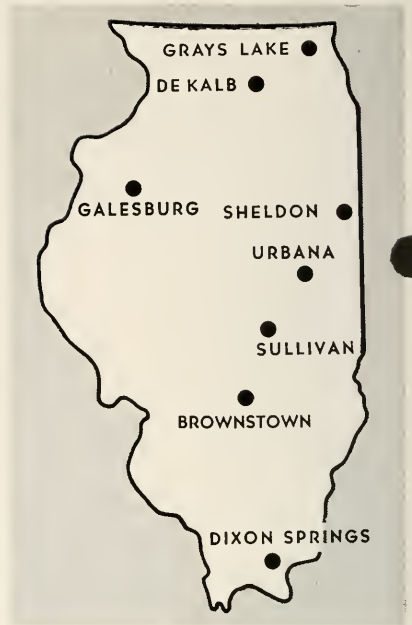
The background of the page is a large, black-outlined map of the state of Illinois. The text is centered within the map's boundaries.

**1951**  
**Illinois**  
**Tests of**  
**CORN**  
**HYBRIDS**  
**In Wide**  
**Use**

**Bulletin**  
**552**

UNIVERSITY OF ILLINOIS  
AGRICULTURAL EXPERIMENT STATION in cooperation with  
ILLINOIS STATE NATURAL HISTORY SURVEY . . . January, 1952

Location of  
1951 test  
fields



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# ILLINOIS TESTS OF CORN HYBRIDS IN WIDE USE IN 1951

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R. W. JUGENHEIMER, and G. E. MCKIBBEN<sup>1</sup>

ILLINOIS LED THE NATION in corn production in 1951 with a total of 494 million bushels. The average state-wide yield was estimated at 55 bushels an acre. This yield is 4 bushels an acre above the 1950 average and 4½ bushels above the 1940-1949 ten-year average.<sup>2</sup>

## PLAN OF THE TESTS

**Number of hybrids and their sources.** Three hundred twenty-eight hybrids were grown on eight regular test fields. Six single-cross and three double-cross hybrids were grown on two special test fields which differed in productivity. Forty-seven companies and individuals and the Illinois Station furnished seed for the tests (see pages 444 and 445).

Eighty-one hybrids were grown at Galesburg, Sheldon, Sullivan, and Brownstown. At the Dixon Springs Experiment Station 60 entries were planted on the bottomland field and 11 entries on the upland field. Seventy-five entries were tested at DeKalb and 60 at Grays Lake (Table 1, page 408).

A representative of the Illinois Station or of the Illinois Crop Improvement Association collected seed for planting the test fields directly from the warehouses of the producers entering the corn. Seed of Illinois and U. S. hybrids in commercial production was obtained from the producers of these hybrids and also from the Illinois Seed Producers Association.<sup>3</sup>

**Selection of entries.** Each year seed corn producers are given an opportunity to nominate hybrids for testing on the various fields. For

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Table 1. — GENERAL INFORMATION: Illinois Cooperative Hybrid Corn Tests, 1951

Field, county, location, and number of entries	Date planted	Date harvested	Average	Moisture	Dam-	Erect	Stand
			acre- yield	in grain	aged corn	plants	
			<i>bu.</i>	<i>perct.</i>	<i>perct.</i>	<i>perct.</i>	<i>perct.</i>
Grays Lake: Lake NE 60.....	May 24	Nov. 27	67.9	30.5	...	78	91
DeKalb: DeKalb N 75.....	May 25, 31	Nov. 15	58.3	29.7	...	96	91
Galesburg: Knox WNC 81.....	May 18	Nov. 6	105.0	23.6	1.4	89	92
Sheldon: Iroquois ENC 81.....	May 19	Oct. 25	104.9	24.8	.7	93	94
Sullivan: Moultrie SC 81.....	May 22	Nov. 20	101.1	20.5	1.1	53	91
Brownstown: Fayette S 81.....	May 23	Nov. 30	79.0	19.8	.6	91	87
Dixon Springs: Pope Ex.S							
Bottomland 60.....	May 29	Dec. 4	39.3	19.0	1.9	95	90
Upland 11.....	May 29	Dec. 4	56.7	18.8	2.8	95	91

COOPERATORS: JOHN STUART and ROY BEHN, *Lake county*; RALPH ANDERSON, *Knox county*; JOHN B. RICE, *Iroquois county*; R. B. VANDEVEER, Farm Manager, Illinois Masonic Home Farm, *Moultrie county*; DR. H. O. LEWIS and EARL SCHWARM, *Fayette county*. The northern Illinois experimental field in DeKalb county is operated by the Illinois Station. C. H. FARNHAM is manager and R. E. BELL is fieldman. The Pope county fields at Robbs are part of the Dixon Springs Experiment Station, of which R. J. WEBB is superintendent.

some fields the number of hybrids nominated is so great that they cannot all be tested. In order to enable the Station to choose among widely grown hybrids, farm advisers in the spring of 1950 were asked to make a survey of varieties popularly grown in each county. The Illinois Cooperative Crop Reporting Service also made such a survey in the summer of 1950. Selections were influenced by these reports.

A number of experimental hybrids that have shown promise for commercial production are also included in the tests. Other hybrids are grown to meet the field-performance requirement for certification. Generally six Station-produced, open-pedigree hybrids are included at each location. The 1951 performance of additional experimental hybrids is reported in Illinois Bulletin 551.

**Soil characteristics of fields.** The test fields are usually medium to high in productivity, and each represents a soil type common to the region where it is located. An attempt was made to select each field carefully for uniformity in soil type, productivity, and drainage. Approximate locations of test fields are shown in map on inside front cover. Information on soil characteristics and management is given in Table 2.

**Field-plot design.** A 9 x 9 randomized, lattice-square field-plot design with 5 replications was used on the Galesburg, Sheldon, Brownstown, and Sullivan fields. Controlled, randomized block designs were used at all other locations.

Table 2.—TESTING FIELDS: Soil Characteristics  
and Management Practices

Soil type	Lime require- ment	Available phosphorus	Available potassium	Previous crops and soil management
<b>NORTHEASTERN: Grays Lake</b>				
Black silt loam.....	0	High	Very high	Corn 1946; oats 1947; alfalfa pasture 1948-50; limestone and rock phosphate applied in 1947; 100 pounds 3-12-12 applied in row at planting.
<b>NORTHERN: DeKalb</b>				
Mostly Drummer silty clay loam, with some Brenton silt loam and a small corner of Harpster silty clay loam.....	2	Very high	Very high	Soybeans 1947; oats and mixed clovers 1948; winter wheat 1949-50; 1000 pounds rock phosphate applied in spring of 1951; 300 pounds 8-8-8 plowed under; 300 pounds 3-12-12 disked in just before seeding; 200 pounds ammonium nitrate side-dressed at second cultivation.
<b>WEST NORTH-CENTRAL: Galesburg</b>				
Muscatine silt loam.....	0	Medium	Very high	Corn 1947, 1948; oats 1949; alfalfa-brome 1950; 2 tons limestone applied in 1949; 10 tons of manure applied in 1951.
<b>EAST NORTH-CENTRAL: Sheldon</b>				
Drummer silty clay loam.....	0	High	Medium	Corn 1947; oats 1948; alfalfa-timothy-Ladino pasture 1949, 1950; limestone and rock phosphate applied in past; 125 pounds 3-9-27 applied in row at planting.
<b>SOUTH-CENTRAL: Sullivan</b>				
Flanagan silt loam; west one- fourth Drummer silty clay loam	0	Medium	High	Alfalfa-timothy pasture 1945-46; corn 1947, 1948, alfalfa-timothy pasture 1949-50; limestone applied in 1946.
<b>SOUTHERN: Brownstown</b>				
Cisne silt loam.....	2	Slight	Very high	Waste land 1942-46; soybeans 1947, 1948; wheat 1948-49; sweet clover 1950; 4 tons lime, 1000 pounds rock phosphate applied in 1947; 300 pounds muriate potash broadcast before corn planting; 200 pounds ammonium nitrate side-dressed at third cultivation.
<b>EXTREME SOUTHERN: Robbs (Dixon Springs)</b>				
Upland field: Grantsburg silt loam.....	0	Low	Medium	Corn 1947; oats 1948; red clover 1949; wheat, sweet clover 1950.
Bottomland field: one-half Wakeland silt loam, one-half Haymond silt loam.....	0	Very low	Medium	Rye, sweet clover, lespedeza pasture 1947; corn 1948, 1949.

The soil type designations for all fields except Grays Lake have been approved by HERMAN WASCHER, Assistant Professor of Soil Physics.



**Method of planting.** All test fields were planted by hand on land prepared in the regular way for corn. Individual plots consisted of 2 rows 10 hills long, except at Brownstown, where surface drainage ditches necessitated plots consisting of 2 rows 6 hills long. Three kernels were planted to the hill, except at Dixon Springs, where only 2 kernels were planted.

## GROWING CONDITIONS

The 1951 growing season in Illinois was generally favorable to corn. Moisture was plentiful and fairly well distributed, but temperatures averaged slightly below normal.

During the generally favorable planting period, all test fields were planted in well-prepared seedbeds (Table 1). At all locations, stands were average to excellent. Growth, too, was average to above average at all fields, except DeKalb and the bottomland plot at Dixon Springs. Because of heavy rainfall in July and poor drainage, water stood on these plots and prevented proper growth and cultivation.

In mid-September frosts hit the two northern fields, Grays Lake and DeKalb, before all hybrids were dented. The result was some chaffy corn of poor quality, particularly at DeKalb.

Very little lodging occurred at DeKalb, Sheldon, Brownstown, and Dixon Springs. At Grays Lake corn borers and rootworms caused both stalk breakage and root lodging. At Galesburg, root lodging, because of the corn rootworm, was prevalent in certain varieties. A combination of diseases (Tables 8 and 9) and high winds caused extremely severe stalk breakage at Sullivan.

In the northern and central Illinois fields, moisture in the grain at harvest was generally higher than usual, and at Brownstown and Dixon Springs it was considerably lower than it had been in previous years.

## INSECT DAMAGE

**European corn borer.** The number of corn borers, *Pyrausta nubilalis* (Hbn.), and the crop losses they cause decreased in 1951. In the fall their numbers were lower than at any other time in several years, and crop losses due to their attacks were at a minimum. Much of this

Table 3.—CORN BORER DAMAGE: Northeastern Illinois, Grays Lake, 1951

Rank	Entry	Plants broken below ear <sup>a</sup>	Resistance rating compared with average	Rank	Entry	Plants broken below ear <sup>a</sup>	Resistance rating compared with average
		<i>perct.</i>				<i>perct.</i>	
1	Doubet D-1	.4	975	31	Pioneer 344	3.7	105
2	Nichols 202A	1.2	325	32	Illinois 101 (Huebsch)	3.8	103
3	Super-Crost F-112A	1.5	260	32	Illinois 1280 (Station)	3.8	103
3	Super-Crost 440A	1.5	260	32	Bear OK-224	3.8	103
5	Crow 260	1.6	244	32	Huebsch 81	3.8	103
6	Nichols 5B	1.8	217	36	Illinois 1493 (Station)	4.0	98
6	Illinois 1281 (Station)	1.8	217	37	P.A.G. 71	4.1	95
6	Producers 305	1.8	217	38	Illinois 1180 (Huebsch)	4.5	87
9	Producers 315	1.9	205	39	Super-Crost 85B	4.6	85
9	Pioneer 352	1.9	205	39	Super-Crost 85A	4.6	85
11	Huebsch 44	2.1	186	39	National 112	4.6	85
12	Moews CB 25A	2.2	177	39	Illinois 1277 (Station)	4.6	85
12	DeKalb 404A	2.2	177	39	Moews CB 46A	4.6	85
12	Illinois 1091 (Mountjoy)	2.2	177	39	Illinois 1585 (Station)	4.6	85
12	Stiegelmeier S-9H	2.2	177	45	Illinois 1279 (Station)	4.7	83
16	Crow 432	2.3	170	46	Crib-Buster 52	4.9	80
16	Nichols 75	2.3	170	47	P.A.G. 233	5.2	75
18	Tiemann T-61	2.5	156	48	Lowe 32	5.4	72
19	United U-33A	2.6	150	49	Iowearth S	6.0	65
19	Keystone 32	2.6	150	50	Lowe 52	6.1	64
19	Nichols 99	2.6	150	50	Bo-Jac 32-1	6.1	64
19	Huebsch 24	2.6	150	52	Pioneer 346	6.2	63
23	P.A.G. 253	2.9	134	53	Pioneer 349	6.3	62
24	Funk G-68	3.0	130	54	Nichols 51	6.6	59
25	United U-33	3.1	126	55	DeKalb 410	7.3	53
26	P.A.G. 269	3.2	122	56	Crib-Buster 33	7.5	52
26	P.A.G. 4196	3.2	122	57	Pioneer 347	7.7	51
28	National 114-1	3.3	118	58	DeKalb 239	8.2	48
29	DeKalb 406	3.5	111	59	Frey 310	8.9	44
30	Producers 311	3.6	108	60	Iowearth 90	9.3	42
					Average of all entries	3.9	100

In column showing plants broken below the ear, a difference of less than 4.0 percent is not significant.

<sup>a</sup> Includes only those plants broken below the ear at point of damage by the borer.

reduction in borer numbers resulted from cold, wet weather at critical times during the season. Farmers' practices and attack by introduced parasites also helped to reduce the number of borers.

Despite this reduction in numbers, stalk breakage below the ear, caused by corn borers, was appreciable in the test fields at both Grays Lake and Brownstown. At Grays Lake breakage below the ear ranged from 0.4 to 9.3 percent, the average being 3.9 percent. Differences in resistance to borer attack were not very great among hybrids, yet some were significant. No hybrids were significantly better than the average, and only three were significantly poorer (Table 3). The first 10 hybrids in Table 3 proved significantly better than the last 10.

Stalk breakage at Brownstown was considerably greater than that

Table 4. — CORN BORER DAMAGE: Southern Illinois, Brownstown, 1951

Rank	Entry	Plants broken below ear <sup>a</sup>	Resistance rating compared with average	Rank	Entry	Plants broken below ear <sup>a</sup>	Resistance rating compared with average
		<i>perct.</i>				<i>perct.</i>	
1	Illinois 1540 (Station).....	.6	1167	42	Bear OK-110.....	6.9	101
2	National 129.....	2.0	350	44	Keystone 111(W).....	7.2	97
3	Tiemann T-93.....	2.5	280	45	Haudrich 13.....	7.3	96
3	Doubet D-41.....	2.5	280	46	Illinois 1459 (Station).....	7.4	95
5	National 125-1.....	3.2	219	47	Canterbury 126.....	7.5	93
6	P.A.G. 617(W).....	3.4	206	47	DeKalb 894.....	7.5	93
7	Pioneer 510(W).....	3.6	194	47	Canterbury 412.....	7.5	93
8	Producers 1022.....	3.7	189	50	Super-Crost 1005B.....	7.6	92
9	P.A.G. 185.....	3.8	184				
10	P.A.G. 173.....	3.9	179				
		<i>perct.</i>				<i>perct.</i>	
11	Pioneer 301.....	4.2	167	51	Keystone 45.....	7.8	90
11	Embros 155(W).....	4.2	167	52	Funk G-134.....	7.9	89
11	Tiemann T-78.....	4.2	167	53	Trisler T-32.....	8.1	86
14	Iowalth 25.....	4.3	163	53	Illinois 1570 (Station).....	8.1	86
14	DeKalb 876.....	4.3	163	55	DeKalb 923.....	8.3	84
14	Appl 130.....	4.4	159	55	Trisler T-33A.....	8.3	84
16	Super-Crost 880.....	4.4	159	57	U.S. 13 (Kelly).....	8.4	83
16	Stiegelmeier S-13.....	4.4	159	58	Ainsworth X-14-3.....	8.8	80
19	Funk G-91.....	4.5	156	58	Appl 157.....	8.8	80
19	Bear OK-69.....	4.5	156	60	Appl 1766.....	8.9	79
		<i>perct.</i>				<i>perct.</i>	
19	Illinois 2214(W) (Station).....	4.5	156	60	Keystone 106(W).....	8.9	79
22	Huey H-50.....	5.0	140	62	P.A.G. 631A.....	9.1	77
22	Ainsworth X-13-3.....	5.0	140	63	Producers 1050.....	9.5	74
24	DeKalb 898.....	5.1	137	64	Lowe 830.....	9.6	73
24	P.A.G. 620(W).....	5.1	137	64	Funk G-98.....	9.6	73
26	Funk G-80.....	5.2	135	66	U.S. 13 (Station).....	9.9	71
26	Crow 821.....	5.2	135	66	Whisnand 851.....	9.9	71
28	Tiemann T-72.....	5.3	132	68	Funk G-512(W).....	10.0	70
28	Iowalth 29A.....	5.3	132	69	Lowe 840.....	10.1	69
28	Whisnand 917(W).....	5.3	132	69	DeKalb 817A.....	10.2	69
		<i>perct.</i>				<i>perct.</i>	
31	Iowalth 25A.....	5.4	130	71	P.A.G. 383.....	10.5	67
31	Super-Crost 1010S.....	5.4	130	72	Pioneer X-6727.....	10.6	66
33	Ainsworth X-14A.....	5.5	127	73	Whisnand 834.....	11.0	64
34	Crow 805.....	5.7	123	74	Morton M-12.....	11.1	63
34	Keystone 49.....	5.7	123	75	Embros 49.....	11.5	61
36	DeKalb 875.....	6.0	117	76	Pioneer 302.....	11.6	60
37	Pioneer 313B.....	6.4	109	76	Illinois 1445A (Station).....	11.6	60
38	Doubet D-43.....	6.5	108	78	Huey H-23.....	11.9	59
38	Moews CB 60A.....	6.5	108	79	Illinois 200 (Haudrich).....	12.0	58
40	P.A.G. 612B(W).....	6.6	106	79	Lowe 820.....	12.0	58
		<i>perct.</i>				<i>perct.</i>	
41	Pioneer X-8144.....	6.7	104				
42	Pioneer 505(W).....	6.9	101	81	Illinois 784 (Haudrich).....	16.6	42
					Average of all entries..	7.0	100

In column showing plants broken below the ear, a difference of less than 6.5 percent is not significant.

<sup>a</sup> Includes only those plants broken below the ear at point of damage by the borer.

at Grays Lake, ranging from 0.6 to 16.6 and averaging 7.0 percent. Here again differences between hybrids were great enough in some cases to be significant but they were not outstanding (Table 4). No hybrid was significantly better than the average, and only one was significantly poorer. The first 10 hybrids in Table 4, however, proved significantly better than the last 10. This limited difference between hybrids was probably due largely to the lightness of the infestation.



Table 5. — HYBRID RESISTANCE TO CORN ROOTWORM\* DAMAGE:  
Northeastern Illinois, Grays Lake, 1951

Rank	Entry	Plants leaning 30 degrees or more	Resistance rating com- pared with average <sup>b</sup>	Plants leaning more than 45 degrees	Entry	Rank	Plants leaning 30 degrees or more	Resistance rating com- pared with average	Plants leaning more than 45 degrees	Resistance rating com- pared with average
		perct.		perct.			perct.		perct.	
1	Bear OK-224	2.3	1208	0	Moevs CB 25A	31	26.3	104	7	104
2	Frey 310	2.1	1035	0	DeKalb 239	32	25.3	97	2.1	97
3	Crib-Buster 52	5.3	467	.3	Pioneer 349	33	23.3	96	3.3	96
3	Lowe 32	6.1	467	0	Tiemann T-61	33	23.7	96	3.2	96
5	Nichols 51	5.8	439	.4	Illinois 1281 (Station)	35	25.9	95	2.2	95
6	Lowe 52	5.4	414	.8	Lowearth 90	35	21.9	94	4.2	94
7	Nichols 5B	8.5	308	.4	P.A.G. 4196	37	25.2	94	2.7	94
7	Doubet D-1	9.4	308	0	Stegemeier S-911	38	23.7	93	3.6	93
9	P.A.G. 71	10.4	245	.7	Illinois 1180 (Huebsch)	39	26.1	92	2.6	92
10	Funk G-68	12.0	227	.4	Crow 432	40	27.0	87	3.1	87
11	Producers 305	14.7	195	0	National 112	41	27.3	86	3.1	86
12	Illinois 1585 (Station)	14.1	193	.4	P.A.G. 253	42	28.3	84	2.9	84
13	Nichols 202A	12.8	190	1.2	Super-Crost 440A	43	31.5	83	1.5	83
14	P.A.G. 233	12.6	185	1.5	Illinois 1091 (Mountjoy)	44	30.7	81	2.5	81
15	Producers 315	14.1	183	.8	Pioneer 346	45	28.4	80	3.8	80
16	Bo-Jac 32-1	17.4	155	1.1	Nichols 99	46	29.3	74	4.8	74
16	DeKalb 406	18.6	155	0	Crow 260	47	32.0	73	3.6	73
18	Producers 311	12.9	149	3.2	Huebsch 44	48	36.0	70	2.5	70
19	Nichols 75	19.8	146	0	Pioneer 344	49	37.6	69	2.2	69
20	Huebsch 81	17.8	140	1.4	Super-Crost F-112A	49	37.7	69	1.9	69
21	Illinois 1280 (Station)	20.5	135	.4	Illinois 1277 (Station)	51	40.1	66	1.8	66
22	Super-Crost 85A	19.3	129	1.5	Moevs CB 46A	52	37.3	65	3.5	65
23	National 114-1	19.3	125	1.9	Lowearth S	53	29.5	57	10.3	57
24	Illinois 101 (Huebsch)	17.6	121	3.1	Illinois 1279 (Station)	54	38.9	55	6.5	55
25	DeKalb 404A	21.8	120	1.1	United U-33A	54	38.9	55	6.8	55
26	Huebsch 24	23.5	116	.7	Super-Crost 85B	56	41.5	53	6.2	53
27	P.A.G. 269	17.3	114	4.0	Illinois 1463 (Station)	57	43.1	50	7.3	50
28	Pioneer 347	20.0	113	2.8	DeKalb 410	58	47.2	46	7.3	46
29	Crib-Buster 33	22.6	109	1.9	United U-33	59	48.4	43	9.1	43
30	Pioneer 352	24.5	108	1.1	Keystone 32	60	59.2	37	8.7	37
					Average of all entries		23.7		2.6	100

In column showing plants leaning 30 degrees or more, a difference of less than 15.3 percent between any two entries is not significant.

\* Especially southern corn rootworm, *Diabrotica duodecimpunctata* (F.). <sup>b</sup> High rating indicates better standing ability.

In northeastern Illinois not enough observations have been made to warrant their being summarized. In the southern Illinois area this is the first time that borer infestation has been great enough to warrant taking records of damage.

**Corn rootworm.** Root lodging resulting from the attack of rootworms, mostly the southern corn rootworm, *Diabrotica duodecimpunctata* (F), was greater in 1951 than it had been since 1948. The wet weather was favorable to rootworms and they took full advantage of it.

By the third week in October, injury at Grays Lake and Galesburg warranted taking lodging records on these fields. At Grays Lake, 2.3 to 59.2 percent of the plants leaned 30 degrees or more as a result of rootworm injury, the average being 23.7 percent (Table 5). The resistance of 5 hybrids to rootworm injury was significantly better than the average, and the resistance of 6 was significantly poorer. The first 15 hybrids in Table 5 proved significantly better than the last 10.

At Galesburg, 2.2 to 53.8 of the plants leaned 30 degrees or more as a result of rootworm injury, the average being 16.1 percent (Table 7). In resistance to rootworm damage, the first 10 entries in Table 7 proved to be better than the average of the field, and the

Table 6. — HYBRID RESISTANCE TO CORN ROOTWORM\* DAMAGE: West North-Central Illinois, Galesburg, Summary for 1947, 1948, and 1951

Rank	Entry	Plants leaning 30 degrees or more	Plants leaning more than 45 degrees	Resistance rating compared with average <sup>b</sup>
		perct.	perct.	
1	Lowe 520.....	13.5	.7	331
2	P.A.G. 392.....	22.3	1.2	200
3	Lowe 514.....	23.7	3.6	160
4	Ainsworth X-21.....	31.1	1.7	143
5	Schwenk S-24.....	29.4	5.7	122
6	Producers 940.....	36.2	4.5	110
7	Illinois 21 (Station) <sup>c</sup> .....	35.7	6.4	102
8	Sieben S-440.....	38.2	5.4	101
9	Morton M-12.....	37.2	6.6	98
10	National 125-1.....	38.6	6.4	96
11	Pioneer 313B.....	36.0	8.2	95
12	Crow 607.....	45.5	9.5	77
13	DeKalb 628A.....	49.9	9.3	72
14	P.A.G. 170.....	52.4	10.0	69
15	Producers 730.....	61.8	17.2	52
	Average of all entries.....	36.8	6.4	100

In column showing plants leaning 30 degrees or more, a difference of less than 21.1 percent is not significant.

\* Especially southern corn rootworm, *Diabrotica duodecimpunctata* (F).

<sup>b</sup> High rating indicates better standing ability.

<sup>c</sup> This entry was Illinois 21 (Burrus) in 1947 and Illinois 21 (Station) in 1948 and 1951.

Table 7. — HYBRID RESISTANCE TO CORN ROOTWORM<sup>a</sup> DAMAGE:  
West North-Central Illinois, Galesburg, 1951

Rank	Entry	Resistance rating compared with average <sup>b</sup>	Plants leaning 30 degrees or more	Plants leaning 45 degrees or more	Rank	Entry	Plants leaning 30 degrees or more	Plants leaning 45 degrees or more	Resistance rating compared with average
			perct.	perct.			perct.	perct.	
1	Lowe 444	.....	2.2	0	43	DeKalb 840	.....	13.6	4
2	Stewart S-51	.....	1.4	.4	44	Kelly K-44	.....	11.9	4
3	Doubet D-1	.....	2.3	0	45	DeKalb 800A	.....	14.8	131
4	Funk G-91	.....	2.5	0	46	National 125-1	.....	13.6	124
5	Doubet D-43	.....	2.9	0	47	Null N-68	.....	15.1	122
6	Plymouth 38	.....	3.3	0	48	Kelly K-88	.....	16.1	121
7	Ainsworth N-14-3	.....	3.0	0	49	Stiegelmeier S-379	.....	14.8	114
8	Temann T-78	.....	3.9	0	50	Funk G-169	.....	15.2	110
9	Bear OK-55	.....	4.0	0	51	Schwenk S-24	.....	14.3	103
10	Doubet D-25B	.....	4.1	0	52	Stiegelmeier S-340	.....	13.9	101
11	Bear OK-50	.....	4.6	0	53	Morton M-30	.....	16.7	97
12	Morton M-70	.....	4.1	.4	54	Illinois 1558 (Station)	.....	15.7	94
13	Lowe 514	.....	4.1	0	55	Sieben S-410	.....	20.0	93
14	Ainsworth N-13-3	.....	5.1	0	56	Morton M-12	.....	14.3	88
15	Lowe 520	.....	5.1	0	57	Illinois 21 (Station)	.....	18.6	85
16	Lowalsh AQ	.....	6.7	.4	58	lowalsh BC 4	.....	2.0	84
17	Musson M-13	.....	8.1	0	59	U.S. 13 (Station)	.....	20.9	83
18	Crow "Deep Roof"	.....	7.5	.4	60	P.A.G. 355	.....	25.7	75
19	Illinois 1570 (Station)	.....	7.0	.7	61	Griffith 125	.....	22.0	71
20	Funk G-77A	.....	7.6	1.2	62	Illinois 1421 (Station)	.....	21.3	69
21	P.A.G. 346	.....	7.6	.8	63	Funk G-99	.....	25.1	68
22	Producers 940	.....	7.8	.8	64	Pioneer 301	.....	21.8	67
23	P.A.G. 392	.....	10.0	0	65	Munson M-5	.....	27.6	66
24	National 124	.....	10.2	0	66	DeKalb 628A	.....	28.6	61
25	Stewart S-370	.....	10.3	0	67	Sieben S-560	.....	31.0	58
26	Stiegelmeier S-370	.....	10.6	0	68	Pioneer 304	.....	27.4	57
27	Ainsworth N-21	.....	8.3	1.1	69	Crow 660	.....	28.8	50
28	Plymouth 11	.....	7.9	1.4	70	P.A.G. 170	.....	35.8	49
29	Sieben S-340	.....	10.9	0	71	Pioneer 313B	.....	29.5	48
30	Funk G-93	.....	10.2	.4	72	Holmes 39	.....	37.8	46
31	United U-50A	.....	10.3	.4	73	Keystone 48	.....	35.8	44
32	Temann T-61	.....	10.4	.4	74	P.A.G. 270	.....	35.1	44
33	Schwenk S-31	.....	7.6	1.8	75	DeKalb 668	.....	39.7	38
34	Luey H-23	.....	10.6	.4	76	Producers 730	.....	38.1	36
35	DeKalb 666	.....	7.8	1.9	77	Illinois 1277 (Station)	.....	37.0	35
36	Producers 900	.....	11.7	0	78	Holmes 19A	.....	46.8	33
37	Luey H-42	.....	12.6	0	79	Pioneer 335	.....	43.2	33
38	Illinois 21 (Dittmer)	.....	10.9	.8	80	DeKalb 627	.....	53.8	26
39	P.A.G. 347	.....	12.2	.4	81	Average of all entries	.....	16.1	100
40	United U-53	.....	10.8	1.1					
41		.....	13.7	0					
42		.....							

In column showing plants leaning 30 degrees or more, a difference of less than 12.0 percent between any two entries is not significant.

<sup>a</sup> Especially southern corn rootworm, *Diabrotica duodecimpunctata* (F.). <sup>b</sup> High rating indicates better standing ability.

last entries poorer; the first 50 entries were significantly better than the last 17. Resistance to corn rootworm damage in 1947, 1948, and 1951 is summarized in Table 6.

In checking these records against the "erect plant" records in the yield tables, it must be remembered that there were other causes of breakage besides rootworm damage. Furthermore, the "erect plant" ratings were made at harvest, considerably later than the insect lodging records, which were taken before the early November storms.

## DISEASE DAMAGE<sup>1</sup>

**Seedling blights.** Ordinarily seedling blights result mainly from certain fungi in the soil known as the *Pythium* species. Various factors determine how much damage they do, an important one being the length of the period between planting and the time when the plants break through the ground. In tests on the Station farm at Urbana in 1951 seed planted on May 5 did not come up for 11 days because of cool weather.

To test certain seed treatments, eight lots of untreated seed were obtained from commercial sources, treated, and planted at Urbana with the following results:

<i>Treatment</i>	<i>Rate per bushel</i>	<i>Increase in yield, bushels</i>
Arasan SF.....	½ ounce	10.8
	1 ounce	10.9
Carbide and Carbon No. 5400.....	½ ounce	8.8
	1 ounce	9.7
Spergon DDT-SL.....	½ ounce	5.6
	1 ounce	7.3
Phygon XL-DDT.....	½ ounce	8.3

**Northern leaf blight.** Damage from northern leaf blight (*Helminthosporium turcicum*) was the worst ever recorded in Illinois. The disease started when the ears were in the milk stage. Some blight occurred all over the state, but damage varied greatly from farm to farm. In the test fields, hybrids differed widely in susceptibility. Also the damage to a given hybrid sometimes differed greatly from one field to another in the same neighborhood.

<sup>1</sup>Data on disease prevalence and estimates of losses are based in part on surveys made by G. H. Boewe, Assistant Plant Pathologist, Illinois State Natural History Survey.

Since northern leaf blight requires a protracted period of high humidity, its unusual development in 1951 can be attributed to the weather. Furthermore, the summer of 1951 was the third consecutively damp summer, and this disease builds up under such conditions. Weather conditions, however, often vary even within short distances, and this variability no doubt helps partly to explain differences from farm to farm in the amount of blight found.

In general, the blight was most damaging in a rectangle from Peoria to Taylorville and eastward to the Indiana line. Soil samples were taken from nine severely diseased fields scattered through this area. All proved to be high in available potassium and ranged from very low to very high in available phosphorus. In 1950 these fields had been planted to a wide variety of crops. Thus soil fertility and

Table 8.—NORTHERN LEAF BLIGHT DAMAGE:  
South-Central Illinois, Sullivan, 1951

(Cause: *Helminthosporium turcicum*. Ratings are based on a score of 0 to 5 made September 14, 1951<sup>a</sup>)

Hybrid	Score	Hybrid	Score	Hybrid	Score
Ainsworth X-13-3.....	1.5	Illinois 21 (Powers).....	2.8	P.A.G. 170.....	3.0
Ainsworth X-14-3.....	1.3	Illinois 21 (Stone).....	2.9	P.A.G. 173.....	1.6
Ainsworth X-21.....	3.1	Illinois 274-1 (Station)...	3.0	P.A.G. 185.....	2.1
Bear OK-44.....	1.4	Illinois 1445A (Station)...	.3	P.A.G. 383.....	1.9
Bear OK-72.....	2.4	Illinois 1459 (Station)....	1.2	P.A.G. 392.....	2.5
Bear OK-89.....	.8	Illinois 1509 (Station)....	1.3	Pioneer 300.....	2.5
Bo-Jac 301A.....	2.0	Illinois 1570 (Stone).....	1.3	Pioneer 301.....	1.5
Canterbury 400.....	1.2	Illinois 1656 (Station)....	.6	Pioneer 302.....	.6
Canterbury 404.....	1.9	Iowealth 25.....	2.2	Pioneer 313B.....	1.9
Canterbury 420.....	1.8	Iowealth 29A.....	2.5	Pioneer 332.....	1.7
Crow 607.....	3.7	Kelly K-44.....	2.3	Plymouth 38.....	1.7
Crow 608.....	3.0	Kelly K-88.....	1.2	Producers 940.....	3.0
Crow 660.....	3.1	Kelly K-374.....	2.5	Producers 1022.....	2.1
Crow 805.....	2.3	Keystone 45.....	2.1	Producers 1050.....	1.8
DeKalb 817A.....	1.7	Low 514.....	2.5	Stiegelmeier S-13.....	1.5
DeKalb 840.....	1.9	Low 520.....	2.8	Stiegelmeier S-370.....	2.5
DeKalb 875.....	1.5	Low 523.....	2.0	Super-Crost 880.....	1.5
DeKalb 876.....	2.4	Moews CB 60A.....	1.5	Tiemann T-72.....	2.6
DeKalb 923.....	.6	Moews CB 70A.....	2.0	Tiemann T-78.....	2.2
Doubet D-41.....	.5	Morton M-12.....	3.0	Trisler T-19B.....	3.3
Doubet D-43.....	1.0	Morton M-30.....	3.2	Trisler T-22A.....	2.0
Funk G-79.....	1.3	Morton M-70.....	1.4	Trisler T-32.....	2.0
Funk G-91.....	1.0	Munson M-7.....	1.3	United U-63A.....	1.3
Funk G-98.....	1.0	Munson M-13.....	2.0	U.S. 13 (Station).....	1.4
Funk G-99.....	1.0	National 124.....	3.4	Whisnand 804.....	2.0
Griffith 125.....	2.7	National 125-1.....	2.9	Whisnand 810.....	1.1
Huey H-42.....	3.1	National 126T.....	1.9	Average of all varieties	2.0
Huey H-23.....	2.4				

<sup>a</sup> A score of 5 indicates that nearly all the leaf area was dead.



previous cropping appeared to be of minor importance in determining infection in this area.

Though in some fields northern leaf blight reduced corn yields by half, the reduction for the state as a whole was about 5 percent.

Northern leaf blight can be controlled by repeated spraying, provided the spraying is started before the disease becomes of any importance. Infections that were well started were found to increase in size despite fungicidal sprays. Since spraying is a considerable expense, resistant hybrids are a better solution to the problem. Some hybrids having fair resistance are already in use (Table 8), and more will no doubt be developed. Satisfactory data on differences in resistance were obtained only on the Sullivan field; the disease was not severe enough on the other seven fields to present good differences.

**Stalk rots.** In the state as a whole, damage from stalk rots was even greater than that from leaf blight. Plants died prematurely very commonly throughout September.

Stalk rot infection was caused about equally by *Diplodia zae* and *Gibberella zae*. The latter was responsible, however, for most of the stalk breakage. In some fields a *Pythium* fungus was associated with many of the *Gibberella* infections. This was especially true in stalks with a wet rot. The association of these two fungi was not, however, constant: many *Gibberella* rots were observed without *Pythium*, though the reverse was rare. *Pythium* was never found with *Diplodia*.

The worst damage in farmers' fields came from the breakage of rotted stalks. This breakage varied greatly from place to place. Some farmers estimated that the picker left 20 percent of the ears in the field because the stalks were down. Other fields stood up very well, at least until after the abnormally cold weather in early November.

Stalk rot also significantly reduced the yield in the three test fields where it was studied (Table 9). The following correlations were found, all of them highly significant as judged by the 1-percent level:

Northern leaf blight and stalk rots, Sullivan . . . . .	+ .788
Northern leaf blight and yield, Sullivan . . . . .	- .481
Stalk rots and erect plants, Sullivan . . . . .	- .333
Stalk rots and yield, Sullivan . . . . .	- .417
Stalk rots and yield, Sheldon . . . . .	- .613
Stalk rots and yield, Galesburg . . . . .	- .478
Correlation coefficient necessary for significance (1-percent level) . . . . .	± .283

Table 9. — STALK ROT DAMAGE: Galesburg, Sheldon, and Sullivan  
(Figures indicate percentage of prematurely dead plants. Chief causes were *Diplodia* and *Gibberella* stalk rots following northern leaf blight, which occurred mainly at Sullivan.)

Entry	Galesburg Sept. 25	Sheldon Sept. 22	Sullivan Sept. 27	Entry	Galesburg Sept. 25	Sheldon Sept. 22	Sullivan Sept. 27
	<i>perct.</i>	<i>perct.</i>	<i>perct.</i>		<i>perct.</i>	<i>perct.</i>	<i>perct.</i>
Ainsworth X-13-3.....	7.6	10.8	6.9	Illinois 21 <sup>a</sup> .....	13.1	22.2	19.9
Ainsworth X-14-3.....	3.3	8.6	5.0	Illinois 274-1 (Station).....	.....	.....	24.9
Ainsworth X-21.....	7.6	16.3	18.2	Illinois 1246 (Station).....	.....	15.2	.....
Bear OK-31.....	.....	21.2	.....	Illinois 1277 (Station).....	22.9	.....	.....
Bear OK-33.....	.....	13.0	.....	Illinois 1337 (Dittmer).....	8.7	.....	.....
Bear OK-44.....	.....	.....	15.3	Illinois 1421 (Station).....	4.7	6.4	.....
Bear OK-50.....	6.9	.....	.....	Illinois 1445A (Station).....	.....	.....	1.1
Bear OK-55.....	2.1	.....	.....	Illinois 1459 (Station).....	.....	.....	1.5
Bear OK-72.....	.....	.....	7.1	Illinois 1509 (Station).....	.....	.....	12.7
Bear OK-89.....	.....	.....	5.3	Illinois 1558 (Station).....	25.7	37.5	.....
Bo-Jac 301A.....	.....	.....	4.7	Illinois 1570 <sup>a</sup> .....	9.2	8.8	7.3
Canterbury 400.....	.....	.....	2.9	Illinois 1656 (Station).....	.....	.....	10.1
Canterbury 401.....	.....	.....	14.1	Iowaleth AQ.....	14.3	.....	.....
Canterbury 420.....	.....	.....	12.4	Iowaleth BC4.....	30.4	.....	.....
Crow "Deep Root".....	9.5	14.4	.....	Iowaleth 16.....	.....	27.8	.....
Crow 607.....	21.2	24.4	40.9	Iowaleth 25.....	.....	.....	24.3
Crow 608.....	.....	9.9	18.2	Iowaleth 29A.....	.....	.....	21.6
Crow 633.....	.....	22.7	.....	Kelly K-44.....	20.1	.....	22.4
Crow 660.....	16.0	19.0	28.2	Kelly K-66.....	.....	15.7	.....
Crow 805.....	.....	.....	17.3	Kelly K-77.....	.....	18.8	.....
DeKalb 627.....	23.6	.....	.....	Kelly K-88.....	12.3	.....	10.3
DeKalb 628A.....	16.7	15.4	.....	Kelly K-374.....	.....	.....	21.5
DeKalb 666.....	13.7	.....	.....	Keystone 45.....	.....	.....	7.1
DeKalb 668.....	20.7	.....	.....	Keystone 48.....	33.3	33.6	.....
DeKalb 800A.....	13.7	25.5	.....	Lowe 444.....	9.6	.....	.....
DeKalb 817A.....	.....	.....	15.1	Lowe 505.....	.....	26.6	.....
DeKalb 840.....	8.5	12.5	6.2	Lowe 514.....	13.6	8.3	18.5
DeKalb 847.....	.....	7.3	.....	Lowe 520.....	8.2	10.8	26.3
DeKalb 850.....	.....	18.8	.....	Lowe 523.....	.....	19.8	9.4
DeKalb 875.....	.....	.....	6.8	Moews CB 60A.....	.....	.....	9.4
DeKalb 876.....	.....	.....	17.6	Moews CB 65A.....	.....	11.6	.....
DeKalb 923.....	.....	.....	2.3	Moews CB 70A.....	.....	.....	22.3
Doubet D-1.....	10.8	.....	.....	Morton M-12.....	7.6	14.2	29.1
Doubet D-25B.....	4.7	.....	.....	Morton M-30.....	19.6	27.6	34.3
Doubet D-41.....	.....	8.4	6.6	Morton M-70.....	6.4	.....	9.8
Doubet D-43.....	9.3	8.0	4.0	Mountjoy M-64.....	.....	29.5	.....
Farmercraft FC-49.....	.....	19.6	.....	Munson MH.....	.....	8.4	.....
Farmercraft FC-81.....	.....	14.5	.....	Munson M-5.....	10.0	.....	.....
Frey 621E.....	.....	29.3	.....	Munson M-7.....	.....	.....	5.3
Frey 644.....	.....	17.0	.....	Munson M-13.....	5.4	.....	11.2
Frey 645.....	.....	11.2	.....	Munson M-15.....	.....	20.7	.....
Frey 692.....	.....	10.8	.....	National 115A.....	.....	11.9	.....
Funk G-77A.....	11.9	11.9	.....	National 118.....	.....	17.1	.....
Funk G-79.....	.....	.....	5.8	National 124.....	28.6	.....	41.2
Funk G-91.....	12.9	14.7	8.7	National 125-1.....	17.2	.....	25.6
Funk G-93.....	4.8	4.3	.....	National 126T.....	.....	.....	23.0
Funk G-98.....	.....	.....	2.2	Null N-68.....	2.1	.....	.....
Funk G-99.....	4.3	4.7	4.7	P.A.G. 164.....	.....	19.3	.....
Funk G-169.....	9.7	10.3	.....	P.A.G. 170.....	17.0	33.8	37.8
Griffith 125.....	14.5	.....	37.4	P.A.G. 173.....	.....	.....	12.3
Griffith 125-1.....	.....	15.2	.....	P.A.G. 270.....	24.2	.....	.....
Holmes 13.....	.....	13.9	.....	P.A.G. 185.....	.....	.....	11.6
Holmes 19A.....	12.9	.....	.....	P.A.G. 346.....	12.4	.....	.....
Holmes 39.....	6.3	8.9	.....	P.A.G. 347.....	15.7	17.1	.....
Huey H-23.....	7.0	15.2	9.0	P.A.G. 355.....	21.3	.....	.....
Huey H-42.....	10.9	.....	27.3	P.A.G. 381.....	.....	16.8	.....
				P.A.G. 383.....	.....	.....	6.8
				P.A.G. 392.....	18.7	25.4	20.0

(Table is concluded on next page)

Table 9. — STALK ROT DAMAGE — concluded

Entry	Gales- burg Sept. 25	Sheldon Sept. 22	Sulli- van Sept. 27	Entry	Gales- burg Sept. 25	Sheldon Sept. 22	Sulli- van Sept. 27
	<i>perct.</i>	<i>perct.</i>	<i>perct.</i>		<i>perct.</i>	<i>perct.</i>	<i>perct.</i>
Pioneer 300.....	.....	15.5	5.9	Stewart S-51.....	6.9	.....	.....
Pioneer 301.....	9.3	.....	4.0	Stewart S-130.....	5.8	.....	.....
Pioneer 302.....	.....	.....	3.6	Stiegelmeier S-13.....	.....	.....	4.3
Pioneer 304.....	15.4	.....	.....	Stiegelmeier S-340.....	16.4	15.4	.....
Pioneer 313A.....	.....	16.5	.....	Stiegelmeier S-370.....	10.1	15.2	17.0
Pioneer 313B.....	15.0	22.6	18.0	Stiegelmeier S-379.....	4.4	.....	.....
Pioneer 332.....	.....	10.9	22.5	Super-Crost 660.....	.....	12.9	.....
Pioneer 335.....	17.2	23.5	.....	Super-Crost 880.....	.....	16.1	13.9
Pioneer 339.....	21.8	.....	.....	Super-Crost 880A.....	.....	3.3	.....
Plymouth 11.....	11.3	.....	.....	Tiemann T-61.....	21.1	29.8	.....
Plymouth 38.....	8.7	.....	13.9	Tiemann T-72.....	.....	.....	9.4
Powers 69.....	.....	7.3	.....	Tiemann T-78.....	6.8	9.6	11.1
Producers 730.....	16.6	11.2	.....	Trisler T-19B.....	.....	30.0	38.4
Producers 900.....	7.0	14.8	.....	Trisler T-22A.....	.....	6.4	7.8
Producers 940.....	7.6	15.2	17.4	Trisler T-32.....	.....	10.2	10.4
Producers 1022.....	.....	.....	4.9	United U-50A.....	13.7	.....	.....
Producers 1050.....	.....	.....	14.6	United U-53.....	38.4	.....	.....
Schwenk S-24.....	9.3	.....	.....	United U-63A.....	.....	.....	6.6
Schwenk S-25.....	.....	18.0	.....	U.S. 13 (Station).....	7.5	9.0	6.5
Schwenk S-34.....	7.8	9.9	.....	Whisnand 804.....	.....	7.4	12.4
Sieben S-340.....	19.4	.....	.....	Whisnand 810.....	.....	.....	2.6
Sieben S-440.....	40.5	.....	.....	Average for all varieties	13.5	16.0	14.3
Sieben S-560.....	15.8	.....	.....				

\* From several sources.

A positive correlation means that both conditions move in the same direction: for example, the more leaf blight, the more stalk rot. A negative correlation means that the factors move in opposite directions: the more extensive the leaf blight, the less the yield. Since northern leaf blight and stalk rot were highly correlated with each other and both negatively correlated with yield, the reduction in yield can be laid to the combined effect of both diseases.

In data of this kind one error is unavoidable, but in this instance it is not a serious one. When late and early hybrids are rated for infection with these diseases on the same date, even if the two are comparable in actual resistance, the earlier hybrid will rate the more severe infection. Great differences in maturity rarely existed in the hybrids on these fields, however, because those selected for each test were chosen for their adaptation to that particular area. Furthermore some hybrids that rated above average in resistance were among those maturing earlier, as judged by the moisture in the grain at harvest. Some of these were: Canterbury 400, DeKalb 847, Doubet

Table 10. — EAR ROT DAMAGE CAUSED BY FUNGI: Average of All Entries on Six Test Fields, 1951

Rank	Fungi causing damage	Corn kernels damaged by rot						Average
		Galesburg	Sheldon	Sullivan	Browns-town	Dixon Springs		
						Upland	Bottom-land	
		perct.	perct.	perct.	perct.	perct.	perct.	perct.
1	<i>Fusarium moniliforme</i> .....	.75	.18	.29	.33	1.76	1.61	.82
2	<i>Diplodia zeae</i> .....	.23	.15	.22	.03	.70	.02	.23
3	<i>Nigrospora oryzae</i> .....	.09	.17	.29	.11	.11	.07	.14
4	<i>Gibberella zeae</i> .....	.12	.09	.15	.08	.11	.07	.10
5	<i>Penicillium species</i> .....	.21	.08	.04	.06	.12	.09	.10
6	<i>Physalospora zeae</i> .....	0	0	0	.02	0	0	.003
	Miscellaneous.....	.04	.03	.10	.01	.01	0	.03
	Total.....	1.44	.70	1.09	.64	2.80	1.87	1.42

25B and 41, Funk G-93, Illinois 1421, Munson 7, Null 68, P.A.G. 383, Producers 1022, Schwenk 34, Stiegelmeier 379, Super-Crost 880A, Trisler 22A, Whisnand 804 and 810, and U.S. 13.

**Ear rots.** Kernel separations for rot damage were made on samples from six fields. The data for individual entries for 1951 are shown in the detailed tables for the various fields, but as damage data are based on only one replication in each field, the three-year averages are more reliable.

Rot damage for all six fields was only 1.42 percent of the kernels (Table 10), the lowest it has been since 1946, when the average was 0.71. The main cause of rot in each field was *Fusarium moniliforme*. Although *Gibberella zeae* ranked *unusually* high as a cause of stalk rot, it ranked low as a cause of ear rot.

**Rust and smut.** Though rust damage was higher than usual, it was not as high as in 1950. Smut damage was slightly below average, the estimated loss being 0.4 percent.

**Stewart's disease.** Practically no Stewart's disease was observed except for moderate amounts in some fields in southern Illinois. The cold winter of 1950-51 was no doubt responsible for its light occurrence. No appreciable damage from this disease is expected in 1952.

**Unusual diseases.** A new bacterial leaf blight disease, caused by *Pseudomonas alboprecipitans*, was observed in Douglas and Bureau counties. These were the first observations of this disease in Illinois. Another disease, caused by the fungus *Leptosphaeria maydis*, was noted in Douglas county, where it caused a prominent leaf spotting.

This disease was first observed in 1926 in Fayette, Shelby, Rock Island, LaSalle, and Kane counties, then in 1927 in Wabash county, and in 1941 in DeWitt county. This is one example of how a disease may occur widely one year, and then pass unnoticed for several years.

## MEASURING PERFORMANCE

The entries in the 1951 test are listed in the tables in the order of their *total yields*.

**Yield of grain.** To determine shelling percentage, all the ears from one replicate of each entry were shelled immediately after harvest. At DeKalb, however, it was not possible to obtain the shelling percent, because the quality of the grain was poor and the moisture high. Therefore a shelling percent of 80 was assumed for all entries on this field.

From the well-mixed shelled corn one sample was taken to determine the percentage of moisture at harvest<sup>1</sup> and to determine the percentage of damaged kernels. The percentage of damaged corn was determined according to the federal grain standards.

The total acre-yield was calculated as shelled corn containing 15.5 percent moisture, the upper limit allowable in No. 2 corn. The total yield thus obtained for four fields (Sullivan, Galesburg, Sheldon, and Brownstown) was adjusted according to the procedure outlined by Cochran for randomized lattice-square designs.<sup>2</sup>

**Erect plants.** The percentage of erect plants in each plot of each entry on each field was estimated at the time of harvest. Lodging may have been due to rootworm damage, weak or rotted roots, corn borer damage, stalk rots, or weak stalks. Stalks broken above the ear were not considered lodged.

**Height of ear.** Notes on comparative height of ear were taken at harvest time. Each plot of each entry was placed in one of the five following categories: *low*, *mid-low* (midway between low and medium), *medium*, *mid-high* (midway between medium and high), and *high*. Beginning with *low* and continuing progressively to *high*, these terms were assigned numerical values from 1 to 5 to permit the averaging of the plots.

**Stand.** A count was made in late summer, at all fields, of the number of missing hills and total number of missing plants in each plot of each variety. It is assumed that missing hills were due to some factor other than

<sup>1</sup> All moisture determinations were made with a Steinlite moisture tester.

<sup>2</sup> Cochran, W. G. "Some Additional Lattice-Square Designs." *Iowa Agr. Exp. Sta. Res. Bul.* 318. May, 1943.



the hybrid itself. Yields were corrected for missing hills by the following adjustment:

$$\text{Ear weight in field} \times \left( 1 + \frac{\text{missing hills}}{\text{hills present}} \times .6 \right) = \text{adjusted ear weight.}$$

The percent stand is based on the total number of missing plants in relation to the number that would have been present if all the kernels had produced plants. Stand differences may be due to poor germination, to disease, insect, or rodent destruction, or in some cases to destruction in cultivation.

**Significance of yield differences.** Too much confidence must not be placed in the particular ranking of a hybrid in the following tables, for chance has played a part in determining its position. Unaccountable variability in the soil and conditions on the field will cause differences in yield that are not inherent in the hybrids themselves.

The part played by chance in the 1950 tests has been calculated for total yield by the mathematical procedure known as "analysis of variance." In each table is shown the approximate difference there must be between any two entries in order for them to show a true inherent difference. Unless two hybrids differ by at least this amount, there is no assurance that one hybrid is inherently higher yielding than the other.

## RESULTS OF TESTS

Detailed results of the tests on seven regular test fields and the two special soil-adaptation fields are given in Tables 11 to 18 on the following pages. See also Table 10 on page 421 for ear-rot damage.

**Readers are urged to keep in mind these two things when comparing the performance of hybrids on any one field:**

1. Small differences in any one year do not necessarily indicate that one hybrid is inherently superior to another. For the amount one hybrid must outyield another before it can be considered better, see the difference-necessary-for-significance figures given at the bottom of these tables.

2. Tests covering three years (upper part of tables) give more reliable results than those covering only one year. The fact that a hybrid does not appear in the summary is, however, nothing against it — its absence merely means that 1951 was the first year it was tested or that it missed one year of the series.

Table 11.—NORTHEASTERN ILLINOIS: Mundelein 1949, 1950;  
Grays Lake 1951

Rank	Entry	Total acre yield	Damaged corn in shelled sample <sup>a</sup>	Moisture in grain at harvest	Erect plants	Stand	Height of ear
<b>SUMMARY 1949-1951: Less than 3.4 bushels difference between total yields of any two entries is not significant.</b>							
		<i>bu.</i>	<i>perct.</i>	<i>perct.</i>	<i>perct.</i>	<i>perct.</i>	
1	Pioneer 352.....	82.9	1.7	25.1	88	91	Medium
2	Pioneer 349.....	82.4	1.4	24.7	85	88	Medium
3	Nichols 5B.....	81.7	1.1	25.8	87	92	Medium
4	Illinois 1180 (Huebsch).....	81.6	1.0	26.1	80	88	Medium
5	DeKalb 239.....	79.6	.8	22.9	78	86	Medium
6	Funk G-68.....	78.4	.5	23.9	79	89	M-low
6	Huebsch 44.....	78.4	1.0	26.9	73	91	M-high
8	Nichols 75.....	78.3	1.6	25.9	86	90	M-high
9	DeKalb 404A.....	78.1	.4	26.2	78	87	M-high
10	Nichols 99.....	77.7	.7	26.3	79	89	M-high
11	DeKalb 410.....	77.6	.5	26.0	80	90	Medium
12	Producers 305.....	77.0	.6	25.6	83	90	Medium
13	Producers 311.....	76.6	.9	25.6	83	90	M-low
14	Illinois 101 (Huebsch).....	74.8	1.5	27.6	85	90	Medium
15	Producers 315.....	74.4	1.6	27.5	80	86	Medium
16	DeKalb 406.....	73.4	1.9	27.4	84	86	Medium
17	Nichols 202A.....	72.4	1.1	27.3	80	86	Medium
18	Super-Crost 85A.....	68.2	.6	23.2	61	88	M-low
	Average of all entries.....	77.4	1.1	25.8	81	89	
<b>1951 RESULTS: Less than 7.4 bushels difference between total yields of any two entries is not significant.</b>							
1	Illinois 1493 (Station).....	80.1	...	31.4	83	92	M-high
2	Huebsch 81.....	77.2	...	31.9	85	95	Medium
3	DeKalb 239.....	76.8	...	25.4	75	95	Medium
4	Frey 310.....	76.3	...	28.4	70	97	M-high
5	Illinois 1585 (Station).....	75.6	...	31.9	77	96	M-high
6	DeKalb 410.....	75.3	...	28.9	77	98	M-high
7	Pioneer 349.....	74.8	...	28.9	86	89	Medium
8	Funk G-68.....	74.7	...	27.9	79	91	M-low
9	Pioneer 344.....	74.6	...	30.9	76	93	M-high
10	Illinois 1279 (Station).....	74.5	...	31.4	76	92	M-high
11	Tiemann T-61.....	74.4	...	28.9	84	95	M-high
12	DeKalb 404A.....	74.3	...	29.4	74	91	M-low
13	Producers 311.....	73.7	...	28.9	84	94	M-low
14	Illinois 1091 (Mountjoy).....	73.2	...	34.4	83	94	M-high
15	Huebsch 44.....	73.1	...	30.9	60	96	M-high
16	P.A.G. 233.....	73.0	...	29.4	91	92	M-high
17	P.A.G. 4196.....	72.9	...	28.9	66	94	M-high
18	Nichols 5B.....	72.8	...	30.9	92	90	M-high
19	Illinois 1180 (Huebsch).....	72.7	...	29.4	66	92	Medium
20	Producers 305.....	71.8	...	29.4	88	93	M-low
21	Illinois 1280 (Station).....	70.8	...	30.9	83	90	M-high
21	Nichols 51.....	70.8	...	25.4	93	88	M-low
23	Nichols 99.....	70.6	...	29.4	68	91	M-high
24	Pioneer 347.....	70.4	...	31.9	84	94	M-high
25	Keystone 32.....	69.9	...	30.9	66	91	M-high
25	Moews CB25A.....	69.9	...	29.9	87	93	M-high
27	National 114-1.....	69.6	...	28.9	85	93	Medium
28	Pioneer 346.....	69.1	...	32.9	78	96	High
28	Pioneer 352.....	69.1	...	30.4	92	91	Medium
30	Nichols 75.....	68.4	...	28.4	88	87	Medium
31	P.A.G. 253.....	67.9	...	29.9	77	93	M-high
32	Bear OK-224.....	67.6	...	29.9	84	91	Low
33	P.A.G. 71.....	67.0	...	29.9	89	92	Medium
34	Illinois 101 (Huebsch).....	66.9	...	31.4	81	89	Medium

(Table is concluded on next page)

Table 11. — NORTHEASTERN ILLINOIS: Grays Lake — concluded

Rank	Entry	Total acre yield	Damaged corn in shelled sample <sup>a</sup>	Mois- ture in grain at harvest	Erect plants	Stand	Height of ear
<b>1951 RESULTS — concluded</b>							
		<i>bu.</i>	<i>perct.</i>	<i>perct.</i>	<i>perct.</i>	<i>perct.</i>	
35	DeKalb 406.....	66.8	...	31.9	92	88	M-high
36	National 112.....	66.5	...	27.9	69	88	Medium
37	Huebsch 24.....	66.2	...	29.4	81	92	Medium
38	Illinois 1281 (Station).....	65.9	...	31.4	91	91	M-low
39	Bo-Jac 32-1.....	65.3	...	35.9	89	87	High
39	Illinois 1277 (Station).....	65.3	...	31.9	80	94	M-high
41	Moews CB46A.....	65.0	...	32.4	83	96	M-high
41	Super-Crost 440A.....	65.0	...	40.4	82	93	High
43	Super-Crost F-112A.....	64.5	...	32.4	73	92	Medium
44	Lowe 52.....	63.7	...	27.9	70	91	Medium
45	Lowe 32.....	63.5	...	26.4	68	90	Medium
45	Producers 315.....	63.5	...	32.9	74	89	M-low
47	Nichols 202A.....	63.0	...	31.9	72	87	M-high
48	Stiegelmeier S-9H.....	62.8	...	35.4	90	93	High
49	Super-Crost 85B.....	62.4	...	29.4	55	91	Medium
50	Crib-Buster 33.....	61.9	...	33.4	81	89	Medium
51	Crow 260.....	61.7	...	31.9	86	83	Medium
51	Crow 432.....	61.7	...	30.4	78	86	Medium
51	Iowearth S.....	61.7	...	27.9	61	82	M-low
54	United U-33.....	61.5	...	29.4	69	87	High
55	Crib-Buster 52.....	60.9	...	27.9	74	84	Medium
56	Doubet D-1.....	60.3	...	35.9	93	87	Medium
57	P.A.G. 269.....	58.8	...	32.4	72	93	M-high
58	Super-Crost 85A.....	57.9	...	29.9	50	89	M-high
59	United U-33A.....	49.9	...	31.9	74	84	Low
60	Iowearth 90.....	48.4	...	25.9	59	75	M-low
	Average of all entries.....	67.9	...	30.5	78	91	

<sup>a</sup> Two-year average 1949, 1950. Because of high moisture percent at harvest and subsequent injury during shelling, damage was not determined in 1951.

Table 12. — NORTHERN ILLINOIS: DeKalb

Rank	Entry	Total acre yield	Moisture in grain at harvest	Erect plants	Stand	Height of ear
<b>SUMMARY 1949-1951: Less than 5.3 bushels difference between total yields of any two entries is not significant.</b>						
		<i>bu.</i>	<i>perct.</i>	<i>perct.</i>	<i>perct.</i>	
1	Bear OK-411.....	60.9	24.1	95	92	M-low
2	Illinois 1277 (Station).....	56.4	24.3	96	91	Medium
3	Frey 425.....	55.4	24.9	95	89	M-high
4	National 114-1.....	54.8	23.3	96	90	M-low
5	P.A.G. 253.....	54.5	23.5	94	86	M-low
6	Sieben S-340.....	54.0	26.1	95	88	High
7	Nichols 5B.....	53.9	23.4	94	89	Medium
8	Keystone 32.....	53.6	23.9	94	88	Medium
9	Illinois 1091A (Station).....	53.2	25.3	95	89	M-high
9 <sup>a</sup>	Illinois 751.....	53.2	27.9	94	88	Medium
11	Ainsworth X-12.....	53.1	26.3	95	90	M-low
12	P.A.G. 299.....	52.8	24.9	94	87	Medium
13	Lowe 52.....	52.4	22.3	93	90	Low
14	Illinois 101 (Station).....	51.9	25.0	95	86	M-low
15	Holmes 11.....	51.7	23.6	95	86	Medium
16	Holmes 11A.....	51.6	23.4	94	92	Medium
16	Nichols 75.....	51.6	23.1	93	91	Low
18	Pioneer 349.....	51.4	23.1	95	87	Low
19	Sieben S-450.....	51.3	23.3	96	88	Medium
20	Frey 410.....	50.9	23.5	95	86	M-low
21	Stiegelmeier S-360.....	49.3	26.7	94	93	Medium
22	Lowe 32.....	48.8	21.1	92	87	M-low
23	Crow 407.....	48.7	25.7	96	87	Medium
24	Sieben S-440E.....	47.7	27.8	94	84	M-low
25	Crow 432.....	47.3	24.0	93	83	M-low
	Average of all entries.....	52.4	24.4	95	88	.....
<b>1951 RESULTS: Less than 11.1 bushels difference between total yields of any two entries is not significant.</b>						
1	Illinois 1575 (Station).....	75.7	28.6	97	94	M-high
2	Illinois 1277 (Station).....	69.8	26.6	96	94	Medium
3	Illinois 1558 (Station).....	69.6	28.9	97	96	Medium
4	Bear OK-411.....	69.3	29.2	98	96	Medium
5	DeKalb 406.....	68.0	25.6	97	93	Medium
6	Funk G-77A.....	67.1	27.2	94	93	High
7	Super-Crost 620.....	66.9	30.6	97	90	Medium
8	DeKalb 410.....	65.5	26.2	92	90	M-high
9	Griffith 110A1.....	65.1	30.2	97	90	M-low
10	Illinois 1091 (Joslin).....	65.0	32.9	96	94	M-high
11	Frey 425.....	63.7	27.6	95	93	M-high
12	Lowe 333.....	63.5	35.9	99	92	M-high
13	Pioneer 325.....	63.2	28.9	98	93	Low
14	United U-32A.....	62.8	27.9	97	94	M-low
15	Pioneer 337.....	62.7	27.2	97	94	Medium
15	Super-Crost 660A.....	62.7	38.3	98	94	M-high
17	Sieben S-450.....	62.6	25.2	96	93	Medium
18	Keystone 44.....	62.5	28.2	98	91	M-low
19	Doubet D-1.....	62.3	30.9	98	87	Medium
20	Holmes 11.....	62.2	25.6	99	90	Medium
21	P.A.G. 253.....	61.6	27.9	94	94	Medium
22	Sieben S-3.....	61.4	27.3	96	92	M-high
23	National 114-1.....	61.3	26.6	98	93	Medium
24	Pioneer 347.....	60.9	27.6	97	89	M-high
24	Sieben S-340.....	60.9	32.9	96	93	High
26	Illinois 101 (Station).....	60.2	28.6	96	92	Medium
27	Illinois 751 (Joslin).....	60.1	35.6	96	96	Medium
27	P.A.G. 270.....	60.1	30.9	96	89	High
29	Producers 510.....	60.0	28.9	96	89	Medium
30	Ainsworth X-23.....	59.9	31.2	99	93	Medium

(Table is concluded on next page)

Table 12.—NORTHERN ILLINOIS: DeKalb—concluded

Rank	Entry	Total acre yield	Moisture in grain at harvest	Erect plants	Stand	Height of ear
<b>1951 RESULTS — concluded</b>						
		<i>bu.</i>	<i>perct.</i>	<i>perct.</i>	<i>perct.</i>	
30	P.A.G. 4196.....	59.9	28.9	93	94	M-high
32	Ainsworth X-12.....	59.4	29.6	98	91	M-low
33	Stiegelmeier S-360.....	59.0	29.9	97	92	Medium
34	DeKalb 408.....	58.7	29.9	97	93	M-high
34	Mountjoy M-42.....	58.7	31.2	98	90	Medium
36	Pioneer 349.....	58.5	28.9	97	94	M-low
37	Illinois 1091A (Station).....	58.3	31.2	95	92	M-high
38	P.A.G. 299.....	57.8	30.6	95	87	M-high
39	Lowe 22.....	57.3	30.6	95	83	M-high
40	DeKalb 450.....	57.2	31.2	99	91	M-low
41	P.A.G. 277.....	57.1	32.6	94	89	M-high
42	Super-Crost FD-3B.....	56.9	30.9	94	90	Medium
43	Nichols 5B.....	56.8	30.9	96	94	Medium
44	Farmcraft FC-40.....	56.5	29.2	98	94	M-high
45	DeKalb 459.....	56.4	28.2	95	92	M-high
45	Funk G-16A.....	56.4	30.2	99	91	Medium
45	Nichols 75.....	56.4	27.6	96	92	Low
48	Illinois 1289 (Station).....	56.2	32.6	99	95	M-low
49	Illinois 1280 (Joslin).....	56.1	29.6	96	90	Medium
50	Producers 525.....	55.9	36.6	94	92	Medium
51	Munson M-3.....	55.8	27.6	98	87	M-low
51	Tiemann T-61.....	55.8	27.6	98	91	Medium
53	DeKalb 404A.....	55.5	27.9	97	92	Medium
54	DeKalb 455.....	55.4	28.9	97	93	M-high
55	United U-43A.....	55.3	30.2	98	88	M-high
56	Frey 410.....	54.6	30.9	98	95	M-low
56	P.A.G. 2675.....	54.6	29.6	93	91	M-high
58	Iowealth S.....	54.1	27.2	92	84	Medium
59	Holmes 11A.....	53.7	29.6	94	94	Medium
60	Funk G-65.....	53.5	33.2	98	86	M-high
61	United U-37A.....	53.1	28.6	90	91	Medium
62	Lowe 32.....	53.0	25.6	90	86	M-low
63	Iowealth AF-11.....	52.7	30.2	96	87	Medium
64	Frey 621E.....	52.3	38.2	96	94	High
65	Crow 260.....	52.1	30.6	97	87	Medium
66	Crow 407.....	51.8	30.9	98	89	Medium
67	Pioneer 346.....	51.7	32.6	98	91	Medium
68	Sieben S-440E.....	50.7	32.9	97	91	Medium
69	Lowe 52.....	49.9	26.6	88	89	M-low
70	Crib-Buster 52.....	49.6	25.9	93	87	Medium
71	Crib-Buster 67A.....	49.4	28.6	98	82	Medium
72	Iowealth A.....	48.8	27.9	97	85	Medium
73	Keystone 32.....	48.5	30.6	93	89	Medium
74	Crow 432.....	48.4	26.9	97	84	M-low
75	P.A.G. 269.....	43.3	28.2	96	92	Medium
	Average of all entries.....	58.3	29.7	96	91	.....

\* Average of Illinois 751 (Station), 1949, and Illinois 751 (Joslin) 1950, 1951.



Table 13. — WEST NORTH-CENTRAL ILLINOIS: Galesburg

Rank	Entry	Total acre yield	Damaged corn in shelled sample	Mois- ture in grain at harvest	Erect plants	Stand	Height of ear
<b>SUMMARY 1949-1951: Less than 5.4 bushels difference between total yields of any two entries is not significant.</b>							
		<i>bu.</i>	<i>perct.</i>	<i>perct.</i>	<i>perct.</i>	<i>perct.</i>	
1	Schwenk S-34.....	104.3	2.9	22.0	88	90	M-high
2	Huey H-23.....	103.9	3.2	21.3	87	89	Medium
3	Schwenk S-24.....	103.4	2.6	21.6	87	88	M-high
4	Illinois 1570 (Station).....	103.1	1.3	21.8	88	89	M-high
5	Munson M-13.....	102.2	1.8	22.6	87	88	M-high
6	Morton M-12.....	102.1	2.6	21.7	88	87	M-high
7	Crow 660.....	102.0	2.3	21.0	88	86	Medium
8	P.A.G. 170.....	101.6	1.6	21.1	89	87	M-high
8	Illinois 21 (Station).....	101.6	3.6	21.4	87	85	High
8	Lowe 520.....	101.6	2.0	23.5	84	87	High
11	Ainsworth X-21.....	101.3	2.2	21.5	90	86	High
11	Pioneer 313B.....	101.3	4.3	24.5	76	91	M-high
13	Stiegelmeier S-370.....	100.6	1.8	21.9	84	85	Medium
14	Ainsworth X-13-3.....	99.9	2.6	21.6	83	89	High
15 <sup>a</sup>	Illinois 1337.....	99.4	1.9	22.6	87	84	M-high
16	Morton M-30.....	99.1	2.2	21.2	89	86	Medium
17	Producers 900.....	98.2	1.6	21.9	85	84	M-high
18	Huey H-42.....	97.7	.8	20.6	90	87	M-high
19	Crow "Deep Root".....	97.5	.8	20.9	95	87	Medium
20	Funk G-93.....	97.0	1.0	20.9	89	84	M-high
21	Lowe 514.....	96.4	1.0	21.8	84	88	M-high
21	U.S. 13 (Station).....	96.4	1.8	22.2	84	90	High
23	Producers 940.....	96.2	1.4	22.2	89	83	M-high
24	P.A.G. 347.....	95.6	2.4	19.1	86	88	Medium
25	Pioneer 339.....	95.0	1.2	20.4	88	79	Medium
26	P.A.G. 270.....	94.7	1.5	19.6	86	88	Medium
27	Sieben S-340.....	94.3	1.3	20.4	86	84	Medium
28	Iowhealth AQ.....	94.0	1.8	19.1	89	85	Medium
29	Holmes 19A.....	93.4	2.4	21.1	86	87	M-low
30	Pioneer 304.....	93.0	3.8	25.3	89	87	M-high
31	P.A.G. 392.....	92.6	2.8	19.5	86	87	Medium
32	Sieben S-440.....	90.4	.7	19.1	85	83	M-low
33	National 125-1.....	90.3	2.1	21.2	88	85	Medium
34	Stiegelmeier S-340.....	87.1	1.0	20.6	89	74	Medium
	Average of all entries.....	97.9	2.0	21.4	87	86	.....
<b>1951 RESULTS: Less than 7.6 bushels difference between total yields of any two entries is not significant.</b>							
1	Holmes 39.....	119.9	.3	25.4	90	96	High
2	Pioneer 301.....	119.7	1.2	23.6	91	97	Medium
3	Null N-68.....	117.9	1.3	24.0	94	93	Medium
3	Stiegelmeier S-379.....	117.9	.5	21.6	91	92	Medium
5	Stewart S-51.....	116.0	1.7	27.2	93	97	High
6	Funk G-91.....	115.5	3.7	24.6	92	96	High
7	Morton M-12.....	114.7	.2	23.9	88	92	M-high
8	Bear OK-55.....	114.0	3.6	30.3	93	96	High
9	Ainsworth X-21.....	112.9	.2	23.3	93	92	High
9	Huey H-23.....	112.9	.9	24.4	88	96	Medium
11	DeKalb 800A.....	112.8	1.7	22.3	92	95	High
12	Griffith 125.....	112.1	1.5	23.8	89	94	High
12	Munson M-13.....	112.1	3.1	25.0	95	92	High
14	Illinois 1337 (Dittmer).....	111.9	1.8	23.6	92	88	Medium
15	Schwenk S-24.....	111.7	1.2	23.8	87	94	M-high
16	Illinois 21 (Dittmer).....	111.5	.6	23.2	91	94	High
17	Schwenk S-34.....	111.2	1.1	24.6	93	95	M-high
18	Funk G-99.....	110.8	.7	26.1	85	92	High
19	Doubet D-43.....	110.1	.8	23.8	94	93	M-high
20	Illinois 1421 (Station).....	110.0	1.6	23.6	87	93	M-high

(Table is concluded on next page)

Table 13.—WEST NORTH-CENTRAL ILLINOIS: Galesburg—concluded

Rank	Entry	Total acre yield	Damaged corn in shelled sample	Mois- ture in grain at harvest	Erect plants	Stand	Height of ear
<b>1951 RESULTS — concluded</b>							
		<i>bu.</i>	<i>perct.</i>	<i>perct.</i>	<i>perct.</i>	<i>perct.</i>	
20	Plymouth 38.....	110.0	5.6	24.6	93	92	M-high
22	Producers 900.....	109.9	.3	23.6	90	91	M-high
23	Producers 940.....	109.7	.5	23.1	87	96	M-high
24	Ainsworth X-14-3.....	109.6	.3	25.2	93	92	M-high
25	Morton M-30.....	109.2	1.6	21.5	91	92	M-high
26	Ainsworth N-13-3.....	109.0	.2	23.5	91	96	High
27	Stiegelmeier S-370.....	108.8	1.4	23.7	90	89	Medium
28	DeKalb 627.....	108.7	2.4	22.3	69	93	M-low
29	Pioneer 335.....	108.1	1.4	24.1	85	93	Medium
30	Lowe 444.....	107.9	2.5	25.6	97	91	Medium
31	Pioneer 313B.....	107.6	2.9	29.9	80	98	High
32	Illinois 1570 (Station).....	107.5	1.5	24.0	91	87	M-high
33	P.A.G. 347.....	107.2	.9	20.6	89	94	Medium
34	Crow 660.....	106.9	.7	22.6	88	91	Medium
35	National 124.....	106.8	1.5	21.5	80	91	M-high
36	Funk G-93.....	106.6	1.3	23.6	96	90	M-high
37	P.A.G. 392.....	106.5	1.0	20.1	86	91	M-high
38	Huey H-42.....	106.4	1.2	21.9	92	88	M-high
39	Illinois 21 (Station).....	106.1	1.3	23.3	85	89	High
40	Holmes 19A.....	105.7	3.0	24.1	84	95	Medium
41	Stiegelmeier S-340.....	105.5	1.5	23.8	90	92	Medium
42	Morton M-70.....	105.4	.5	25.2	92	88	Medium
43	Lowe 514.....	105.2	.5	23.5	89	93	Medium
43	Tiemann T-78.....	105.2	1.6	24.7	94	93	Medium
45	Funk G-77A.....	105.1	.6	21.9	92	87	Medium
46	Bear OK-50.....	105.0	.6	26.0	95	87	Medium
47	Lowe 520.....	104.1	1.0	23.4	94	93	High
48	Sieben S-340.....	103.9	.7	22.0	90	96	Medium
49	Pioneer 339.....	103.8	.6	20.6	84	89	Medium
50	Plymouth 11.....	103.1	.6	24.4	90	95	High
51	Doubet D-25B.....	103.0	1.3	20.5	97	91	Medium
52	United U-53.....	102.8	6.2	21.1	80	92	M-low
53	P.A.G. 170.....	102.7	1.9	23.9	91	92	M-high
54	DeKalb 668.....	101.4	.6	23.3	82	93	M-high
55	U.S. 13 (Station).....	101.3	1.6	29.7	88	93	High
56	Illinois 1558 (Station).....	101.2	2.1	20.7	92	90	Low
57	Kelly K-44.....	100.9	1.7	21.9	88	96	Medium
58	P.A.G. 270.....	100.6	.5	21.0	81	94	Medium
59	Producers 730.....	100.5	1.8	24.2	83	93	M-high
60	Illinois 1277 (Station).....	100.4	1.1	21.0	83	93	M-low
61	DeKalb 840.....	100.3	1.5	24.3	90	91	Medium
62	Iowearth AQ.....	100.1	1.9	20.5	92	91	Medium
63	P.A.G. 355.....	99.8	.3	24.1	81	92	M-high
64	DeKalb 628A.....	99.7	.4	24.7	85	92	M-high
65	Funk G-169.....	99.5	1.9	24.4	87	86	M-high
66	Stewart S-130.....	99.2	1.2	25.6	93	86	M-high
67	Kelly K-88.....	99.0	1.8	23.5	90	87	Medium
68	Crow "Deep Root".....	98.8	1.3	24.0	96	91	M-low
69	Sieben S-560.....	98.7	1.5	23.3	89	91	Medium
70	P.A.G. 346.....	97.7	.3	21.8	89	84	Medium
71	Sieben S-440.....	96.6	.7	20.1	87	89	M-low
72	Keystone 48.....	96.5	1.6	22.0	79	92	Medium
73	United U-50A.....	95.8	2.9	20.6	89	93	M-high
74	Crow 607.....	95.7	1.3	23.8	85	93	Medium
75	National 125-1.....	95.4	1.2	23.2	89	93	Medium
76	Munson M-5.....	95.3	.4	23.5	90	90	M-low
77	DeKalb 666.....	94.2	.3	21.6	88	93	Medium
78	Pioneer 304.....	92.9	5.9	31.8	89	93	Medium
79	Tiemann T-61.....	88.9	3.0	24.4	95	95	M-low
80	Doubet D-1.....	84.4	.6	21.1	97	86	M-low
81	Iowearth BC4.....	82.8	.4	22.7	90	84	Medium
	Average of all entries.....	105.0	1.4	23.6	89	92	.....

\* Average of Illinois 1337 (Station), 1949, and Illinois 1337 (Dittmer), 1950, 1951.

Table 14. — EAST NORTH-CENTRAL ILLINOIS: Sheldon

Rank	Entry	Total acre yield	Damaged corn in shelled sample	Mois- ture in grain at harvest	Erect plants	Stand	Height of ear
<b>SUMMARY 1949-1951: Less than 4.5 bushels difference between total yields of any two entries is not significant.</b>							
		<i>bu.</i>	<i>perct.</i>	<i>perct.</i>	<i>perct.</i>	<i>perct.</i>	
1	Schwenk S-34.....	102.7	1.1	22.7	86	91	M-high
2	Illinois 21 (Station).....	101.3	1.0	22.7	80	94	M-high
3	Ainsworth X-13-3.....	100.5	1.9	24.0	85	94	M-high
4	Frey 645.....	98.6	2.1	22.8	84	92	Medium
5	Illinois 1246.....	98.5	2.0	22.9	85	94	Medium
6	Ainsworth X-21.....	97.9	2.6	22.0	86	94	M-high
7	Frey 692.....	97.3	.9	22.1	87	89	Medium
8	Illinois 1570 (Station).....	97.0	1.0	24.5	86	92	M-high
9	Crow 60S.....	96.9	1.6	22.5	81	86	Medium
10	Lowe 514.....	96.6	2.6	22.4	83	89	M-high
10	National 115A.....	96.6	1.7	22.9	85	93	M-high
12	Pioneer 332.....	96.5	3.7	24.7	83	92	M-high
13	U. S. 13 (Station).....	96.4	.9	22.7	84	92	High
14	Stiegelmeier S-370.....	95.9	1.0	22.3	84	91	Medium
14	P. A. G. 164.....	95.9	2.5	22.5	85	91	Medium
16	Lowe 520.....	95.0	2.0	25.6	83	93	M-high
17	P. A. G. 392.....	94.8	.7	20.9	84	92	M-high
18	Pioneer 300.....	94.7	1.0	22.4	81	91	High
19	Frey 644.....	94.5	2.0	23.3	85	92	Medium
20	Pioneer 313B.....	93.9	1.7	23.6	82	94	M-high
21	Bear OK-31.....	93.8	.8	22.0	84	96	M-low
22	Crow "Deep Root".....	93.5	.8	22.1	87	92	M-low
23	Morton M-12.....	93.4	2.4	23.0	86	93	M-high
24	Producers 900.....	92.5	2.7	21.9	85	90	Medium
25	Stiegelmeier S-340.....	90.5	1.3	21.6	87	85	Medium
26	Producers 940.....	90.1	1.7	23.3	86	90	M-high
27	Kelly K-77.....	89.7	1.1	25.0	84	91	Medium
28	Crow 633.....	89.4	1.9	22.4	84	87	Medium
29	Lowe 523.....	88.4	3.5	24.1	84	90	Medium
30	Crow 660.....	87.9	1.5	22.8	86	88	Medium
30	Producers 730.....	87.9	2.2	23.8	86	87	M-high
	Average of all entries.....	94.8	1.7	23.0	84	91	.....
<b>1951 RESULTS: Less than 7.2 bushels difference between total yields of any two entries is not significant.</b>							
1	Super-Crost S80A.....	123.7	.5	23.8	96	92	High
2	Doubet D-41.....	118.1	.3	22.0	93	95	High
3	Funk G-99.....	116.9	.1	22.9	92	92	High
4	Pioneer 300.....	115.5	.4	21.4	92	97	High
5	Illinois 1421 (Station).....	115.3	.3	22.9	96	93	Medium
6	Schwenk S-34.....	114.6	.5	23.1	92	94	M-high
7	Whisnand 804.....	113.5	.1	22.6	96	95	Medium
8	Powers 69.....	112.7	.3	26.3	91	96	Medium
9	Tiemann T-78.....	112.7	.7	24.4	96	97	Medium
10	Pioneer 332.....	112.6	1.9	25.3	93	92	High
11	U. S. 13 (Station).....	112.0	0	23.8	94	96	High
12	Moews CB 65A.....	111.3	.6	26.0	90	92	Medium
13	Crow 60S.....	111.2	1.9	23.1	93	95	Medium
14	Frey 645.....	110.3	.7	26.0	95	95	M-low
15	Ainsworth X-14-3.....	110.1	.4	24.1	96	97	M-high
16	Trisler T-32.....	109.9	.6	25.7	93	95	Medium
17	Funk G-91.....	109.8	1.8	27.8	91	95	M-high
18	DeKalb S47.....	109.7	.8	23.5	94	96	Medium
19	Ainsworth X-13-3.....	109.3	1.0	26.5	93	96	High
20	Ainsworth X-21.....	108.5	.3	23.3	94	94	Medium
21	Funk G-93.....	108.3	.6	23.0	97	92	M-high
22	Schwenk S-25.....	107.7	.2	25.0	93	96	M-high
23	Huey H-23.....	107.3	.2	24.8	94	93	Medium

(Table is concluded on next page)

Table 14. — EAST NORTH-CENTRAL ILLINOIS: Sheldon — concluded

Rank	Entry	Total acre yield	Damaged corn in shelled sample	Moisture in grain at harvest	Erect plants	Stand	Height of ear
<b>1951 RESULTS — concluded</b>							
		<i>bu.</i>	<i>perct.</i>	<i>perct.</i>	<i>perct.</i>	<i>perct.</i>	
24	Frey 692.....	107.0	.6	25.0	95	95	Medium
25	Lowe 514.....	106.6	0	23.5	93	93	M-high
25	Munson M-15.....	106.6	.2	26.0	89	97	Medium
27	P.A.G. 164.....	106.3	1.1	22.4	94	92	Medium
28	P.A.G. 381.....	106.1	1.0	25.9	95	93	Medium
29	Super-Crost 660.....	106.0	.4	26.3	94	93	M-high
30	Holmes 13.....	105.9	.5	24.5	96	94	M-high
30	Munson MH.....	105.9	.7	24.4	96	94	High
30	Stiegelmeier S-340.....	105.9	.4	23.1	95	93	Medium
33	Stiegelmeier S-370.....	105.8	.3	24.8	96	96	Medium
34	Trisler T-22A.....	105.7	.5	25.0	96	94	M-low
35	Super-Crost 880.....	105.5	.6	24.7	96	93	M-low
36	Producers 940.....	105.2	.6	24.5	92	92	Medium
37	Doubet D-43.....	104.9	.5	26.3	94	96	M-high
38	Funk G-77A.....	104.8	.3	23.7	92	93	M-low
38	Morton M-30.....	104.8	.5	23.5	90	93	Medium
40	Illinois 1570 (Station).....	104.6	.3	26.7	90	91	Medium
41	DeKalb 628A.....	104.4	.5	23.8	95	95	M-high
41	Illinois 21 (Station).....	104.4	.8	24.4	87	92	M-high
41	Producers 900.....	104.4	.6	25.1	90	95	Medium
44	Kelly K-66.....	104.2	.8	26.0	92	94	M-high
45	Bear OK-33.....	104.1	.2	25.7	94	95	M-low
46	Funk G-169.....	103.9	.5	25.1	95	94	High
46	P.A.G. 347.....	103.9	0	22.7	93	93	M-low
48	P.A.G. 170.....	103.8	.9	22.4	93	95	Medium
49	Griffith 125-1.....	103.7	.8	24.4	91	96	M-high
49	National 115A.....	103.7	1.6	25.4	91	92	M-high
51	Morton M-12.....	103.6	1.1	24.2	95	96	M-high
52	DeKalb 800A.....	103.5	.3	26.7	92	94	Medium
52	Frey 644.....	103.5	.8	25.7	94	94	Medium
54	Illinois 1558 (Station).....	103.2	1.3	25.0	96	97	Low
55	Holmes 39.....	102.9	1.5	27.6	96	90	M-high
56	DeKalb 840.....	102.3	.3	24.4	89	94	Medium
57	Pioneer 335.....	101.9	.1	24.7	95	96	Medium
58	Lowe 520.....	101.7	.7	25.9	94	96	M-high
58	Pioneer 313A.....	101.7	4.0	25.6	85	95	M-high
58	Pioneer 313B.....	101.7	.9	26.2	88	96	M-high
61	Frey 621E.....	101.3	.3	25.4	88	93	Medium
62	Crow 660.....	101.2	2.1	25.6	93	93	Medium
63	DeKalb 850.....	101.1	.9	24.5	93	96	M-high
64	Bear OK-31.....	100.8	.1	25.0	92	97	Low
64	Crow 633.....	100.8	.6	23.8	93	94	M-low
66	Illinois 1246 (Station).....	100.5	.1	29.6	92	96	Medium
67	Farmeraft FC-49.....	100.4	.5	23.9	91	95	M-low
68	Lowe 523.....	100.2	2.8	26.2	95	94	Medium
69	Tiemann T-61.....	100.0	.3	24.5	93	96	Low
70	Producers 730.....	99.8	.1	27.0	95	95	M-high
71	P.A.G. 392.....	98.1	.6	22.4	85	93	M-high
72	Farmeraft FC-81.....	97.8	.9	26.7	93	92	Medium
73	Crow "Deep Root".....	97.5	0	23.5	93	93	Low
74	Kelly K-77.....	97.0	.4	30.1	93	94	Medium
75	Trisler T-19B.....	96.1	1.9	23.7	90	93	M-low
76	Iowearth 16.....	94.5	1.4	25.1	90	92	M-low
77	Lowe 505.....	93.6	.4	23.3	85	98	M-low
78	National 118.....	93.0	.6	23.5	96	96	M-low
79	Mountjoy M-64.....	92.7	1.1	26.2	89	92	M-low
80	Crow 607.....	92.4	.8	26.7	92	94	Low
81	Keystone 48.....	91.1	.5	24.5	86	93	M-low
	Average of all entries.....	104.9	.7	24.8	93	94	.....

\* Average of Illinois 1246 (Holder), 1949, and Illinois 1246 (Station), 1950, 1951.

Table 15. — SOUTH-CENTRAL ILLINOIS: Sullivan

Rank	Entry	Total acre yield	Damaged corn in shelled sample	Mois- ture in grain at harvest	Erect plants	Stand	Height of ear
<b>SUMMARY 1949-1951: Less than 4.1 bushels difference between total yields of any two entries is not significant.</b>							
		<i>bu.</i>	<i>perct.</i>	<i>perct.</i>	<i>perct.</i>	<i>perct.</i>	
1	Doubet D-41.....	98.2	2.5	19.9	57	94	M-high
2	Funk G-79.....	97.5	1.9	20.0	53	94	M-high
3	Bear OK-72.....	96.3	2.3	18.3	57	91	Medium
4	U. S. 13 (Station).....	95.0	5.1	18.5	51	94	M-high
5 <sup>a</sup>	Illinois 1570.....	94.8	3.5	19.4	56	95	Medium
6	Whisnand 804.....	93.8	1.4	19.1	60	95	Medium
7	Canterbury 404.....	93.7	1.3	19.6	56	94	Medium
8	P. A. G. 392.....	93.1	2.9	18.2	59	94	Medium
9	Morton M-12.....	93.0	3.0	19.1	50	92	Medium
9	Funk G-99.....	93.0	3.2	21.0	49	92	M-high
11	Ainsworth X-13-3.....	92.9	3.4	19.5	56	93	Medium
12	P. A. G. 170.....	92.2	3.0	19.0	45	94	Medium
12	Pioneer 332.....	92.2	3.4	21.1	40	93	M-high
14	Canterbury 420.....	92.0	1.7	19.1	62	94	Medium
15	Pioneer 313B.....	91.7	2.6	20.6	44	94	Medium
16	Keystone 45.....	91.5	3.0	20.7	52	94	M-high
17	Kelly K-85.....	91.2	3.0	19.0	49	91	Medium
17	P. A. G. 173.....	91.2	3.9	19.1	56	93	M-high
19	Crow 805.....	91.1	2.4	19.1	58	92	Medium
20	Stiegelmeier S-370.....	90.6	3.8	18.8	46	94	Medium
21	Illinois 21 (Powers).....	90.5	2.4	19.2	57	93	M-high
22	Ainsworth X-21.....	90.0	2.4	19.3	53	93	Medium
23	Pioneer 300.....	89.7	2.3	19.6	46	95	Medium
24	Producers 940.....	89.6	2.3	19.4	59	93	Medium
25	Morton M-30.....	88.8	2.5	19.2	53	93	Medium
26	Producers 1050.....	88.6	2.9	19.8	50	92	M-high
27	DeKalb 875.....	88.5	3.9	19.6	59	93	Medium
28	Lowe 523.....	87.5	2.6	20.0	50	92	Medium
29	National 125-1.....	86.7	2.7	18.2	59	93	M-low
30	Kelly K-44.....	84.8	3.3	18.8	54	96	M-low
31	Crow 660.....	83.8	.7	18.8	47	94	M-low
32	Lowe 514.....	79.7	2.7	18.9	49	92	M-low
	Average of all entries.....	91.0	2.8	19.4	53	93	.....
<b>1951 RESULTS: Less than 8.5 bushels difference between total yields of any two entries is not significant.</b>							
1	Producers 1022.....	115.2	.3	19.8	53	95	M-high
2	Illinois 1509 (Station).....	113.6	.3	20.6	29	89	M-high
3	Pioneer 302.....	112.3	1.9	24.1	68	94	M-high
4	Doubet D-41.....	111.3	.2	20.4	74	91	High
5	Funk G-91.....	110.9	3.5	20.6	70	96	M-high
6	Pioneer 301.....	110.6	0	20.5	51	91	M-low
7	Pioneer 313B.....	109.2	.3	21.5	47	91	Medium
8	Canterbury 404.....	108.5	.2	20.8	36	94	Medium
9	Funk G-79.....	108.3	1.1	20.9	59	92	Medium
10	Moews CB 70A.....	108.1	1.8	20.5	59	94	M-high
10	Whisnand 810.....	108.1	.2	20.4	80	89	Medium
12	Super-Crost 880.....	108.0	1.0	19.4	73	93	Medium
13	Funk G-99.....	107.9	.4	20.5	61	92	M-high
14	Doubet D-43.....	107.4	.3	20.4	73	92	M-low
15	Munson M-7.....	107.1	2.6	19.1	70	94	M-high
16	Trisler T-32.....	106.4	.1	19.2	51	90	M-high
17	Moews CB 60A.....	106.3	1.1	20.6	53	92	Medium
18	Munson M-13.....	106.1	0	19.9	55	95	M-high
19	Illinois 1656 (Station).....	106.0	1.1	21.4	71	96	Medium
20	Tiemann T-78.....	105.9	.7	19.4	70	93	M-high
21	Bear OK-89.....	105.6	1.9	23.4	74	94	M-high
22	Whisnand 804.....	104.9	.5	20.3	69	89	Medium

(Table is concluded on next page)



Table 15. — SOUTH-CENTRAL ILLINOIS: Sullivan — concluded

Rank	Entry	Total acre yield	Damaged corn in shelled sample	Mois- ture in grain at harvest	Erect plants	Stand	Height of ear
<b>1951 RESULTS — concluded</b>							
		<i>bu.</i>	<i>perct.</i>	<i>perct.</i>	<i>perct.</i>	<i>perct.</i>	
23	Canterbury 400.....	104.8	.1	19.5	59	93	High
24	Illinois 1445A (Station).....	104.6	.2	26.1	75	88	High
25	Morton M-70.....	103.4	.3	20.5	57	92	Medium
25	U. S. 13 (Station).....	103.4	.8	19.8	59	87	M-high
27	Pioneer 300.....	103.1	.7	20.5	21	96	Medium
28	P. A. G. 173.....	103.0	1.4	20.2	62	87	M-high
29	Kelly K-88.....	102.6	.9	19.5	57	87	Medium
30	Illinois 1570 (Stone).....	102.5	.7	19.9	70	92	Medium
31	Ainsworth X-14-3.....	102.2	0	20.3	50	86	Medium
32	Plymouth 38.....	102.1	.8	20.3	42	94	Medium
33	Ainsworth X-13-3.....	101.9	2.2	20.5	59	91	Medium
34	Illinois 21 (Stone).....	101.4	.3	19.5	46	91	Medium
34	Illinois 274-1 (Station).....	101.4	.2	19.2	36	88	Medium
36	Morton M-12.....	101.1	.9	20.2	36	88	M-high
36	Funk G-98.....	101.1	1.4	21.6	57	90	M-high
36	Stiegelmeier S-13.....	101.1	4.2	21.0	72	93	M-high
39	Crow 805.....	100.9	3.0	19.4	59	92	Medium
39	DeKalb 817A.....	100.9	.3	19.5	36	93	M-high
41	DeKalb 840.....	100.8	1.3	20.3	45	92	M-low
42	DeKalb 923.....	100.4	.6	22.0	48	89	Medium
42	P. A. G. 392.....	100.4	1.0	19.5	49	90	Medium
44	National 124.....	100.2	0	19.4	26	91	Medium
45	Lowe 514.....	99.8	1.0	19.7	62	90	Medium
46	Kelly K-374.....	99.6	.7	18.9	33	87	Medium
47	Bear OK-72.....	99.4	0	18.8	61	85	M-low
47	Kelly K-44.....	99.4	4.2	20.2	50	95	Medium
49	Crow 608.....	99.0	.6	18.9	55	88	Medium
49	Huey H-23.....	99.0	.4	19.7	70	93	Medium
49	P. A. G. 170.....	99.0	1.9	20.1	34	93	Medium
52	Ainsworth X-21.....	98.4	2.4	19.6	42	90	Medium
53	Morton M-30.....	98.2	.4	20.0	54	91	Medium
53	Pioneer 332.....	98.2	4.7	23.3	22	93	M-high
55	Canterbury 420.....	97.9	1.4	19.5	70	92	Medium
56	Bear OK-44.....	97.8	1.0	19.7	64	89	M-low
57	Iowalth 29A.....	97.7	0	19.1	52	89	Medium
58	National 126T.....	97.6	1.5	19.6	52	94	Medium
59	DeKalb 875.....	97.3	1.5	20.5	53	93	M-low
60	Griffith 125.....	97.2	.9	20.3	31	94	Medium
61	Lowe 523.....	96.9	.6	20.7	45	93	Medium
61	National 125-1.....	96.9	1.1	18.7	53	91	M-low
63	Huey H-42.....	96.7	.7	20.1	49	92	Medium
64	Iowalth 25.....	96.3	.4	20.6	41	93	M-high
64	DeKalb 876.....	96.3	3.2	21.7	41	87	High
66	P. A. G. 185.....	96.1	.5	19.9	71	92	Medium
66	Producers 940.....	96.1	2.5	20.3	37	88	M-high
68	Trisler T-22A.....	95.8	.8	20.2	62	94	Low
69	Producers 1050.....	95.2	.4	20.4	58	87	M-high
70	P. A. G. 383.....	95.0	.7	20.0	69	88	M-low
70	Trisler T-19B.....	95.0	1.3	20.6	17	89	M-low
72	Illinois 21 (Powers).....	94.9	.8	19.1	42	88	M-high
73	Keystone 45.....	94.7	1.6	21.8	52	89	M-high
74	Crow 607.....	94.4	.1	19.4	37	86	Medium
75	Tiemann T-72.....	93.3	.6	19.4	63	89	Medium
76	Bo-Jac 301A.....	92.8	.2	26.3	65	93	Medium
77	Illinois 1459 (Station).....	92.4	1.7	28.7	78	91	High
77	Lowe 520.....	92.4	.3	19.7	43	91	Medium
79	United U-63A.....	92.3	6.5	25.8	19	92	M-high
80	Stiegelmeier S-370.....	91.6	.8	19.8	33	94	Medium
81	Crow 660.....	85.1	.2	19.1	45	90	M-low
	Average of all entries.....	101.1	1.1	20.5	53	91	.....

\* Average of Illinois 1570 (Station), 1949, 1950, and Illinois 1570 (Stone), 1951.

Table 16. — SOUTHERN ILLINOIS: Alhambra 1949;  
Brownstown 1950, 1951

Rank	Entry	Total acre yield	Damaged corn in shelled sample	Mois- ture in grain at harvest	Erect plants	Stand	Height of ear
<b>SUMMARY 1949-1951: Less than 4.9 bushels difference between total yields of any two entries is not significant.</b>							
		<i>bu.</i>	<i>perct.</i>	<i>perct.</i>	<i>perct.</i>	<i>perct.</i>	
1	Illinois 2214 (W) (Station)	87.8	.9	20.3	70	88	M-high
2	Illinois 1459 (Station)	84.7	.6	22.3	73	90	High
3	P.A.G. 620 (W)	83.1	1.8	19.7	72	88	M-high
4	Funk G-512 (W)	82.2	1.8	19.3	70	84	High
5	Pioneer 302	81.7	1.0	20.3	82	89	M-high
6	Keystone 111 (W)	81.3	1.0	21.2	78	83	Medium
7	Funk G-80	81.1	.4	20.4	74	88	Medium
8	Producers 1022	80.7	.6	18.5	88	92	M-high
9	Whisnand 917 (W)	79.7	.6	19.8	81	86	High
10	Ainsworth X-14A	78.3	.4	19.6	74	92	Medium
11	P.A.G. 631 (W)	78.0	.8	21.8	61	85	M-high
12	Funk G-98	76.9	.9	19.6	77	88	M-high
13	Keystone 45	76.8	.7	19.6	73	88	Medium
14	P.A.G. 617 (W)	76.2	.7	19.3	67	80	M-high
15	Lowe S20	75.5	.9	21.4	76	87	M-high
16	Doubet D-41	74.9	.9	19.6	79	84	Medium
16	Pioneer 505 (W)	74.9	1.0	19.6	73	84	M-high
18 <sup>a</sup>	U.S. 13	73.8	.9	18.7	78	86	Medium
19	Super-Crost 1005B	72.6	.8	19.2	76	87	Medium
20	P.A.G. 173	72.3	1.3	18.7	67	84	Medium
21	Producers 1050	71.9	.7	19.8	70	83	Medium
21	Illinois 784 (Haudrich)	71.9	1.9	22.2	63	84	M-high
23	National 129	70.8	1.0	18.7	81	83	M-low
24	Illinois 200 (Haudrich)	70.3	.9	19.1	69	85	Medium
25	Embro 49	70.2	1.0	19.7	71	85	Medium
26	Lowe S30	68.3	1.1	20.1	66	85	M-high
27	DeKalb 875	68.0	1.3	19.1	70	85	M-low
28	Stiegelmeier S-13	66.6	.7	18.4	67	87	Low
28	Keystone 106 (W)	66.6	.4	19.9	65	81	High
30	Iowearth 25	63.1	1.4	18.9	76	85	Medium
	Average of all entries	75.3	.9	19.8	73	86	.....
<b>1951 RESULTS: Less than 10.5 bushels difference between total yields of any two entries is not significant.</b>							
1	Whisnand 851	95.9	.1	21.6	90	91	Medium
2	Funk G-512W	92.0	1.0	19.6	89	86	High
3	Illinois 2214(W) (Station)	91.7	.1	20.0	93	77	M-high
4	P.A.G. 620(W)	89.3	2.9	19.8	95	89	M-high
5	Moews CB 60A	88.2	.3	19.9	92	88	M-low
6	Pioneer X-6727	88.1	.3	19.1	89	92	Medium
7	Keystone 111(W)	86.8	.3	20.7	93	86	M-high
8	Funk G-134	86.4	.1	19.7	92	91	Medium
9	Illinois 1540 (Station)	86.3	1.0	19.2	95	90	M-high
10	P.A.G. 631(W)	85.9	1.1	22.2	92	80	M-high
11	Lowe 840	85.5	1.3	22.7	86	92	High
12	Illinois 1445A (Station)	85.4	.8	20.1	90	84	High
13	Illinois 1570 (Station)	85.0	.3	19.4	86	87	Medium
14	Doubet D-41	84.9	.5	19.5	89	89	M-high
15	Bear OK-69	84.5	1.1	19.5	95	89	Medium
15	Illinois 1459 (Station)	84.5	.6	22.9	94	91	High
17	Funk G-80	84.4	.2	20.4	88	88	Medium
18	Crow 821	84.2	.4	18.8	94	89	Medium
19	Ainsworth X-13-3	83.9	.3	18.8	94	88	Medium
20	Pioneer 302	83.8	0	19.6	92	89	M-high
21	Funk G-91	83.7	.9	19.4	91	88	Medium
22	P.A.G. 383	83.6	.2	18.8	93	88	Medium

(Table is concluded on next page)

Table 16. — SOUTHERN ILLINOIS: Brownstown — concluded

Rank	Entry	Total acre yield	Damaged corn in shelled sample	Mois- ture in grain at harvest	Erect plants	Stand	Height of ear
1951 RESULTS — concluded							
		<i>bu.</i>	<i>perct.</i>	<i>perct.</i>	<i>perct.</i>	<i>perct.</i>	
23	Funk G-98.....	82.9	.3	19.6	89	90	M-high
24	Ainsworth X-14A.....	82.6	.2	19.4	92	93	M-high
25	Bear OK-10.....	82.3	.8	19.6	92	91	Medium
25	Tiemann T-93.....	82.3	.3	18.5	94	90	M-high
27	Producers 1022.....	82.2	.2	18.5	96	91	Medium
28	Pioneer X-8144.....	81.9	.6	18.9	95	94	M-low
29	Trisler T-33A.....	81.8	.9	20.3	85	90	M-low
30	Tiemann T-72.....	81.7	.2	18.2	91	87	Medium
31	Keystone 49.....	81.5	.7	20.3	94	88	Medium
32	Appl 130.....	80.5	.2	19.4	93	87	Medium
32	Doubet D-43.....	80.5	1.2	19.9	91	85	Medium
32	Illinois 200 (Haudrich).....	80.5	.2	18.9	91	88	M-low
32	Whisnand 917(W).....	80.5	.3	20.1	92	86	M-high
36	Stiegemeier S-13.....	80.3	.4	19.1	94	88	M-low
37	Ainsworth X-14-3.....	80.2	.1	18.8	87	90	Medium
38	Huey H-50.....	80.1	.3	18.0	92	87	Medium
38	P.A.G. 617(W).....	80.1	.5	19.9	95	81	M-high
40	Canterbury 126.....	79.2	.3	19.0	89	91	Medium
41	DeKalb 923.....	79.1	1.7	22.9	89	83	Medium
42	DeKalb 876.....	78.8	1.0	18.0	89	93	M-high
43	DeKalb 898.....	78.4	.0	19.9	93	88	M-high
44	Pioneer 505(W).....	78.2	1.2	19.3	92	82	Medium
45	National 125-1.....	77.7	2.6	17.8	96	86	Medium
46	U.S. 13 (Kelly).....	77.6	.5	18.9	89	88	Medium
47	U.S. 13 (Station).....	77.5	.2	19.5	91	86	M-high
48	DeKalb 894.....	77.4	.2	19.5	85	90	High
49	P.A.G. 185.....	77.2	.2	20.4	88	88	Medium
50	Iowearth 25A.....	77.1	.3	19.4	91	88	M-low
51	Iowearth 25.....	77.0	1.0	19.6	94	90	Medium
51	Super-Crost 1010S.....	77.0	.4	19.8	93	85	M-high
53	Appl 157.....	76.7	.3	19.2	90	90	Medium
53	Crow 805.....	76.7	.2	18.2	92	87	M-low
55	Keystone 45.....	75.9	.4	19.1	89	89	Medium
56	Pioneer 301.....	75.5	1.0	20.4	93	94	M-low
56	Super-Crost 880.....	75.5	.3	20.0	93	89	Medium
58	Huey H-23.....	75.3	1.1	18.4	90	88	M-low
58	Morton M-12.....	75.3	.0	18.8	89	87	Medium
60	Tiemann T-78.....	75.2	.7	18.2	96	93	Medium
61	Embro 155(W).....	75.1	2.0	20.0	95	82	M-high
62	DeKalb 817A.....	75.0	.2	18.6	90	92	Medium
63	P.A.G. 173.....	74.9	1.8	21.6	89	87	Medium
63	Whisnand 834.....	74.9	.3	19.3	87	86	Medium
65	Pioneer 313B.....	74.4	.2	18.7	85	89	M-low
66	Lowe 820.....	74.3	.2	21.5	84	87	High
66	Trisler T-32.....	74.3	1.1	18.2	92	87	Low
68	National 129.....	74.0	.0	19.4	96	83	M-low
69	Producers 1050.....	73.6	1.1	19.6	94	81	Medium
70	Canterbury 412.....	72.9	.2	19.5	91	92	Medium
71	Super-Crost 1005B.....	72.8	.1	18.8	95	85	Medium
72	Appl 1766.....	72.6	.6	19.2	89	84	Low
73	Lowe 830.....	71.2	.3	22.9	83	90	High
74	DeKalb 875.....	71.0	.9	18.5	90	86	M-low
75	Illinois 784 (Haudrich).....	70.4	3.9	25.0	82	83	M-high
76	Haudrich 13.....	70.0	1.4	22.7	90	87	Medium
77	Embro 49.....	69.1	1.3	21.2	88	86	Medium
78	Pioneer 510(W).....	67.5	.0	18.8	95	69	Medium
79	Iowearth 29A.....	66.0	.6	20.7	93	87	M-low
80	Keystone 106(W).....	60.0	.3	19.9	93	72	High
81	P.A.G. 612B(W).....	58.5	.5	22.1	92	85	M-high
	Average of all entries.....	79.0	.6	19.8	91	87	.....

\* Average of U.S. 13 (Lepper), 1949, 1950, and U.S. 13 (Station), 1951.

Table 17. — EXTREME SOUTHERN ILLINOIS: Dixon Springs

Rank	Entry	Total acre yield	Damaged corn in shelled sample	Mois- ture in grain at harvest	Erect plants	Stand	Height of ear
BOTTOMLAND, Summary 1949-1951: Less than 5.9 bushels difference between total yields of any two entries is not significant.							
		<i>bu.</i>	<i>perct.</i>	<i>perct.</i>	<i>perct.</i>	<i>perct.</i>	
1	Illinois 1459 (Station).....	60.9	2.0	21.0	88	89	High
2	Funk G-711.....	55.7	2.2	22.8	76	90	High
3	P.A.G. 620(W).....	54.9	2.5	20.3	83	88	High
4	Illinois 2214(W) (Station).....	54.4	2.6	19.8	82	91	M-high
5	Illinois 1540B (Station).....	51.3	3.4	18.6	92	91	M-high
6	Funk G-779(W).....	51.0	4.7	25.1	74	89	High
7	Bear OK-40B.....	50.7	1.2	18.2	85	88	M-low
8	Pioneer 302.....	50.5	1.6	19.6	88	92	Medium
9	Whisnand 917(W).....	49.8	2.5	19.5	84	85	M-high
10	Doubet D-41.....	49.1	1.1	18.9	73	88	Medium
11	P.A.G. 617(W).....	48.9	2.7	19.2	87	84	High
12	Lowe 820.....	48.4	3.6	21.3	87	89	High
13	Illinois 1521B (Station).....	48.1	1.6	21.3	93	88	M-high
14	Keystone 111(W).....	47.6	2.4	20.0	81	88	Medium
15	Lowe 840.....	47.5	2.8	19.9	88	88	Medium
16	Moews CB70A.....	47.0	3.1	17.6	87	91	Medium
17	Keystone 106(W).....	46.9	1.1	19.4	77	83	Medium
18	Super-Crost 1010S.....	46.1	1.9	19.3	86	88	M-high
19	Producers 1022.....	45.5	1.5	19.0	90	91	Medium
20	Pioneer 505(W).....	44.8	2.3	19.0	89	85	M-high
21	P.A.G. 173.....	43.8	2.6	16.7	79	85	Medium
22	Producers 1050.....	42.5	1.8	18.4	79	86	M-low
22a	Illinois 784.....	42.5	1.6	18.7	65	87	Medium
24	Embro 49.....	42.0	1.7	18.8	75	88	Medium
25	Pioneer 332.....	41.7	3.2	18.8	79	86	Medium
26	Illinois 200 (Haudrich).....	39.5	4.3	19.1	84	86	Medium
	Average of all entries.....	48.1	2.4	19.6	83	88	.....

BOTTOMLAND, 1951 Results: Less than 15.4 bushels difference between total yields of any two entries is not significant.

1	Illinois 1459 (Station).....	58.7	2.8	20.1	96	90	High
2	P.A.G. 620(W).....	54.8	1.6	19.2	96	93	High
3	Bear OK-40B.....	54.7	.6	18.8	95	88	Medium
4	Whisnand 831.....	51.7	.9	18.9	94	92	Medium
5	P.A.G. 617(W).....	48.3	1.1	19.0	97	94	High
6	Funk G-704.....	47.7	1.0	19.5	98	93	Medium
7	Illinois 1540B (Station).....	47.5	7.0	18.9	99	94	High
8	Pioneer X-6727.....	45.9	1.0	17.4	97	93	Medium
9	Ainsworth X-22.....	45.0	1.6	20.8	93	88	M-high
10	Illinois 2214(W) (Station).....	44.9	.7	18.8	98	96	Medium
11	P.A.G. 631(W).....	44.5	3.5	19.2	94	97	M-high
12	Funk G-711.....	43.9	.7	23.3	90	91	High
13	Lowe 820.....	43.6	2.9	21.5	93	93	High
14	Illinois 1663 (Station).....	43.5	.8	19.3	96	81	M-high
15	Moews CB 70A.....	43.2	2.3	16.2	96	90	M-high
16	Pioneer 302.....	42.3	2.0	20.5	98	97	M-high
17	Stiegelmeier S-13.....	42.2	2.9	18.2	95	91	Medium
18	Illinois 1445A (Station).....	41.8	.6	18.2	96	95	M-high
19	Embro 135(W).....	41.0	1.4	19.1	94	88	High
20	Keystone 111(W).....	40.7	1.1	19.2	97	94	Medium
21	P.A.G. 173.....	40.5	1.7	17.2	94	83	Medium
22	Whisnand 834.....	40.1	1.2	21.4	94	88	M-high
23	Lowe 840.....	39.8	1.7	20.9	92	91	M-high
23	Whisnand 917(W).....	39.8	1.8	18.8	97	84	Medium
25	Haudrich 13.....	39.3	2.0	19.0	94	83	M-low
26	Illinois 1521B (Station).....	39.2	1.5	20.2	98	96	Medium
26	Lowalth 25.....	39.2	1.5	18.2	95	91	Medium
28	Doubet D-41.....	39.0	1.2	18.6	95	92	Medium

(Table is concluded on next page)

Table 17.—EXTREME SOUTHERN ILLINOIS—concluded

Rank	Entry	Total acre yield	Damaged corn in shelled sample	Mois- ture in grain at harvest	Erect plants	Stand	Height of ear
<b>1951 Bottomland results—concluded</b>							
		<i>bu.</i>	<i>perct.</i>	<i>perct.</i>	<i>perct.</i>	<i>perct.</i>	
29	Pioneer 505(W).....	38.7	2.8	18.9	96	88	M-high
30	Doubet D-43.....	38.1	3.1	18.2	95	88	Medium
30	Lowe 830.....	38.1	3.5	21.7	94	89	Medium
32	Lowe 833.....	37.9	4.3	19.6	90	92	High
33	Super-Crost 880.....	37.7	3.1	17.6	95	93	Medium
34	Keystone 222.....	37.3	3.1	19.7	92	84	High
35	Pioneer X-8144.....	37.2	.9	17.6	98	95	Low
36	Iowearth 25A.....	37.0	1.2	18.0	95	88	M-low
36	Producers 1050.....	37.0	1.3	17.7	96	83	M-low
38	DeKalb 898.....	36.4	3.2	18.6	97	94	High
39	Funk G-779(W).....	36.2	4.3	27.4	99	87	High
40	National 129.....	35.8	1.3	18.1	95	92	M-low
41	Embro 49.....	35.7	1.0	18.2	94	88	Medium
41	Super-Crost 1010S.....	35.7	3.0	18.9	98	90	High
43	Pioneer 301.....	35.6	1.4	17.9	94	92	Low
44	Pioneer 510(W).....	35.5	1.5	18.6	98	78	M-high
45	Bear OK-90.....	34.8	1.1	18.9	94	97	Medium
46	Illinois 200 (Haudrich).....	34.5	1.2	18.0	94	88	Medium
47	Keystone 106(W).....	34.3	1.1	18.5	93	75	M-low
48	Funk G-98.....	34.2	.5	18.6	96	88	Medium
49	Crow 821.....	34.1	1.7	17.6	98	84	M-low
49	P.A.G. 185.....	34.1	1.5	18.4	98	93	Medium
49	Pioneer 332.....	34.1	1.4	18.8	99	93	Medium
52	Producers 1022.....	33.6	1.7	19.1	96	87	Medium
53	Moewe CB 90A.....	33.4	3.3	18.6	90	95	M-high
54	Illinois 784 (Haudrich).....	33.3	2.3	19.8	90	89	Medium
55	DeKalb 897.....	32.3	.7	17.5	94	86	M-low
56	DeKalb 923.....	32.2	1.3	19.0	92	93	Medium
57	DeKalb 894.....	31.6	.6	18.2	95	83	Medium
58	DeKalb 876.....	31.1	3.1	17.6	96	90	Medium
59	Iowearth 29A.....	30.9	1.4	17.6	97	83	M-low
60	P.A.G. 612B(W).....	29.7	.9	18.8	95	88	Medium
	Average of all entries.....	39.3	1.9	19.0	95	91	.....

**UPLAND, Summary 1949-1951: Less than 4.5 bushels difference between total yields of any two entries is not significant.**

1	Illinois 2214(W) (Station).....	69.6	3.2	19.1	88	80	High
2	Funk G-711.....	66.9	5.7	22.2	74	81	M-high
3	Keystone 106(W).....	64.8	3.0	18.0	89	81	Medium
4	Illinois 2216(W) (Station).....	63.3	8.3	19.5	89	82	High
5 <sup>b</sup>	Illinois 200.....	57.6	7.6	18.9	82	78	M-low
	Average of all entries.....	64.4	5.6	19.5	84	80	.....

**UPLAND, 1951 Results: Less than 5.6 bushels difference between total yields of any two entries is not significant.**

1	Illinois 2214(W) (Station).....	66.8	1.8	18.4	99	94	High
2	P.A.G. 620(W).....	63.8	1.7	18.5	96	95	High
3	Pioneer 302.....	61.8	1.9	19.5	96	96	Medium
4	Bear OK-40B.....	59.9	1.7	18.3	98	89	M-low
5	Doubet D-41.....	58.7	1.7	18.9	97	89	Medium
6	Illinois 1445A.....	57.7	2.5	18.8	95	92	High
7	Illinois 200 (Haudrich).....	53.4	4.1	18.9	92	91	Medium
7	Funk G-711.....	53.4	5.8	21.2	89	92	M-high
9	Illinois 2216(W).....	50.8	1.3	18.0	97	91	High
10	Keystone 106(W).....	50.4	1.4	17.9	92	86	Medium
11	U.S. 13 (Producers).....	46.9	6.9	17.9	90	88	M-high
	Average of all entries.....	56.7	2.8	18.8	95	91	.....

<sup>a</sup> Average of Illinois 784 (Station), 1949, and Illinois 784 (Haudrich) 1950, 1951.

<sup>b</sup> Average of Illinois 200 (Station), 1949, 1950, and Illinois 200 (Haudrich), 1951.



## SOIL AND PLANTING RATE ADAPTATION TEST

As in the past, six single-cross and three double-cross hybrids were tested at Urbana for their adaptation to soils varying in productivity. Rate-of-planting studies carried on in conjunction with this test are reported here for the first time (Table 18). Since some new hybrids with no previous records were introduced into the tests this year, it seemed desirable to report the rate of planting as well as the yield and standability data.

**Soils.** The two areas used for the test are on the Agronomy south farm. They differ in productivity as a result of long-continued use of different cropping systems. A high rate of productivity in the one field has been maintained by a systematic rotation of corn, oats, clover hay, and wheat with a red-clover catch crop. The other field has been depleted of fertility by a rotation of corn, corn, corn, and soybeans. The crop reported was the third crop of corn after soybeans. The predominating soil type on both fields is a slightly rolling phase of Sidell silt loam, and both fields have been treated with manure and rock phosphate.

**Season.** The 1951 season favored corn production, yields being the second highest in the history of the test. However, maturity was slow in the fall, which, along with unfavorable weather, delayed harvest until early December. Since lodging was very severe at the end of the season, the late harvesting permitted recording of valuable data on the standability of hybrids.

**1951 yield.** The average yield of all hybrids at all rates on the highly productive soil was 128.9 bushels, compared with 71.6 bushels on the medium-productive soil. This was an increase of 57.3 bushels, or 80 percent, for the rotation containing the soil-improving legume.

The highest average yield was obtained on the highly productive field at a planting rate of 16,000 plants per acre. On the medium-productive field 12,000 plants per acre yielded highest. In general the hybrids ranked approximately the same in yield on each fertility level. Illinois 972 was affected more than any other hybrid, ranking third on the medium-productive field and falling to seventh on the highly productive soil.

Certain hybrids responded more favorably to high rates of planting than others. At the lowest planting rate the single-cross Hy2 ×

Table 18. — SOIL AND PLANTING-RATE ADAPTATION TEST: Central Illinois, Urbana, 1951

Rank	Entry	Yield per acre with varying number of plants per acre			Average yield all plantings	Rank	Entry	Percent of plants erect in plots with varying number of plants per acre				
		8,000 plants	12,000 plants	16,000 plants				20,000 plants	8,000 plants	12,000 plants	16,000 plants	20,000 plants
<b>Highly productive soil<sup>a</sup></b>												
1	WF9 × C103	111.1	143.8	149.8	bu.	1	WF9 × C103	98	92	91	59	85
2	Iy2 × Oh7	100.8	132.2	152.4	bu.	2	Iy2 × Oh7	89	86	48	23	62
3	M14 × C103	104.2	133.6	150.5	bu.	3	M14 × C103	96	94	46	9	61
4	U.S. 13	104.6	129.3	146.1	bu.	4	Iy2 × L317	93	82	52	14	60
5	WF9 × Oh41	104.4	129.5	144.6	bu.	5	U.S. 13	87	74	67	12	60
6	Oh41 × 38-11	97.5	124.7	147.3	bu.	6	Oh41 × 38-11	89	86	45	12	58
7	Illinois 972	100.7	123.6	129.4	bu.	7	Illinois 972	77	68	35	23	51
8	Iy2 × L317	92.3	119.4	139.1	bu.	8	Illinois 1091	96	58	25	13	48
9	Illinois 1091	103.9	121.3	125.8	bu.	9	WF9 × Oh41	96	65	11	4	44
	Average	102.2	128.6	142.8	bu.		Average	91	78	47	19	59
	Difference necessary for significance	6.4	7.8	12.7								
<b>Medium productive soil<sup>b</sup></b>												
1	Iy2 × Oh7	73.8	90.0	87.1	bu.	1	Iy2 × L317	96	88	65	63	78
2	WF9 × Oh41	79.0	86.8	79.0	bu.	2	WF9 × C103	96	85	70	58	77
3	Illinois 972	76.6	79.6	75.3	bu.	3	Iy2 × Oh7	96	85	68	59	77
4	M14 × C103	77.7	78.2	70.7	bu.	4	WF9 × Oh41	93	87	63	49	72
5	WF9 × C103	84.3	81.9	68.9	bu.	5	Illinois 1091	93	80	55	56	71
6	U.S. 13	73.4	75.0	71.9	bu.	6	Oh41 × 38-11	89	76	51	49	66
7	Illinois 1091	73.0	77.3	67.3	bu.	7	U.S. 13	90	70	49	55	66
8	Oh41 × 38-11	73.0	79.6	61.8	bu.	8	Illinois 972	92	76	51	36	64
9	Iy2 × L317	63.7	69.0	48.2	bu.	9	M14 × C103	96	60	24	30	53
	Average	74.2	79.7	70.0	bu.		Average	94	78	55	51	69
	Difference necessary for significance	5.5	5.5	12.1								

<sup>a</sup> Highly productive soil: mostly Siddell silt loam, slightly rolling phase. Rotation: corn, oats, clover, wheat (red clover catch crop). Soil treatment: manure and rock phosphate.  
<sup>b</sup> Medium productive soil: mostly Siddell silt loam, slightly rolling phase. Third year corn after soybeans in a rotation of soybeans, corn, corn, corn. Soil treatment: manure, limestone, and rock phosphate.

Oh7 yielded below the average for all hybrids, but at the thicker rates it was the highest yielder.

Single cross WF9  $\times$  C103, a new hybrid in these tests, was outstanding in yielding ability at the lower planting rates; but under the competition brought about by thick stands, it did not show up so well. It was significantly superior to all the other eight hybrids at 8,000 to 12,000 plants per acre on the highly productive soil, but its high relative performance on the medium-productive soil held for the 8,000 planting rate only.

The poor performance of Hy2  $\times$  L317 in the 1951 tests differed greatly from its five-year (1946-1950) record, which placed it at the top of the nine hybrids in average yield on the productive soil and third on the medium-productive soil. This suggests that seasons may affect hybrids differently. The results obtained certainly indicate that hybrids perform differently under different planting rates; and they suggest the desirability, when rating hybrids, of taking into consideration the thickness of planting required for best yields at different levels of soil productivity.

**Erectness ratings, 1951.** Although the results reported in Table 18 show that a thicker planting often increases corn yields, the erectness data (right-hand column) illustrate how a heavy planting introduces an important risk.

On the highly fertile field planted at the rate of 8,000 plants an acre, over 90 percent of the plants were erect at harvest; while at the 20,000 rate, only 19 percent remained standing. On the medium-productive field at the 20,000 rate only 51 percent remained erect. The single-cross WF9  $\times$  C103 was outstanding in its resistance to lodging at both levels of soil productivity.

Yield comparisons indicate that hybrids may be developed that are particularly well adapted to give high yields at high planting rates; but in any such breeding program, excellent resistance to lodging is a primary requisite.

## SUMMARY

In 1951, 328 hybrids were grown on eight test fields in Illinois. Six single-cross and three double-cross hybrids were grown at Urbana in a rate of planting trial on two fields differing in productivity. All fields were planted in the period May 18 to May 29. Climatic growing conditions were generally favorable. The DeKalb field and Dixon Springs bottomland field suffered from standing water in July. Results of the tests were briefly as follows:

**1951 yields.** The Galesburg field in west north-central Illinois had slightly the highest yield, 105.0 bushels an acre. Sheldon in east north-central Illinois had a yield of 104.9 bushels an acre. Average yields per acre on the other test fields were: Sullivan 101.1, Brownstown 79.0, Grays Lake 67.9, DeKalb 58.3, Dixon Springs upland 56.7, and Dixon Springs bottomland 39.3.

The average yield of all hybrids tested was 81.2 bushels an acre. This is 10 bushels, or 14 percent, above the average yield of the test fields in 1950. On the three test fields in central Illinois (Galesburg, Sheldon, Sullivan) the average yield in 1951 was 104 bushels, 14 bushels more than in 1950. These three fields were located on the same farms both years and on soil of comparable productivity.

**Three-year summaries, 1949-1951.** The highest-yielding hybrids in the three-year summaries are as follows: **Northeastern Illinois** — Pioneer 352, Pioneer 349, Nichols 5B, Illinois 1180 (Huebsch), DeKalb 239; **Northern** — Bear OK-411, Illinois 1277, Frey 425, National 114-1, P.A.G. 253; **West North-Central** — Schwenk S-34, Huey H-23, Schwenk S-24, Illinois 1570, Munson M-13; **East North-Central** — Schwenk S-34, Illinois 21, Ainsworth X-13-3, Frey 645, Illinois 1246; **South-Central** — Doubet D-41, Funk G-79, Bear OK-72, U.S. 13, Illinois 1570; **Southern** — Illinois 2214(W), Illinois 1459, P.A.G. 620(W), Funk 512(W), Pioneer 302; **Extreme Southern, bottomland** — Illinois 1459, Funk G-711, P.A.G. 620(W), Illinois 2214(W), Illinois 1540B; **Extreme Southern, upland** — Illinois 2214(W), Funk G-711.

**Lodging.** The Sullivan field was the only one where lodging could be classed as severe at date of harvest. Lodging there consisted mainly of stalk breakage caused by a combination of, first, leaf blight and

then stalk rots. The number of prematurely dead plants in September was found to be closely related to the prevalence of stalk rots.

At Grays Lake, Galesburg, and Brownstown varying degrees of lodging were caused primarily by two insects: the European corn borer and the corn rootworm.

**Insect damage.** Stalk breakage resulting from European corn borer attack, though limited, was sufficient to warrant attention on the Grays Lake and Brownstown fields. Hybrid differences, however, were limited and not of great importance. Lodging as a consequence of rootworm attack was severe at the Grays Lake and Galesburg fields, where differences among some of the hybrids were considerable and significant.

**Disease damage.** Northern leaf blight was the worst ever recorded for Illinois, but its occurrence was spotty. On occasional fields in the east half of central Illinois yields were cut in half as a result of this blight; for the state as a whole the loss was about 5 percent. On the test fields this disease was prominent only at Sullivan, where large differences were found among hybrids in the severity of infection.

Stalk rot caused more damage in the state as a whole than leaf blight. The cause of the stalk rot was about equally divided between *Diplodia zae* and *Gibberella zae*, but the latter caused the most lodging. On three of the test fields it was possible to note differences among the hybrids in their susceptibility to stalk rot, as judged by the premature dying of plants.

Damage from ear rots and smut was a little below average. Only a little Stewart's disease was found and that only in the southern part of the state. Two unusual diseases, one of them new to Illinois, were observed.

**Effect of soil productivity and planting rates.** In 1951 the difference in average yield between the highest-yielding hybrid on the more-productive soil and the lowest-yielding hybrid on the less-productive soil was 80.7 bushels, or 1.4 times the yield of the low-yielding hybrid.

The better farming system, involving a rotation of corn, oats, red clover, and winter wheat (with a red-clover catch crop), produced an average of 128.9 bushels an acre in 1951, and the poorer rotation con-



sisting of corn, corn, corn, and soybeans produced an average yield of 71.6 bushels an acre, a difference of 57.3 bushels.

The importance of using the right crop rotation, the correct rate of planting, and the best adapted hybrid is illustrated by the fact that the highest yield, 155.6 bushels an acre, was produced by Hy2  $\times$  Oh7 at 20,000 plants an acre on soil in the better rotation, whereas the bottom yield, 43.6 bushels, was produced by Hy2  $\times$  L317 at the same planting rate on soil in the poorer rotation. The difference of 112 bushels was more than 2½ times the low yield.

At the low planting rates, WF9  $\times$  C103 was the highest yielder, but at the high planting rates it gave only medium yields. At all planting rates, this hybrid was extraordinary in lodging resistance compared with the others.

Lodging was greatly increased by high planting rates, especially on highly productive soil.

#### PEDIGREES OF 32 HYBRIDS

Following is a list of open-pedigree hybrids whose performance is shown in this bulletin.

Ill. 21 . . . . (Hy2 $\times$ 187-2) (WF9 $\times$ 38-11)	Ill. 1445A . . . (38-11 $\times$ K4) (CI.7 $\times$ CI.21E)
Ill. 101 . . . . (M14 $\times$ WF9) (187-2 $\times$ W26)	Ill. 1459 . . . . (38-11 $\times$ K4) (K201 $\times$ CI.21E)
Ill. 200 . . . . (WF9 $\times$ 38-11) (L317 $\times$ K4)	Ill. 1493 . . . . (WF9 $\times$ I.205) (Oh28 $\times$ W22)
Ill. 274-1 . . . (Hy2 $\times$ WF9) (Oh7 $\times$ 187-2)	Ill. 1509 . . . . (Hy2 $\times$ WF9) (PS $\times$ L304A)
Ill. 751 . . . . (A $\times$ 90) (Hy2 $\times$ WF9)	Ill. 1521B . . . (38-11 $\times$ CI.21E) (K201 $\times$ TS)
Ill. 784 . . . . (Hy2 $\times$ 5120) (L317 $\times$ K4)	Ill. 1540 . . . . (38-11 $\times$ CI.21E) (K155 $\times$ K201)
Ill. 1091 . . . (Hy2 $\times$ WF9) (M14 $\times$ 187-2)	Ill. 1540B . . . (38-11 $\times$ K155) (K201 $\times$ CI.21E)
Ill. 1091A . . (Hy2 $\times$ 187-2) (M14 $\times$ WF9)	Ill. 1558 . . . . (M14 $\times$ WF9) (I.205 $\times$ Oh28)
Ill. 1180 . . . (M14 $\times$ WF9) (WS $\times$ W32)	Ill. 1570 . . . . (Hy2 $\times$ Oh41) (WF9 $\times$ 38-11)
Ill. 1246 . . . (R61 $\times$ 187-2) (WF9 $\times$ 38-11)	Ill. 1575 . . . . (M14 $\times$ WF9) (L12 $\times$ Oh28)
Ill. 1277 . . . (M14 $\times$ WF9) (I.205 $\times$ 187-2)	Ill. 1585 . . . . (M14 $\times$ L289) (Oh5 $\times$ Oh43)
Ill. 1279 . . . (M14 $\times$ WF9) (A375 $\times$ 187-2)	Ill. 1656 . . . . (C103 $\times$ Hy2) (WF9 $\times$ 38-11)
Ill. 1280 . . . (M14 $\times$ WF9) (Os420 $\times$ 187-2)	Ill. 1663 . . . . (38-11 $\times$ CI.21E) (K4 $\times$ Oh7)
Ill. 1281 . . . (M14 $\times$ WF9) (A374 $\times$ A375)	Ill. 2214W . . . (R30 $\times$ Ky27) (H21 $\times$ K64)
Ill. 1337 . . . (Hy2 $\times$ R61) (WF9 $\times$ 38-11)	Ill. 2216W . . . (H21 $\times$ CI.61) (K64 $\times$ Ky27)
Ill. 1421 . . . (Hy2 $\times$ WF9) (PS $\times$ Oh7)	U.S. 13 . . . . (Hy $\times$ L317) (WF9 $\times$ 38-11)

## CONTRIBUTORS OF SEED

Ainsworth Hybrids.....	Ainsworth Seed Co.....	Mason City
Appl Hybrids.....	Appl's Hybrid Seed Co.....	St. Joseph
Bear Hybrids.....	Bear Hybrid Corn Co.....	Decatur, Box 628
Bo-Jac Hybrids.....	Bo-Jac Hybrids.....	Mt. Pulaski
Canterbury Hybrids.....	C. E. Canterbury Seed Co.....	Cantrall
Crib-Buster Hybrids.....	Furr Seed Co.....	Genoa
Crow Hybrids.....	Crow's Hybrid Corn Co.....	Milford
DeKalb Hybrids.....	DeKalb Agricultural Assn.....	DeKalb
Doubet Hybrids.....	E. W. Doubet.....	Hanna City
Embro Hybrids.....	Ed F. Manglesdorf & Bro., Inc.....	1020 S. 4th St., St. Louis, Mo.
Farmercraft Hybrids.....	Farmercraft Seed Co.....	Oxford, Ind.
Frey Hybrids.....	Frey Hybrid Corn Co.....	Gilman
Funk Hybrids.....	Funk Brothers Seed Co.....	Bloomington
Griffith Hybrids.....	Griffith Seed Co.....	Bloomington
Haudrich Hybrids.....	Haudrich Hybrid Corn Co.....	Belleville
Holmes Hybrids.....	Holmes Hybrids.....	Edelstein
Huebsch Hybrids.....	L. A. Huebsch & Son.....	Mundelein
Huey Hybrids.....	Huey Seed Co.....	Carthage
Illinois Hybrids.....	Ill. 21 (Dittmer Seeds, Carthage; Powers Seed House; P. A. Stone & Son, Pleasant Plains; Ill. Agr. Exp. Sta.)	
	Ill. 101 (L. A. Huebsch & Son; Ill. Agr. Exp. Sta.)	
	Ill. 200 (Haudrich Hybrid Corn Co.; Ill. Agr. Exp. Sta.)	
	Ill. 274-1 (Ill. Agr. Exp. Sta.)	
	Ill. 751 (Joslin Bros. Seed Co., Erie)	
	Ill. 784 (Haudrich Hybrid Corn Co.)	
	Ill. 1091 (Joslin Bros. Seed Co.; Mountjoy Hybrid Seed Co.)	
	Ill. 1091A (Ill. Agr. Exp. Sta.)	
	Ill. 1180 (L. A. Huebsch & Son)	
	Ill. 1246 (Ill. Agr. Exp. Sta.)	
	Ill. 1277, 1279 (Ill. Agr. Exp. Sta.)	
	Ill. 1280 (Joslin Bros. Seed Co.; Ill. Agr. Exp. Sta.)	
	Ill. 1281, 1289 (Ill. Agr. Exp. Sta.)	
	Ill. 1337 (Dittmer Seeds)	
	Ill. 1570 (P. A. Stone & Son; Ill. Agr. Exp. Sta.)	
	Ill 1421, 1445A, 1459, 1493, 1509, 1521B, 1540, 1540B, 1558, 1575, 1585, 1656, 1663, 2214(W), 2216(W) (Ill. Agr. Exp. Sta.)	
Iowearth Hybrids.....	The Iowearth Co.....	Lexington
Kelly Hybrids.....	Kelly Seed Co.....	San Jose
Keystone Hybrids.....	Corneli Seed Co.....	101 Chateau Ave., St. Louis, Mo.
Lowe Hybrids.....	Lowe Seed Co.....	Aroma Park
Moews Corn Belt Hybrids.....	Moews Corn Belt Co., Inc.....	Boswell, Ind.
Morton Hybrids.....	Roy A. Morton & Sons.....	Bowen
Mountjoy Hybrids.....	Mountjoy Hybrid Seed Co.....	Atlanta
Munson Hybrids.....	Carl Munson.....	Galesburg
National Hybrids.....	National Hybrid Corn Co.....	Normal
Nichols Hybrids.....	Nichols Bros.....	Hebron
Null Hybrids.....	Null Seed Farms.....	Colchester
P.A.G. Hybrids.....	Pfister Assoc. Growers, Inc.....	Aurora
Pioneer Hybrids.....	Pioneer Hi-Bred Corn Co. of Ill.....	Princeton
Plymouth Hybrids.....	Howard E. Huey & Son.....	Camp Point
Powers Hybrids.....	Powers Seed House.....	Brocton
Producers Hybrids.....	Producers' Seed Co.....	Piper City
Schwenk Hybrids.....	W. T. Schwenk & Sons.....	Edwards
Sieben Hybrids.....	Sieben Hybrids.....	Geneseo, R. 1
Stewart Hybrids.....	Frank S. Stewart.....	Princeville
Stiegelmeier Hybrids.....	H. L. Stiegelmeier.....	Normal
Super-Crost Hybrids.....	E. J. Funk & Sons.....	Kentland, Ind.
Tiemann Hybrids.....	Tiemann Seed Co.....	Bloomington

Trisler Hybrids.....	J. L. Trisler.....	Fairmount
United Hybrids.....	United Hybrid Growers Assn.....	Shenandoah, Ia.
U.S. Hybrids.....	U.S. 13 (Kelly Seed Co.; Producers' Seed Co.; Ill. Agr. Exp. Sta.)	
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Illinois 1540B (Station)		17B, 17B
Illinois 1558 (Station)		7, 9, 12, 13, 14
Illinois 1570 (Station)		4, 7, 9, 13, 13, 14, 14, 16
Illinois 1570 (Stone)		8, 9, 15, 15
Illinois 1575 (Station)		12
Illinois 1585 (Station)		3, 5, 11
Illinois 1656 (Station)		8, 9, 15
Illinois 1663 (Station)		17B
Illinois 2214(W) (Station)		4, 16, 16, 17B, 17B, 17U, 17U

Illinois 2216(W) (Station)		17U, 17U
Iowearth 16		9, 14
Iowearth 25		4, 8, 9, 15, 16, 16, 17B
Iowearth 25A		4, 16, 17B
Iowearth 29A		4, 8, 9, 15, 16, 17B
Iowearth 90		3, 5, 11
Iowearth A		12
Iowearth AF-11		12
Iowearth AQ		7, 9, 13, 13
Iowearth BC4		7, 9, 13
Iowearth S		3, 5, 11, 12

Hybrid	K	Table
Kelly K-44		7, 8, 9, 13, 15, 15
Kelly K-66		9, 14
Kelly K-77		9, 14, 14

Hybrid	Table
Kelly K-88	7, 8, 9, 13, 15, 15
Kelly K-374	8, 9, 15
Keystone 32	3, 5, 11, 12, 12
Keystone 44	12
Keystone 45	4, 8, 9, 15, 15, 16, 16
Keystone 48	7, 9, 13, 14
Keystone 49	4, 16
Keystone 106(W)	4, 16, 16, 17B, 17B, 17U, 17U
Keystone 111(W)	4, 16, 16, 17B, 17B
Keystone 222	17B

Hybrid	L	Table
Lowe 22		12
Lowe 32		3, 5, 11, 12, 12
Lowe 52		3, 5, 11, 12, 12
Lowe 333		12
Lowe 444		7, 9, 13
Lowe 505		9, 14
Lowe 514		6, 7, 8, 9, 13, 13, 14, 14, 15, 15
Lowe 520		6, 7, 8, 9, 13, 13, 14, 14, 15
Lowe 523		8, 9, 14, 14, 15, 15
Lowe 820		4, 16, 16, 17B, 17B
Lowe 830		4, 16, 16, 17B
Lowe 833		17B
Lowe 840		4, 16, 17B, 17B

Hybrid	M	Table
Moews CB 25A		3, 5, 11
Moews CB 46A		3, 5, 11
Moews CB 60A		4, 8, 9, 15, 16
Moews CB 65A		9, 14
Moews CB 70A		8, 9, 15, 17B, 17B
Moews CB 90A		17B
Morton M-12		4, 6, 7, 8, 9, 13, 13, 14, 14, 15, 15, 16
Morton M-30		7, 8, 9, 13, 13, 14, 15, 15
Morton M-70		7, 8, 9, 13, 15
Mountjoy M-42		12
Mountjoy M-64		9, 14
Munson MH		9, 14
Munson M-3		12
Munson M-5		7, 9, 13
Munson M-7		8, 9, 15
Munson M-13		7, 8, 9, 13, 13, 15
Munson M-15		9, 14

Hybrid	N	Table
National 112		3, 5, 11
National 114-1		3, 5, 11, 12, 12
National 115A		9, 14, 14
National 118		9, 14
National 124		7, 8, 9, 13, 15
National 125-1		4, 6, 7, 8, 9, 13, 13, 15, 15, 16
National 126T		8, 9, 15
National 129		4, 16, 16, 17B
Nichols 5B		3, 5, 11, 11, 12, 12
Nichols 51		3, 5, 11
Nichols 75		3, 5, 11, 11, 12, 12
Nichols 99		3, 5, 11, 11
Nichols 202A		3, 5, 11, 11
Null N-68		7, 9, 13

Hybrid	P	Table
P.A.G. 71		3, 5, 11
P.A.G. 164		9, 14, 14
P.A.G. 170		6, 7, 8, 9, 13, 13, 14, 15, 15
P.A.G. 173		4, 8, 9, 15, 15, 16, 16, 17B, 17B
P.A.G. 185		4, 8, 9, 15, 16, 17B
P.A.G. 233		3, 5, 11
P.A.G. 253		3, 5, 11, 12, 12
P.A.G. 269		3, 5, 11, 12
P.A.G. 270		7, 9, 12, 13, 13
P.A.G. 277		12
P.A.G. 299		12, 12



Hybrid	Table
P.A.G. 346	7, 9, 13
P.A.G. 347	7, 9, 13, 13, 14
P.A.G. 355	7, 9, 13
P.A.G. 381	9, 14
P.A.G. 383	4, 8, 9, 15, 15, 16
P.A.G. 392	6, 7, 8, 9, 13, 13, 14, 14, 15, 15
P.A.G. 612B(W)	4, 16, 17B
P.A.G. 617(W)	4, 16, 16, 17B, 17B
P.A.G. 620(W)	4, 16, 16, 17B, 17B, 17U
P.A.G. 631(W)	4, 16, 16, 17B
P.A.G. 2675	12
P.A.G. 4196	3, 5, 11, 12
Pioneer 300	8, 9, 14, 14, 15, 15
Pioneer 301	4, 7, 8, 9, 13, 15, 16, 17B
Pioneer 302	4, 8, 9, 15, 16, 16, 17B, 17B, 17U
Pioneer 304	7, 9, 13, 13
Pioneer 313A	9, 14
Pioneer 313B	4, 6, 7, 8, 9, 13, 13, 14, 14, 15, 15, 16
Pioneer 325	12
Pioneer 332	8, 9, 14, 14, 15, 15, 17B, 17B
Pioneer 335	7, 9, 13, 14
Pioneer 337	12
Pioneer 339	7, 9, 13, 13
Pioneer 344	3, 5, 11
Pioneer 346	3, 5, 11, 12
Pioneer 347	3, 5, 11, 12
Pioneer 349	3, 5, 11, 11, 12, 12
Pioneer 352	3, 5, 11, 11
Pioneer 505(W)	4, 16, 16, 17B, 17B
Pioneer 510(W)	4, 16, 17B
Pioneer X-6727	4, 16, 17B
Pioneer X-8144	4, 16, 17B
Plymouth 11	7, 9, 13
Plymouth 38	7, 8, 9, 13, 15
Powers 69	9, 14
Producers 305	3, 5, 11, 11
Producers 311	3, 5, 11, 11
Producers 315	3, 5, 11, 11
Producers 510	12
Producers 525	12
Producers 730	6, 7, 9, 13, 14, 14
Producers 900	7, 9, 13, 13, 14, 14
Producers 940	6, 7, 8, 9, 13, 13, 14, 14, 15, 15
Producers 1022	4, 8, 9, 15, 16, 16, 17B, 17B
Producers 1050	4, 8, 9, 15, 15, 16, 16, 17B, 17B

## S

Schwenk S-24	6, 7, 9, 13, 13
Schwenk S-25	9, 14
Schwenk S-34	7, 9, 13, 13, 14, 14
Sieben S-3	12
Sieben S-340	7, 9, 12, 12, 13, 13
Sieben S-440	6, 7, 9, 13, 13
Sieben S-440E	12, 12
Sieben S-450	12, 12
Sieben S-560	7, 9, 13
Stewart S-51	7, 9, 13
Stewart S-130	7, 9, 13
Stiegelmeier S-9H	3, 5, 11
Stiegelmeier S-13	4, 8, 9, 15, 16, 16, 17B
Stiegelmeier S-340	7, 9, 13, 13, 14, 14

Hybrid	Table
Stiegelmeier S-360	12, 12
Stiegelmeier S-370	7, 8, 9, 13, 13, 14, 14, 15, 15
Stiegelmeier S-379	7, 9, 13
Super-Crost FD-3B	12
Super-Crost 85A	3, 5, 11, 11
Super-Crost 85B	3, 5, 11
Super-Crost F-112A	3, 5, 11
Super-Crost 440A	3, 5, 11
Super-Crost 620	12
Super-Crost 660	9, 14
Super-Crost 660A	12
Super-Crost 880	4, 8, 9, 14, 15, 16, 17B
Super-Crost 880A	9, 14
Super-Crost 1005B	4, 16, 16
Super-Crost 1010S	4, 16, 17B, 17B

## T

Tiemann T-61	3, 5, 7, 9, 11, 12, 13, 14
Tiemann T-72	4, 8, 9, 15, 16
Tiemann T-78	4, 7, 8, 9, 13, 14, 15, 16
Tiemann T-93	4, 16
Trisler T-19B	8, 9, 14, 15
Trisler T-22A	8, 9, 14, 15
Trisler T-32	4, 8, 9, 14, 15, 16
Trisler T-33A	4, 16

## U

United U-32A	12
United U-33	3, 5, 11
United U-33A	3, 5, 11
United U-37A	12
United U-43A	12
United U-50A	7, 9, 13
United U-53	7, 9, 13
United U-63A	8, 9, 15
U.S. 13 (Kelly)	4, 16
U.S. 13 (Producers)	17U
U.S. 13 (Station)	4, 7, 8, 9, 13, 13, 14, 14, 15, 15, 16, 16, 18

## W

Whisnand 804	8, 9, 14, 15, 15
Whisnand 810	8, 9, 15
Whisnand 834	4, 16, 17B
Whisnand 851	4, 16, 17B
Whisnand 917(W)	4, 16, 16, 17B, 17B

## Single Crosses

Hy2 × L317	18
Hy2 × Oh7	18
Oh41 × 38-11	18
M14 × C103	18
WF9 × C103	18
WF9 × Oh41	18



