Results of the
KENTUCKY SOYBEAN PERFORMANCE TESTS—1969

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UNIVERSITY OF KENTUCKY
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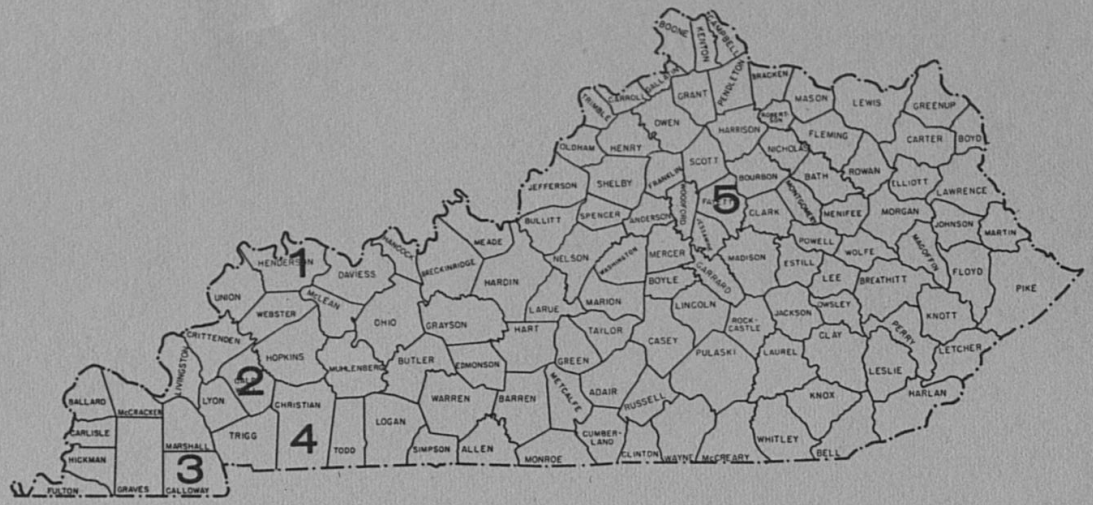
DEPARTMENT OF AGRONOMY
Lexington

LOCATION OF THE 1969
SOYBEAN PERFORMANCE TESTS



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Location	Soil Type	pH	Phosphorus	Potassium	Fertilizer Applied	Date Planted	Row Width
1. Henderson	Sharkey silt loam	5.9	High	Low	None	May 13	30"
2. Princeton	Crider silt loam	---	---	---	None	May 15	30"
3. Murray	Crider silt loam	---	---	---	12-36-60	May 28	28"
4. Hopkinsville	Hagerstown silt loam	---	---	---	15-35-66	--- 1/	20"
5. Lexington	Burgin silt loam	6.6	High	High	None	May 16	30"

1/ Several planting dates used; see Table 9.

RESULTS OF THE KENTUCKY SOYBEAN PERFORMANCE TESTS - 1969

The objective of the Kentucky Soybean Performance Tests is to provide an estimate of the relative performance of standard soybean varieties. Included in the testing program are herbicide tests and tests of cultural and management practices that may be important in the production of soybeans in Kentucky. Experimental strains of soybeans provided by the U. S. Regional Soybean Laboratory are also tested at several locations in Kentucky.

Soybean production in Kentucky for 1969 was estimated at 14,084,000 bushels. Production in 1968 was 12,349,000 bushels and 10,864,000 bushels in 1967. Estimated average yield per acre was 28.0 bushels for 1969, which equalled the average yield per acre for 1967 and represents an increase of 1.5 bu. from 1968.

EXPERIMENTAL METHODS

Soybean tests were conducted at four locations in the major soybean-producing areas of the state and at Lexington. The testing locations, soil types, soil test results, pounds of N, P and K applied per acre, date planted and row width are shown on page 2. Varieties were planted with each entry in three plots (replications) at all locations with individual plots being 4 rows wide and 19 feet long. The seedling rate was 10 viable seed per foot of row.

In the herbicide test conducted at Henderson the plot size was 4 rows 40 feet long. This test was planted May 13 and the herbicides were applied with a tractor mounted boom sprayer. Chemicals were applied uniformly by using a constant pressure of 40 psi. All chemicals were applied in water at the rate of 25 gal/A. Treflan was applied as preplant treatment and double disked immediately into the soil. The plots were cultivated twice during the summer.

Yield

A 16-foot section from each of the 2 center rows was harvested for yield. Plants were cut by hand and threshed with a small nursery thresher. The yield of the varieties is reported as bushels per acre at 13.0 percent moisture.

Maturity Date

This is the date when the pods are dry and most of the leaves have dropped. Stems are also dry, under most conditions. Maturity may also be expressed as days earlier (-) or later (+) than a standard variety.

Lodging

Lodging was based on a scale of 1 to 5; 1 = almost all plants erect; 2 = all plants over slightly or a few down; 3 = all plants over moderately or 25%-50% down; 4 = all plants over considerably or 50%-80% down; 5 = all plants down badly.

Seed Quality

Seed quality was rated according to the following scores considering the amount and degree of wrinkling, defective seed coat, greenishness, and moldy or rotten seeds. The scores are based on a scale of 1 to 5; 1 = very good; 2 = good; 3 = fair; 4 = poor; 5 = very poor.

Seed Size

Seed size is expressed as the weight in grams of 100 seed.

Purple Seed Stain

The amount of purple stain, a disease caused by the fungus Cecospora kikuchii (T.Matsu and Tomoyaau) Gardner, is expressed as the percentage of seed which was stained. Development of the disease is apparently influenced by weather conditions existing during pod formation.

RESULTS

Variety Trials

Performance data for the variety tests are presented in Tables 1-9. Tables 2, 4, 6, and 8 are periods-of-year summaries for Henderson, Princeton, Murray, and Lexington. Tables 1, 3, 5, and 7 are annual summaries for the same respective locations. Table 9 is the annual summary of varieties grown under different cultural systems at Hopkinsville.

Weed Control Experiment

Data for the herbicide test at Henderson are presented in Tables 10 and 11. Ratings are given as the percent control for both grassy and broadleaf type weeds. Percent control ratings were made on August 27.

An area known to be heavily infested with most weeds, except johnson grass and wild cane, was selected for the test. However, the weed population was not constant across all of the plots and this may have contributed to some of the variation among treatments.

Beans from plots where good weed control was obtained were much easier to thresh than beans from plots with no treatment or those with poor weed control.

Regim-8 Experiment

Data from the Regim-8 experiments at Lexington and Princeton are presented in Table 12.

Regim-8 (2,3,5-triiodobenzoic acid-TIBA) is a plant growth regulator that has been reported to increase soybean yields when soybeans are grown under intensive management in high yield situations.

None of the four varieties exhibited a significant yield increase when treated with Regim-8.

Wayne and Cutler, treated with Regim-8 were shorter and exhibited a slight reduction in lodging as compared to the non-treated normal plants. Regim-8 had less effect on the height and lodging of Dare and Hood.

Date of Planting, Irrigation, and Variety Experiment

This experiment was conducted for three years (1967-1969) at Lexington. Yields of both varieties tended to decrease as the planting date was delayed until June 22. Neither of the varieties exhibited a consistent response to additional moisture applied by irrigation, indicating that during the three years of this study the moisture supply was not the primary factor limiting yield. The three-year summary of this experiment is presented in Table 13.

Table 1. Annual Summary of Soybean Varieties Grown at Henderson, Ky. 1969

Variety	Yield Bu/Acre	Date Mature	Lodging[1/]	Ht, In.	Seed Quality[1/]	G/100 Seed
Amsoy	43.0	8/26	3.3	44	3.3	14.4
Adelphia	47.9	9/14	2.7	46	2.7	18.6
Wayne	44.3	9/16	2.5	47	3.3	17.8
Clark 63	39.8	9/18	2.3	49	3.3	16.4
Cutler	53.7	9/21	2.3	46	3.3	19.5
Kent	41.5	9/21	2.3	48	3.5	18.4
Custer	33.6	9/24	3.0	56	3.2	14.6
Hill	30.4	10/1	2.3	38	2.8	11.9
Dyer	35.2	10/4	2.7	40	2.5	15.2
Dare	35.7	10/15	2.5	45	2.3	13.4
Hood	25.9	10/15	2.7	44	2.5	15.0
Ogden	32.4	10/15	1.8	46	3.0	16.7
LSD (.05)	5.1 bu					

[1/] See text for explanation of ratings

Table 2. Performance of Soybean Varieties Grown at Henderson, Ky. 1965-1969

Variety	Yield, Bu/Acre 65-69	67-69	68-69	Maturity[1]	Lodging[2]	Ht, In.	Seed Quality[2]	G/100 Seed
Wayne	40.2	43.4	42.3	0	2.2	43	2.7	17.2
Custer	--	30.7	32.7	+5	2.7	51	2.2	13.4
Clark 63	39.6	38.9	38.6	+3	2.1	44	2.8	15.7
Kent	41.6	40.8	41.6	+6	1.9	43	2.6	17.6
Hill	35.4	30.2	31.3	- [3]	2.3	36	1.7	12.4
Dare	--	35.7	37.2	-	2.5	43	1.7	13.8
Dyer	--	34.0	35.7	-	2.2	37	1.9	14.5
Hood	28.2	27.8	29.0	-	2.4	39	1.7	15.0
Ogden	32.2	32.5	33.0	-	2.1	42	2.3	15.8

Agronomic data, other than yield, is for 5 years except for varieties that have been in the test for a shorter period of time.

[1] Days later than Wayne

[2] See text for explanation of ratings

[3] Killing frost occurred before maturity in 3 of the 5 years

Table 3. Annual Summary of Soybean Varieties Grown at Princeton, Ky. 1969

Variety	Yield Bu/Acre	Date Mature	Lodging[1/]	Ht, In.	Seed Quality[1/]	G/100 Seed
Wayne	43.4	9/9	2.7	47.7	4	18.4
Adelphia	40.2	9/10	2.7	45.7	2	19.0
Clark 63	39.0	9/12	3.0	51.7	2	18.3
Cutler	37.8	9/21	2.7	48.3	2	21.3
Kent	42.6	9/24	2.0	46.0	2	19.8
Custer	37.8	9/28	3.7	52.7	3	17.0
Hill	53.4	10/6	3.0	39.0	2	14.7
Dyer	40.7	10/20	4.0	37.3	2	17.1
York	54.5	10/15	2.7	43.0	1	18.5
Dare	54.1	10/16	3.3	42.0	1	15.1
Hood	50.7	10/20	3.0	46.0	2	16.1
Lee	42.4	10/20	4.0	42.3	3	13.6
LSD (.05)	9.3 bu.					

1/ See text for explanation of ratings

Table 4. Performance of Soybean Varieties Grown at Princeton, Ky. 1965-1969

Variety	Yield, Bu/Acre 65-69	67-69	68-69	Maturity[1]	Lodging[2]	Ht, In.	Seed Quality[2]	G/100 Seed
Wayne	--	37.0	36.8	0	2.1	41	3.4	18.2
Clark 63	32.4	34.2	33.2	+6	1.9	43	1.8	15.9
Custer	--	--	35.6	+14	2.4	50	3.2	15.1
Kent	35.8	38.5	38.4	+12	1.4	40	2.3	17.1
Hill	38.4	39.5	40.2	+33	2.7	37	1.9	14.5
Dyer	--	--	34.5	+32	2.6	36	2.2	15.1
Dare	--	42.2	45.2	+41	3.0	39	1.1	15.9
Hood	41.1	43.6	44.2	+41	2.4	41	1.5	16.8
Lee	--	37.2	39.9	+47	3.8	42	3.0	15.0

Agronomic data, other than yield, is for 5 years except for varieties that have been in the test for a shorter period of time.

[1] Days later than Wayne

[2] See text for explanation of ratings

Table 5. Annual Summary of Soybean Varieties Grown at Murray, Ky. 1969

Variety	Yield Bu/A	Date Mature	Ht, In.	Seed Quality 1/	G/100 Seed
Wayne	40.0	9-15	46.7	3	17.6
Adelphia	38.5	9-17	43.0	4	19.4
Clark 63	42.3	9-25	48.0	2	18.0
Cutler	38.0	9-28	47.0	2	20.8
Kent	40.5	9-25	45.7	3	20.0
Custer	41.4	9-25	51.3	3	15.6
Hill	46.5	9-15	40.7	2	12.5
Dyer	39.4	10-18	39.7	2	16.3
York	54.8	10-18	40.7	2	18.3
Dare	56.5	10-16	40.0	1	14.7
Hood	43.9	10-15	41.3	2	15.9
Lee	43.5	10-20	39.7	3	13.6

LSD (.05) 9.0 bu.

1/ See text for explanation of ratings

Table 6. Performance of Soybean Varieties Grown at Murray, Ky. 1966-1969

Variety	Yield, Bu/Acre 66-69	67-69	68-69	Maturity[1]	Lodging[2]	Ht, In.	Seed Quality[2]	G/100 Seed
Wayne	38.7	37.9	40.0	0	2.8	40	2.4	18.5
Adelphia	--	--	38.2	+2	1.0	38	2.8	17.8
Clark 63	40.3	39.4	41.9	+6	2.4	44	1.8	17.6
Custer	--	35.8	38.1	+8	3.2	48	2.6	15.5
Kent	42.0	41.0	40.0	+7	1.7	44	2.2	20.6
Hill	38.6	38.3	36.9	+8	3.7	38	1.5	13.9
Dyer	--	--	38.2	+27	2.7	38	2.5	15.7
Dare	43.2	45.5	47.0	+32	3.1	38	1.1	15.3
York	--	--	46.9	+32	1.0	39	1.8	18.3
Hood	36.6	37.3	40.3	+31	3.0	38	1.6	15.4
Lee	35.8	36.5	39.1	+33	3.9	38	2.1	14.0

Agronomic data, other than yield, is for 4 years except for varieties that have been in the test for a shorter period of time. No lodging data was available for 1969

1/ Days later than Wayne

2/ See text for explanation of ratings

Table 7. Annual Summary of Soybean Varieties Grown at Lexington, Ky. 1969

Variety	Yield Bu/Acre[1/]	Date Mature	Lodging[2/]	Ht, In.	Seed Quality[2/]	G/100 Seeds
Adelphia	39.4	9/15	1.5	44	2.5	18.3
Wayne	40.6	9/17	2.2	46	2.5	18.5
Shelby	33.1	9/14	2.2	46	2.8	17.4
Clark 63	33.0	9/19	2.5	44	2.5	17.3
Custer	33.2	10/2	2.7	48	2.8	16.0
Kent	32.4	9/28	2.0	44	2.0	19.7
Cutler	35.2	9/24	2.5	47	2.5	20.1
Dare	35.6	9/15	4.0	41	2.0	13.9
Dyer	38.7	10/15	4.5	43	2.3	15.8
Hill	39.1	10/15	4.2	39	2.0	13.5
York	37.4	10/15	3.8	44	1.7	18.7
Hood	28.5	10/21	4.3	45	2.2	15.7

1/ Differences in yield were not statistically significant

2/ See text for explanation of ratings

Table 8. Performance of Soybean Varieties at Lexington, Ky. 1967-1969

Variety	Yield, Bu/Acre 67-69	Yield, Bu/Acre 68-69	Maturity[1]	Lodging[2]	Ht, In.	Seed Quality[2]	G/100 Seed
Shelby	---	36.4[3]	-2	2.2	46	2.4	17.1
Wayne	41.1	40.3	0	2.3	45	1.9	17.8
Clark 63	35.7	35.0	+3	2.4	43	2.3	15.7
Custer	31.7	32.8	+10	3.1	46	2.3	14.7
Kent	36.4	35.6	+10	1.5	45	1.9	17.9
Dare	34.0	39.6	--[4]	3.3	40	1.8	13.9
Dyer	---	38.3	--	4.2	40	2.0	15.2
Hill	31.3	35.2	--	4.0	39	1.9	12.6
York	---	39.8	--	3.8	44	1.8	18.1
Hood	30.2	33.2	--	3.7	42	1.9	13.7

Agronomic data, other than yield, is for 3 years except for varieties that have been in the test for a shorter period of time.

1/ Days earlier (-) or later (+) than Wayne

2/ See text for explanation of ratings

3/ Average of 1967 and 1969 data

4/ Killing frost occurred before maturity in 2 of the three years

Table 9. Annual Summary of Soybean Varieties Grown Under Different Cultural Practices at Hopkinsville, Ky. 1969

Variety	Yield, Bu/Acre			Seed Quality 4/			Purple Stain 4/		
	Conventional 1/ Tillage	No 2/ Tillage	Double 3/ Cropping	CT	NT	DC	CT	NT	DC
Shelby	21.5	24.2	21.5	4.8	4.7	2.3	15	13	0
Wayne	22.7	27.7	24.0	4.3	4.7	2.8	8	27	0
Clark 63	28.5	33.2	37.2	5.0	4.7	2.7	40	17	0
Kent	40.3	40.3	35.8	4.8	4.3	2.8	43	35	0
Cutler	31.3	41.2	45.1	5.0	4.8	2.2	37	28	0
Dare	55.1	58.9	29.8	1.5	1.7	1.8	0	0	0
Hill	45.9	59.0	24.5	1.8	2.0	1.8	0	0	0
Hood	54.9	54.7	19.8	1.8	2.0	2.3	0	0	0
LSD (.05)	8.4	13.5	8.7						

1/ Planted May 13 in 20 inch rows using conventional tillage methods

2/ Planted May 13 in 20 inch rows using a no-till planting system

3/ Planted July 1, following wheat, in 20 inch rows using a no-till planting system

4/ See text for explanation of ratings

Table 10. Summary of Soybean 1/ Herbicide Test, Henderson, Ky. 1966-69

Herbicide		Herbicide lb actual per acre	Yield Bu per acre	
Trade Name	Common Name		1966-69	1969
Alanap Plus	naptalam + chlorpropham	3.00 + 2.00	37.8	31.0
Amiben 2E	amiben	3.00	36.0	35.7
Lorox 50W	linuron	1.00	36.9	34.4
Treflan 4E-disk,preplant	trifluralin	0.75	29.0	23.7
Vernam 6E-incorporated	vernolate	2.50	33.5	26.4
Enide Dinitro EC	diphenamid + dinoseb	2.00 + 1.00	37.9	41.7
Lasso WP 4E	alachlor	2.0	--	43.3
Lorox 50W + Lasso WP 4E	linuron + alachlor	0.75 + 0.50	--	41.4
Amiben 2E + CIPC 4E	amiben + chlorpropham	1.00 + 2.00	--	46.4
No treatment		----	23.5	31.0
LSD (.05)				12.5

1/ Variety - Clark 63, see note on page 5 concerning this experiment.

Table 11. Annual Summary of Weed Control in the Herbicide Test.[1/] Henderson, Ky. 1969

Herbicide		Percent Control 2/	
Trade Name	Common Name	Grass	Broadleaf
Alanap Plus	naptalam + chlorpropham	62	58
Amiben 2E	amiben	82	62
Lorox 50W	linuron	85	75
Treflan 4E-disk preplant	trifluralin	85	22
Vernam 6E-incorporated	vernolate	85	15
Lasso WP 4E	alachlor	90	88
Lorox 50W + Lasso WP 4E	linuron + alachlor	90	75
Amiben 2E + CIPC 4E	amiben + chlorpropham	85	80
Enide Dinitro EC	diphenamid + dinoseb	75	82
No Treatment		62	42

1/ Clark 63 soybeans - see notes on page 5 concerning this experiment

2/ Visual evaluation on August 27 following two cultivations

Table 12. Annual Summary of Regim-8 Test, Lexington and Princeton, Ky. 1969

Variety	Lexington		Princeton		Ave. across locations	
	Normal	Regim-8 1/	Normal	Regim-8	Normal	Regim-8
Yield, Bu/Acre 2/						
Wayne	41.9	42.9	40.9	39.1	41.4	41.0
Cutler	37.2	39.5	44.7	42.7	41.0	41.1
Dare	38.8	38.7	49.8	54.2	44.3	46.4
Hood	27.4	28.8	51.0	52.3	39.2	40.6
Average	36.3	37.5	46.6	47.1	41.5	42.3
Height, In.						
Wayne	43	36	46	40	44	38
Cutler	44	36	46	38	45	37
Dare	42	41	42	42	42	42
Hood	44	44	44	45	44	44
Average	43	39	44	41	44	40
Lodging 3/						
Wayne	3.3	3.0	3.2	2.4	3.2	2.7
Cutler	3.6	2.6	2.0	2.0	2.8	2.3
Dare	3.6	3.2	3.8	4.2	3.7	3.7
Hood	4.0	4.2	3.8	3.2	3.9	3.7
Average	3.6	3.2	3.2	3.0	3.4	3.1

1/ Regim-8 applied at a rate of 5 oz/acre. Wayne and Cutler treated within 10 days after 5-15% of the plants were in bloom. Dare and Hood treated at the 8-9th trifoliate stage.

2/ Yield differences due to Regim-8 are not statistically significant.

3/ See text for explanation of ratings.

Table 13. Date-of-planting, Irrigation, and Variety Experiment, Lexington, Ky. 1967-1969

Date Planted	Wayne		Kent		
	Irrigated	Non - Irrigated	Irrigated	Non- Irrigated	Ave
April 23	50.1	45.5	52.0	48.8	49.1
May 23	42.8	46.8	43.5	49.4	45.6
June 22	38.3	38.8	40.6	37.1	38.7
Average	43.7	43.7	45.4	45.1	

4M---2-70