rainfall and cool temperatures. The rains stopped rather abruptly about the first of July, and by the first of August, the soil had become deficient in moisture. During this period, hot, dry winds were prevalent. The plants appeared to be damaged very little by the drought, but seed set was poor and yields were considerably reduced.

Sikeston, Missouri The moisture content of the soil was optimum at planting time. The nursery made good progress for several weeks, but was retarded by a drought which began the latter part of July and continued through September. Yields were reduced to about one-half to two-thirds of the 1946 yields. Shattering was more prevalent this year than for several years previous.

Park River, North Dakota Rainfall at Park River for the early spring months was distinctly below normal. Rainfall during June was slightly above normal with a good distribution of rainfall throughout the month. A favorable moisture situation continued throughout July and August in this section of the state, the precipitation being above normal for both of the months. As at Fargo, the temperatures during the early part of the growing season were definitely below normal, but were more favorable during late July and August, permitting the crop to develop under relatively favorable conditions. A low temperature of 27° on September 22 marked the first serious frost at Park River. While several of the varieties in the nursery were mature by this date, Mandarin (Ottawa), Montreal Manchu and Capital were still not mature.

Fargo, North Dakota Group 0 nursery was planted June 16. Plants emerged June 23. Stands were very good. Frequent showers late May and early June, plus a cold, beating, heavy rain on June 10 did not permit earlier planting. Temperatures during late May and much of June were decidedly below normal. Temperatures for

July and August were more favorable, and the crop during this later period advanced rapidly. There was, however, a shortage of rainfall during these months which tended to check top growth and helped to hasten maturity. First serious frost occurred September 21, but at this date all varieties in Group O were relatively safe from injury. Some of the strains in Preliminary Group O nursery, however, were not mature by that date. No serious disease conditions developed in these plots, although there appeared to be about the usual amount of leaf diseases, bacterial blight and bacterial pustule, present.

Rosholt, South Dakota The marked shortage of surface moisture during the growing season seriously handicapped most strains. Temperatures during June were below normal, and in August much above normal for the area. However, a good stand of all strains was secured initially, and the farmer cooperator gave excellent care to the nursery so that it had as good growing conditions as the weather would allow.

The variety Capital was the most promising entry in this nursery, excelling in all characteristics for which observations were made. In seed quality it was particularly superior. Harvesting was delayed until the 14th of October, by which time considerable shattering had occurred in susceptible varieties. Capital was the only early maturing variety that did not shatter.

At this location Hawkeye yielded well but failed to mature by about two weeks. Richland performed about the same as Hawkeye.

There were highly significant differences between yields of varieties; these differences were only slightly associated with the maturity indices. Of the two lowest yielding varieties, one was the earliest and one the latest maturing strains in the nursery.

Brookings, South Dakota Although an excellent stand resulted from the initial seeding, a severe hail on June 28 injured so many seedlings that the entire nursery was replanted July 4. From then until mid-September, soybeans suffered from deficiency of moisture, coupled with abnormally high August temperatures. Despite these conditions, the nursery recovered admirably and made good growth up to the September 22 frost. Several of the strains thus were delayed enough in maturity that the frost caused some reduction in seed quality and yield.

The most outstanding variety in the test this year was Ottawa Mandarin, probably because of its early maturity. No shattering was observed for any strain in the nursery.

The variance associated with varieties was highly significant for yield.

Centerville, South Dakota Because of cool, wet, June weather this nursery got off to a poor start, and could not be tended by the farmer cooperator. Late in June weeds were pulled by hand, and the plot was kept clean thereafter. The severe midsummer drought and the high temperatures of August were effective in limiting the normal development of all strains. For this reason, all the early varieties which should have been making their best growth and development during this time, were particularly restricted, resulting in reduced yield of poor quality beans.

On the other hand, the later maturing varieties were not forced to complete their productive phase of growth during this time, but instead were enabled to postpone seed production until after the midsummer drought. Fortunately, no killing frosts occurred up to harvest time, and these late varieties came through with almost normal yields of good quality beans.

Bavender Special was the highest yielding entry in the 1947 nursery. In other characters it is somewhat less desirable. It shows a slight tendency toward lodging, and is apparently three to four days later in maturity than Richland in this area. Quality of seed was good with only slight shriveling.

A45-251 and Hawkeye both yielded well and were outstanding for seed quality.

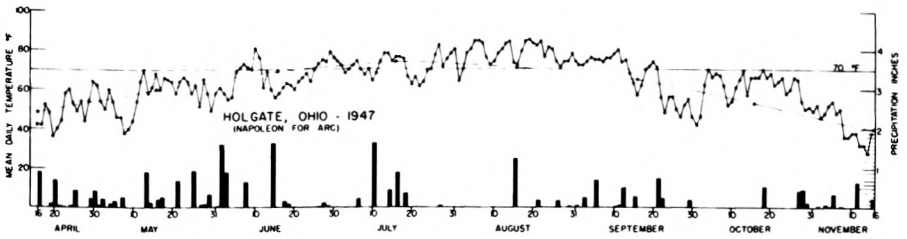
Ottawa Mandarin, despite its earliness, susceptibility to shattering, and poor seed quality, yielded practically the same as Hawkeye, Dunfield, and Richland.

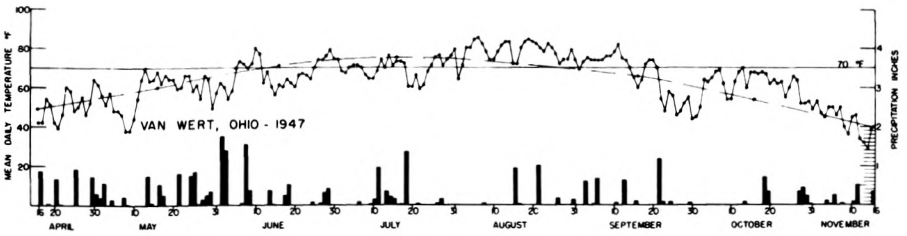
Despite the differential responses of the early and late maturing varieties, the variance associated with varieties was not statistically significant. All varieties were grouped rather closely about the mean yield. Bushels necessary for significance have been presented, but attention is called to the fact that the F value for yield was insignificant.

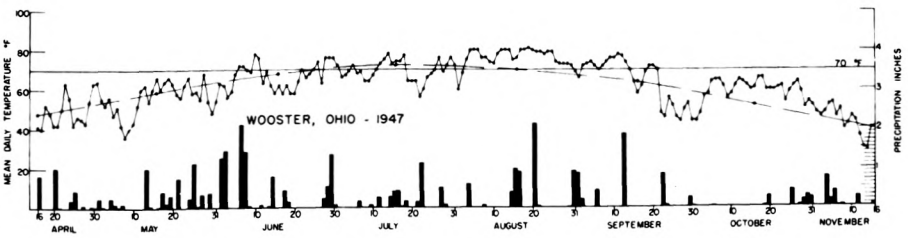
Lincoln, Nebraska During the spring and early summer, the rainfall was greater than normal, and the temperatures were considerably lower than normal. By the end of July, the rains had ceased, temperatures had taken a sharp rise, and drought conditions began. August was a month of relatively scant rainfall and very high temperatures. September remained hot, windy, and below normal in rainfall. It is normal for the climate at Lincoln to have its greatest amount of rain in the spring, and then become rather hot and dry in the latter summer and early fall months, but generally not to the extremes that were encountered in 1947.

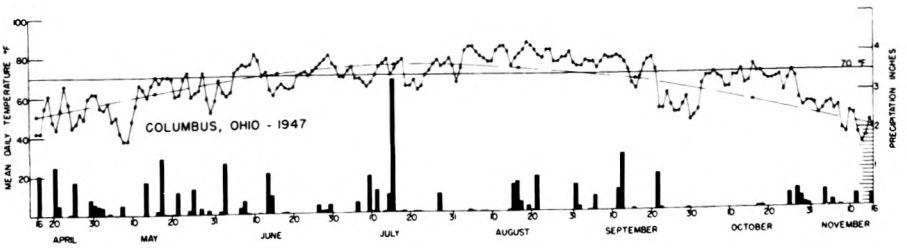
The soybean varietal test yielded an average of 16 bushels to the acre as compared to 15 for a 32-year average. The early maturing varieties, except Earlyana, had been affected more by the drought conditions than the later maturing varieties. Due to their maturity coming at the end of August, the early varieties were at a stage of development so near their final growth, they were unable to fully utilize the late August rains which totaled about two inches. The later maturing varieties were able to take full advantage of the moisture of these later rains, and consequently they had better seed development in comparison with the earlier varieties. It was also noted that the drought conditions caused a slight hastening of maturity for the earlier varieties, whereas the later maturing varieties matured normally.

Manhattan, Kansas The season of 1947 was unfavorable for soybeans. Wet weather delayed planting until June 10 and 11, which was ten days later than the recommended date. However, moisture conditions were favorable for germination, and perfect emergence was obtained. From June 12 to June 27, rain fell on eight days, giving a total of 4.68 inches and providing excellent growing conditions. From June 27 to August 14, the total precipitation was only 0.64 inches which came in five light, ineffective showers. During the period from July 28 to August 12, a maximum temperature of 101° to 108° was reached on 13 of the 15 days. This was during the time that pods were setting, and the crop suffered severely. August 13 to 15 produced 2.39 inches of rain, and the crop revived, but from August 25 to October 4, a period of 40 days drought again took its toll with a total of less than a third of an inch of moisture falling in five widely separated showers. An attack by garden webworm on August 29 was stopped by spraying with benzene hexachloride before any greatdamage was done. During the first nine days of September maximum temperatures ranged from 100° to 112° on six days. This prevented filling of many of the pods that had formed. Killing frost was delayed until November 6, over three weeks later than normal.


HOLGATE, OHIO - 1947
(NAPOLEON FOR ARC)
MEAN DAILY TEMPERATURE °F
PRECIPITATION INCHES
70 °F
APRIL
MAY
JUNE
JULY
AUGUST
SEPTEMBER
OCTOBER
NOVEMBER


VAN WERT, OHIO - 1947
MEAN DAILY TEMPERATURE °F
PRECIPITATION INCHES
70 °F
APRIL
MAY
JUNE
JULY
AUGUST
SEPTEMBER
OCTOBER
NOVEMBER


WOOSTER, OHIO - 1947
MEAN DAILY TEMPERATURE °F
PRECIPITATION INCHES
70 °F
APRIL
MAY
JUNE
JULY
AUGUST
SEPTEMBER
OCTOBER
NOVEMBER


COLUMBUS, OHIO - 1947
MEAN DAILY TEMPERATURE °F
PRECIPITATION INCHES
70 °F
APRIL
MAY
JUNE
JULY
AUGUST
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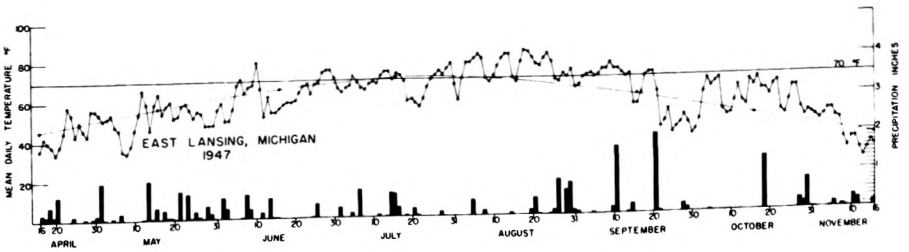
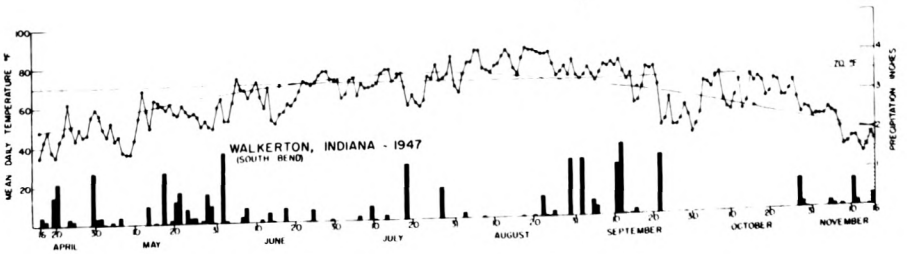
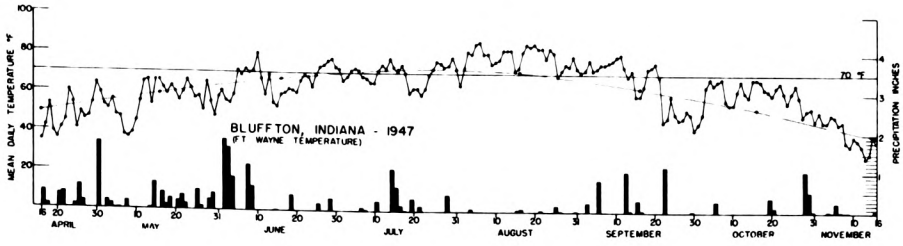
OCTOBER
NOVEMBER


EAST LANSING, MICHIGAN
1947
MEAN DAILY TEMPERATURE °F
PRECIPITATION INCHES
70 °F
APRIL
MAY
JUNE
JULY
AUGUST
SEPTEMBER
OCTOBER
NOVEMBER


WALKERTON, INDIANA - 1947
(SOUTH BEND)
MEAN DAILY TEMPERATURE °F
PRECIPITATION INCHES
70 °F
APRIL
MAY
JUNE
JULY
AUGUST
SEPTEMBER
OCTOBER
NOVEMBER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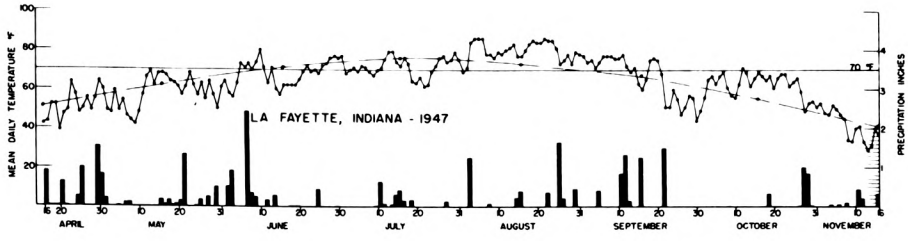
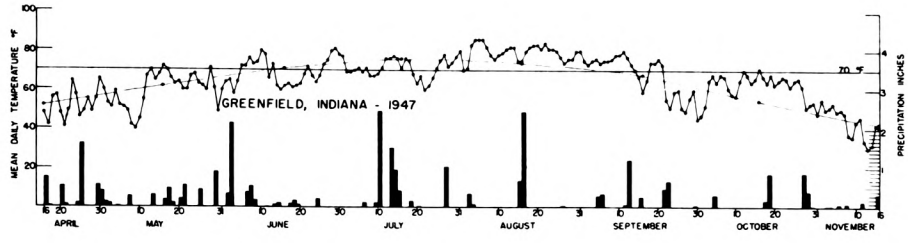
(FT WAYNE TEMPERATURE)
MEAN DAILY TEMPERATURE °F
PRECIPITATION INCHES
70 °F
APRIL
MAY
JUNE
JULY
AUGUST
SEPTEMBER
OCTOBER
NOVEMBER


LA FAYETTE, INDIANA - 1947
MEAN DAILY TEMPERATURE °F
PRECIPITATION INCHES
70 °F
APRIL
MAY
JUNE
JULY
AUGUST
SEPTEMBER
OCTOBER
NOVEMBER


GREENFIELD, INDIANA - 1947
MEAN DAILY TEMPERATURE °F
PRECIPITATION INCHES
70 °F
APRIL
MAY
JUNE
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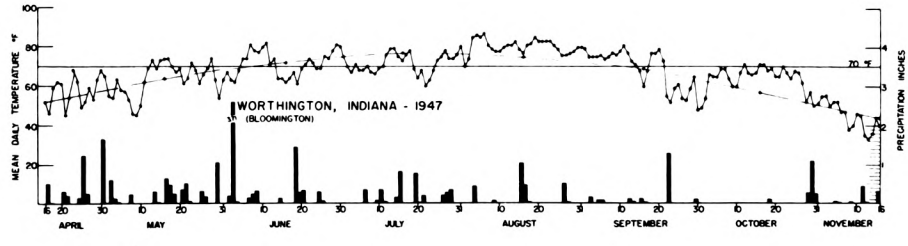
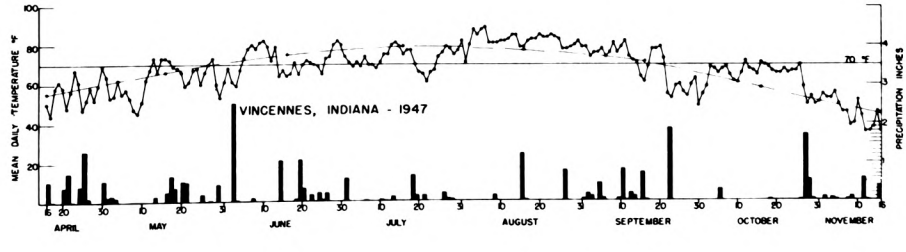
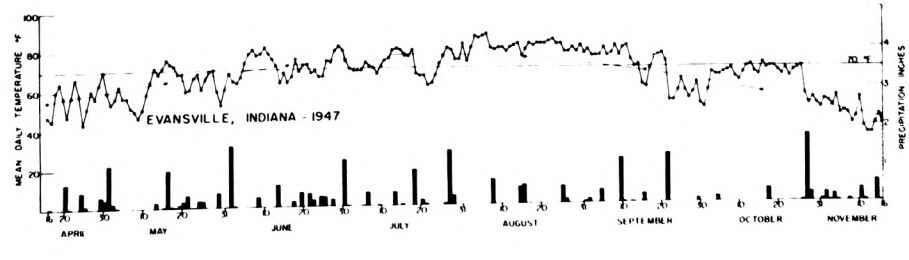
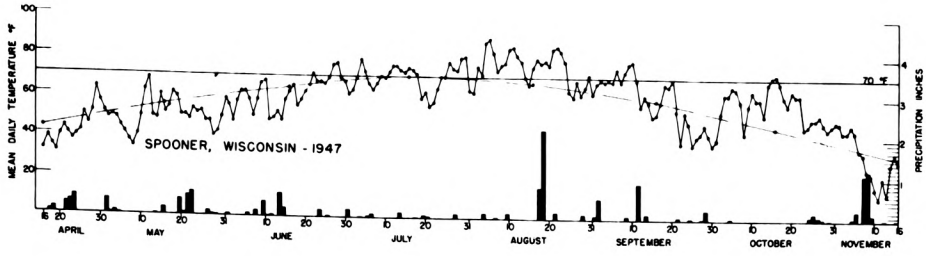
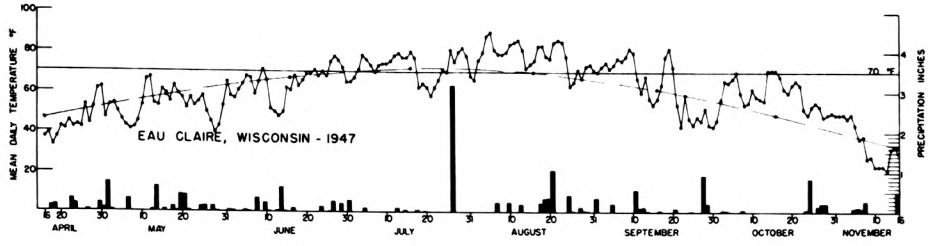
AUGUST
SEPTEMBER
OCTOBER
NOVEMBER

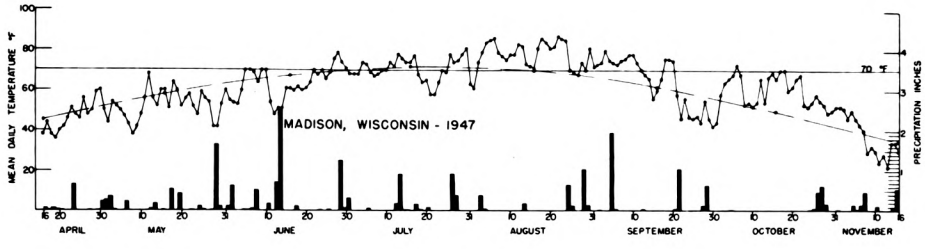

WORTHINGTON, INDIANA - 1947
(BLOOMINGTON)
MEAN DAILY TEMPERATURE °F
PRECIPITATION INCHES
70 °F
APRIL
MAY
JUNE
JULY
AUGUST
SEPTEMBER
OCTOBER
NOVEMBER

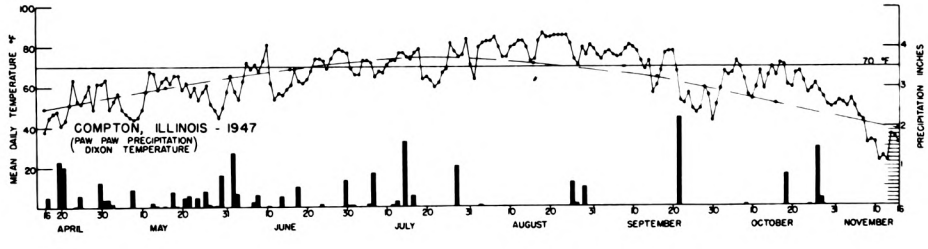

VINCENNES, INDIANA - 1947
MEAN DAILY TEMPERATURE °F
PRECIPITATION INCHES
70 °F
APRIL
MAY
JUNE
JULY
AUGUST
SEPTEMBER
OCTOBER
NOVEMBER

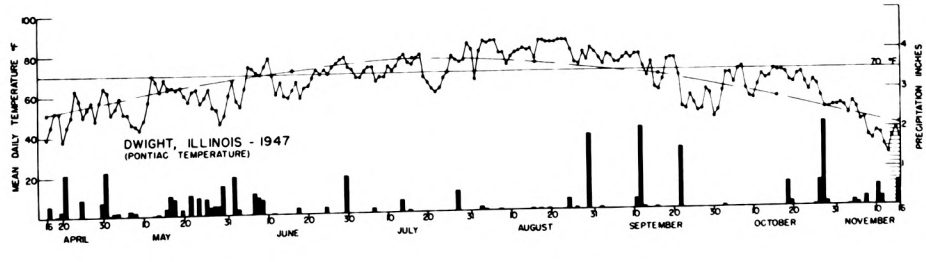

EVANSVILLE, INDIANA - 1947
MEAN DAILY TEMPERATURE °F
PRECIPITATION INCHES
70 °F
APRIL
MAY
JUNE
JULY
AUGUST
SEPTEMBER
OCTOBER
NOVEMBER

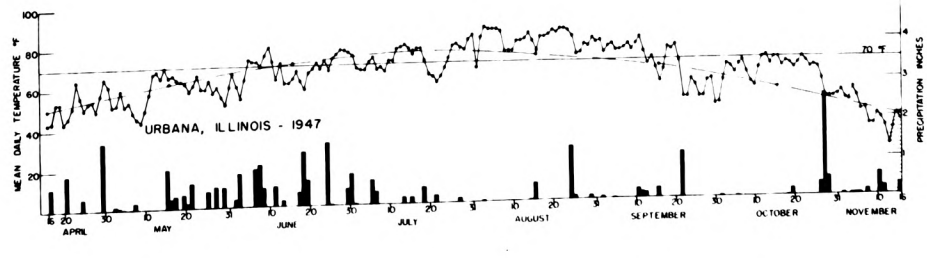

SPOONER, WISCONSIN - 1947
MEAN DAILY TEMPERATURE °F
PRECIPITATION INCHES
70 °F
APRIL
MAY
JUNE
JULY
AUGUST
SEPTEMBER
OCTOBER
NOVEMBER

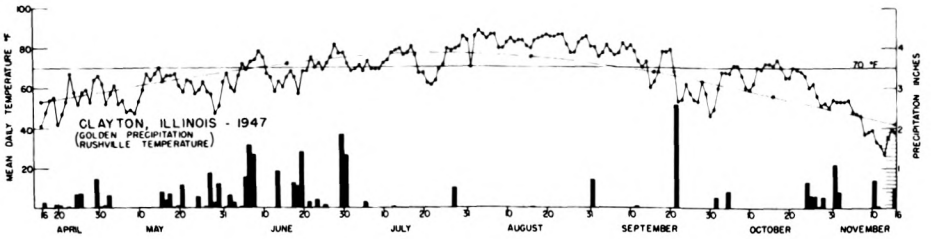

EAU CLAIRE, WISCONSIN - 1947
MEAN DAILY TEMPERATURE °F
PRECIPITATION INCHES
70 °F
APRIL
MAY
JUNE
JULY
AUGUST
SEPTEMBER
OCTOBER
NOVEMBER

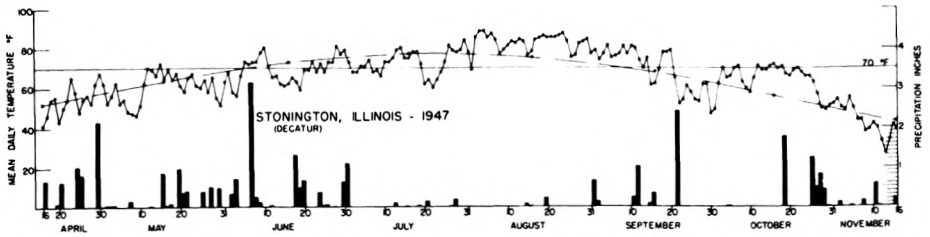

MADISON, WISCONSIN - 1947
MEAN DAILY TEMPERATURE °F
PRECIPITATION INCHES
70 °F
APRIL
MAY
JUNE
JULY
AUGUST
SEPTEMBER
OCTOBER
NOVEMBER

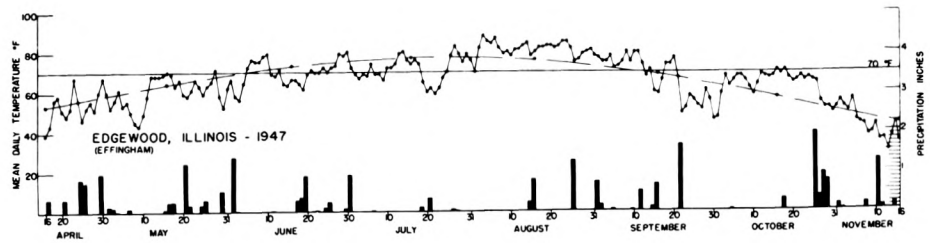

COMPTON, ILLINOIS - 1947
(PAW PAW PRECIPITATION)
(DIXON TEMPERATURE)
MEAN DAILY TEMPERATURE °F
PRECIPITATION INCHES
70 °F
APRIL
MAY
JUNE
JULY
AUGUST
SEPTEMBER
OCTOBER
NOVEMBER

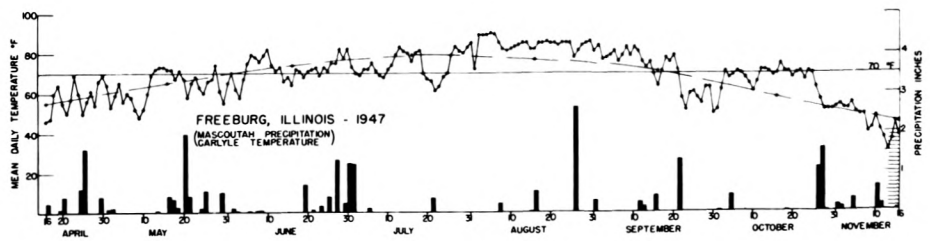

DWIGHT, ILLINOIS - 1947
(PONTIAC TEMPERATURE)
MEAN DAILY TEMPERATURE °F
PRECIPITATION INCHES
70 °F
APRIL
MAY
JUNE
JULY
AUGUST
SEPTEMBER
OCTOBER
NOVEMBER

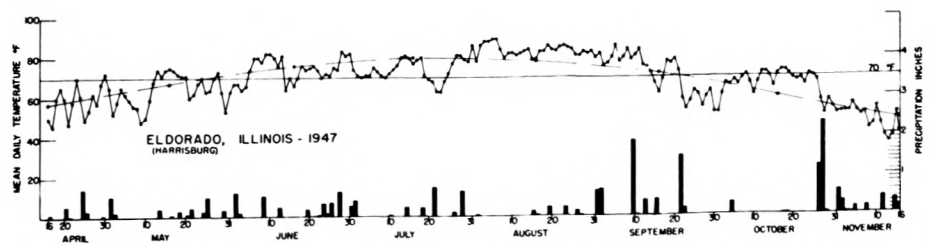

URBANA, ILLINOIS - 1947
MEAN DAILY TEMPERATURE °F
PRECIPITATION INCHES
70 °F
APRIL
MAY
JUNE
JULY
AUGUST
SEPTEMBER
OCTOBER
NOVEMBER

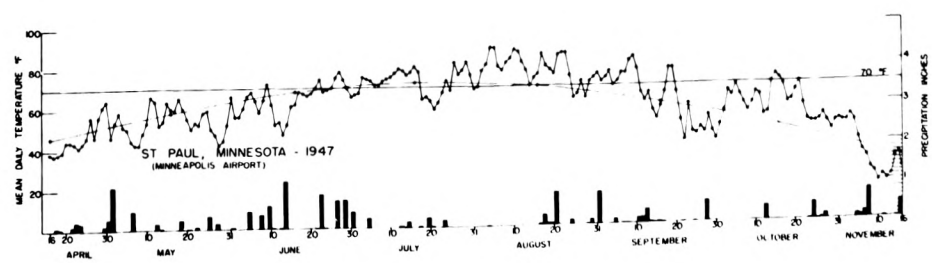

CLAYTON, ILLINOIS - 1947
(GOLDEN PRECIPITATION
RUSHVILLE TEMPERATURE)
MEAN DAILY TEMPERATURE °F
PRECIPITATION INCHES
70 °F
APRIL
MAY
JUNE
JULY
AUGUST
SEPTEMBER
OCTOBER
NOVEMBER

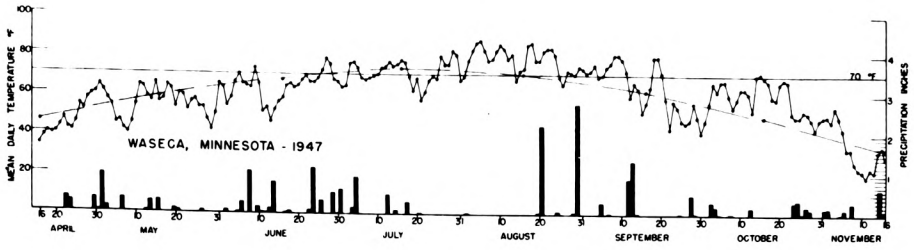

STONINGTON, ILLINOIS - 1947
(DECATUR)
MEAN DAILY TEMPERATURE °F
PRECIPITATION INCHES
70 °F
APRIL
MAY
JUNE
JULY
AUGUST
SEPTEMBER
OCTOBER
NOVEMBER

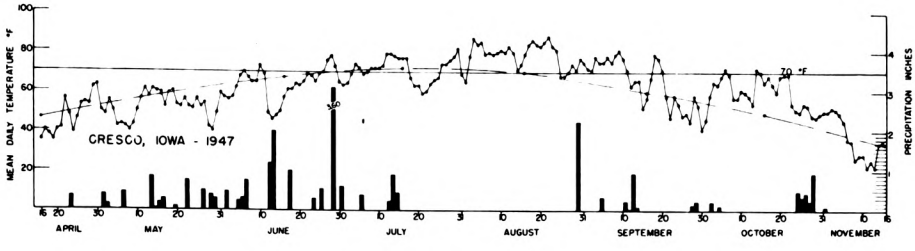

EDGEWOOD, ILLINOIS - 1947
(EFFINGHAM)
MEAN DAILY TEMPERATURE °F
PRECIPITATION INCHES
70 °F
APRIL
MAY
JUNE
JULY
AUGUST
SEPTEMBER
OCTOBER
NOVEMBER

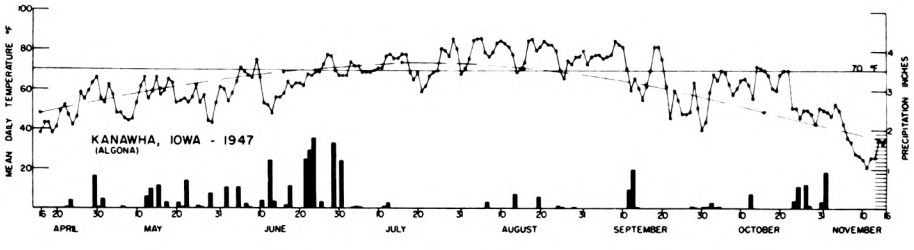

FREEBURG, ILLINOIS - 1947
(MASCOUTAH PRECIPITATION)
(CARLYLE TEMPERATURE)
MEAN DAILY TEMPERATURE °F
PRECIPITATION INCHES
70 °F
APRIL
MAY
JUNE
JULY
AUGUST
SEPTEMBER
OCTOBER
NOVEMBER

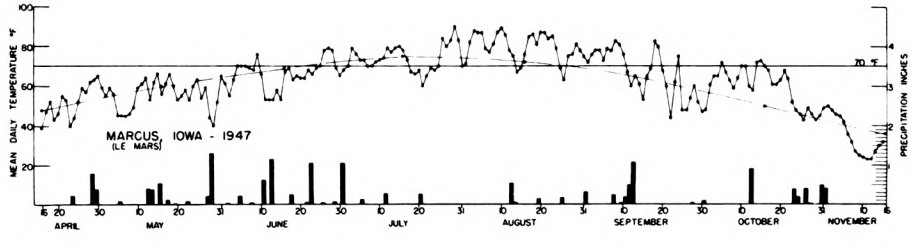

ELDORADO, ILLINOIS - 1947
(HARRISBURG)
MEAN DAILY TEMPERATURE °F
PRECIPITATION INCHES
70 °F
APRIL
MAY
JUNE
JULY
AUGUST
SEPTEMBER
OCTOBER
NOVEMBER

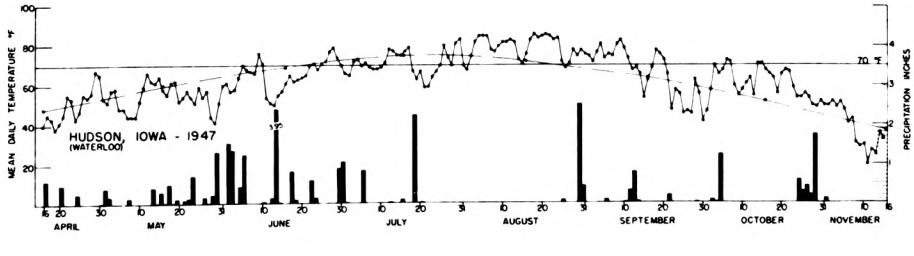

ST PAUL, MINNESOTA - 1947
(MINNEAPOLIS AIRPORT)
MEAN DAILY TEMPERATURE °F
PRECIPITATION INCHES
70 °F
APRIL
MAY
JUNE
JULY
AUGUST
SEPTEMBER
OCTOBER
NOVEMBER

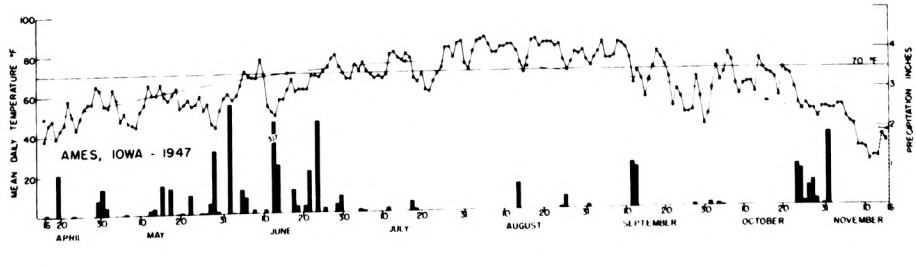

WASECA, MINNESOTA - 1947
MEAN DAILY TEMPERATURE °F
PRECIPITATION INCHES
70 °F
APRIL
MAY
JUNE
JULY
AUGUST
SEPTEMBER
OCTOBER
NOVEMBER

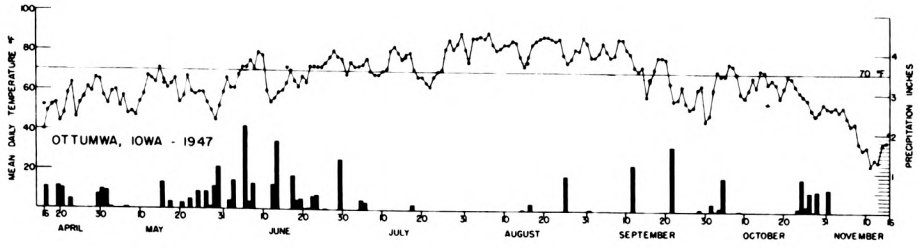

CRESCO, IOWA - 1947
MEAN DAILY TEMPERATURE °F
PRECIPITATION INCHES
70 °F
APRIL
MAY
JUNE
JULY
AUGUST
SEPTEMBER
OCTOBER
NOVEMBER

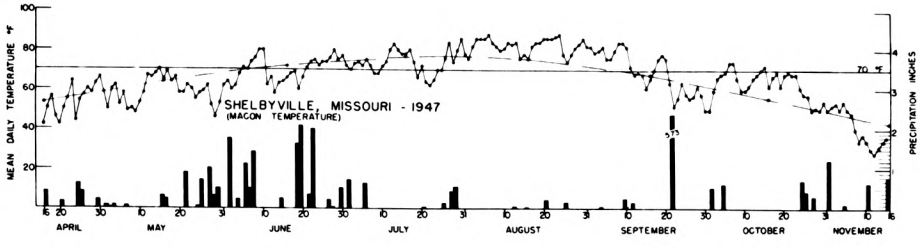

KANAWHA, IOWA - 1947
(ALGONA)
MEAN DAILY TEMPERATURE °F
PRECIPITATION INCHES
70 °F
APRIL
MAY
JUNE
JULY
AUGUST
SEPTEMBER
OCTOBER
NOVEMBER

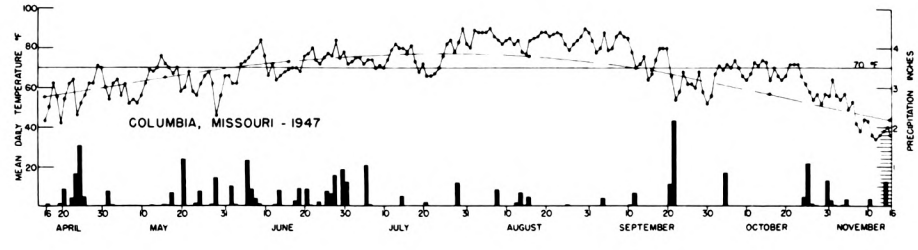

MARCUS, IOWA - 1947
(LE MARS)
MEAN DAILY TEMPERATURE °F
PRECIPITATION INCHES
70 °F
APRIL
MAY
JUNE
JULY
AUGUST
SEPTEMBER
OCTOBER
NOVEMBER

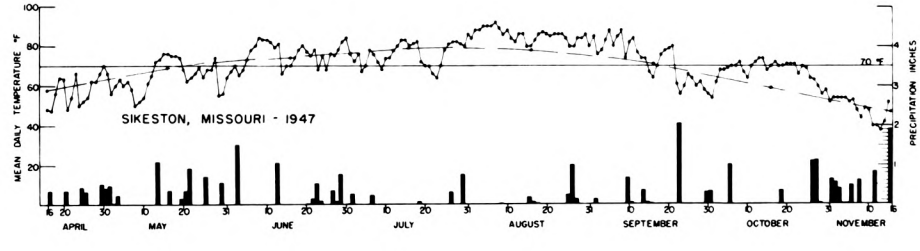

HUDSON, IOWA - 1947
(WATERLOO)
MEAN DAILY TEMPERATURE °F
PRECIPITATION INCHES
70 °F
APRIL
MAY
JUNE
JULY
AUGUST
SEPTEMBER
OCTOBER
NOVEMBER

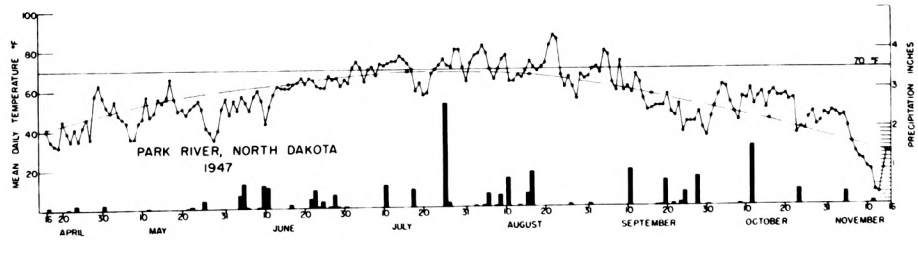

AMES, IOWA - 1947
MEAN DAILY TEMPERATURE °F
PRECIPITATION INCHES
70 °F
APRIL
MAY
JUNE
JULY
AUGUST
SEPTEMBER
OCTOBER
NOVEMBER

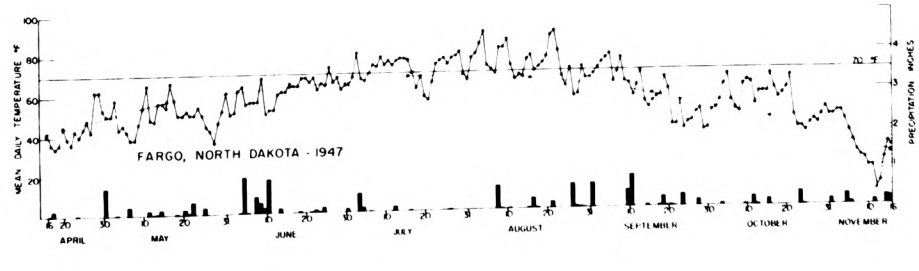

OTTUMWA, IOWA - 1947
MEAN DAILY TEMPERATURE °F
PRECIPITATION INCHES
70 °F
APRIL
MAY
JUNE
JULY
AUGUST
SEPTEMBER
OCTOBER
NOVEMBER

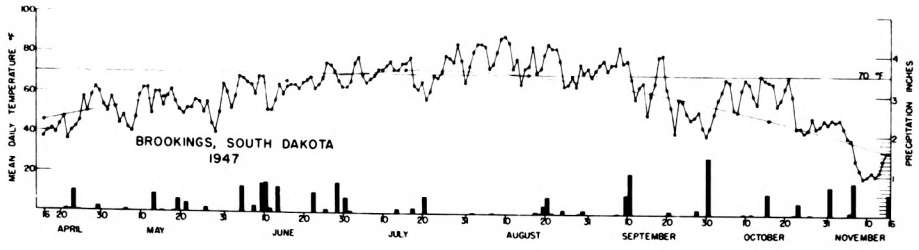

SHELBYVILLE, MISSOURI - 1947
(MACON TEMPERATURE)
MEAN DAILY TEMPERATURE °F
PRECIPITATION INCHES
70 °F
APRIL
MAY
JUNE
JULY
AUGUST
SEPTEMBER
OCTOBER
NOVEMBER

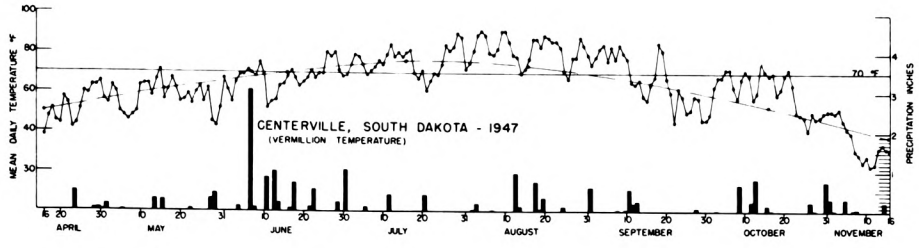

COLUMBIA, MISSOURI - 1947
MEAN DAILY TEMPERATURE °F
PRECIPITATION INCHES
70 °F
APRIL
MAY
JUNE
JULY
AUGUST
SEPTEMBER
OCTOBER
NOVEMBER

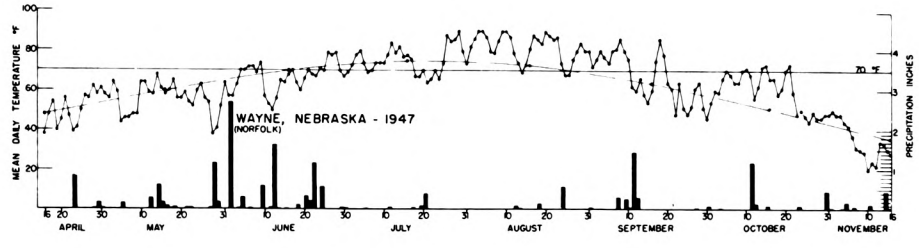

SIKESTON, MISSOURI - 1947
MEAN DAILY TEMPERATURE °F
PRECIPITATION INCHES
70 °F
APRIL
MAY
JUNE
JULY
AUGUST
SEPTEMBER
OCTOBER
NOVEMBER

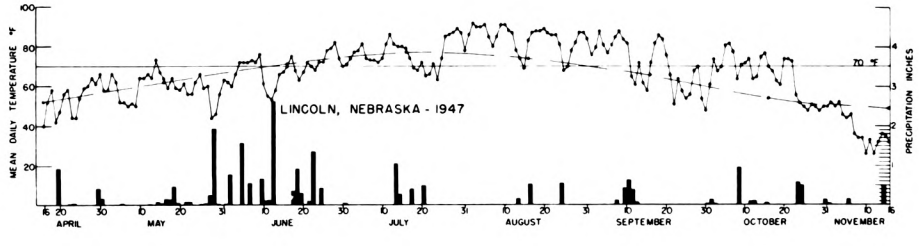

PARK RIVER, NORTH DAKOTA
1947
MEAN DAILY TEMPERATURE °F
PRECIPITATION INCHES
70 °F
APRIL
MAY
JUNE
JULY
AUGUST
SEPTEMBER
OCTOBER
NOVEMBER

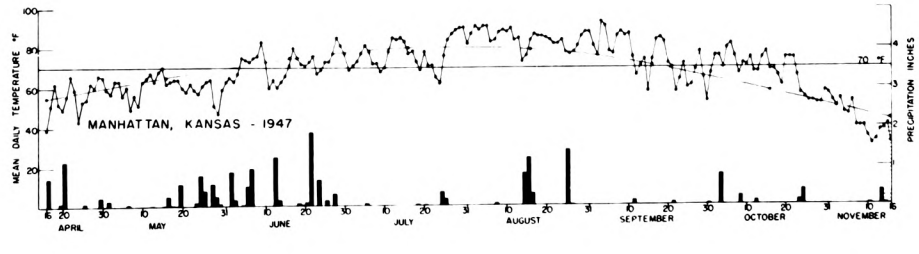

FARGO, NORTH DAKOTA - 1947
MEAN DAILY TEMPERATURE °F
PRECIPITATION INCHES
70 °F
APRIL
MAY
JUNE
JULY
AUGUST
SEPTEMBER
OCTOBER
NOVEMBER

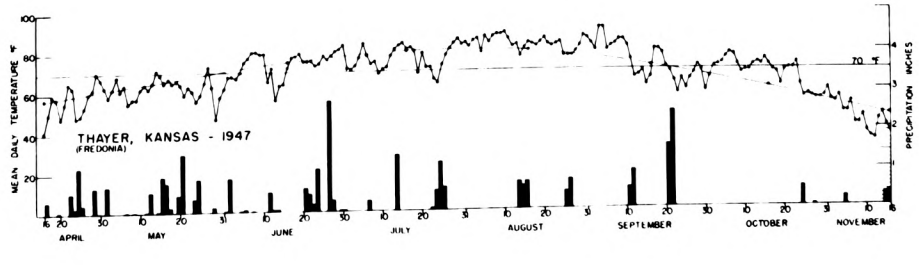

BROOKINGS, SOUTH DAKOTA
1947
MEAN DAILY TEMPERATURE °F
PRECIPITATION INCHES
70 °F
APRIL
MAY
JUNE
JULY
AUGUST
SEPTEMBER
OCTOBER
NOVEMBER


CENTERVILLE, SOUTH DAKOTA - 1947
(VERMILLION TEMPERATURE)
MEAN DAILY TEMPERATURE °F
PRECIPITATION INCHES
70 °F
APRIL
MAY
JUNE
JULY
AUGUST
SEPTEMBER
OCTOBER
NOVEMBER


WAYNE, NEBRASKA - 1947
(NORFOLK)
MEAN DAILY TEMPERATURE °F
PRECIPITATION INCHES
70 °F
APRIL
MAY
JUNE
JULY
AUGUST
SEPTEMBER
OCTOBER
NOVEMBER


LINCOLN, NEBRASKA - 1947
MEAN DAILY TEMPERATURE °F
PRECIPITATION INCHES
70 °F
APRIL
MAY
JUNE
JULY
AUGUST
SEPTEMBER
OCTOBER
NOVEMBER


MANHATTAN, KANSAS - 1947
MEAN DAILY TEMPERATURE °F
PRECIPITATION INCHES
70 °F
APRIL
MAY
JUNE
JULY
AUGUST
SEPTEMBER
OCTOBER
NOVEMBER


THAYER, KANSAS - 1947
(FREDONIA)
MEAN DAILY TEMPERATURE °F
PRECIPITATION INCHES
70 °F
APRIL
MAY
JUNE
JULY
AUGUST
SEPTEMBER
OCTOBER
NOVEMBER