## Varieties for Illinois

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THE APPEARANCE of a new disease of oats, known as Helminthosporium blight, has cut down the number of spring-oat varieties which can safely be recommended for Illinois. Clinton remains the best variety for all parts of the state, since it is outstanding in yield and is also resistant to this blight. Marion and Benton are also recommended, especially for central and southern Illinois.

First observed in Illinois in 1945, Helminthosporium blight caused such severe damage in 1946 that some farmers plowed up their oats in late spring and sowed the fields to another crop. Other fields that were left standing were not harvested. The blight reduced the 1946 oat crop

by about one-fifth.

The Helminthosporium blight organism is carried either on the seed or in the soil. Infected seedlings usually die when very young; or they may appear healthy for a while, then blight from the bottom leaves upward. If older plants become diseased, their lower joints will be blackened owing to rotting of the stem, and will be covered with spores of the fungus. This condition may develop any time from the jointing stage until maturity.

Seed can be cleared of Helminthosporium infection by treatment with New Improved Ceresan. Where the soil is already infected, this is only a

half-way control measure but it is still worth while.

Helminthosporium blight did not affect the yield on the Illinois test fields in 1946, since all seed used on these fields had been treated each year. Tests made elsewhere, however, show that Vicland, Boone, Tama, Vikota, and Cedar—varieties formerly recommended for Illinois—are susceptible. These varieties were all developed by selection from the cross of Victoria × Richland. Neither these nor other susceptible varieties should be grown unless the seed is treated.

A number of varieties, such as Sixty-Day and Richland, are resistant to Helminthosporium blight but have such low yields that few farmers will want to plant them. Columbia is resistant to this fungus but is likely to be damaged by the rusts and smut.

Table 1. — NORTHERN ILLINOIS (Mt. Morris): Results of Tests
With Spring Oat Varieties

Rani	k Variety	C.I. No.*	Yield above (+), or below (-) average of all varieties <sup>b</sup>	Average yield per acre	Yield in 1946	Test weight per bushel	Plants erect at harvest	Height of plants	Color of grain	Re- action to Helmin blight
	The state of the office		Varieties g	rown fiv	e years,	1942-1946				
-16	HER STATES		bu.	bu.	bu.	lb.	perct.	in.		787
1	Clinton	3971	+20.9	78.3	99.9	35.3	85	37	Yellow	R
3		3502 3611	+ 9.2	66.6	90.4	31.3 30.7	77	34	Yellow	S
4	Boone		+ 8.7 + 6.3	66.1	83.3 73.3	30.7	77 79	34	Yellow	SSS
5		3247	- 1.1	56.3	91.6	33.5	63	34 39	Yellow	S
6	Erban		- 3.0	54.4	80.4	27.9	80	41	White White	R
7	Columbia		- 3.9	53.5	96.7	30.3	43	38	Red	R
8	Richland		-13.9	43.5	88.9	27.0	52	34	Yellow	R
9	Sixty-Day		-14.0	43.4	84.4	26.2	41	36	Yellow	R
	Difference necessary	for								
110	significance			5.7	16.0					
7	also their os a	light)	Varieties g	rown for	ır years,	1943-1946				178
1		3971	+20.4	76.1	99.9	35.3	99	36	Yellow	R
2		3531	- 1.9	53.8	63.3	30.1	95	36	Red	S
	Difference necessary									
	significance			6.6	16.0					
			Varieties gr	own thre	ee years,	1944-1940	5			
1	Clinton	3971	+19.3	81.5	99.9	35.9	99	36	Yellow	R
2		3314	+ 6.5	68.7	79.4	31.5	91	33	Yellow	S
4		3991	- 2.5 - 4.1	59.7		* 31.7	84	31	Yellow*	S
*	Ajax Difference necessary f		- 4.1	58.1	93.3	28.4	66	37	White	R
	significance			8.6	16.0					
7		,	Varieties grov	un two s	reare 10	E and 10	16			V-110,
	Olleter							120-110-07	2017	
1 2		3971 3910	+13.8 + 7.1	88.8	99.9	36.1	100	39	Yellow	R
3	Forvic	4164	+ 6.6	82.1	82.1 80.8	36.6 34.0	99 94	41 36	Yellow	R
4	Iogold		1 0.0	01.0	00.0	34.0	74	30	White	S
5	(Vict. XRich.) Columbia XNavar-	4066	+ .3	75.3	75.8	32.0	94	35	Yellow	S
	ro (Mo. 03883)		- 2.3	72.7	74.1	33.1	58	38	Red	R
6		3602	- 5.3	69.7	65.9	32.9	86	34	Yellow	
7	Ventura	3989	- 6.2	68.8	66.3	32.0	72	33	Yellow*	S
			-15.3	59.7	77.3	28.5	77	40	White	R
8	Exeter	4141						33	Red	S
	Neosho	4141	-17.4	57.6	73.2	30.7	95	0.10		
8	Neosho	or	-17.4	12.5	16.0	30.7				
8	Difference necessary f	or		12,5	16.0					5."
8 9	Neosho	or	Varieti	12.5 es growr	16.0 n in 1946	only	•			
1	Neosho	or 3971	Varieti +19.1	12.5 es growr 99.9	16.0 n in 1946	only 35.1	99	40	Yellow	R
1 2	Neosho Difference necessary f significance  Clinton Bonda	3971 4329	Varieti +19.1 +13.6	12.5 es growr 99.9 94.4	16.0 n in 1946 99.9 94.4	only 35.1 36.9	99	40 42	Yellow White	R
1 2 3	Neosho Difference necessary f significance  Clinton Bonda Mindo	or 3971	Varieti +19.1 +13.6 + 3.6	12.5 es growr 99.9 94.4 84.4	16.0 n in 1946 99.9 94.4 84.4	only 35.1 36.9 34.9	99 95 65	40 42 37	Yellow White Yellow	R R R
1 2 3 4	Neosho Difference necessary f significance  Clinton Bonda Mindo	3971 4329 4328 3908	Varieti +19.1 +13.6	12.5 es growr 99.9 94.4	16.0 n in 1946 99.9 94.4	only 35.1 36.9	99	40 42	Yellow White	R

<sup>\*</sup> U. S. Department of Agriculture Cereal Investigations number.
b Each variety has been compared with all varieties grown the same year. In most years 24 varieties grown at both Mt. Morris and Urbana, and 14 varieties at Alhambra.
\* Slightly reddish-yellow.

Table 2. — CENTRAL ILLINOIS (Urbana): Results of Tests With Spring Oat Varieties

Rank	Variety	C.I. No.ª	Yield above (+), or below (-) average of all varieties <sup>b</sup>	Average yield per acre	Yield in 1946	Test weight per bushel	Plants erect at harvest	Height of plants	Color of grain	Re- action to Helmin blight
			Varieties g	rown fiv	e years,	1942-1946	5			
			bu.	bu.	bu.	16.	perct.	in.		
1	Clinton	3971	+7.7	71.1	71.6	34.7	99	36	Yellow	R
2	Tama	3502	+6.1	69.5	74.0	32.6	91	34	Yellow	S
3	TamaVicland	3611	+4.1	67.5	68.4	32.8	93	34	Yellow	S
4	Marion	3247	+3.4	66.8	70.5	34.3	94	41	White	K
5	Vikota	3602	+2.4	65.8 64.2	68.5 67.0	32.8 33.6	90 94	34 34	Yellow	9
6	Boone	3305 3531	+ .8	62.9	63.3	32.5	95	31	Red	RSSS
8	Columbia	3331	-1.1	62.3	71.5	33.3	74	38	Red	R
9	Erban		-6.2	57.2	62.3	30.5	96	39	White	R
10	Sixty-Day		-7.3	56.1	67.7	29.0	79	36	Yellow	R
11	Richland		-9.0	54.4	70.7	29.3	81	33	Yellow	R
	Difference necessary significance			1.8	3.3					
			Varieties g	rown for	ur years,	1943-194	6		-	
1 2	Clinton	3971	+6.7	69.9	71.6	35.1	99	37	Yellow	R
~	(Vict. XRich.)	4066	+5.1	68.3	77.8	33.0	98	35	Yellow	S
	Difference necessary significance			2.1	3.3					
57-55			Varieties g	rown thi	ree years,	1944-194	16	- 0		-
1	Clinton	3971	+6.9	74.3	71.6	35.2	100	38	Yellow	R
2	Ajax		+6.9 +6.6	74.3 74.0	71.6 79.2	35.2 32.1	100 97	40	White	R
2	Ajax Cedar	3314	+6.9 +6.6 +2.8	74.3 74.0 70.2	71.6 79.2 70.8	35.2 32.1 33.3	100 97 91	40 35	White Yellow	R
2 3 4	Ajax Cedar Ventura	3314 3989	+6.9 +6.6 +2.8 +1.4	74.3 74.0 70.2 68.8	71.6 79.2 70.8 75.5	35.2 32.1 33.3 33.1	100 97 91 93	40 35 31	White Yellow Yellow	R
2 3 4 5	Ajax	3314 3989 3991	+6.9 +6.6 +2.8 +1.4 +1.2	74.3 74.0 70.2 68.8 68.6	71.6 79.2 70.8 75.5 72.8	35.2 32.1 33.3	100 97 91	40 35	White Yellow	RSS
2 3 4	Ajax	3314 3989 3991 4141	+6.9 +6.6 +2.8 +1.4	74.3 74.0 70.2 68.8	71.6 79.2 70.8 75.5	35.2 32.1 33.3 33.1 33.4	100 97 91 93 95	40 35 31 32	White Yellow Yellow Yellow	RSSS
2 3 4 5	Ajax	3314 3989 3991 4141 for	+6.9 +6.6 +2.8 +1.4 +1.2 + .6	74.3 74.0 70.2 68.8 68.6	71.6 79.2 70.8 75.5 72.8	35.2 32.1 33.3 33.1 33.4	100 97 91 93 95	40 35 31 32	White Yellow Yellow Yellow	RSSS
2 3 4 5	Ajax. Cedar. Ventura Osage Neosho Difference necessary	3314 3989 3991 4141 for	+6.9 +6.6 +2.8 +1.4 +1.2 + .6	74.3 74.0 70.2 68.8 68.6 68.0	71.6 79.2 70.8 75.5 72.8 73.3	35.2 32.1 33.3 33.1 33.4 34.0	100 97 91 93 95 98	40 35 31 32 35	White Yellow Yellow Yellow Red	RSSSSSS
2 3 4 5	Ajax Cedar Ventura Osage Neosho Difference necessary significance	3314 3989 3991 4141 7 for	+6.9 +6.6 +2.8 +1.4 +1.2 + .6 Varieties gro	74.3 74.0 70.2 68.8 68.6 68.0 2.5	71.6 79.2 70.8 75.5 72.8 73.3 3.3 years, 19	35.2 32.1 33.3 33.1 33.4 34.0	100 97 91 93 95 98	40 35 31 32 35 	White Yellow Yellow Yellow Red	R S S S S S S
2 3 4 5 6	Ajax Cedar Ventura Osage Neosho Difference necessary significance  Clinton Benton Columbia XNavar-	3314 3989 3991 4141 7 for	+6.9 +6.6 +2.8 +1.4 +1.2 +.6 	74.3 74.0 70.2 68.8 68.6 68.0 2.5 own two	71.6 79.2 70.8 75.5 72.8 73.3 3.3 years, 19	35.2 32.1 33.3 33.1 33.4 34.0  945 and 1	100 97 91 93 95 98  946	40 35 31 32 35 35	White Yellow Yellow Red Yellow Yellow Yellow	R S S S S S S S
2 3 4 5 6	Ajax Cedar Ventura Osage Neosho Difference necessary significance  Clinton Benton Columbia × Navar ro (Mo. 03883). Difference necessary	3314 3989 3991 4141 7 for 3971 3910	+6.9 +6.6 +2.8 +1.4 +1.2 +.6 Varieties gro +4.2 +3.0 -6.7	74.3 74.0 70.2 68.8 68.6 68.0 2.5 own two 79.1 77.9 68.2	71.6 79.2 70.8 75.5 72.8 73.3 3.3 years, 19	35.2 32.1 33.3 33.1 33.4 34.0 945 and 1	100 97 91 93 95 98  946	40 35 31 32 35 	White Yellow Yellow Yellow Red  Yellow Red  Yellow	R S S S S S S
2 3 4 5 6	Ajax Cedar Ventura Osage Neosho Difference necessary significance  Clinton Benton Columbia XNavar- ro (Mo. 03883)	3314 3989 3991 4141 7 for 3971 3910	+6.9 +6.6 +2.8 +1.4 +1.2 +.6 	74.3 74.0 70.2 68.8 68.6 68.0 2.5 own two 79.1 77.9 68.2 3.0	71.6 79.2 70.8 75.5 72.8 73.3 3.3 years, 19 71.6 69.2 75.2 3.3	35.2 32.1 33.3 33.1 33.4 34.0 045 and 1 36.4 37.3 34.8	100 97 91 93 95 98  946	40 35 31 32 35 35	White Yellow Yellow Red Yellow Yellow Yellow	R S S S S S S S
2 3 4 5 6	Ajax Cedar Ventura Osage Neosho Difference necessary significance  Clinton Benton Columbia × Navar ro (Mo. 03883). Difference necessary	3314 3989 3991 4141 7 for 3971 3910	+6.9 +6.6 +2.8 +1.4 +1.2 +.6 Varieties gro +4.2 +3.0 -6.7	74.3 74.0 70.2 68.8 68.6 68.0 2.5  Dwn two  79.1 77.9 68.2 3.0  ties grow	71.6 79.2 70.8 75.5 72.8 73.3 3.3 years, 19 71.6 69.2 75.2 3.3	35.2 32.1 33.3 33.1 33.4 34.0  945 and 1 36.4 37.3 34.8	100 97 91 93 95 98  946	39 44 41	White Yellow Yellow Yellow Red Yellow Yellow Red	RSSSSS
2 3 4 5 6	Ajax Cedar Ventura Osage Neosho Difference necessary significance  Clinton Benton Columbia ×Navar- ro (Mo. 03883) Difference necessary significance	3314 3989 3991 4141 7 for 3971 3970 3971 3910	+6.9 +6.6 +2.8 +1.4 +1.2 +.6 	74.3 74.0 70.2 68.8 68.6 68.0 2.5 own two 79.1 77.9 68.2 3.0 ties grov	71.6 79.2 70.8 75.5 72.8 73.3 3.3 years, 19 71.6 69.2 75.2 3.3 yn in 194	35.2 32.1 33.3 33.1 33.4 34.0  945 and 1 36.4 37.3 34.8 	100 97 91 93 95 98  946	39 44 41 33 35 35	White Yellow Yellow Yellow Red Yellow Red Yellow Yellow	R SSSSS
2 3 4 5 6	Ajax Cedar Ventura Osage Neosho Difference necessary significance  Clinton Benton Columbia × Navar- ro (Mo. 03883) Difference necessary significance	3314 3989 3991 4141 7 for 3971 3910 y for	+6.9 +6.6 +2.8 +1.4 +1.2 +.6  Varieties gro +4.2 +3.0 -6.7  Varieties 48.6 +3.1	74.3 74.0 70.2 68.8 68.6 68.0 2.5 own two 79.1 77.9 68.2 3.0 ties grov	71.6 79.2 70.8 75.5 72.8 73.3 3.3 years, 19 71.6 69.2 75.2 3.3 you in 194 80.1 74.6	35.2 32.1 33.3 33.1 33.4 34.0  945 and 1 36.4 37.3 34.8  6 only	100 97 91 93 95 98  946 100 98 87 	39 44 41 33 35 35	White Yellow Yellow Yellow Red Yellow Yellow Yellow Yellow Yellow	R SSSSS RR R
1 2 3 4 5 6	Ajax Cedar Ventura Osage Neosho Difference necessary significance  Clinton Benton Columbia XNavar- ro (Mo. 03883) Difference necessary significance	3314 3989 3991 4141 7 for 3971 3910  y for	+6.9 +6.6 +2.8 +1.4 +1.2 +.6 	74.3 74.0 70.2 68.8 68.6 68.0 2.5 0wn two 79.1 77.9 68.2 3.0 ties grov	71.6 79.2 70.8 75.5 72.8 73.3 3.3 years, 19 71.6 69.2 75.2 3.3 yn in 194	35.2 32.1 33.3 33.1 33.4 34.0 045 and 1 36.4 37.3 34.8	100 97 91 93 95 98  946 100 98 87 	39 44 41 33 35 35	White Yellow Yellow Yellow Red Yellow Red Yellow White White	RSSSSS RR R
1 2 3 4 5 6	Ajax Cedar Ventura Osage Neosho Difference necessary significance  Clinton Benton Columbia XNavar- ro (Mo. 03883) Difference necessary significance	3314 3989 39991 4141 7 for 3971 3970 4328 4329 3971	+6.9 +6.6 +2.8 +1.4 +1.2 +.6 	74.3 74.0 70.2 68.8 68.6 68.0 2.5 own two 79.1 77.9 68.2 3.0 ties grov	71.6 79.2 70.8 75.5 72.8 73.3 3.3 years, 19 71.6 69.2 75.2 3.3 yn in 194 80.1 74.6 73.3 71.6	35.2 32.1 33.3 33.1 33.4 34.0  945 and 1 36.4 37.3 34.8  6 only	100 97 91 93 95 98  946 100 98 87 	30 31 32 35  39 44 41 	White Yellow Yellow Yellow Red Yellow Yellow Yellow Yellow Yellow	RSSSSS RR R
1 2 3 4 5 6	Ajax Cedar Ventura Osage Neosho Difference necessary significance  Clinton Benton Columbia XNavar- ro (Mo. 03883) Difference necessary significance	3314 3989 3991 4141 7 for 3971 3910  y for	+6.9 +6.6 +2.8 +1.4 +1.2 +.6 	74.3 74.0 70.2 68.8 68.6 68.0 2.5 own two 79.1 77.9 68.2 3.0 ties grov 80.1 74.6 73.3 71.6	71.6 79.2 70.8 75.5 72.8 73.3 3.3 years, 19 71.6 69.2 75.2 3.3 yn in 194	35.2 32.1 33.3 33.1 33.4 34.0 045 and 1 36.4 37.3 34.8	100 97 91 93 95 98  946 100 98 87 	39 44 41 33 35 35 39 44 41 33 34 33 34	White Yellow Yellow' Yellow' Red  Yellow Yellow Red  Yellow Yellow Red	RSSSSS RR R
1 2 3 4 5 6	Ajax Cedar Ventura Osage Neosho Difference necessary significance  Clinton Benton Columbia × Navar ro (Mo. 03883) Difference necessary significance	3314 3989 3991 4141 7 for 3971 3910 4328 4329 3971 3908 4164	+6.9 +6.6 +2.8 +1.4 +1.2 +.6 	74.3 74.0 70.2 68.8 68.6 68.0 2.5 own two 79.1 77.9 68.2 3.0 ties grov 80.1 74.6 73.3 71.6	71.6 79.2 70.8 75.5 72.8 73.3 3.3 years, 19 71.6 69.2 75.2 3.3 yn in 194 80.1 74.6 73.3 71.6 71.4	35.2 32.1 33.3 33.1 33.4 34.0  945 and 1 36.4 37.3 34.8  6 only	100 97 91 93 95 98  946 100 98 87 	39 44 41 	White Yellow Yellow Yellow Red  Yellow Yellow Red  Vellow White White Yellow White	RSSSSS RR R

For comparison, figures for Clinton are included in reports of all tests except the five-year test in southern Illinois.

Table 3.—SOUTHERN ILLINOIS (Alhambra): Results of Tests
With Spring Oat Varieties

Ran	uk Variety	C.I. No.*	Yield above (+), or below (-) average of all varieties <sup>b</sup>	Average yield per acre	Yield in 1946	Test weight per bushel	Plants erect at harvest	Height of plants	Color of grain	Re- action to Helmin blight
			Varieties g	rown fiv	e years, 1	942-1946	0			
32			bu.	bu.	bu.	lb.	perct.	in.		
1	Tama	3502	+2.5	25.2	37.1	27.3	79	31	Mallan.	
2	Marion	3247	+1.1	23.8	35.8	29.5	84	33	Yellow White	S R
3	Columbia		+ .8	23.5	31.7	28.9	62	33	Red	R
4		3611	6	22.1	29.2	26.6	83	30	Yellow	S
	Difference necessary	for						55	Lenow	3
	significance	• • • • • •		2.6	5.3	****				
			Varieties gr	rown fou	ir years,	1943-1946				
1	Clinton	3971	+2.7	25.2					227077	
2			-2.7	19.9	38.2 32.8	30.7	93	31	Yellow	R
	Difference necessary f		2.1	19.9	32.8	25.6	53	32	Yellow	R
	significance	OI		2.4						
	significance			2.4	5.3	* * * *		**		
			Varieties gr	own thre	ee years,	1944-1946	5			
1	Clinton	3971	+2.5	24.8	38.2	30.2	9.3	31	Yellow	R
2	Neosho	4141	+2.3	24.6	36.4	27.4	70	28	Red	S
3		3314	2	22.1	31.6	25.7	73	28	Yellow	S
	Difference necessary f	or					200	20	1 CHOW	3
	significance	• • • • • •		3.0	5.3			0.00		
	Postanie in the	V	arieties grov	vn two y	ears, 194	5 and 194	16			
1	Ranton		The second second		DATE OF THE PARTY		-			
2		3910 3971	+8.3	28.5	37.1	34.3	97	36	Yellow	R
3	Columbia XNavar-	39/1	+5.2	25.4	38.2	31.3	96	30	Yellow	R
	ro (Mo. 03883)		+1.3	21 5	25 0	20.0	122	22.000		250
4	Osage	3991	-1.9	21.5	35.0	30.8	58	32	Red	R
5		3989	-3.6	16.6	31.1 27.6	27.4	59	27	Yellow*	S
	Difference necessary for		0.0	10.0	27.0	26.3	50	27	Yellow*	S
	significance			3.0	F 2					
	- J			3.0	5.3	****	* * *			
			Varietie	es grown	in 1946	only				
1	Clinton 3	3971	+6.1	38.2	38.2	32.0	98	32	V-11	-
2	Forvic	164	-7.0	25.1	25.1	25.5	86	31	Yellow White	R
3		3531	-9.3	22.8	22.8	22.8	96	30	Red	S
	Difference necessary for	or		DESCRIPTION OF THE PROPERTY OF		20.0	20	30	red	5
	significance			5.3	5.3					
					0.0	******	* *			72.

Treatment for Helminthosporium blight. It is best to use resistant varieties. If seed of these varieties is not available, infection carried on the seed can be controlled by treatment with New Improved Ceresan — ½ or ¼ ounce per bushel. When using ½ ounce, let the seed stand in sacks or in bulk for at least 3 days before planting. If ¼ ounce is used, let seed stand at least 30 days before planting. This treatment may not give complete control if the soil is infected.