

# 1994 Kentucky Soybean Performance Tests

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## Acknowledgements

In addition to the county agents and farm cooperators mentioned in Table 1, several people have contributed greatly to

the production of this publication: Eugene Lacefield, John Byars, and Tracy Brown.

The Kentucky Soybean Performance Tests are conducted to provide an unbiased, objective estimate of the relative performance of soybean varieties in Kentucky. This information may be used by growers and seedsmen to aid in selecting varieties that will give the highest total production in a specific situation.

Soybean tests in 1994 were planted at seven locations in Kentucky. The testing locations, soil types, planting dates, and other information are shown in Table 1.

## Methods

All tests were planted in a randomized complete block design with two replications (plots) of each variety. Individual plots were 20 feet long and four rows wide with 30 inches between rows in the conventional tests; in the double-

crop tests, the plots were 20 feet long and eight rows wide with 15 inches between rows. The seeding rate for the conventional tests was 8 to 10 viable seeds per foot of row and for the double-crop tests was 5 to 6 viable seeds per foot of row. All plots were planted with a modified soybean planter. All plots were treated with herbicides and maintained as weed free as possible.

One test (SCN test at Calhoun) was planted at a site infested with soybean cyst nematode. Only varieties with some genetic resistance to SCN and susceptible check varieties were tested at this site.

Harvesting was done with a small plot combine according to maturity; thus, several harvests were made at each location. Sixteen feet of the center rows were harvested from the plots. No allowances were made for beans that may have been lost because of combining or shattering.

**Yield** — Yield is reported in bushels per acre adjusted to 13 percent moisture.

**Lodging** — Lodging was rated 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 percent down; 4 = all plants over considerably or 50 to 80 percent down; 5 = all plants over badly.

**Maturity date** — A variety was considered mature when 95 percent

Location of the 1994 Kentucky Soybean Tests

1. Mclean County
2. Hardin County
3. Caldwell County
4. Carlisle County
5. Fayette County
6. Logan County

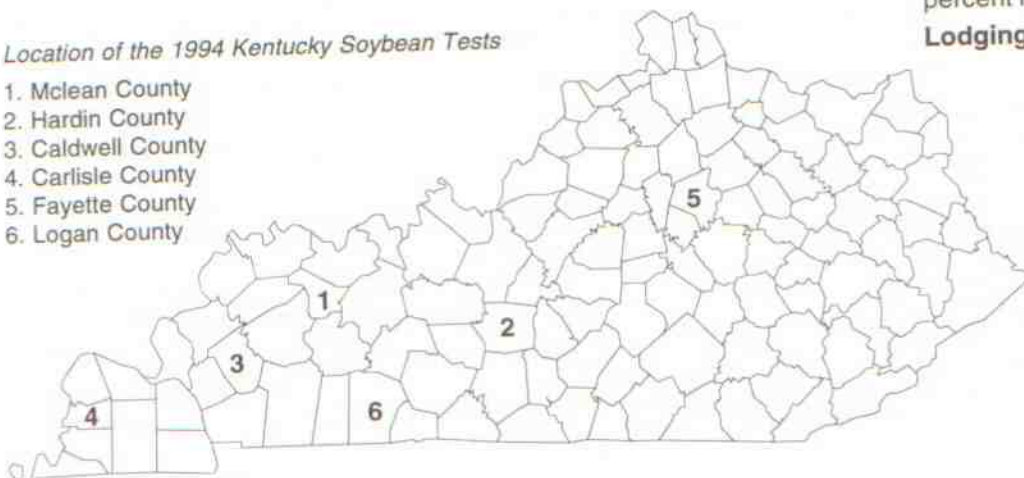


Table 1. Location, planting data, and climatic data for 1994 Soybean Performance Tests\*.

	Calhoun	Glendale	Princeton	Princeton <sup>1</sup> Double-crop	Bardwell	Lexington	Russellville <sup>1</sup> Double-crop
Farmer	Alvin Bickett	Hugh H. Bland	Exp. Sta.	Exp. Sta.	Roger Hobbs	Exp. Sta.	Denny & Ed Price
Extension	Greg Henson	Rod Grusy			Michael Williams, Jr.		Rodney Haines
Soil Type	Newark Silt Loam	Melvin Silt Loam	Crider Silt Loam	Crider Silt Loam	Adler Silt Loam	Lanton Silt Loam	Pembroke Silt Loam
Date of Planting	5/23	5/20	5/24	6/29	5/23	5/24	6/14
Row Width	30	30	30	15	30	30	15
Herbicides <sup>2</sup>	2.3 pt. Tricept	2 pt. Roundup 1 1/2 pt. Turbo 1.4 oz. Scepter 8 oz. Fusion 1 1/4 pt. Reflex	2.5 pt. Dual 1/2 lb. Canopy	2 pt. Dual 3 pt. Roundup 2 pt. Lorox	1.5 pt. Prowl	8 pt. Lasso	1.5 pt. Roundup 2 pt. Dual 1 pt. Storm
Soil Test							
P	186	78	118	118	130	200+	149
K	335	297	501	501	364	288	414
pH	6.9	6.9	5.4	5.4	6.7	6.0	6.6
Fertilizer <sup>2</sup> Applied	none	none	none	none	none	100 lb/KCL	100 lb. 18/46/0 20 lb. K (60%)  15 lb. sulphur
50% Chance of Killing Frost <sup>3</sup>	10/25	10/20	10/19	10/19	10/19	10/26	10/23

<sup>1</sup> No-till double cropped after wheat.

<sup>2</sup> Amount per acre.

<sup>3</sup> Based on 30 year average

\*Trade names or products mentioned or similar products not named is neither intended as an endorsement nor criticism of such products by the Kentucky Agricultural Experiment Station.

of the pods had turned their normal mature color. One to two weeks of good drying weather will be needed beyond the date given before the beans will be ready to combine. Maturity dates were recorded at the Lexington, Bardwell, and Princeton locations.

**Plant height** — Plant height was measured in inches from the soil surface to the tip of the main stem.

**Pod height** — Height of the lowest pod was measured in inches from the soil surface to the point of attachment of the lowest pod on the plant.

### Soybean cyst nematode (SCN)

— SCN populations were determined at planting and at harvest by measuring SCN egg densities in plots. Egg densities, reported as the number of eggs/100 cubic centimeters of soil (about 1/4 pint of soil), were determined from soil samples consisting of ten, 6-inch deep soil probes from the center two rows of each plot. Soil was thoroughly mixed. Cysts were extracted from two, 100 cubic centimeter soil samples from each plot by wet sieving. Eggs were freed from cysts by crushing the

cysts. Eggs were then stained and counted. The two egg counts from each plot were averaged to give a single egg density per plot. These data were provided by Don Hershman and Debbie Morgan of the Soybean Cyst Nematode Laboratory at Princeton, Kentucky.

### Interpretation

An important step in profitable soybean production is selecting good quality seed of the best varieties for your management system. The Kentucky Soybean



Performance Tests are conducted to provide information useful in making this selection.

Performance of soybean varieties is affected by many factors including season, location, soil type and time of planting. A particular soybean variety is adapted for full-season growth in a band approximately 100 miles wide from north to south. Thus, the best variety in northern Kentucky may not be the best in southern areas. For this reason the Kentucky Soybean Performance Tests are conducted at several locations in the major soybean producing areas of the state. The yields as reported in this publication should be used for relative comparisons; actual yields on a grower's farm may be different.

Performance of the soybean varieties will vary from year to year and location to location depending on adaptability, weather conditions, and management. The average performance of a variety over a period of years provides a better estimate of its potential and stability than its performance in a particular year. When selecting a variety, it is important to consider the three- or two-year average presented in the tables; this provides an estimate of a variety's stability and performance potential over years.

The performance data presented in Table 3 have been averaged across all locations. The across years and locations data are combined across all locations to predict yielding ability. (See Agronomy Notes, Volume 21, No. 3, "Using Performance Test Results in Soybean Variety Selection in Kentucky.") Performance of a variety across a period of years and at several locations in the state is a good indicator of its production potential. Varieties that have shown satisfactory yields and lodging resistance in Table 3 can be expected to have satisfactory field performance under similar conditions in Kentucky.

Small differences in yield are usually of little importance. The yield of two varieties at a single location may differ because of chance factors (difference in soil characteristics, fertility, or availability of moisture) although the inherent yielding ability is the same. To decide if an observed yield difference is real, use the LSD (least significant difference) value quoted at the bottom of the tables. The significance level used in the tables is 0.10. If the difference in yield is greater than the LSD value, you may be reasonably certain that the entries actually do differ in yielding ability. "N.S." in the tables indicates that no statistically significant differences were determined.

Yield is only one factor to consider in selecting a variety for your production system. Maturity, lodging resistance, disease resistance, and time and equipment availability are other factors that need to be considered. The data provided have been divided into maturity groups. Due to weather patterns at a location, maturity alone can affect yield; this will be reflected by large differences in the maturity group averages. Selecting varieties from several maturity groups can reduce the impact of these maturity group fluctuations (see Agronomy Notes, Volume 25, No. 3, "Growing Soybean Varieties from Multiple Maturity Groups Can Reduce Yearly Yield Volatility").

The date of a 50 percent chance of a fall killing frost is important in determining which variety you select to plant. The dates presented in Table 1 are average dates over a long term. Actual dates will vary from year to year. For the date of a one year out of ten chance of a fall killing frost subtract 13-18 days from the dates in Table 1. For maximum yield, a variety must mature before the first killing frost in the fall. Maturity dates of varieties are listed for the Princeton, Bardwell,

and Lexington locations, and in the one-year summary table.

If you have soybean cyst nematode (SCN) problems a resistant variety should be used in your production system with a recommended crop rotation program (see Kentucky Cooperative Extension Service publication PPA-3, "Soybean Cyst Nematode," available at your county Extension office). The level of SCN infestation as well as the SCN race can be determined through the SCN laboratory at Princeton. Contact your county Extension office for more information on collecting and submitting samples. The importance of resistant varieties has increased as the number of acres affected by SCN has increased. When evaluating the performance of resistant varieties in the SCN infested location, note the change in cyst numbers as well as the yield presented in this table.

## Growing Conditions

Soybean growing conditions varied widely over the state this year. Inadequate late summer rainfall reduced yields at the Princeton Double Crop Location. Exceedingly high yields at the Carlisle located resulted from optimum weather conditions.

## Special Notes

1992 yields at Bardwell were affected by a heavy SCN infestation.

## Soybean Production Information

The Kentucky Cooperative Extension Service has a series of publications, "Soybean Production in Kentucky," which contain a more detailed discussion of soybean production practices: Part 1.



Status, Uses, and Planning (AGR 128); Part II. Seed Selection, Variety Selection, and Fertilization (AGR 129); Part III. Planting Practices and Double Cropping (AGR 130); and Part IV. Weed, Disease, and Insect Control (AGR 131). A soybean planting rate guide, reproduced from this series, is provided below for your convenience (Table 2).

## Oil and Protein Data

The average protein and oil concentration for all soybean varieties entered in the Kentucky Soybean Performance Tests is presented in Table 13. The Federal Grain Inspection Service is offering soybean oil and protein

testing as official criteria for grade. At this time the testing is optional. Soybean varieties differ in their protein and oil concentrations, and the protein and oil concentrations are influenced by the production environments. Because soybean is grown primarily for its oil and protein, these data are provided to indicate differences that exist between varieties produced in Kentucky.

## Kentucky State Seed Law

The Kentucky state seed law requires all seed exposed, offered for sale, or sold in Kentucky to be labeled as to kind and variety for each agricultural seed component

present in excess of 5 percent of the whole and the percentage by weight of each component. All soybean seed blends should be labeled as to the percentage composition of each variety that makes up the mixture. The term "variety unknown" may no longer be used in place of a variety designation for soybean, as all soybean seed must be labeled by variety name.

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## Sources of Seed

The seed planted in the 1994 Soybean Performance Tests was acquired from the following sources:

### **Adler Seeds Inc.**

Route 1, Box 403  
Sharpsville, IN 46068  
Adler 364

### **AgraTech Seeds, Inc.**

5559 N 500W  
McCordsville, IN 46055  
AT425  
AT415  
AT520

### **Asgrow Seed Company**

9635-190-31, 7000 Portage Road  
Kalamazoo, MI 49001  
A4138  
A4415  
A4539  
A4715  
A5112

### **BF Seeds**

Route 3 Box 135A  
Portland, IN 47371  
BF332  
BF391  
BF420  
BF428

### **Callahan Seeds**

1122 E. 169th Street  
Westfield, IN 46074  
Callahan 1410  
Callahan 3484  
Callahan 3444  
Callahan 5410X  
Callahan 5454X  
Callahan 5510X  
Callahan 4435X  
Callahan 5535X  
Callahan 5433

### **Ciba Seeds**

P.O. Box 18300  
Greensboro, NC 27419  
Ciba 3411  
Ciba 3474  
Ciba 3505  
Ciba 5103Y

### **DeKalb Genetics Corporation**

3100 Sycamore Road  
DeKalb, IL 60115  
DeKalb CX469c  
DeKalb CX434  
DeKalb CX394c

### **Delta and Pine Land Company**

P.O. Box 157  
Scott, MS 38772  
Deltapine DP3478

### **Jacob Hartz Seed Co., Inc.**

P.O. Box 946  
Stuttgart, AR 72160  
Hartz H4464  
Hartz H4994  
Hartz H5042  
Hartz H5350  
Hartz H5545  
Hartz H5218  
Hartz H5454

### **Kentucky Foundation**

#### **Seed Project**

P.O. Box 11950  
Lexington, KY 40579  
Calhoun  
Chesapeake  
Clifford  
Delsoy 4210  
Delsoy 4710  
Delsoy 4900  
Essex  
Fayette  
Flyer

Hartwig  
Holladay  
Hutcheson  
Jack  
KS 4694  
KS 5292  
Manokin  
Nile  
Pennyrile  
Pharaoh  
Spry  
Stressland  
TN 4-86  
Yale

**Miles Seed**

2760 Keller Road  
Owenboro, KY 42301  
Southern Cross Jacob  
Southern Cross Joshua  
Southern Cross Daniel  
Southern Cross David  
Southern Cross Samuel  
Southern Cross Amos

**Mycogen Plant Sciences**

720 St. Croix Street  
Prescott, WI 54021  
Mycogen J-445  
Mycogen J-467  
Mycogen 429

**Northrup King Company**

410 Woodbridge Drive  
Somerville, TN 38068  
Northrup-King S52-25  
Northrup-King S46-44

Northrup-King S42-60  
Northrup-King S39-11  
Northrup-King S42-40

**Pioneer Hi-Bred International, Inc.**

6767 Old Madison Pike #110  
Huntsville, AL 35806  
Pioneer Brand 9392  
Pioneer Brand 9444  
Pioneer Brand 9452  
Pioneer Brand 9472  
Pioneer Brand 9521  
Pioneer Brand 9442  
Pioneer Brand 9551  
Pioneer Brand 9451  
Pioneer Brand 9273

**Ridgway Seed Company**

Box 212  
Ridgway, IL 62979  
Jader 4730  
Jader 5131  
Jader 5230

**Southern States Cooperative**

P.O. Box 26234  
Richmond, VA 23260  
S. States SS-Exp. 3802  
S. States SS-390  
S. States FFR-398  
S. States FFR-Exp. 20887  
S. States FFR-Exp. 20897  
S. States FFR-442  
S. States FFR-439  
S. States FFR-471

S. States FFR-493  
S. States FFR-500  
S. States FFR-514  
S. States FFR-531  
S. States FFR-542  
S. States FFR-553  
S. States FFR-563  
S. States FFR-401N  
S. States FFR-474  
S. States SS-461  
S. States FFR-531

**Stine Seed Company**

2225 Laredo Trail  
Adel, IA 50003  
Stine Brand 4680  
Stine Brand 3680  
Stine Brand 3490

**Terra International**

P.O. Box 171326  
Memphis, TN 38187  
Terra 4792  
Terra 4242

**Vigoro Industries, Inc.**

P.O. Box 156  
Jefferson, GA 30549  
Vigoro V453  
Vigoro V518

**Voris Seed**

P.O. Box 457  
Windfall, IN 46076  
Voriss 394  
Voriss Ex. 411-94  
Voriss BT484

Table 2. COMBINED SUMMARY, ALL CONVENTIONAL LOCATIONS<sup>1</sup>

VARIETY	YIELD (BU/AC)			LODGING			HT. <sup>a</sup>	MAT. <sup>a</sup>	POD	APPROX
	92-94	93-94	1994	92-94	93-94	1994	(IN)	DATE	HT.	SEED/LB
EARLY (GROUPS II AND III)										
STINE BRAND 3680	-	-	62.3	-	-	2.9	33	9/22	4	3000
DEKALB CX394C <sup>c</sup>	-	-	57.0	-	-	2.2	36	9/20	4	2790
CIBA 3411	52.9	51.8	56.8	1.6	1.9	2.3	34	9/20	4	2750
N.KING S39-11 <sup>c</sup>	52.6	51.9	56.5	2.4	2.5	2.6	36	9/17	5	2500
SOUTHERN CROSS DANIEL	-	53.9	56.2	-	1.8	2.2	31	9/16	4	3000
BF 391	-	-	56.1	-	-	2.5	33	9/16	4	2790
S.STATES SS-EX.3802	-	-	55.6	-	-	2.7	36	9/19	5	3000
S.STATES FFR-EX.20897	-	-	54.7	-	-	2.1	34	9/22	5	2800
S.STATES FFR-EX.20887	-	-	54.1	-	-	1.6	29	9/16	4	3000
S.STATES SS-390	51.4	51.8	54.0	1.7	2.0	2.3	33	9/17	4	2800
S.STATES FFR-398	49.4	48.9	53.0	1.6	1.7	2.0	33	9/18	5	3000
STINE BRAND 3490	-	-	52.9	-	-	2.2	32	9/19	4	3000
PIONEER BRAND 9392	53.4	51.3	51.9	1.6	1.8	2.1	34	9/16	5	2900
FAYETTE <sup>c</sup>	47.8	47.2	50.4	2.5	2.6	2.7	38	9/17	4	2500
FLYER	50.2	49.0	50.1	1.7	2.0	2.2	33	9/15	4	3400
YALE <sup>c</sup>	-	-	48.9	-	-	2.2	31	9/14	5	2900
PIONEER BRAND 9273	-	-	48.6	-	-	2.0	29	9/7	4	2800
BF 332	-	-	46.7	-	-	2.0	30	9/14	4	2770
JACK <sup>c</sup>	-	46.3	46.5	-	3.1	3.1	35	9/10	4	3300
GROUP III AVERAGE	51.1	50.2	53.3	1.9	2.2	2.3	33	9/17	5	
MID-SEASON (GROUP IV)										
S.STATES FFR-439	-	55.1	61.8	-	2.1	2.2	40	9/23	5	3000
JADER 4730	-	56.1	61.2	-	2.4	2.6	39	9/28	5	3000
BF 428	-	-	61.0	-	-	2.7	39	9/29	5	2850
DELTAPINE DP 3478	-	-	60.9	-	-	2.5	39	9/28	5	3000
VORIS BT 484	-	-	60.8	-	-	2.6	39	9/26	6	2900
S.STATES FFR-493	-	55.4	60.3	-	1.8	1.9	41	10/3	6	2600
CALLAHAN 3484	56.1	56.4	60.1	2.2	2.2	2.6	39	9/29	5	2800
STINE BRAND 4680	-	-	59.9	-	-	3.3	38	9/30	6	3000
SOUTHERN CROSS JOSHUA	-	57.3	59.8	-	2.3	2.4	37	9/28	5	2850
SOUTHERN CROSS DAVID <sup>c</sup>	-	54.8	58.9	-	1.7	1.9	40	9/26	5	2750
SPRY	49.7	52.3	58.8	2.7	2.4	2.7	35	9/28	6	2600
DELISOY 4900 <sup>b</sup>	-	52.3	58.5	-	3.2	3.2	39	10/10	7	3450
ASGROW A4715 <sup>c</sup>	56.0	54.9	58.3	1.5	1.6	1.9	39	9/28	7	2800
CIBA 3474	-	55.3	58.3	-	2.2	2.5	38	9/26	5	2900
STRESSLAND	-	54.2	58.2	-	2.6	2.7	36	9/18	5	2700
KS 4694	-	53.2	58.1	-	1.6	1.8	38	9/29	5	3600
PIONEER BRAND 9472 <sup>c</sup>	-	-	58.1	-	-	2.9	38	9/23	6	2700
S.STATES FFR-442	-	-	58.0	-	-	2.4	37	9/26	5	2900
SOUTHERN CROSS JACOB	53.0	52.6	58.0	2.6	2.8	3.0	38	9/24	6	2800
ASGROW A4415	-	-	57.9	-	-	1.7	41	9/26	6	
N.KING S42-40	50.3	51.5	57.4	1.6	1.6	2.0	34	9/19	5	2900
HARTZ H4994 <sup>c</sup>	-	-	57.3	-	-	2.8	37	10/9	8	3100
DEKALB CX 434	-	-	57.2	-	-	1.8	38	9/23	5	2700
MYCOGEN J-445	52.1	53.3	57.1	1.9	1.9	2.1	40	9/24	7	2900
DELISOY 4710 <sup>c</sup>	50.9	52.3	57.0	3.5	3.0	3.2	43	9/29	6	2550
AGRATECH AT 425 <sup>c</sup>	-	-	56.7	-	-	2.9	39	9/21	6	3350
CHESAPEAKE	-	50.7	56.5	-	2.5	2.5	38	10/1	5	2950
CALLAHAN 5454X <sup>c</sup>	-	-	56.4	-	-	2.6	36	9/21	5	2400
N.KING S46-44 <sup>c</sup>	-	50.4	56.4	-	2.2	2.3	40	9/23	6	2750
BF 420 <sup>c</sup>	-	-	56.1	-	-	2.6	40	9/20	6	3300
MANOKIN <sup>b</sup>	50.9	52.0	56.1	3.2	3.1	3.1	36	10/10	7	3200
DELISOY 4210 <sup>c</sup>	51.4	52.0	56.0	2.6	2.8	3.2	40	9/23	8	2600
N.KING S42-60	-	-	55.9	-	-	2.8	32	9/21	5	2800
PIONEER BRAND 9452	-	-	55.2	-	-	1.6	31	9/22	4	2500
PIONEER BRAND 9444 <sup>c</sup>	-	-	54.7	-	-	2.5	33	9/20	5	2800
ASGROW A4539 <sup>c</sup>	-	52.9	54.5	-	1.8	2.2	33	9/23	6	2800
PENNYRILE	49.6	50.0	54.3	1.7	1.6	1.7	42	9/29	7	2800
CALHOUN	53.2	51.9	54.3	1.4	1.4	1.7	23	9/22	4	3200
DEKALB CX 469C <sup>b</sup>	-	-	54.3	-	-	2.8	41	9/24	7	2600
ASGROW A4138 <sup>c</sup>	-	53.4	54.1	-	2.8	2.8	38	9/21	5	2800
CALLAHAN 3444	53.9	51.8	53.7	2.2	2.6	2.7	37	9/23	5	2400
VORIS 394	-	53.0	53.5	-	2.3	2.4	32	9/16	5	2800
VORIS EX.411-94	-	-	53.0	-	-	2.6	34	9/22	5	2800



Table 2. COMBINED SUMMARY, ALL CONVENTIONAL LOCATIONS<sup>1</sup> (continued)

VARIETY	YIELD (BU/AC)			LODGING			HT. <sup>a</sup>	MAT. <sup>a</sup>	POD	APPROX
	92-94	93-94	1994	92-94	93-94	1994	(IN)	DATE	HT.	SEED/LB
CALLAHAN 1410	53.1	51.4	53.0	1.9	2.2	2.4	32	9/18	4	2600
PHARAOH <sup>c</sup>	49.6	49.5	52.9	2.4	2.0	2.0	34	10/4	6	3300
TERRA 4292	-	46.7	52.7	-	2.4	2.6	35	9/20	6	2700
CALLAHAN 5410X	-	-	52.6	-	-	2.5	35	9/24	5	2700
MYCOGEN J-467	-	-	52.6	-	-	2.9	38	9/26	5	2900
AGRATECH AT415	-	-	52.5	-	-	2.3	32	9/18	4	2750
PIONEER BRAND 9442	51.9	50.3	52.4	1.7	2.1	2.1	32	9/21	5	3050
PIONEER BRAND 9451 <sup>f</sup>	-	49.3	52.3	-	2.9	2.9	38	9/20	6	2650
S.STATES FFR-471	52.4	51.2	52.1	1.5	1.7	2.0	31	9/23	5	2700
VIGORO V453	-	-	51.0	-	-	2.8	43	9/23	6	2700
TERRA 4792	-	47.4	50.7	-	2.5	2.6	44	9/26	6	3200
TN 4-86 <sup>c</sup>	46.8	45.7	49.4	2.2	2.3	2.6	44	9/27	6	3800
HARTZ H4464 <sup>b</sup>	48.7	47.2	49.1	2.7	2.5	2.9	43	9/29	6	3100
NILE <sup>b</sup>	-	46.6	47.7	-	2.5	2.8	41	9/18	5	2800
GROUP IV AVERAGE	51.6	51.9	55.9	2.2	2.3	2.5	37	9/25	6	
LATE (GROUPS V AND VI)										
KS 5292 <sup>b</sup>	52.5	53.5	59.6	2.4	2.2	2.2	33	10/12	6	2700
HUTCHESON	50.6	50.9	58.6	2.7	2.6	2.5	36	10/17	6	3000
S.STATES FFR-542 <sup>c</sup>	-	-	58.6	-	-	2.4	37	10/12	7	3000
SOUTHERN CROSS SAMUEL <sup>c</sup>	-	-	58.4	-	-	2.1	31	10/14	7	3250
HOLLADAY	-	52.0	58.1	-	2.4	2.4	31	10/10	5	3300
CALLAHAN 5510X <sup>b</sup>	-	-	58.0	-	-	2.3	35	10/7	7	3100
JADER 5131 <sup>b</sup>	-	52.0	57.9	-	2.2	2.3	35	10/11	6	3060
CLIFFORD	-	50.8	57.6	-	2.7	2.7	35	10/12	7	2650
ESSEX	49.3	50.1	57.4	1.9	1.7	2.1	32	10/13	5	3400
CIBA 3505 <sup>b</sup>	-	-	56.8	-	-	2.2	34	10/7	7	2800
HARTZ H5218	-	-	56.3	-	-	3.0	38	10/14	9	3800
VIGORO V518	-	-	54.7	-	-	1.8	37	10/10	7	2700
S.STATES FFR-553	-	48.9	54.6	-	2.0	2.2	34	10/15	7	3300
PIONEER BRAND 9521 <sup>b</sup>	50.5	51.0	54.3	2.5	2.4	2.5	37	10/6	6	3150
S.STATES FFR-500 <sup>c</sup>	50.1	49.8	54.0	1.7	1.6	1.8	32	10/10	6	3000
S.STATES FFR-531 <sup>c</sup>	-	-	53.4	-	-	1.8	31	10/14	8	3300
S.STATES FFR-514 <sup>c</sup>	-	-	53.4	-	-	2.9	38	10/8	7	3800
HARTZ H5042 <sup>b</sup>	-	-	53.2	-	-	3.5	42	10/17	9	3700
HARTZ H5454	-	-	53.0	-	-	3.0	39	10/15	7	3000
PIONEER BRAND 9551 <sup>c</sup>	47.4	48.9	52.7	2.0	2.1	2.2	36	10/12	6	2800
ASGROW A5112 <sup>c</sup>	-	49.8	52.6	-	1.7	1.9	31	10/8	5	3000
S.STATES FFR-563 <sup>c</sup>	-	47.1	52.5	-	2.3	2.6	37	10/16	7	3100
N.KING S52-25 <sup>b</sup>	-	-	52.5	-	-	2.3	34	10/8	7	3350
HARTZ H5350 <sup>c</sup>	-	46.3	50.5	-	2.9	3.0	37	10/16	8	3300
HARTZ H5545 <sup>b</sup>	-	-	49.9	-	-	3.5	39	10/15	8	3300
HARTWIG <sup>d</sup>	39.7	40.9	46.4	3.4	3.3	3.5	36	10/20	7	3470
GROUPS V AND VI AVG	48.6	49.4	54.8	2.4	2.3	2.5	35	10/12	7	
GRAND AVERAGE	50.9	51.1	55.1	2.2	2.3	2.5	36	9/28	6	
LSD (0.10)	2.5	2.9	4.5	0.3	0.3	0.5			1	

<sup>a</sup> Plant height<sup>b</sup> Resistant to the soybean cyst nematode (Race 3).<sup>c</sup> Resistant to the soybean cyst nematode (Race 3 and Race 14).<sup>d</sup> Resistant to all known races of the soybean cyst nematode.<sup>e</sup> Maturity date based on observations at Lexington, Princeton, and Bardwell.<sup>f</sup> Bardwell 1992 data affected by the soybean cyst nematode.

Table 3. COMBINED SUMMARY, DOUBLE-CROP LOCATIONS

VARIETY	YIELD (BU/AC)			LODGING			HT. <sup>a</sup> (IN)	MAT. <sup>a</sup> DATE	POD HT.
	92-94	93-94	1994	92-94	93-94	1994			
EARLY (GROUPS II AND III)									
S.STATES FFR-398	41.4	35.9	44.8	1.2	1.4	1.2	26	10/6	5
BF 391	-	-	40.3	-	-	1.0	21	10/19	4
CIBA 3411	42.0	33.9	38.5	1.3	1.3	1.1	22	10/7	4
FLYER	40.6	33.3	38.4	1.0	1.0	1.0	19	10/5	3
PIONEER BRAND 9392	42.2	34.9	38.2	1.0	1.0	1.0	19	10/7	4
BF 332	-	-	37.8	-	-	1.0	17	10/6	3
S.STATES FFR-EX.20897	-	-	37.8	-	-	1.1	18	10/9	4
N.KING S39-11 <sup>1</sup>	37.8	32.1	37.4	1.2	1.1	1.1	23	10/7	5
PIONEER BRAND 9273	-	-	36.3	-	-	1.0	17	10/12	3
STINE BRAND 3680	-	-	36.1	-	-	1.4	20	10/7	4
S.STATES SS-EX.3802	-	-	36.1	-	-	1.2	22	10/6	4
JACK <sup>c</sup>	-	27.8	33.9	-	1.3	1.6	22	10/4	4
S.STATES SS-390	40.4	33.4	33.7	1.2	1.0	1.0	19	10/7	3
DEKALB CX394C <sup>c</sup>	-	-	33.3	-	-	1.1	16	10/6	4
STINE BRAND 3490	-	-	31.7	-	-	1.0	15	10/6	3
YALE <sup>c</sup>	-	-	31.1	-	-	1.0	16	10/6	4
FAYETTE <sup>c</sup>	32.4	25.7	30.2	1.5	1.3	1.4	15	10/5	3
SOUTHERN CROSS DANIEL	-	29.9	29.3	-	1.0	1.0	15	10/5	3
S.STATES FFR-EX.20887	-	-	28.3	-	-	1.0	15	10/6	4
GROUP III AVERAGE	39.5	31.9	35.4	1.2	1.2	1.1	19	10/8	4
MID-SEASON (GROUP IV)									
VORIS BT 484	-	-	47.0	-	-	1.5	22	10/11	4
SPRY	41.2	36.8	46.2	2.8	2.2	1.6	26	10/15	6
PENNYRILE	42.0	38.6	45.7	1.0	1.0	1.0	29	10/15	5
CIBA 3474	-	38.2	45.3	-	1.4	1.9	23	10/13	5
S.STATES FFR-439	-	37.5	45.1	-	1.1	1.2	25	10/7	4
AGRATECH AT415	-	-	44.6	-	-	1.2	24	10/6	5
MANOKIN <sup>b</sup>	40.4	37.2	44.3	2.9	2.2	1.7	27	10/22	7
STINE BRAND 4680	-	-	44.2	-	-	1.5	20	10/14	5
DELLOY 4900 <sup>b</sup>	-	36.7	44.0	-	1.9	1.2	26	10/24	5
VORIS EX.411-94	-	-	43.6	-	-	1.1	27	10/13	5
JADER 4730	-	38.4	43.4	-	1.9	1.7	22	10/13	4
DEKALB CX 434	-	-	43.3	-	-	1.5	22	10/11	5
DEKALB CX 469C <sup>b</sup>	-	-	42.9	-	-	1.4	29	10/7	6
DELTAPINE DP 3478	-	-	42.8	-	-	2.1	24	10/12	4
SOUTHERN CROSS JOSHUA	-	38.7	42.7	-	1.5	1.7	19	10/10	4
N.KING S42-40	43.9	38.5	42.6	1.3	1.2	1.2	19	10/8	4
SOUTHERN CROSS DAVID <sup>c</sup>	-	36.9	42.5	-	1.2	1.2	26	10/11	5
STRESSLAND	-	34.8	42.5	-	1.2	1.5	19	10/6	4
CALHOUN	44.0	37.4	42.4	1.1	1.1	1.2	22	10/12	5
CALLAHAN 3444	44.1	37.1	42.4	1.5	1.4	1.2	19	10/9	3
PIONEER BRAND 9472 <sup>c</sup>	-	-	42.0	-	-	1.7	24	10/19	5
S.STATES FFR-493	-	38.3	41.6	-	1.2	1.0	22	10/19	6
CHESAPEAKE	-	36.2	41.5	-	1.4	1.5	23	10/15	6
CALLAHAN 3484	43.5	36.5	41.5	1.7	1.2	1.4	21	10/10	4
MYCOGEN J-445	44.8	37.9	41.5	1.1	1.1	1.2	22	10/11	5
N.KING S42-60	-	-	41.3	-	-	1.2	25	10/7	4
HARTZ H4994 <sup>c</sup>	-	-	41.2	-	-	1.9	26	10/20	5
VIGORO V453	-	-	40.8	-	-	1.2	26	10/5	5
N.KING S46-44 <sup>c</sup>	-	35.2	40.7	-	1.1	1.0	22	10/7	5
CALLAHAN 5410X	-	-	40.6	-	-	1.0	21	10/8	4
PIONEER BRAND 9442	43.2	35.4	40.6	1.1	1.2	1.4	20	10/7	4
ASGROW A4539 <sup>c</sup>	-	34.8	40.2	-	1.1	1.1	18	10/13	4
BF 428	-	-	40.0	-	-	1.5	23	10/11	4
PIONEER BRAND 9452	-	-	39.7	-	-	1.0	19	10/12	4
ASGROW A4138 <sup>b</sup>	-	33.4	39.2	-	1.2	1.4	16	10/7	4
PIONEER BRAND 9444 <sup>c</sup>	-	-	39.2	-	-	1.1	19	10/8	5
ASGROW A4715 <sup>c</sup>	41.0	33.2	39.0	1.1	1.1	1.2	18	10/12	4
ASGROW A4415	-	-	39.0	-	-	1.0	22	10/6	5
HARTZ H4464 <sup>b</sup>	41.7	35.4	38.6	2.0	1.5	1.5	25	10/12	4
AGRATECH AT 425 <sup>c</sup>	-	-	38.5	-	-	1.5	19	10/5	4



Table 3. COMBINED SUMMARY, DOUBLE-CROP LOCATIONS (continued)

VARIETY	YIELD (BU/AC)			LODGING			HT. <sup>a</sup>	MAT. <sup>a</sup>	POD
	92-94	93-94	1994	92-94	93-94	1994	(IN)	DATE	HT.
SOUTHERN CROSS JACOB	40.8	35.0	38.3	1.9	1.6	1.6	23	10/11	5
KS 4694	-	34.8	37.7	-	1.0	1.0	20	10/15	4
VORIS 394	-	33.3	37.7	-	1.1	1.1	19	10/7	4
S.STATES FFR-442	-	-	37.2	-	-	1.4	25	10/15	6
TERRA 4792	-	32.0	37.2	-	1.3	1.4	19	10/7	4
PIONEER BRAND 9451 <sup>c</sup>	-	31.8	36.5	-	1.1	1.2	20	10/6	5
CALLAHAN 5454X <sup>c</sup>	-	-	35.9	-	-	1.1	25	10/5	5
DELLOY 4710 <sup>c</sup>	40.2	35.2	35.6	1.9	1.4	1.4	21	10/13	5
PHARAOH <sup>f</sup>	37.5	31.2	35.5	2.5	1.9	1.6	22	10/15	8
DELLOY 4210 <sup>c</sup>	38.8	31.3	35.3	1.5	1.4	1.5	20	10/11	4
TN 4-86 <sup>c</sup>	35.7	30.8	35.2	1.6	1.5	1.5	23	10/7	6
MYCOGEN J-467	-	-	35.1	-	-	1.6	20	10/12	4
NILE <sup>b</sup>	-	30.6	35.1	-	1.2	1.2	21	10/6	5
CALLAHAN 1410	40.0	32.4	34.5	1.1	1.1	1.2	18	10/4	4
S.STATES FFR-471	39.8	32.6	33.0	1.1	1.2	1.4	15	10/7	4
BF 420 <sup>c</sup>	-	-	31.3	-	-	1.2	17	10/5	5
TERRA 4292	-	27.2	28.7	-	1.2	1.2	17	10/6	3
GROUP IV AVERAGE	41.3	35.0	40.1	1.6	1.4	1.4	22	10/11	5
LATE (GROUPS V AND VI)									
S.STATES FFR-531 <sup>c</sup>	-	-	49.9	-	-	1.2	30	10/28	8
HOLLADAY	-	40.9	48.0	-	1.4	1.5	24	10/24	5
CIBA 3505 <sup>b</sup>	-	-	47.7	-	-	1.2	28	10/22	6
N.KING S52-25 <sup>b</sup>	-	-	47.4	-	-	1.5	29	10/20	7
S.STATES FFR-514 <sup>c</sup>	-	-	47.0	-	-	1.4	25	10/21	5
CALLAHAN 5510X <sup>b</sup>	-	-	46.9	-	-	1.2	26	10/22	6
CLIFFORD	-	40.3	44.7	-	2.2	1.7	29	10/24	6
KS 5292 <sup>b</sup>	38.5	35.5	43.9	1.8	1.2	1.5	24	10/24	5
S.STATES FFR-500 <sup>c</sup>	40.2	36.4	43.1	1.5	1.4	1.2	23	10/19	6
VIGORO V518	-	-	42.0	-	-	1.2	28	10/25	6
PIONEER BRAND 9521 <sup>b</sup>	38.1	34.1	41.8	2.1	1.4	1.5	25	10/17	4
S.STATES FFR-563 <sup>c</sup>	-	35.3	41.5	-	1.7	1.6	33	10/28	7
PIONEER BRAND 9551 <sup>c</sup>	36.3	35.2	41.2	2.2	2.0	1.4	33	10/23	7
S.STATES FFR-553	-	35.4	40.5	-	1.7	1.4	32	10/26	7
ESSEX	39.6	35.5	40.3	2.0	1.6	1.5	24	10/25	5
JADER 5131 <sup>b</sup>	-	32.6	40.2	-	2.0	1.7	25	10/25	5
S.STATES FFR-542 <sup>c</sup>	-	-	40.1	-	-	1.5	31	10/26	8
ASGROW A5112 <sup>c</sup>	-	34.6	39.2	-	1.2	1.5	24	10/23	5
HARTZ H5350 <sup>c</sup>	-	34.3	39.2	-	2.0	1.5	32	11/1	8
HARTZ H5218	-	-	38.1	-	-	1.7	31	10/26	12
SOUTHERN CROSS SAMUEL <sup>c</sup>	-	-	36.0	-	-	1.2	24	10/25	6
HUTCHESON	37.8	35.4	35.9	2.0	1.7	1.4	26	10/27	6
HARTZ H5545 <sup>b</sup>	-	-	35.4	-	-	1.5	29	10/26	5
HARTZ H5042 <sup>b</sup>	-	-	35.4	-	-	1.7	27	10/26	6
HARTZ H5454	-	-	35.1	-	-	1.6	29	10/27	5
HARTWIG <sup>d</sup>	30.8	29.0	29.2	2.4	2.1	2.1	30	10/30	6
GROUPS V AND VI AVG	37.3	35.3	41.1	2.0	1.7	1.5	28	10/25	6
GRAND AVERAGE	40.0	34.6	39.5	1.6	1.4	1.4	23	10/14	5
LSD (0.10)	5.4	4.9	4.5	0.5	0.5	0.4	4		1

<sup>a</sup> Plant height.

<sup>b</sup> Resistant to the soybean cyst nematode (Race 3).

<sup>c</sup> Resistant to the soybean cyst nematode (Race 3 and Race 14).

<sup>d</sup> Resistant to all known races of the soybean cyst nematode.

<sup>e</sup> Maturity date based on observations at Princeton.

