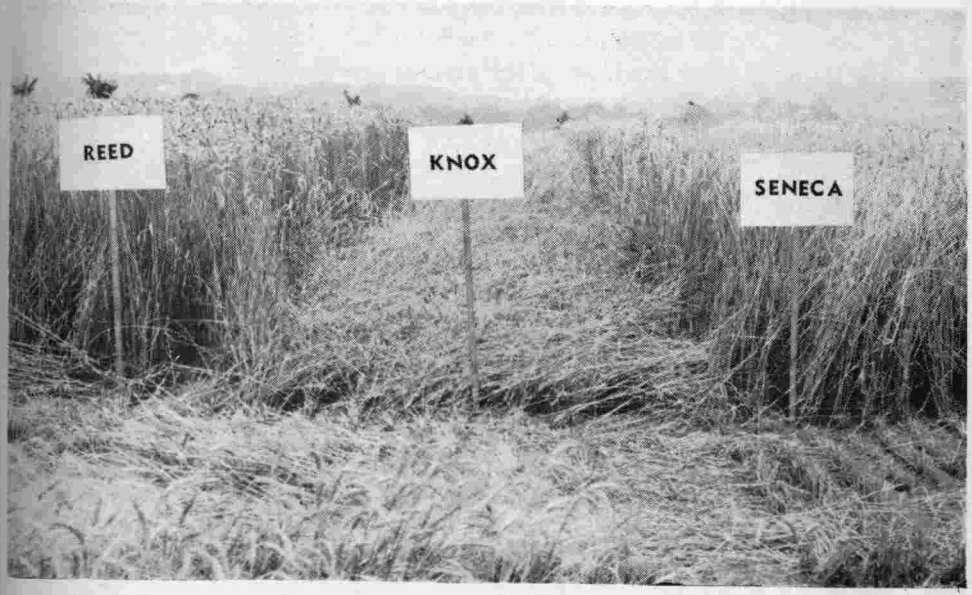
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The University of Tennessee
Agricultural Experiment Station
John A. Ewing, Director
Knoxville



1966 PERFORMANCE TRIALS OF FIELD CROP VARIETIES

by Charles R. Graves

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1966
PERFORMANCE TRIALS
OF FIELD CROP VARIETIES

CORN—COTTON—OATS—WHEAT—BARLEY—SOYBEANS
ALFALFA—RED CLOVER—GRAIN SORGHUM—TOBACCO

by
Charles R. Graves
Assistant Professor of Agronomy

SUDANGRASS AND SUDANGRASS-SORGHUM HYBRIDS
PEARLMILLETS

by
Henry A. Fribourg
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Data for 1966 with Summaries of Results from Previous Years

STATION HATCH PROJECT NO. 33
Evaluation of the Performance of Varieties of Field Crops

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RECOMMENDED CROP VARIETIES

(Listed alphabetically)

Corn Hybrids

White—Dixie 29[1], Dixie 29B[1], Dixie 29R, Dixie 33, Dixie 77, Funk G-580W, Funk G-795W, P.A.G. 653W, Pioneer 509W, Pioneer 511, Princeton 990A, Stull's 400WA, Tenn. 501, Tenn. 501R.

Yellow—DeKalb 1006, Dixie 22[1], Embro 222TA, Funk G-710AA, Funk G-711AA, McCurdy M97, P.A.G. SX-59, Pioneer 309B, Pioneer 3048, Pioneer 310, Tenn. 604.

Cotton

Early—Auburn M, Dixie King II, Rex Smoothleaf, Stardel.[2]

Late—Auburn 56, Carolina Queen, Stoneville 213.

Oats—Fall-Seeded—Blount, Forkedeer.[1]

Wheat—Knox[1], Knox 62, Monon, Reed[3], Seneca[3].

Barley—Dayton, Hudson, Kenbar[1], Wade.

Alfalfa—Atlantic, Cody, Buffalo, Narragansett, Vernal, Williamsburg.

Red Clover—Kenland.

Soybeans—Dorman[1], Hill, Hood, Lee, Ogden, Pickett[4].

Grain Sorghum—AKS 614*, DeKalb E-57, Frontier 400C[1], Ga. 615*, Lindsey 744[1], McCurdy 70[1], P.A.G. 515, P.A.G. 430[1], Rico, R.S. 610.

Burley Tobacco—Burley 1[1], Burley 11A[1], Burley 21, Burley 37, Burley 49, MS Burley 21 x Ky. 10.

Dark Fired Tobacco—Broad Leaf Madole, Black Mammoth, DF-516.

Sudangrasses and Hybrids—Chow-Maker (Excel), GHS-2 (Tennessee Farmers Cooperative), Grazemaster (Taylor-Evans), Green Graze (Green Bros.), Greenlan (Caladino), Green-M (Hunt & Tipps), Haygrazer (Taylor-Evans), Hi-Dan 38 (Frontier), Lindsey 77F, Mor-Su (Rudy-Patrick), Pioneer 985, Piper, Sordan (Northrup-King), Su-1 (Rudy-Patrick), Su-Chow 34 (Pfister), Su-Chow 35 (Pfister), Sudax SX-11 (DeKalb), Sudax SX-12 (DeKalb), Sure-Graze (Dorman), Sweet Sioux (Paymaster), Taylor-Evans 3083X, Trudan II (Northrup-King), Trudan IV (Northrup-King).

Pearlmillets—Gahi-1, Starr.

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*Resistant to bird damage.

[1]Present plans indicate that these varieties will not be recommended after this year.

[2]Not recommended where wilt is a problem.

[3]Not recommended for West Tennessee.

[4]Recommended where soybean cyst nematodes are a problem.

CHARACTERISTICS OF RECOMMENDED VARIETIES
(Varieties listed alphabetically)

Variety	Corn virus	Erect plants	Ears/ 100 plants	Grain quality	Husk cover	Ear ht.	Grain moisture at harvest
	Rating[1]	%	No.	Rating[2]	Rating[2]	In.	%
White—Full Season							
Dixie 29[3]	Fair	70	146	4.2	2.7	58	24.8
Dixie 29B[3]	Fair	64	145	4.0	2.7	58	25.4
Dixie 29R	Fair	73	144	4.0	3.0	59	24.6
Dixie 33	Poor	71	153	5.0	3.3	63	24.2
Dixie 77	Fair	87	132	3.0	3.0	60	25.6
Funk G-580W	Fair-Good	77	149	3.2	2.5	53	22.3
Funk G-795W	Fair	75	167	3.9	2.7	52	22.5
P.A.G. 653W	Fair	72	169	2.7	2.5	55	22.5
Pioneer 511	Good	83	156	3.4	2.9	55	22.8
Yellow—Full Season							
DeKalb 1006	Fair	85	121	2.9	3.6	61	23.3
Dixie 22[3]	Fair	85	126	3.0	3.0	65	25.6
Embro 222TA	Fair-Good	86	113	4.0	4.0	63	26.0
Funk G-711AA	Fair	78	119	3.6	3.8	58	26.3
Funk G-710AA	Poor-Fair	87	137	3.0	4.0	64	26.2
Pioneer 309B	Fair-Good	80	124	2.9	2.5	53	24.3
Pioneer 3048	Fair	83	121	3.3	2.2	60	26.7
White—Medium Season							
Princeton 990-A	Fair	92	98	4.7	4.5	52	21.2
Pioneer 509W	Fair—	86	126	5.0	4.2	52	21.6

CHARACTERISTICS OF RECOMMENDED VARIETIES
(Varieties listed alphabetically)

Corn Hybrids

Variety	Corn virus	Erect plants	Ears/ 100 plants	Grain quality	Husk cover	Ear ht.	Grain moisture at harvest
Stull's 400WA	Fair–	88	107	3.7	3.5	51	21.7
Tenn. 501	Good	79	140	3.7	3.4	51	22.0
Tenn. 501R	Good	81	141	4.1	3.2	52	21.1
Yellow—Medium Season							
McCurdy M-97	Poor-Fair	84	118	4.1	3.1	59	23.4
P.A.G. SX-59	Poor-Fair	94	101	3.7	4.8	50	22.2
Pioneer 310	Poor	88	116	4.0	4.1	49	20.7
Tenn. 604	Fair-Good	82	132	3.6	3.5	54	20.8

[1]Relative tolerance to corn virus.

[2]Ratings were based on a scale of 1 to 9 (1 being excellent and 9 poor).

[3]Present plans indicate that these varieties will not be recommended after this year.

Cotton

Auburn M—A very early-maturing, medium to large-boll variety which has a lint percentage of about 36 to 38. Fiber properties:[1] Length (1.05), strength (1.75), and fineness (4.2). Resistant to fusarium wilt.

Auburn 56—A late, medium-boll variety with a lint percentage of about 36 to 38. Fiber properties:[1] Length (1.05), strength (1.79), and fineness (4.3). Plant type variable. Resistant to fusarium wilt and has tolerance to verticillium wilt. Auburn 56 has a high degree of storm resistance.

Carolina Queen—A late, medium-boll variety with a lint percentage of about 36 to 39. Fiber properties:[1] Length (1.09), strength (1.83), and fineness (4.4). Resistant to fusarium wilt. Tall growth habit.

Dixie King II—A medium-early variety that has large bolls. Lint percentage 35 to 37. Fiber properties:[1] Length (1.06), fineness (1.77), and strength (4.3). Tolerant to fusarium wilt.

Rex Smoothleaf—An early, large-boll variety with a lint percentage of about 35 to 37. Fiber properties:[1] Length (1.07), and strength (1.76), and fineness (4.0). Resistant to fusarium wilt and one strain of bacterial blight.

Stardel—An early, small-boll variety with a lint percentage of about 36 to 38. Fiber properties:[1] Length (1.07), strength (1.94), and fineness (4.4). **Not recommended where wilt is a problem.**

Stoneville 213—A medium-late, small-boll variety with a lint percentage of 36 to 39. Fiber properties:[1] Length (1.05), strength (1.79), and fineness (4.7).

Oats

Fall-Seeded:

Blount—A short, stiff-strawed variety which matures 4 to 5 days later than Forkedeer and is slightly less winter-hardy. On the average, Blount will outyield Forkedeer for grain by approximately 40%. When harvested for hay,

[1]Fiber properties are 2-year average for length (2.5% span length) and 3-year average for strength (T_1), and fineness (Micronaire reading). The range of fiber properties using a 2- or 3-year average of the commercial varieties tested are as follows: 2.5% span length ranges from 1.05 to 1.10 strength, T_1, 1.72 to 1.98 and fiber fineness (Micronaire reading 3.9 to 4.7).

Blount has a slight yield advantage over Forkedeer. Blount is coarse-stemmed and has good resistance to lodging.

Forkedeer[2]—A very winter-hardy variety with yellow grain. Has poor standing ability. Medium tall; matures a few days earlier than Blount. Susceptible to crown rust.

Wheat

Knox[3]—A very early winter-hardy, white-chaffed variety with medium-short straw. Semi-upright type with fair to poor standing ability. Due to its earliness, Knox may escape serious damage by stem rust. It is resistant to some races of leaf rust in the mature plant stage.

Knox 62—Similar to Knox except that it is Hessian fly resistant.

Monon—A very early winter-hardy, white-chaffed variety with moderately stiff straw which is a few inches shorter than Knox. Monon has a head type similar to Knox but has shorter tip-awns. The variety is resistant to certain races of leaf rust in the mature plant stage. It is susceptible to stem rust but may escape serious damage from this disease due to its earliness. Monon is resistant to hessian fly.

Reed—A late-maturing variety with good straw strength. Reed is resistant to Hessian fly, leaf rust, and soil-borne mosaic. Moderately susceptible to stem rust, powdery mildew, and loose smut. **Not recommended for West Tennessee.**

Seneca—A red-chaffed variety of medium height and fair standing ability. Susceptible to leaf and stem rust. Matures later than Knox or Monon. **Not recommended for West Tennessee.**

Barley

Dayton—A winter-hardy, semi-rough-awned, early variety with good standing ability. Medium-tall; susceptible to mildew and scald.

Hudson—A winter-hardy, rough-awned variety with fair standing ability. It is medium-late with good resistance to mildew and scald.

Kenbar[4]—A winter-hardy variety of medium height. About

[2]Present plans indicate that this variety will not be recommended after this year.
[3]Present plans indicate that this variety will not be recommended after this year.
[4]Present plans indicate that this variety will not be recommended after this year.

the same maturity as Dayton. Yields slightly less than Dayton. Good resistance to mildew and fair resistance to scald.

Wade—A winter-hardy, six-rowed, short-awned variety with medium height and medium-late in maturity. The spike is parallel and dense and seeds may be characterized by the lack of lemma teeth, semiwrinkled hulls, and a short-haired rachilla. Susceptible to powdery mildew.

Alfalfa

Atlantic—A variegated variety developed from selections having a wide genetic background. It has yielded well all over the state. Atlantic is somewhat tolerant but not resistant to bacterial wilt.

Cody—Selected out of Buffalo and resistant to spotted alfalfa aphid and bacterial wilt. Similar to Buffalo in its performance in Tennessee.

Buffalo—Selected out of an old Kansas Common strain and resistant to bacterial wilt. Buffalo is well adapted to Tennessee conditions and is one of the leading varieties sold in the state.

Narragansett—A synthetic variety of very diverse origin. It recovers somewhat slower than other adapted varieties after cutting. Narragansett is fine-stemmed and yields as well as Atlantic. Seed is in short supply in Tennessee.

Vernal—Variegated in flower color ranging from blue through yellow. This bacterial wilt resistant variety has performed well in Tennessee. However, in some years a minor leaf disease problem has been observed with this variety.

Williamsburg—Developed from selections out of Kansas Common. It is susceptible to bacterial wilt. This variety has been a good producer and is well adapted over the state.

Red Clover

Kenland—Kenland is a variety resistant to southern anthracnose and tolerant to powdery mildew. It has some tolerance to Sclerotinia crown rot and is widely adapted. It is a synthetic variety made by combining several strains from Kentucky, Tennessee, Virginia, North Carolina, and Missouri. It has performed best in Tennessee of all commercial varieties tested.

Soybeans

Dorman[5]—A variety having large yellow beans with a buff-colored hilum. Matures approximately 16 days earlier than Ogden. Dorman holds its seed very well, but not as well as Lee. It has good seed quality and oil content similar to Ogden. The plants have heavy foliage with leaves being very large when compared with other varieties.

Hill—Hill matures about 2 days earlier than Dorman. This variety has more resistance than Dorman to the major foliage diseases, lodging and shattering, but is not quite as resistant to shattering as Lee.

Hood—Hood matures about 10 days earlier than Lee. It is supposed to have resistance to bacterial pustule, wildfire, frog-eye, and target leaf spot disease. The seeds are yellow with a buff hilum.

Lee—Matures approximately 1 week later than Ogden. Lee has tawny pubescence and purple flowers, whereas Ogden has gray pubescence and purple flowers. Lee has more resistance to shattering than the other recommended varieties. Lee is reported to be resistant to the diseases bacterial pustule, wildfire, frog-eye, and purple seed strain. Also, it is supposed to be moderately resistant to target spot. The seeds are yellow with a black hilum. Lee has a tendency to lodge under some conditions.

Ogden—This variety was developed by the University of Tennessee Agricultural Experiment Station and is widely grown in the Southeastern states. It produces high yields of seed with a good oil content. Ogden has a tendency to shatter and should be harvested shortly after maturity. It is a mid-season variety with about the same maturity as Hood. Ogden has olive-colored beans with a brownish-black hilum.

Pickett—Pickett is resistant to soybean cyst nematode, bacterial pustule, wildfire, and target spot. Pickett plants have grey pubescence and the seeds are yellow with dark brown hilum. The new variety is similar to Lee in yield under cyst nematode free conditions, matures a few days later than Lee and has a tendency to retain its leaves longer than Lee after the bean pods have matured. **Recommended where cyst nematodes are a problem.**

[5]Present plans indicate that this variety will not be recommended after this year.

Grain Sorghum Hybrids

AKS 614—A bird-resistant variety of medium maturity with an open type head in compactness.

DeKalb E-57—A variety of late maturity with an open type head in compactness.

Frontier 400C[6]—A variety of early maturity with heads tight in compactness.

Ga. 615—A bird-resistant variety of medium to late maturity with an open type head in compactness. Ga. 615 has a tendency to lodge under certain conditions.

Lindsey 744[6]—A variety of early maturity with a head medium in compactness.

McCurdy 70[6]—A variety of medium maturity, red seed on heads of tight compactness.

P.A.G. 515—A variety of late maturity with heads of tight compactness.

P.A.G. 430[6]—A variety of early maturity with heads of medium compactness.

Rico—A variety of medium maturity, short plant height with a tight head in compactness.

R.S. 610—A medium-maturing hybrid with heads tight in compactness.

Burley Tobacco

Burley 1[7]—An upright-leaf type variety which produces high yields of good quality tobacco. It has good resistance to mosaic and low resistance to black root rot. This variety performs best when topped early and kept suckered.

Burley 11A[7]—A brittle drooping leaf variety which has good resistance to blackshank, black root rot, and fusarium wilt. **This variety is only recommended on farms where both blackshank and fusarium wilt are present.** This variety will not yield as well as Burley 37, but has a little more resistance to black root rot and fusarium wilt. Burley 11A is early-maturing and is often ready to harvest 1 week earlier than other varieties.

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[6]Present plans indicate that these varieties will not be recommended after this year.

[7]Present plans indicate that these varieties will not be recommended after this year.

Burley 21—A very upright-leaf type variety which produces good yields of fine quality tobacco. It has excellent resistance to wildfire and mosaic and fair resistance to black root rot. Plants are more vigorous and grow off faster in plant beds than most other varieties. Burley 21 is the most widely grown variety in the state.

Burley 37—An upright-leaf type variety which has good resistance to blackshank, excellent resistance to wildfire, and fair resistance to black root rot and fusarium wilt. **This variety is recommended on farms where blackshank is a problem.** In the absence of blackshank, Burley 37 will not yield as well as Burley 21.

Burley 49—An upright-leaf type variety which has good resistance to blackshank, excellent resistance to black root rot, wildfire, mosaic, and fair resistance to fusarium wilt. **This variety is recommended on farms where blackshank and black root rot are causing problems.** In the absence of blackshank and black root rot, Burley 49 will not yield as well as Burley 21.

MS Bu. 21 x Ky. 10—A semi-drooping leaf type hybrid which has excellent resistance to wildfire and mosaic and fair resistance to black root rot. Yields about the same as Ky. 10 but more than Burley 21. MS Bu. 21 x Ky. 10 hybrid is better in quality than Ky. 10, but not as good as Burley 21.

Dark Fire-Cured Tobacco

Broad Leaf Madole—A relatively high-yielding, high-acre-value variety. Susceptible to mosaic and wildfire.

Black Mammoth—Black Mammoth produces a leaf somewhat darker and broader than Madole. Usually it does not droop quite as much as Madole. Susceptible to mosaic and wildfire.

DF-516—A broad-leaved, open-growing, dark-green tobacco that is resistant to both mosaic and wildfire. Because of the large, broad leaves, this variety is perhaps best suited to the production of cutting and wrapping tobacco. The leaf spacing of DF-516 is about the same as that of Madole.

Sudangrasses and Sudangrass-sorghum hybrids—Pearlmillets

For a description of some of the recommended varieties, see the section "Performance of Summer Annual Grasses for Grazing and Green-Chopping" on page 78 of this bulletin.

1966
PERFORMANCE TRIALS OF FIELD CROP VARIETIES

CORN—COTTON—OATS—WHEAT—BARLEY—SOYBEANS
ALFALFA—RED CLOVER—GRAIN SORGHUM—TOBACCO
SUDANGRASS AND SUDANGRASS-SORGHUM HYBRIDS
PEARLMILLETS

Data for 1966 with summaries of results from previous years

INTRODUCTION

The purpose of the project, "Evaluation of the Performance of Varieties of Field Crops," is to test field crop varieties available to farmers of this and neighboring states, as well as the best experimental varieties being developed by experiment stations and other agencies.

The tests were conducted using field plot designs, fertility levels, and experimental techniques that have been found suitable for each crop.

Committees composed of specialists from the research, resident instruction, and extension staffs of the University of Tennessee College of Agriculture study the performance data and determine varieties to be recommended.

In order for a variety to be recommended, it must yield well and have other characteristics suitable for Tennessee conditions.

PRESENTATION OF DATA

The tests were conducted in each of the principal agricultural regions of the State where the specific crop is grown. Plots of each variety were replicated several times at each location. Locations of field tests are given in each table of data. An average of the performance of a variety across the area of adaptation and over a period of years is the best basis for evaluation.

The tables on the following pages have been prepared with the entries listed in order of performance, the highest-yielding entry being listed first.

The least significant difference (L.S.D.) values at the 5% level for the 1966 tests are shown at the bottom of each table. The yields of any two varieties being compared must differ by at least this amount in order for the varieties to be considered different in yielding ability. Also, coefficient of variation values (C.V. %) are shown at the bottom of each table. At each location where tests were conducted in 1966 the soil types are reported at the end of the table.

CORN

The 1966 Full-Season State corn hybrid tests were conducted at 4 locations and the early-maturing tests were conducted at 7 locations. There were 30 entries in the full-season and 40 entries in the early-maturing test. The experimental design was a randomized complete block with 6 replications.

Both tests at Knoxville and Fort Pillow were rated for virus disease using a scale ranging from 0 to 5. These data are presented in Tables 5 and 11. No virus disease ratings were made at any of the other state variety test locations because very few affected plants were observed.

The virus disease data in Tables 6 and 12 were furnished by L. M. Josephson, and J. W. Hilty of the Tennessee Agricultural Experiment Station at Knoxville. A scale ranging from 1 through 9 was used to rate these varieties at four locations where the virus disease occurred in previous years. The data represent two replications at each location.

Individual plants were evaluated on the basis of the following severity grades:

1 = No apparent symptoms.
2 = Top 2 or 3 leaves with mottling, no stunting.
3 = Plant above the ear mottled and discolored; none or very little stunting.
5 = Plant above ear discolored and stunted, ear reduced in size.



Figure 1. An example of corn virus disease. Note the three stunted plants in the foreground without ears of corn.

7 = Entire plant discolored and stunted, small or no ear.
9 = Plant completely collapsed, no ear.

A severity index for each entry was determined by multiplying the number of plants in each grade by the grade value, and the sum of these products was divided by the total number of plants.

Pioneer 309A was included in both the full-season and the

early-maturing tests to provide some measure of relative performance of the two groups.

Amounts of fertilizer applied to each test were considered sufficient for corn yields over 100 bushels per acre. All tests were planted at the rate of 28,000 plants per acre and thinned to give a stand of 14,000 plants.

The 1966 "average yields" and characteristics of the hybrids tested in the early-maturing group are presented in Tables 1 and 2. "Erect plants" is a measure of a variety's resistance or susceptibility to lodging. The higher the number, the better the standing ability of the hybrids. "Ears/100 plants" is a measure of the prolificacy of a variety. Single-eared hybrids will have a rating of about 100, whereas prolific hybrids under good weather conditions at about 14,000 plants per acre usually have a rating of 120 to 150.

"Grain quality" and "Husk cover" are ratings taken at the time of harvest. "Ear height" is a measure of the average distance from the ground to the ears.

"Grain moisture" is used to calculate yield (yields are expressed in bushels per acre, adjusted to 15.5% moisture), and measures relative maturity of the hybrids. A high moisture at harvest indicates a later-maturing hybrid, and a low moisture indicates an earlier-maturity hybrid.

Data are presented in Tables 1 through 12.

Table 1. Corn: Yields of 40 early-maturing hybrids tested at seven locations in 1966

Color	Hybrid	State avg.	Fort Pillow[1]	Jackson[2]	Crossville[3]	Springfield[4]	Martin[5]	Spring Hill[6]	Greeneville[7]
					Bushels per acre				
Y 2X	Funk G-4660	94	82	74	133	94	96	81	96
W 2X	Princeton SX-804	90	71	61	136	102	90	75	94
Y	Pioneer 3306	88	54	64	142	97	101	69	90
Y	Tenn. 604	88	68	66	130	97	97	58	98
Y	McCurdy M97	87	63	72	129	96	94	57	100
Y	Pioneer 310	87	68	59	131	101	98	61	94
W	Pioneer 509W	87	83	64	137	83	95	60	88
W	Tenn. 501R	85	71	60	130	90	81	69	96
Y	Funk G-5757	85	76	68	125	92	86	65	84
W	Tenn. 501	85	79	66	138	78	90	48	95
Y 2X	Pioneer 3369	85	67	53	124	86	91	76	96
Y	Funk G-5759	84	70	63	120	88	86	75	84
W	Stull's 400WA	83	62	72	132	89	78	74	75
Y 2X	P.A.G. SX-59	83	73	63	131	89	93	36	96
Y 2X	McNair X202	82	51	64	130	89	86	69	88
Y 2X	Princeton SX-809	82	58	66	113	88	76	82	93
Y	Stull's 100YM	81	59	55	127	88	92	67	83
W	Meacham's M-7	80	61	61	132	90	85	42	91
Y 2X	Pioneer X2425	80	73	74	109	79	92	43	93
W	Princeton 990-A	80	60	66	129	86	82	59	78
W	Princeton 920-A	79	66	71	132	80	83	45	78
Y 3X	T. E. SX-20Y[8]	79	57	55	125	86	73	63	94
Y	Ed. Purdue P85A	79	48	61	118	84	80	74	88
Y	P.A.G. 399	79	49	60	110	87	83	72	90
Y	Asgrow 120	79	56	60	127	85	72	67	85

Table 1. (Continued)

Color	Hybrid	State avg.	Fort Pillow[1]	Jackson[2]	Crossville[3]	Springfield[4]	Martin[5]	Spring Hill[6]	Greeneville[7]
					Bushels per acre				
Y	V.P.I. 646	78	58	49	128	84	72	72	85
Y	Watson 430	77	54	58	125	89	84	61	72
Y	P.A.G. 437	77	56	61	123	81	81	54	86
Y 3X	T. E. Cropmaster[8]	77	65	52	114	87	62	71	87
Y 2X	Ed. Purdue PX-47	77	56	55	127	89	61	68	82
Y 2X	DeKalb 805A	77	30	62	128	89	78	59	91
Y	T. E. 20YA[8]	76	49	56	117	80	70	69	88
Y	Asgrow 100	74	46	56	116	77	60	78	83
Y	Pioneer 309A[9]	74	58	51	126	88	83	35	80
Y	Watson 401A	73	45	51	133	81	70	58	75
Y	P.A.G. 395	72	46	60	111	78	81	52	76
Y 3X	DeKalb XL-362	71	39	62	108	78	73	53	81
Y 2X	Stull's 607Y	66	28	54	102	77	64	61	76
Experimentals:									
Y	T4003	90	62	62	154	83	102	74	93
Y	T3003	84	59	52	144	87	104	54	85
	L.S.D. (.05)	—	23.0	11.2	8.6	11.1	16.4	19.5	13.1
	C.V. %	—	24.3	16.3	6.0	11.3	14.3	27.6	13.2

[1]Collins silt loam, (0% to 2% slopes).
[2]Loring silt loam, level terrace phase, (0% to 2% slopes).
[3]Hartsells loam, eroded, (2% to 5% slopes).
[4]Huntington silt loam, local alluvium, (0% to 2% slopes).
[5]Collins silt loam, (0% to 2% slopes).
[6]Huntington silt loam, phosphatic, (0% to 2% slopes).
[7]Waynesboro loam, (2% to 5% slopes), Hermitage silt loam, (2% to 5% slopes).
[8]T. E. Denotes Taylor Evans.
[9]Also included in test of full-season hybrids.
SX—Denotes a single cross or special cross hybrid.
3X—Denotes a three way cross or special cross hybrid.

Table 2. Corn: Characteristics of 40 early-maturing hybrids tested at seven locations in 1966

Color	Hybrid	Avg. yield	Erect plants	Ears/ 100 plants	Grain[1] quality	Husk[1] cover	Ear ht.	Grain moisture at harvest
		Bu./A	%	No.	Rating	Rating	In.	%
Y 2X	Funk G-4660	94	88	113	5.1	5.9	51	21.4
W 2X	Princeton SX-804	90	91	98	5.3	5.9	51	23.7
Y	Pioneer 3306	88	89	102	4.6	5.3	49	22.5
Y	Tenn. 604	88	80	120	3.7	3.2	55	23.3
Y	McCurdy M97	87	84	118	4.1	3.1	54	25.9
Y	Pioneer 310	87	87	108	4.1	4.0	49	23.4
W	Pioneer 509W	87	83	114	4.7	4.0	51	24.1
W	Tenn. 501R	85	79	128	4.4	3.3	52	23.3
Y	Funk G-5757	85	95	104	3.1	3.4	50	24.5
W	Tenn. 501	85	80	124	3.6	2.9	52	25.1
Y 2X	Pioneer 3369	85	94	99	3.3	5.8	45	19.9
Y	Funk G-5759	84	87	97	3.8	3.7	47	24.8
W	Stull's 400WA	83	93	100	3.9	4.1	51	23.5
Y 2X	P.A.G. SX-59	83	98	92	4.0	4.7	51	24.8
Y 2X	McNair X202	82	88	92	3.9	5.1	48	22.7
Y 2X	Princeton SX-809	82	84	99	4.1	5.9	47	21.7
Y	Stull's 100YM	81	87	102	5.2	6.1	52	21.6
W	Meacham's M-7	80	87	100	3.8	3.8	52	25.1
Y 2X	Pioneer X2425	80	96	97	4.6	2.1	55	30.3
W	Princeton 990-A	80	91	89	4.4	4.4	50	23.3

Table 2. (Continued)

Color	Hybrid	Avg. yield	Erect plants	Ears/ 100 plants	Grain[1] quality	Husk[1] cover	Ear ht.	Grain moisture at harvest
		Bu./A	%	No.	Rating	Rating	In.	%
W	Princeton 920-A	79	91	98	3.4	2.7	47	25.2
Y 3X	T. E. SX-20Y[2]	79	88	90	5.5	6.0	49	21.0
Y	Ed. Purdue P85A	79	86	95	4.6	5.4	48	22.1
Y	P.A.G. 399	79	95	104	6.0	6.1	46	20.5
Y	Asgrow 120	79	91	97	4.9	5.9	48	22.3
Y	V.P.I. 646	78	89	92	4.7	6.1	49	22.1
Y	Watson 430	77	90	95	3.6	3.1	51	23.7
Y	P.A.G. 437	77	89	102	4.9	5.6	46	20.0
Y 3X	T. E. Cropmaster[2]	77	90	88	4.6	6.1	51	22.1
Y 2X	Ed. Purdue PX-47	77	76	83	5.0	5.7	51	22.8
Y 2X	DeKalb 805A	77	85	86	4.6	5.5	46	19.5
Y	T. E. 20YA[2]	76	83	92	4.5	5.6	47	21.6
Y	Asgrow 100	74	87	94	4.9	5.9	47	21.8
Y	Pioneer 309A	74	90	100	3.9	2.8	53	26.2
Y	Watson 401A	73	92	90	4.3	3.9	48	23.1
Y	P.A.G. 395	72	92	97	5.3	5.6	46	21.5
Y 3X	DeKalb XL-362	71	94	90	5.7	6.6	43	21.3
Y 2X	Stull's 607Y	66	87	94	6.4	5.8	40	19.6
Experimentals:								
Y	T4003	90	77	124	3.7	3.6	55	21.7
Y	T3003	84	83	114	4.9	4.3	56	24.7

[1]Ratings were based on a scale of 1 to 9 (1 being excellent and 9 poor).

[2]T. E. denotes Taylor Evans.

Table 3. Corn: Yields of 10 early-maturing hybrids tested at six locations for 3 years and at one location for 2 years

Color	Variety	Greeneville 1964-66	Jackson 1964-66	Crossville 1964-66	Springfield 1964-66	Martin 1964-66	Spring Hill 1964-66	Knoxville 1964-65
					Bushels per acre			
W	Pioneer 509W	109	84	109	101	99	99	122
Y 2X	P.A.G. SX-59	105	82	107	107	102	91	112
Y	Pioneer 310	108	79	110	107	98	94	110
W	Stull's 400WA	93	83	110	109	87	103	122
W	Tenn. 501	102	80	108	100	95	90	121
Y	Tenn. 604	106	78	106	106	97	92	112
W	Princeton 990-A	100	83	108	102	90	94	119
Y	Watson 401A	95	73	112	102	80	92	105
Y	Pioneer 309A[1]	92	77	107	102	89	79	110
Y	V.P.I. 646	91	72	107	100	87	93	99

[1]Also included in tests of full-season hybrids.
[2]No yield data for 1966 due to bird damage.

Table 4. Corn: Yield and other characteristics of early-maturing hybrids tested for 2 or 3 years at seven locations

Color	Hybrid	3 Yr. avg. 1964-1966	2 Yr. avg. 1965-1966	Erect plants	Ears/100 plants	Grain[1] quality	Husk[1] cover	Ear ht.	Grain moisture at harvest
		Bu./A	Bu./A	%	No.	Rating	Rating	In.	%
W	Pioneer 509W	101	106	86	126	5.0	4.2	52	21.6
Y 2X	P.A.G. SX-59	100	99	94	101	3.7	4.8	50	22.2
Y	Pioneer 310	99	100	88	116	4.0	4.1	49	20.7
W	Stull's 400WA	98	101	88	107	3.7	3.5	51	21.7
W	Tenn. 501	98	99	79	140	3.7	3.4	51	22.0
Y	Tenn. 604	97	102	82	132	3.6	3.5	54	20.8
W	Princeton 990-A	97	98	92	98	4.7	4.5	52	21.2
Y	Watson 401A	91	90	91	100	3.9	4.1	49	22.1
Y	Pioneer 309[2]	91	91	91	107	3.9	3.1	55	23.3
Y	V.P.I. 646	91	93	93	97	5.0	6.2	51	20.5
W	Tenn. 501R	—	101	81	141	4.1	3.2	52	21.1
Y	Watson 430	—	94	91	100	3.4	3.4	51	21.4
Y	P.A.G. 437	—	91	91	108	5.2	5.8	48	18.0
Y	T. E. 20YA[3]	—	91	84	101	5.0	5.8	49	19.3
Y 3X	DeKalb XL-362	—	85	92	102	6.2	6.9	55	18.6
Experimentals:									
Y	T3003	—	102	82	154	4.5	3.9	58	21.6

[1]Ratings were based on a scale of 1 to 9 (1 being excellent and 9 poor).
[2]Also included in test of full-season hybrids.
[3]Taylor Evans.

Table 5. Corn: Virus reaction of 40 early-maturing corn hybrids tested at two locations in 1966

Color	Hybrid	Knoxville[1]		Fort Pillow	
		Diseased	Severity Index[2]	Diseased	Severity Index
		%		%	
Y	Funk G-5759	8.3	0.23	17.2	0.49
Y	Funk G-5757	7.5	0.17	3.5	0.14
Y 2X	Funk G-4660	3.3	0.07	0.0	0.00
W	Princeton 990-A	38.3	1.24	31.7	1.33
Y 2X	Princeton SX-804	11.7	0.40	6.8	0.20
W	Princeton 920-A	33.4	0.95	11.7	0.27
Y 2X	Princeton SX-809	14.2	0.37	20.0	0.65
Y 2X	McNair X202	48.3	1.17	40.0	1.50
Y 2X	DeKalb 805A	30.8	0.98	85.0	2.78
Y 3X	DeKalb XL-362	28.3	1.12	39.6	1.70
W	Pioneer 509W	12.5	0.24	1.7	0.03
Y	Pioneer 310	54.7	1.95	20.0	0.52
Y	Pioneer 3369	27.5	0.94	11.7	0.35
Y 2X	Pioneer Y-2425	30.0	0.97	0.0	0.00
Y	Pioneer 309A	20.8	0.55	13.3	0.50
Y	Asgrow 100	33.3	1.22	30.0	0.90
Y	Asgrow 120	28.3	0.78	6.7	0.20
Y 2X	P.A.G. SX-59	21.7	0.65	0.0	0.00
Y	P.A.G. 437	31.7	0.95	20.0	0.60
Y 3X	P.A.G. 399	53.3	2.00	16.7	0.67
Y	P.A.G. 395	43.3	1.57	11.7	0.32
Y	V.P.I. 646	39.3	1.49	33.3	1.05
Y 3X	T. E. SX-20Y	38.3	1.13	43.3	1.57
Y	T. E. 20YA	26.7	0.85	28.3	1.03
W	Meacham's M-7	23.3	0.52	20.0	0.70
Y 2X	Ed. Purdue PX-47	14.2	0.36	20.0	0.51
Y	Ed. Purdue P-85A	33.2	1.13	36.7	0.92
Y	Watson 430	31.7	0.97	25.4	0.77
Y	Watson 401A	31.7	1.18	23.3	0.78
Y	Stull's 100YM	46.7	1.24	31.7	1.20
W	Stull's 400WA	40.0	1.22	20.3	0.62
Y 2X	Stull's 607Y	25.2	0.72	60.0	1.80
Y	Pioneer 3306	59.2	1.93	33.3	1.28
Y	McCurdy M97	9.2	0.30	6.6	0.27
Y 3X	T. E. Cropmaster	24.2	0.98	5.0	0.08
W	Tenn. 501	12.5	0.24	0.0	0.00
Y	Tenn. 604	14.2	0.30	6.7	0.23
W	Tenn. 501R	13.3	0.28	0.0	0.00
Experimentals:					
Y	T3003	27.5	0.46	11.7	0.37
Y	T4003	17.5	0.26	11.7	0.32

[1]Planted June 2.

[2]Rated using a scale of 0 to 5.

Table 6. Corn: Virus reaction of 40 early-maturing corn hybrids tested at four locations in 1966

(Data furnished by Josephson and Hilty)

Color	Variety	Knoxville (Knox Co.)				Waverly (Humphreys Co.)		Savannah (Hardin Co.)	
		Test 1[1] Diseased	Severity Index	Test 2[2] Diseased	Severity[3] Index	Diseased	Severity Index	Diseased	Severity Index
		%		%		%		%	
Y	Funk G-5759	29	1.4	65	1.7	63	2.9	51	1.8
Y	Funk G-5757	15	1.1	29	1.5	66	2.8	42	1.6
Y 2X	Funk G-4660	34	1.1	17	1.2	46	1.9	27	1.5
W	Princeton 990-A	42	1.1	65	1.8	72	3.8	64	2.3
Y 2X	Princeton SX-804	9	1.1	70	1.9	85	3.7	38	2.0
W	Princeton 920-A	41	1.4	75	2.2	68	2.4	40	1.4
Y 2X	Princeton SX-809	20	1.2	84	2.4	82	4.0	70	2.5
Y 2X	McNair X202	84	2.3	100	3.1	100	5.2	84	2.6
Y 2X	DeKalb 805A	73	2.0	100	3.6	100	7.5	91	3.9
Y 3X	DeKalb XL-362	33	1.7	100	2.9	100	7.6	67	2.5
W	Pioneer 509W	50	1.5	94	2.2	100	5.1	64	1.8
Y	Pioneer 310	53	1.8	89	2.8	97	5.4	79	2.2
Y 2X	Pioneer 3369	11	1.1	30	1.2	87	4.4	46	1.9
Y 2X	Pioneer X-2425	38	1.4	62	1.7	79	3.4	52	1.6
Y	Pioneer 309A	60	1.6	78	2.2	77	3.9	49	1.8
Y	Asgrow 100	57	1.7	76	2.2	97	5.1	79	2.5
Y	Asgrow 120	43	1.5	92	2.4	88	4.0	56	2.1
Y 2X	P.A.G. SX-59	52	1.8	92	2.1	98	4.8	87	2.5
Y	P.A.G. 437	32	1.5	97	2.5	98	5.1	68	2.3
Y 3X	P.A.G. 399	57	1.9	84	1.9	95	4.8	61	2.3

Table 6. (Continued)

Color	Variety	Knoxville (Knox Co.) Test 1[1] Diseased	Knoxville (Knox Co.) Severity Index	Knoxville (Knox Co.) Test 2[2] Diseased	Knoxville (Knox Co.) Severity[3] Index	Waverly (Humphreys Co.) Diseased	Waverly (Humphreys Co.) Severity Index	Savannah (Hardin Co.) Diseased	Savannah (Hardin Co.) Severity Index
		%		%		%		%	
Y	P.A.G. 395	66	2.0	92	2.4	100	5.8	67	2.4
Y	V.P.I. 646	55	2.1	75	1.9	96	4.3	71	2.4
Y 3X	T. E. SX-20Y	50	1.9	88	2.0	97	4.6	95	3.4
Y	T. E. 20YA	30	1.4	79	2.1	97	6.0	92	3.5
W	Meacham's M-7	43	1.5	24	1.3	62	3.1	28	1.5
Y 2X	Ed. Purdue PX-47	62	1.9	74	1.8	97	5.8	97	4.0
Y	Ed. Purdue P-85A	33	1.4	87	2.1	100	6.1	87	2.8
Y	Watson 430	45	1.6	57	1.6	84	4.3	80	2.8
Y	Watson 401A	29	1.4	45	1.5	91	4.6	94	2.9
Y	Stull's 100YM	49	1.6	49	2.1	82	3.7	50	1.5
W	Stull's 400WA	31	1.4	40	1.5	87	4.2	69	1.9
Y 2X	Stull's 607Y	24	1.3	95	2.8	100	5.1	88	3.2
Y	Pioneer 3306	54	1.8	80	2.1	100	6.0	49	1.7
Y	McCurdy M97	33	1.4	55	1.9	95	4.7	51	1.9
Y 3X	T. E. Cropmaster	38	1.5	85	2.1	100	7.3	80	3.1
W	Tenn. 501	49	1.5	72	1.8	73	2.6	34	1.4
Y	Tenn. 604	65	1.8	69	1.9	85	3.3	40	1.5
W	Tenn. 501R	41	1.4	72	1.9	80	2.8	47	1.5
Experimentals:									
Y	T3003	73	2.0	56	1.6	80	3.2	36	1.4
Y	T4003	38	1.4	70	1.8	76	3.0	71	1.9

[1]Planted May 23.
[2]Planted June 13.
[3]Rated using a scale of 1 to 9.

Table 7. Corn: Yields of 30 full-season hybrids tested at four locations in 1966

Color	Hybrid	Average	Jackson[1]	Fort Pillow[2]	Spring Hill[3]	Knoxville[4]
				Bushels per acre		
W 2X	Funk G-4831	84	71	103	24	136
W 2X	P.A.G. SX-80W	78	74	98	13	128
W	Dixie 29R	77	71	89	25	122
W	Pioneer 511A	76	69	84	25	128
W	Pioneer 511	75	63	93	20	124
Y	DeKalb 1006	75	73	86	24	116
W	Funk G-580W	75	63	96	22	118
Y	Pioneer 3048	72	68	79	22	118
W	Dixie 77	70	58	90	21	111
W	Dixie 29	69	62	86	22	106
W	Funk G-795W-1	69	64	83	20	110
W	DeKalb 999	66	65	74	19	107
W	Dixie 33	64	65	69	17	105
Y	Funk G-732	64	72	42	23	119
Y	Pioneer 309B	64	58	72	20	105
Y	Funk G-711AA	64	60	72	19	102
W	Taylor 177	64	55	88	11	100
Y 3X	DeKalb XL-385	62	68	71	17	92
Y	Pioneer 309A[5]	61	55	74	15	99
W	DeKalb XL-390	61	60	72	25	88
Y	Asgrow 202	60	67	71	19	85
Y 3X	DeKalb XL-388	60	69	64	14	90
W	P.A.G. 653W	59	58	70	11	98
Y	McCurdy M-306	58	49	72	10	101
W	Dixie 29B	58	54	72	15	89
W 2X	Stull's 800W SX	57	66	64	17	80
Y	Taylor 160	55	49	62	7	101
Y	Asgrow 200B	50	58	52	11	77
Experimentals:						
W	T2108	80	72	94	29	123
W	T6101	71	69	82	26	106
	L.S.D. (.05)	—	12.4	11.0	9.8	15.4
	C.V. %	—	17.3	12.5	45.8	12.8

[1]Loring silt loam, level terrace phase (0% to 2% slopes).
[2]Collins silt loam, (0% to 2% slopes).
[3]Maury silt loam, (0% to 2% slopes).
[4]Sequatchie silt loam, (0% to 5% slopes).
[5]Also included in test of early-maturing hybrids.
2X—Denotes a single cross or special cross hybrid.
3X—Denotes a three way cross or special cross hybrid.

Table 8. Corn: Characteristics of 30 full-season hybrids tested at seven locations in 1966

Color	Hybrid	Avg. yield	Erect plants	Ears/ 100 plants	Grain quality	Husk cover[1]	Ear ht.[1]	Grain moisture at harvest
		Bu./A	%	No.	Rating	Rating	In.	%
W 2X	Funk G-4831	84	81	119	2.2	1.5	53	29.5
W 2X	P.A.G. SX-80W	78	72	198	2.0	2.3	52	28.3
W	Dixie 29R	77	68	143	4.2	2.8	58	28.1
W	Pioneer 511A	76	80	149	2.0	2.0	54	26.9
W	Pioneer 511	75	85	149	3.7	2.8	55	27.3
Y	DeKalb 1006	75	87	124	2.8	3.0	59	29.4
W	Funk G-580W	75	69	142	3.2	2.0	51	25.6
Y	Pioneer 3048	72	82	122	3.2	1.7	55	31.1
W	Dixie 77	70	63	150	4.3	2.7	59	32.4
W	Dixie 29	69	59	143	4.2	2.2	57	30.7
W	Funk G-795W-1	69	73	151	3.5	3.3	49	26.2
W	DeKalb 999	66	91	112	3.8	3.8	46	25.3
W	Dixie 33	64	61	148	5.0	3.2	61	30.0
Y	Funk G-732	64	88	148	2.5	3.0	59	34.1
Y	Pioneer 309B	64	74	122	3.2	1.8	51	29.3
Y	Funk G-711AA	64	78	113	3.0	4.0	57	32.9
W	Taylor 177	64	80	136	3.0	1.5	60	31.8
Y 3X	DeKalb XL-385	62	92	122	3.7	2.7	54	23.1
Y	Pioneer 309A[2]	61	78	116	4.2	3.7	51	27.7
W	DeKalb XL-390	61	73	112	3.2	3.3	51	27.6

Table 8. (Continued)

Color	Hybrid	Avg. yield	Erect plants	Ears/ 100 plants	Grain quality	Husk cover[1]	Ear ht.[1]	Grain moisture at harvest
		Bu./A	%	No.	Rating	Rating	In.	%
Y	Asgrow 202	60	84	119	2.7	2.7	54	25.6
Y 3X	DeKalb XL-388	60	82	135	3.5	2.7	53	27.7
W	P.A.G. 653W	59	74	158	2.5	2.7	54	26.3
Y	McCurdy M-306	58	79	142	2.7	2.0	65	30.9
W	Dixie 29B	58	52	134	4.2	2.3	56	32.1
W 2X	Stull's 800W SX	57	72	114	3.0	2.8	50	27.4
Y	Taylor 160	55	86	147	3.5	2.2	62	34.6
Y	Asgrow 200B	50	71	118	4.2	2.8	53	25.5
Experimentals:								
W	T2108	80	74	157	2.5	2.7	60	29.3
W	T6101	71	63	158	4.8	2.8	64	30.1

[1]Ratings were based on a scale of 1 to 9 (1 being excellent and 9 poor).
[2]Also included in test of early-maturing hybrids.

Table 9. Corn: Yield of 15 full-season hybrids tested at four locations for 3 years, 1964-66

Color	Variety	Avg. 1964-66	Fort Pillow	Jackson	Knoxville	Spring Hill
			Bushels per acre			
W	Pioneer 511	100	103	84	131	81
W	Dixie 29R	95	97	84	122	79
W	Funk G-580W	95	98	78	122	80
Y	DeKalb 1006	93	93	88	115	77
W	Funk G-795W-1	92	94	75	120	80
W	Dixie 29	91	85	79	118	81
Y	Pioneer 3048	90	87	78	121	74
W	Dixie 29B	88	91	77	104	81
Y	Pioneer 309B	88	85	78	114	76
W	Dixie 33	88	76	81	117	77
Y	Funk G-711AA	85	81	77	110	73
Y	DeKalb XL-390	85	77	78	104	80
W	P.A.G. 653W	84	76	79	110	72
Y	Pioneer 309A[1]	82	76	73	107	71
Experimental:						
W	T2108	102	102	86	131	88

[1]Also included in test of early maturing hybrids.

Table 10. Corn: Yield and other characteristics of full-season hybrids tested for 2 or 3 years at four locations

Color	Hybrid	3 Yr. avg. 1964-1966	2 Yr. avg. 1965-1966	Erect plants	Ears/100 plants	Grain[1] quality	Husk[1] cover	Ear ht.	Grain moisture at harvest
		Bu./A	Bu./A	%	No.	Rating	Rating	In.	%
W	Pioneer 511	100	97	83	156	3.4	2.9	55	22.8
W	Dixie 29R	95	93	73	144	4.0	3.0	59	24.6
W	Funk G-580	95	93	77	149	3.2	2.5	53	22.3
Y	DeKalb 1006	93	90	85	121	2.9	3.6	61	23.3
W	Funk G-795W-1	92	91	75	167	3.9	2.7	52	22.5
W	Dixie 29	91	86	70	146	4.2	2.7	58	24.8
Y	Pioneer 3048	90	89	83	121	3.3	2.2	60	26.7
W	Dixie 29B	88	81	64	145	4.0	2.7	58	25.4
Y	Pioneer 309B	88	85	80	124	2.9	2.5	53	24.3
W	Dixie 33	88	83	71	153	5.0	3.3	63	24.2
Y	Funk G-711AA	85	81	78	119	3.6	3.8	58	26.3
W	DeKalb XL-390	85	80	79	116	3.2	3.3	53	22.5
W	P.A.G. 653W	84	77	72	169	2.7	2.5	55	22.5
Y	Pioneer 309A[2]	82	78	79	112	4.0	3.6	55	23.3
W	Pioneer 511A	—	100	79	160	2.2	2.2	56	22.8
Y	Funk G-732	—	88	85	149	2.5	3.0	64	27.6
W	DeKalb 999	—	87	83	118	3.9	3.8	50	21.2
W	Taylor 177	—	83	76	143	3.0	2.2	62	25.8
W 2X	Stull's 800W SX	—	79	72	112	2.5	3.4	53	22.8
Experimental:									
W	T2108	102	100	72	164	3.5	2.9	58	24.5

[1]Ratings were based on a scale of 1 to 9 (1 being excellent and 9 poor).
[2]Also included in test of early-maturing hybrids.

Table 11. Corn: Virus reaction of 30 full-season corn hybrids tested at two locations in 1966

Color	Hybrid	Knoxville[1] Diseased	Knoxville[1] Severity[2] Index	Fort Pillow Diseased	Fort Pillow Severity[2] Index
		%		%	
W	Pioneer 511A	2.5	0.05	0.0	0.00
W	Pioneer 511	7.5	0.17	2.0	0.04
Y	Pioneer 3048	10.8	0.20	0.0	0.00
Y	Pioneer 309B	34.2	0.86	3.0	0.06
Y	Pioneer 309A	17.5	0.46	5.0	0.16
Y	Funk G-732	10.0	0.25	1.0	0.04
Y	Funk G-711AA	13.3	0.27	1.0	0.04
W	Funk G-580W	15.8	0.32	1.0	0.02
W	Funk G-795W-1	15.8	0.36	3.0	0.12
W 2X	Funk G-4831	10.0	0.20	1.0	0.01
Y	McCurdy M306	5.8	0.13	9.0	0.13
Y	DeKalb 1006	6.7	0.13	0.0	0.00
W	DeKalb 999	22.5	0.63	12.0	0.30
W	DeKalb XL390	57.5	1.98	20.0	0.65
Y 3X	DeKalb XL-385	19.2	0.58	5.0	0.09
Y 3X	DeKalb XL-388	21.7	0.32	10.0	0.26
W	Dixie 29	10.8	0.23	0.0	0.00
W	Dixie 29R	12.5	0.46	7.0	0.26
W	Dixie 29B	26.7	0.73	2.0	0.06
W	Dixie 33	15.0	0.34	8.0	0.18
W	Dixie 77	5.8	0.15	1.0	0.02
W	Taylor 177	22.5	0.76	5.0	0.10
Y	Taylor 160	10.8	0.28	8.0	0.00
Y	Asgrow 200B	30.8	1.15	23.0	0.69
Y	Asgrow 202	11.7	0.35	6.0	0.25
W	P.A.G. 653W	20.8	0.58	2.0	0.04
W 2X	P.A.G. SX-80W	1.7	0.02	0.0	0.00
W 2X	Stull's 800W SX	71.7	2.52	44.0	1.68
Experimentals:					
W	T6101	7.5	0.12	3.0	0.12
W	T2108	4.2	0.04	2.0	0.10

[1]Planted June 2.
[2]Ratings were based on a scale of 0 to 5.

Table 12. Corn: Virus reaction of 30 full-season corn hybrids tested at four locations in 1966

(Data furnished by Josephson and Hilty)

Color	Variety	Knoxville (Knox Co.)				Waverly (Humphreys Co.)		Savannah (Hardin Co.)	
		Test 1[1] Diseased	Severity[3] Index	Test 2[2] Diseased	Severity[3] Index	Diseased	Severity[3] Index	Diseased	Severity[3] Index
		%		%		%		%	
W	Pioneer 511A	60	1.7	87	1.9	72	2.8	25	1.4
W	Pioneer 511	48	1.1	66	2.0	50	2.0	48	1.5
Y	Pioneer 3048	45	1.7	73	1.8	73	3.4	45	1.5
Y	Pioneer 309B	62	2.0	82	2.1	59	2.3	51	1.7
Y	Pioneer 309A	38	1.4	40	1.7	85	3.5	42	1.8
Y	Funk G-732	52	1.6	47	1.5	72	3.3	38	1.7
Y	Funk G-711AA	59	1.7	61	1.6	84	3.7	44	1.7
W	Funk G-580W	47	1.5	75	1.8	69	2.7	60	1.7
W	Funk G-795W-1	53	1.6	97	2.2	79	3.6	64	2.0
W 2X	Funk G-4831	32	1.3	49	1.5	35	1.9	28	1.3
Y	McCurdy M306	79	2.1	91	2.1	95	4.0	47	1.7
Y	DeKalb 1006	36	1.4	46	1.5	51	3.0	57	1.8
W	DeKalb 999	41	1.4	44	1.7	58	2.8	36	1.5
W	DeKalb XL-390	55	1.8	60	2.0	97	4.8	62	2.2
Y 3X	DeKalb XL-385	27	1.3	83	1.9	86	2.9	21	0.9
Y 3X	DeKalb XL-388	46	1.7	75	1.8	100	5.1	74	2.5
W	Dixie 29	48	1.5	64	1.7	95	4.8	56	1.7
W	Dixie 29R	68	1.8	63	1.7	93	3.9	40	1.7
W	Dixie 29B	45	1.5	46	1.5	89	5.1	57	1.7
W	Dixie 33	40	1.6	63	1.7	97	4.4	70	2.0

Table 12 (Continued)

Color	Variety	Knoxville (Knox Co.) Test 1[1] Diseased	Knoxville (Knox Co.) Severity Index	Knoxville (Knox Co.) Test 2[2] Diseased	Knoxville (Knox Co.) Severity[3] Index	Waverly (Humphreys Co.) Diseased	Waverly (Humphreys Co.) Severity Index	Savannah (Hardin Co.) Diseased	Savannah (Hardin Co.) Severity Index
		%		%		%		%	
W	Dixie 77	34	1.5	61	1.7	94	3.5	57	1.6
W	Taylor 177	66	2.0	68	1.7	100	4.4	59	1.9
Y	Taylor 160	76	2.0	75	1.8	91	4.4	60	2.0
Y	Asgrow 200B	60	1.9	72	2.0	100	5.8	76	2.7
Y	Asgrow 202	58	1.6	71	1.8	71	4.0	77	2.5
W	P.A.G. 653W	57	1.8	22	1.4	92	4.5	41	1.8
W 2X	P.A.G. SX-80W	61	1.7	13	1.2	71	2.7	52	1.9
W 2X	Stull's 800W SX	56	1.9	92	2.4	100	7.9	51	2.0
Experimentals:									
W	T6101	20	1.3	64	1.9	82	4.4	59	1.8
W	T2108	35	1.4	85	2.2	78	3.4	52	1.6

[1]Planted May 23.
[2]Planted June 13.
[3]Ratings were based on a scale of 1 to 9.

COTTON

The 1966 cotton variety tests were conducted at Knoxville, Jackson, Ames Plantation, and Fort Pillow. Each test consisted of 22 entries in a randomized complete block design with 8 replications at all locations except Ames Plantation which had 6.

The tests at Knoxville and Fort Pillow were harvested by hand and the plots were 2 rows 35 feet long. The test at Jackson was harvested with a one-row spindle picker and the test at Ames Plantation was harvested with a two-row spindle picker. Plots at Jackson and Ames Plantation were 2 rows 65 feet long.

Yields at Fort Pillow were reduced by wilt. Stardel which is very susceptible to wilt yielded 610 pounds of lint per acre at Fort Pillow and Auburn 56 which has tolerance to wilt yielded 1004 pounds of lint per acre. The yields at Ames Plantation were low due to boll weevil damage and late planting date (May 27). Poor stands of T-58-169 and Stardel were obtained in 1966 due to poor quality seed, which probably lowered the yield of these two varieties.

Auburn M ranked first in lint yield at Fort Pillow and Ames Plantation in 1966 and fifteenth at Jackson. Using a 3-year average, Auburn M ranked first at Ames Plantation, fifth at Fort Pillow and fifth at Jackson. T-59-134 produced the highest 3-year average yield at Jackson and Fort Pillow. For the same period of time, it ranked third at Ames Plantation.

Two boll samples were taken from each variety before first picking. These samples were used to obtain gin, seed, and fiber data. Four samples of each variety were taken from the spindle-picked cotton at Jackson and three at Ames Plantation. These samples were fractionated to determine the percent trash of each variety. After fractionation, these samples were combined by variety and ginned on a 10-saw laboratory gin to determine the percent lint. This percent lint and the percent trash for each variety were used to calculate lint yields at Jackson and Ames Plantation. Yield and other characteristics of the varieties are presented in tables 13 through 16. Bolls per pound is used to indicate the size of the cotton bolls. The higher the number the smaller the bolls, and conversely the lower the number the larger the bolls. Percent total yield at first picking is used to indicate the earliness of the cotton variety. A high percent of cotton harvested at first

picking indicates an early variety, and a low percent indicates a late variety.

Fiber tests were not available for 1966 because it takes several months to process samples in the laboratory. The 2.5% span length, Micronaire fineness reading, and fiber strength (T_1) are presented in tables 17 through 22. The 2.5% span length is measured on the digital Fibrograph and is closely correlated with upper-half mean length. The Micronaire reading is a relative measure of the fineness of the fiber. High readings indicate course fiber and low readings indicate fine fiber. The fiber strength (T_1) is measured on the stelometer. High readings indicate fibers of greater strength and low readings indicate fibers of lesser strength. Detailed laboratory analysis of the fiber properties of these cottons may be obtained on request from the Department of Agronomy, University of Tennessee.

Table 13. Cotton: Yield of lint per acre of varieties tested in 1966

Variety	Avg.[1]	Jackson[2]	Fort Pillow[3]	Ames Plantation[4]	Knoxville[5]
Auburn M	757	901	1013	356	777
Hy-Bee 200	718	966	989	200	530
McNair 1032	703	930	1004	176	487
Auburn 56	702	914	1004	188	609
Stoneville 213	701	902	987	215	448
Deltapine 45A	698	930	904	258	505
Carolina Queen	690	953	889	227	742
Dixie King II	680	932	962	146	603
Pennington Hy-Bee	661	928	878	177	628
Rex Smoothleaf	654	974	816	172	562
Deltapine Smooth Leaf	649	862	856	228	490
Coker 413	612	849	766	222	659
Stoneville 7A	606	867	810	140	387
Paymaster 54B	590	786	728	256	709
Empire W.R. 61	590	906	714	148	754
Acala 1517-D	575	867	727	132	595
Stardel	561	893	610	180	367
Experimentals:					
Emp. Der. K-11	750	1021	970	258	868
T-59-134	735	1094	914	198	841
T-56-210	680	942	830	269	698
AHA Der. K-10	626	924	774	179	786
T-58-169	553	806	656	196	464
L.S.D. (.05)	—	66.4	133.7	65.9	120.0
C.V. %	—	7.4	15.9	28.3	19.9

[1]Knoxville data not included in state average.
[2]Memphis and Grenada silt loam, (0% to 2% slopes).
[3]Morganfield and Adler silt loam, (0% to 2% slopes).
[4]Loring silt loam, (0% to 2% slopes).
[5]Cumberland clay loam eroded, (5% to 8% slopes).

Table 14. Cotton: Characteristics of 22 cotton varieties tested at three locations in 1966[1]

Variety	Avg.	Percent lint	Bolls per lb.	Percent total yield at 1st picking[2]
	Lint lb./A.	%	No.	%
Auburn M	757	36.0	59.6	81
Hy-Bee 200	718	36.9	63.9	75
McNair 1032	703	37.4	71.4	60
Auburn 56	702	35.3	64.4	71
Stoneville 213	701	36.6	67.3	77
Deltapine 45A	698	36.9	67.6	76
Caroline Queen	690	37.7	64.3	72
Dixie King II	680	36.8	55.0	76
Pennington Hy-Bee	661	36.1	61.6	77
Rex Smoothleaf	654	34.5	59.4	80
Deltapine Smooth Leaf	649	36.6	69.8	70
Coker 413	612	36.2	69.0	70
Stoneville 7A	606	35.2	66.1	77
Paymaster 54B	590	37.0	59.0	84
Empire W.R. 61	590	35.0	53.8	82
Acala 1517-D	575	34.4	56.8	73
Stardel	561	36.7	71.5	77
Experimentals:				
Emp. Der. K-11	750	35.6	56.9	84
T-59-134	735	38.1	59.2	87
T-56-210	680	36.0	58.2	83
AHA Der. K-10	626	34.0	60.4	78
T-58-169	553	36.2	58.0	76

[1]Knoxville data not included in this table.
[2]Only one harvest was made at Ames Plantation in 1966.

Table 15. Cotton: Yield and other characteristics of varieties tested for 3 years 1964-66

Variety	Avg.[1]	Percent lint	Bolls per lb.	Percent total yield at first picking
	Lint lb./A.	%	No.	%
Auburn M	943	35.9	63.4	82
Dixie King II	927	37.0	57.8	77
Stoneville 213	913	37.0	70.9	76
Auburn 56	910	35.3	67.5	75
Stardel	880	37.2	74.6	78
Rex Smoothleaf	874	35.2	62.4	80
Carolina Queen	863	37.3	67.9	71
Stoneville 7A	862	36.6	70.9	75
Deltapine Smooth Leaf	854	37.2	73.9	72
Empire W.R. 61	827	35.0	55.8	79
Experimentals:				
T-59-134	1009	38.4	62.6	84
T-56-210	906	36.1	62.2	82
Emp. Der. K-11	885	35.3	60.3	82
T-58-169	839	36.1	62.5	79
AHA Der. K-10	772	33.9	64.1	77

[1]Knoxville data not included in average.

Table 16. Cotton: Average yield of varieties tested for 3 years 1964-66[1]

Variety	Average	Jackson	Fort Pillow	Ames Plantation
		Lint pounds per acre		
Auburn M	943	1100	949	780
Dixie King II	927	1113	991	677
Stoneville 213	913	1078	968	694
Auburn 56	910	1082	976	673
Stardel	880	1080	812	748
Rex Smoothleaf	874	1097	890	633
Carolina Queen	863	1060	870	659
Stoneville 7A	862	1081	843	660
Deltapine Smooth Leaf	854	966	898	697
Empire W.R. 61	827	1016	867	597
Experimentals:				
T-59-134	1009	1198	1084	746
T-56-210	906	1118	892	708
Emp. Der. K-11	885	1109	891	654
T-58-169	839	1048	814	654
AHA Der. K-10	772	950	821	546

[1]Tests at Jackson and Ames Plantation were harvested by machine in 1966. All other tests were harvested by hand.

Table 17. Cotton: Fiber length (2.5% span length) of varieties tested in 1965

Variety	Average	Jackson	Fort Pillow	Ames Plantation
Coker 100A (WR)	1.09	1.10	1.10	1.06
DeKalb 128	1.09	1.10	1.10	1.04
Deltapine Smooth Leaf	1.08	1.08	1.10	1.06
Delta Hy-Bee	1.08	1.09	1.09	1.06
Carolina Queen	1.07	1.12	1.06	1.04
Empire W.R. 61	1.07	1.07	1.10	1.05
Stoneville 7A	1.07	1.10	1.07	1.04
Pennington Hy-Bee	1.07	1.08	1.08	1.04
Stardel	1.06	1.06	1.08	1.04
DeKalb 108	1.06	1.06	1.06	1.04
Rex Smoothleaf	1.05	1.06	1.06	1.04
Deltapine 45A	1.05	1.06	1.08	1.02
Stoneville 213	1.04	1.04	1.05	1.02
Dixie King II	1.04	1.04	1.06	1.00
Auburn 56	1.03	1.05	1.04	1.01
Auburn M	1.03	1.04	1.04	1.01
McNair 1032	1.03	1.06	1.04	0.98
Experimentals:				
Emp. Der. K10	1.08	1.10	1.08	1.04
T-56-210	1.05	1.05	1.06	1.04
AHA Der. K9	1.04	1.04	1.05	1.01
T-58-169	1.04	1.05	1.04	1.01
T-59-134	1.02	1.03	1.02	1.01
B-57-478	1.00	1.01	1.00	1.00

Table 18. Cotton: Fiber length (2.5% span length) of varieties tested from 1964 and 1965

Variety	Average 1964-65	Jackson	Fort Pillow	Ames Plantation
Coker 100A (WR)	1.10	1.10	1.12	1.08
Deltapine Smooth Leaf	1.09	1.08	1.10	1.08
Carolina Queen	1.09	1.10	1.10	1.08
Stoneville 7A	1.08	1.08	1.10	1.05
Empire W.R. 61	1.08	1.08	1.11	1.06
DeKalb 108	1.07	1.06	1.08	1.07
Stardel	1.07	1.06	1.08	1.08
Rex Smoothleaf	1.07	1.07	1.08	1.07
Dixie King II	1.06	1.05	1.08	1.04
Auburn 56	1.05	1.04	1.07	1.04
Auburn M	1.05	1.05	1.06	1.04
Stoneville 213	1.05	1.05	1.07	1.04
Experimentals:				
Emp. Der. K9	1.08	1.08	1.09	1.06
T-56-210	1.06	1.04	1.07	1.06
T-59-134	1.05	1.04	1.04	1.06
AHA Der. K8	1.05	1.04	1.08	1.04
B-57-478	1.01	1.00	1.02	1.02

Table 19. Cotton: Fiber fineness of varieties tested in 1965 (Micronaire Reading)

Variety	Average	Jackson	Fort Pillow	Ames Plantation
McNair 1032	4.64	4.49	4.38	5.06
Stoneville 7A	4.58	4.28	4.28	5.16
Stoneville 213	4.54	4.22	4.28	5.13
Deltapine 45A	4.50	4.35	4.37	4.76
Deltapine Smooth Leaf	4.44	4.06	4.26	5.00
Carolina Queen	4.43	4.24	4.22	4.83
Delta Hy-Bee	4.38	3.94	4.24	4.96
Pennington Hy-Bee	4.29	3.88	4.17	4.82
Stardel	4.27	3.96	4.13	4.72
DeKalb 128	4.26	3.95	4.04	4.80
Dixie King II	4.25	3.84	4.10	4.80
Auburn 56	4.22	3.96	4.08	4.62
DeKalb 108	4.19	3.86	4.02	4.68
Coker 100A (WR)	4.15	3.82	3.92	4.72
Rex Smoothleaf	3.96	3.80	3.72	4.34
Auburn M	3.96	3.82	3.64	4.40
Empire W.R. 61	3.87	3.68	3.61	4.32
Experimentals:				
AHA Der. K9	4.50	4.36	4.28	4.88
B-57-478	4.09	3.90	3.84	4.52
T-58-169	4.09	3.67	3.98	4.61
T-59-134	4.04	3.80	3.76	4.56
Emp. Der. K10	4.03	3.84	3.80	4.46
T-56-210	3.99	3.68	3.88	4.42

Table 20. Cotton: Fiber fineness of varieties tested from 1963-65 (Micronaire Reading)

Variety	Average 1963-65	Jackson	Fort Pillow	Ames Plantation
Stoneville 213	4.69	4.71	4.55	4.82
Stoneville 7A	4.59	4.63	4.44	4.70
Deltapine Smooth Leaf	4.46	4.51	4.36	4.51
Stardel	4.45	4.42	4.41	4.51
Carolina Queen	4.45	4.53	4.35	4.46
Dixie King II	4.33	4.26	4.29	4.45
Coker 100A (WR)	4.29	4.28	4.19	4.41
Auburn 56	4.28	4.33	4.20	4.32
DeKalb 108	4.21	4.21	4.14	4.28
Auburn M	4.20	4.24	4.08	4.27
Rex Smoothleaf	4.05	4.09	3.86	4.19
Empire W.R. 61	3.91	4.02	3.80	3.90
Experimentals:				
AHA Der. K8	4.61	4.66	4.51	4.66
T-59-134	4.24	4.28	4.05	4.39
T-56-210	4.20	4.20	4.19	4.20
B-57-478	4.20	4.27	4.09	4.24
Emp. Der. K9	4.06	4.11	3.92	4.16

Table 21. Cotton: Fiber strength, T_1, as measured on the Stelometer of varieties tested in 1965

Variety	Average	Jackson	Fort Pillow	Ames Plantation
Stardel	1.98	2.05	1.86	2.04
Deltapine 45A	1.90	1.96	1.81	1.91
McNair 1032	1.89	2.00	1.79	1.88
Stoneville 7A	1.87	1.92	1.76	1.92
Deltapine Smooth Leaf	1.87	1.89	1.85	1.87
Carolina Queen	1.85	1.99	1.67	1.90
Pennington Hy-Bee	1.82	1.90	1.73	1.85
Delta Hy-Bee	1.82	1.86	1.75	1.84
DeKalb 128	1.80	1.84	1.76	1.81
Auburn 56	1.79	1.85	1.74	1.79
DeKalb 108	1.79	1.86	1.71	1.79
Stoneville 213	1.79	1.87	1.66	1.83
Coker 100A (WR)	1.78	1.80	1.74	1.81
Empire W.R. 61	1.78	1.84	1.68	1.82
Rex Smoothleaf	1.77	1.77	1.71	1.82
Dixie King II	1.75	1.72	1.74	1.81
Auburn M	1.72	1.80	1.65	1.70
Experimentals:				
AHA Der. K9	2.00	2.08	1.84	2.07
Emp. Der. K10	1.88	1.98	1.76	1.90
B-57-478	1.83	1.85	1.77	1.87
T-58-169	1.79	1.82	1.70	1.85
T-56-210	1.78	1.81	1.69	1.86
T-59-134	1.77	1.73	1.75	1.85

Table 22. Cotton: Fiber strength, T_1, as measured on the Stelometer of varieties tested from 1963-65

Variety	Average 1963-65	Jackson	Fort Pillow	Ames Plantation
Stardel	1.94	1.97	1.85	2.01
Deltapine Smooth Leaf	1.90	1.95	1.87	1.88
Carolina Queen	1.83	1.89	1.75	1.86
Empire W.R. 61	1.81	1.81	1.78	1.83
Coker 100A (WR)	1.80	1.84	1.77	1.80
Stoneville 213	1.79	1.83	1.72	1.82
Auburn 56	1.79	1.83	1.77	1.78
DeKalb 108	1.78	1.83	1.74	1.78
Stoneville 7A	1.77	1.80	1.73	1.78
Dixie King II	1.77	1.73	1.78	1.79
Rex Smoothleaf	1.76	1.74	1.77	1.76
Auburn M	1.75	1.77	1.77	1.71
Experimentals:				
AHA Der. K8	1.99	1.98	2.01	1.97
Emp. Der. K9	1.86	1.86	1.85	1.87
B-57-478	1.83	1.80	1.82	1.88
T-59-134	1.81	1.77	1.85	1.80
T-56-210	1.80	1.80	1.74	1.87

SMALL GRAINS

Small grain yields were lower than usual where tests were conducted. No grain yield data are reported for Knoxville because the tests were destroyed by hail on May 29, 1966. No grain yield data are reported for the fall-seeded oats, wheat, and barley at Spring Hill due to army worm damage. The spring oats grain yield data were not reported for Spring Hill because of grain shattering prior to harvest. Forage data were obtained in 1966 for oats, wheat, and barley.

The plots were harvested for forage when each variety reached the boot stage at Knoxville and in the soft to hard dough stage at the other locations. The spring-seeded oats at Spring Hill were harvested twice for forage when the plants were 6 to 8 inches high.

OATS

Blount oats produced the highest average grain and forage yields of the varieties tested. In 1966 Blount produced 33% more

grain and 13% more forage than Forkedeer. The 1966 fall-seeded oat grain yield data are presented in Table 23. Ora produced the highest yield of 115 bushels per acre at Greeneville and the lowest yield of 16 bushels per acre at Springfield. It can be seen from Table 27 that Blount lodged the least and Forkedeer the most in these tests. Dubois and Forkedeer were damaged more by barley yellow dwarf virus at Springfield than the other varieties as shown by the disease ratings in Table 30. Cimarron was damaged at most locations by a nonparasitic leaf blight disease. The spring oat variety test data are presented in Tables 31 and 32.

WHEAT

The late-maturing wheat varieties produced the highest average grain and forage yields in 1966. In previous years, the early-maturing varieties usually led the test in grain yield. In 1966 they performed poorly due to damage from a late spring freeze. The highest-yielding, early-maturing variety was Monon. Gaines performed well at Greeneville and poorly at the other locations. It can be seen from Table 37 that Gaines gave the lowest average test weight of all varieties tested. Gaines and Redcoat lodged the least and Knox and Knox 62 the most as shown in Table 36.

BARLEY

In 1966 Harrison gave the highest average grain yield and Dayton the lowest as shown in Table 40. Harrison did not perform as well as expected at Crossville where the soil pH was about 4.9. Wade and Colonial 2 performed quite well under these conditions. The performance of these three varieties is being evaluated at two pH levels in 1966-67. Harrison lodged the least and Colonial 2 the most as shown in Table 44. Harrison shows promise as being a high-yielding variety for Tennessee. Wade gave the highest 3-year average as shown in Table 46.

Table 23. Fall-seeded oats: Grain yield of varieties tested in 1966

Variety	Average	Greeneville[1]	Crossville[2]	Springfield[3]	Jackson[4]
		Bushels per acre			
Blount	73	94	83	76	38
Ora	58	115	74	16	28
Norline	54	52	89	44	32
Dubois	51	67	88	20	28
Forkedeer	49	64	66	34	34
Cimarron	42	62	64	20	24
Experimental:					
Tenn. 61-231	77	89	100	70	48
L.S.D. (.05)	—	15.6	16.4	15.3	11.4
C.V. %	—	13.5	13.7	25.8	7.1

[1]Cumberland silt loam, (2% to 5% slopes).
[2]Tilsit silt loam, (2% to 5% slopes).
[3]Dickson silt loam, eroded (2% to 5% slopes).
[4]Grenada silt loam, (0% to 2% slopes).

Table 24. Fall-seeded oats: Forage yield of varieties tested in 1966

Variety	Average	Knoxville	Crossville	Spring Hill	Springfield	Jackson
		Tons of air-dry forage per acre				
Blount	4.34	3.44	3.54	6.27	4.18	4.28
Forkedeer	3.74	2.79	3.38	5.41	3.35	3.77
Norline	3.71	3.40	3.94	4.64	2.59	3.96
Dubois	3.63	3.15	3.56	5.50	2.08	3.84
Ora	3.18	2.78	2.55	4.68	1.86	4.04
Cimarron	2.14	2.34	—	4.01	1.55	2.78
Experimental:						
Tenn. 61-231	3.66	2.90	3.56	5.26	2.61	3.95
L.S.D. (.05)	—	0.61	0.80	0.52	0.55	0.60
C.V. %	—	13.9	14.9	6.9	18.9	10.3

Table 25. Fall-seeded oats: Date headed of varieties tested at four locations in 1966

Variety	Knoxville[1]	Spring Hill	Springfield	Jackson
		Date Headed		
Cimarron	5-5	5-2	4-27	4-26
Ora	5-6	5-4	5-3	4-28
Dubois	5-12	5-7	5-11	5-3
Blount	5-14	5-9	5-8	5-3
Forkedeer	5-14	5-7	5-9	5-1
Norline	5-17	5-14	5-13	5-5
Experimental:				
Tenn. 61-231	5-14	5-7	5-6	5-4

[1]Heading dates at Knoxville were taken when varieties were 100% headed and at all other locations the heading dates were taken when 50% of the plants had headed.

Table 26. Fall-seeded oats: Leaf tip damage[1] of varieties tested at four locations in 1966

Variety	Average	Greeneville	Knoxville	Crossville	Springfield
			Rating (1 to 5)		
Norline	1.8	1.5	2.2	2.0	1.6
Blount	2.0	1.5	2.0	2.2	2.5
Dubois	2.2	1.2	3.0	2.0	2.5
Forkedeer	2.4	1.8	3.1	1.8	2.8
Ora	3.4	2.5	3.1	3.8	4.2
Cimarron	3.7	2.8	4.0	4.0	4.0
Experimental:					
Tenn. 61-231	2.0	2.0	1.8	2.0	2.2

[1]A scale of 1 to 5 (1 being slight and 5 being very severe) was used to rate the varieties for tip damage due to cold injury. Data were obtained from March 1 to March 15.

Table 27. Fall-seeded oats: Lodging of varieties tested at five locations in 1966

Variety	Average	Knoxville	Greeneville	Spring Hill	Springfield	Jackson
				Percent		
Blount	39	70	2	80	14	28
Norline	45	51	21	70	16	68
Dubois	56	82	12	86	25	72
Ora	60	58	9	78	81	74
Cimarron	71	95	64	81	95	20
Forkedeer	87	91	79	90	85	91
Experimental:						
Tenn. 61-231	37	35	18	86	24	22

Table 28. Fall-seeded oats: Test weight and plant height of varieties tested in 1966

Variety	Average test weight	Greeneville	Crossville	Springfield	Jackson	Av. plant height[1]
		Test weight in pounds per bushel				In.
Blount	38.5	44.5	34.8	35.5	39.2	48
Ora	35.0	38.8	33.2	29.9	38.0	41
Norline	38.2	41.0	36.4	36.2	39.2	44
Dubois	38.3	42.0	36.1	34.6	40.6	44
Forkedeer	37.9	40.8	36.1	36.4	38.2	47
Cimarron	36.4	38.8	31.8	32.8	42.0	40
Experimental:						
Tenn. 61-231	37.0	41.2	34.8	34.4	37.7	45

[1]Average plant height at five locations.

Table 29. Fall-seeded oats: Yield of varieties tested at four locations for 2 or 3 years

Variety	Greeneville 1965-66	Crossville 1964 and 1966	Springfield 1965-66	Springfield 1964-66	Jackson 1965-66	Jackson 1964-66
			Bushels per acre			
Blount	82	111	95	102	55	75
Forkedeer	62	86	52	69	42	62
Norline	46	—	65	—	46	—
Dubois	48	—	46	—	32	—
Experimental:						
Tenn. 61-231	75	116	95	101	68	84

Table 30. Fall-seeded oats: Susceptibility of oat varieties to disease[1] under natural field conditions in 1966

Variety	Average	Greeneville	Knoxville	Spring Hill	Springfield
			Powdery Mildew		
Oats					
Ora	0.2	—	0.0	0.3	T
Cimarron	0.5	—	0.0	T	0.8
Dubois	1.6	—	0.4	2.0	2.3
Blount	1.8	—	0.6	2.8	2.0
Forkedeer	2.0	—	0.6	2.0	3.5
Norline	2.4	—	0.9	2.2	4.0
Experimental:					
Tenn. 61-231	2.9	—	0.8	3.8	4.2
			Barley Yellow Dwarf Virus Disease		
Cimarron	1.4	T	1.0	—	3.1
Blount	2.1	1.0	3.0	—	2.2
Norline	2.6	1.5	3.0	—	3.2
Dubois	2.9	0.8	3.2	—	4.6
Forkedeer	3.1	1.5	3.5	—	4.2
Ora	3.0	1.0	3.8	—	4.2
Experimental:					
Tenn. 61-231	2.6	2.5	2.8	—	2.6

[1]Powdery mildew on oats were based on Cobb's scale ranging from 0 in which no disease symptoms were apparent, to 6 in which the leaf surface was entirely covered with mildew. All other diseases were rated on a scale of 0 to 6 except barley yellow dwarf virus disease. The rating used for this disease was on a scale of 0 to 5. The letter "T" (trace) was used to indicate that a few localized spots of a disease occurred, or that the percentage of the leaf surface affected was less than 1%.

Table 31. Spring oats: Forage yields and characteristics of varieties tested at Spring Hill in 1966[1]

Variety	Total harvested	Harvest[2] No. 1	Harvest[3] No. 2	Lodging	Plant height	Date 50% headed
	Tons of air-dry forage per acre			%	In.	Date
Brave	1.09	0.83	0.26	25	40	5-25
Elgin	1.02	0.88	0.14	11	40	5-25
Pennfield	1.03	0.69	0.33	6	38	6-1
Clintford	1.18	0.96	0.20	20	34	5-25
Tyler	1.13	0.83	0.30	0	34	5-26
Tonka	1.06	0.84	0.22	5	39	5-26
Clintland 64	1.05	0.85	0.21	5	36	5-28
Tippecanoe	1.19	0.94	0.25	1	38	5-26
Putnam	1.13	0.94	0.19	55	37	5-23
Newton	1.08	0.86	0.21	21	40	5-26
Orbit	1.20	0.98	0.22	4	37	5-26
Forkedeer[4]	1.32	0.47	0.86	26	36	6-4
L.S.D. (.05)	0.15	0.13	0.10	—	—	—
C.V. %	7.4	16.8	23.7	—	—	—

[1]Maury silt loam (2% to 5% slopes).
[2]Harvested on May 4, 1966.
[3]Harvested on May 27, 1966.
[4]Winter oat included for comparison.

Table 32. Spring oats: Grain yield and test weight of varieties tested at Greeneville and heading dates of varieties tested at Knoxville in 1966

Variety	Greeneville		Knoxville[1]
	Grain yield	Test weight	Date headed
	Bu./A.	Lb./bu.	Date
Brave	51.0	32.6	5-29
Elgin	48.4	33.6	5-28
Pennfield	—	—	6-1
Clintford	49.1	35.0	5-29
Tyler	54.2	31.8	5-31
Tonka	56.7	36.7	5-27
Clintland 64	42.0	32.9	5-31
Tippecanoe	50.5	32.3	5-31
Putnam	42.6	34.2	5-28
Newton	50.6	34.4	5-31
Orbit	53.0	32.5	5-30
Forkedeer	—	—	6-1
L.S.D. (.05)	N.S.		
C.V. %	20.0		

[1]No yield data are reported because test was severely damaged by hail on May 29, 1966.

Table 33. Wheat: Grain yield of varieties tested in 1966

Variety	Average	Greeneville[1]	Crossville[2]	Springfield[3]	Martin[4]
		Bushels per acre			
Redcoat	51	69	52	35	47
Reed	45	58	45	26	50
Seneca	42	49	41	28	50
Lewis	42	61	30	27	50
Monon	42	47	35	38	46
Stadler	41	48	36	35	44
Knox	33	31	29	26	44
Knox 62	33	27	26	45	33
Gaines	31	62	15	18	31
Triumph	—	—	—	32	—
Experimental:					
Tenn. 60-23	44	49	37	38	51
L.S.D. (.05)	—	10.2	7.1	5.3	8.4
C.V. %	—	13.9	14.0	12.5	12.8

[1]Cumberland silt loam, (2% to 5% slopes).
[2]Tilsit silt loam, (2% to 5% slopes).
[3]Dickson silt loam, eroded (2% to 5% slopes).
[4]Grenada silt loam, (0% to 2% slopes).

Table 34. Wheat: Forage yield of varieties tested in 1966

Variety	Average	Knoxville	Crossville	Spring Hill	Springfield	Jackson
		Tons of air-dry forage per acre				
Seneca	4.18	4.35	4.87	4.98	3.83	2.86
Redcoat	3.82	3.21	3.49	4.92	3.67	3.83
Reed	3.45	3.16	3.59	4.58	3.17	2.75
Stadler	3.16	3.26	3.86	3.48	2.21	3.00
Knox	3.16	3.14	4.19	4.10	2.39	1.97
Lewis	3.15	2.76	3.87	4.04	2.30	2.77
Knox 62	3.08	2.64	4.58	3.83	2.47	1.89
Monon	2.99	2.57	3.97	3.41	2.35	2.67
Gaines	2.96	3.02	2.22	3.83	2.43	3.28
Triumph	—	—	—	—	2.44	—
Experimental:						
Tenn. 60-23	3.70	3.07	5.62	5.15	3.30	1.36
L.S.D. (.05)	—	0.50	0.54	0.56	0.30	0.86
C.V. %	—	11.0	9.2	9.0	7.5	22.2

Table 35. Wheat: Date headed of varieties tested at five locations in 1966

Variety	Knoxville[1]	Spring Hill	Springfield	Jackson	Martin
			Date Headed		
Monon	5-5	5-2	5-2	4-28	4-24
Knox	5-5	5-2	5-2	4-28	4-26
Knox 62	5-5	5-2	5-2	4-28	4-28
Lewis	5-6	5-2	5-3	4-28	4-28
Stadler	5-10	5-2	5-3	4-30	4-26
Redcoat	5-12	5-9	5-9	5-3	5-3
Seneca	5-14	5-10	5-13	5-7	5-8
Reed	5-16	5-9	5-11	5-9	5-10
Gaines	5-18	5-14	5-16	5-12	5-14
Triumph	—	—	4-29	—	—
Experimental:					
Tenn. 60-23	5-10	5-7	5-6	5-3	5-2

[1]Heading dates at Knoxville were taken when varieties were 100% headed, and at all other locations the heading dates were taken when 50% of the plants had headed.

Table 36. Wheat: Lodging of varieties tested at seven locations in 1966

Variety	Average	Greeneville	Knoxville	Crossville	Spring Hill	Springfield	Jackson	Martin
					Percent			
Gaines	11	14	42	0	0	1	15	5
Redcoat	19	0	31	0	12	34	56	2
Reed	31	8	36	0	36	59	75	5
Lewis	32	30	36	1	65	22	49	20
Stadler	49	56	56	0	50	75	77	25
Seneca	54	30	64	0	94	89	95	5
Monon	56	80	42	5	71	82	89	25
Knox	77	93	68	66	91	98	100	25
Knox 62	84	96	76	98	96	95	100	25
Experimental:								
Tenn. 60-23	62	35	82	74	62	84	95	5

Table 37. Wheat: Test weight and plant height of varieties tested in 1966

Variety	Average Test weight	Greene-ville	Cross-ville	Spring-field	Average plant height[1]
	Test weight in pounds per bushel				In.
Redcoat	58.7	60.7	56.2	59.2	49
Reed	58.9	61.4	57.6	57.8	48
Seneca	57.5	59.0	56.8	56.6	51
Lewis	55.8	56.3	54.8	56.2	41
Monon	55.8	56.8	53.7	56.9	41
Stadler	58.0	58.4	55.9	59.8	45
Knox	55.0	56.9	53.4	54.8	42
Knox 62	55.3	57.2	53.4	55.2	43
Gaines	49.8	56.8	46.7	46.0	34
Triumph	—	—	—	58.5	—
Experimental:					
Tenn. 60-23	55.3	60.0	53.6	57.6	50

[1]Average plant height at seven locations.

Table 38. Wheat: Yield of varieties tested at four locations for 2 or 3 years

Variety	Average	Greeneville 1964-66	Crossville 1964-66	Springfield 1964-66	Martin 1965-66
			Bushels per acre		
Monon	47	50	52	44	42
Reed	45	50	51	37	41
Seneca	42	39	50	40	38
Knox 62	40	37	41	41	39
Knox	39	44	36	40	36
Experimental:					
Tenn. 60-23	47	46	52	48	41

Table 39. Wheat: Susceptibility of wheat varieties to disease[1] under natural field conditions at five locations, 1966

Variety	Avg.	Greeneville	Knoxville	Springfield	Spring Hill	Jackson
			Powdery Mildew			
Redcoat	0.9	0.0	1.0	2.2	1.2	T
Reed	3.9	3.5	3.5	5.5	4.2	3.0
Seneca	3.2	3.5	2.0	5.0	3.8	1.5
Lewis	5.4	5.0	5.0	6.0	6.0	4.8
Monon	3.8	3.5	3.5	4.5	4.5	2.8
Stadler	4.0	4.0	3.0	5.8	4.5	2.8
Knox	1.2	T	1.5	2.2	1.2	1.0
Knox 62	2.0	1.1	1.5	2.8	3.8	0.8
Gaines	3.0	2.5	2.5	4.2	3.5	2.2
Triumph	—	—	—	4.2	—	—
Tenn. 60-23	0.9	1.3	1.0	1.3	0.8	T

	Leaf Rust			Springfield BYDV[2]
Redcoat	0.0	0.0	0.0	T
Reed	0.0	0.0	0.5	2.3
Seneca	0.5	3.0	4.0	T
Lewis	T	2.8	4.0	2.0
Monon	0.5	1.2	2.5	1.2
Stadler	0.0	1.2	0.5	3.2
Knox	T	1.2	—	1.0
Knox 62	T	1.2	2.0	0.0
Gaines	0.0	1.8	0.0	3.5
Triumph	—	—	0.0	1.5

[1]The wheat varieties were rated for leaf rust and mildew in the same manner as the oat varieties.

[2]Barley yellow dwarf virus disease ratings were based on a scale of 1 to 5 (1 being slight and 5 very severe).

Table 40. Barley: Grain yield of varieties tested in 1966

Variety	Average	Greeneville[1]	Crossville[2]	Springfield[3]	Jackson[4]
		Bushels per acre			
Harrison	69	90	60	82	45
Wade	60	61	69	66	44
Colonial 2	53	60	62	51	38
Hudson	53	58	49	56	49
Decatur	51	67	46	50	43
Besbar	48	43	48	58	44
Rogers	46	43	55	38	48
Kenbar	45	57	49	31	43
Will	44	53	40	45	40
Dayton	43	50	41	37	43
Experimentals:					
Tenn. 61-119	56	61	52	59	51
Tenn. 59-15	49	46	43	60	45
Tenn. 60-34	44	52	41	47	34
L.S.D. (.05)	—	12.5	12.1	7.6	12.9
C.V. %	—	15.2	16.5	10.1	13.1

[1]Cumberland silt loam, (2% to 5% slopes).
[2]Tilsit silt loam, (2% to 5% slopes).
[3]Dickson silt loam, eroded (2% to 5% slopes).
[4]Memphis silt loam, (0% to 5% slopes).

Table 41. Barley: Forage yield of varieties tested in 1966

Variety	Average	Knoxville	Crossville	Spring Hill	Springfield	Jackson
		Tons of air-dry forage per acre				
Wade	3.70	3.24	3.37	5.49	2.91	3.50
Will	3.68	3.79	3.36	4.94	2.50	3.82
Colonial 2	3.54	2.69	4.02	5.10	2.57	3.30
Decatur	3.46	2.68	3.78	5.34	2.32	3.19
Besbar	3.44	2.92	3.66	5.23	2.23	3.16
Harrison	3.42	2.80	3.16	4.86	3.21	3.09
Hudson	3.36	2.70	3.40	5.06	2.37	3.28
Rogers	3.28	2.93	3.20	5.08	1.79	3.42
Kenbar	3.03	2.85	3.60	3.72	2.06	2.94
Dayton	2.73	2.65	2.83	3.76	1.55	2.85
Experimentals:						
Tenn. 61-119	3.66	3.11	3.03	5.86	2.50	3.80
Tenn. 60-34	3.19	2.51	3.14	4.58	2.45	3.28
Tenn. 59-15	3.14	2.80	2.46	4.94	2.35	3.14
L.S.D. (.05)	—	0.24	N.S.	N.S.	0.47	0.60
C.V. %	—	21.7	13.1	20.8	13.8	12.3

Table 42. Barley: Date headed of varieties tested at four locations in 1966

Variety	Knoxville	Springfield	Jackson	Spring Hill
		Date Headed		
Dayton	4-26	4-26	4-17	4-21
Kenbar	4-27	4-26	4-19	4-22
Harrison	4-28	4-27	4-23	4-23
Hudson	4-29	4-28	4-25	4-25
Wade	4-30	4-28	4-21	4-23
Rogers	5-3	4-29	4-25	4-28
Will	5-3	4-30	4-25	4-25
Decatur	5-3	5-1	4-25	4-27
Besbar	5-5	5-2	4-25	4-30
Colonial 2	5-5	4-29	4-23	4-26
Experimentals:				
Tenn. 59-15	4-26	4-26	4-19	4-25
Tenn. 60-34	4-27	4-27	4-19	4-23
Tenn. 61-119	4-29	4-27	4-23	4-25

[1]Heading dates at Knoxville and Springfield were taken when varieties were 100% headed and heading dates at Jackson and Spring Hill were taken when 50% of the plants were headed.

Table 43. Barley: Leaf tip damage[1] of varieties tested at four locations in 1966

Variety	Avg.	Greeneville	Knoxville	Crossville	Springfield
			Rating (1 to 5)		
Will	1.1	0.8	1.1	1.5	1.0
Decatur	1.6	1.0	1.8	2.5	1.0
Colonial 2	1.7	1.0	1.9	2.0	1.9
Dayton	1.8	1.5	1.6	2.8	1.5
Kenbar	2.0	1.8	2.5	2.0	1.5
Rogers	2.2	1.2	2.6	3.0	2.0
Wade	2.7	2.5	2.1	3.8	2.4
Hudson	3.5	4.0	3.2	3.8	3.0
Besbar	3.6	3.2	3.8	4.0	3.2
Harrison	4.3	4.8	5.0	4.5	2.8
Experimentals:					
Tenn. 59-15	1.5	1.0	1.8	1.8	1.5
Tenn. 61-119	1.8	1.5	1.5	2.8	1.4
Tenn. 60-34	1.9	1.8	1.5	2.5	1.9

[1]Ratings were made for the barley varieties in the same manner as for the Fall-seeded oat varieties.

Table 44. Barley: Lodging of varieties tested at five locations in 1966

Variety	Average	Greeneville	Knoxville	Springfield	Jackson	Spring Hill
				Percent		
Harrison	4	5	4	2	0	8
Decatur	18	30	12	16	8	26
Wade	30	44	21	10	20	57
Dayton	33	25	32	61	20	25
Besbar	33	48	31	39	5	44
Hudson	34	16	31	68	16	40
Kenbar	40	21	42	94	21	21
Will	54	25	66	94	28	58
Rogers	55	56	44	91	28	56
Colonial 2	62	44	44	82	55	86
Experimentals:						
Tenn. 60-34	22	35	21	18	6	31
Tenn. 59-15	38	31	31	31	9	88
Tenn. 61-119	40	40	30	40	24	66

Table 45. Barley: Test weight and plant height of varieties tested in 1966

Variety	Average Test weight	Greeneville	Crossville	Jackson	Springfield	Average plot height[1]
		Test weight in pounds per bushel				In.
Harrison	45.0	46.3	41.0	46.8	46.1	40
Wade	43.0	44.6	42.0	41.0	44.6	38
Colonial 2	39.2	39.2	37.4	40.9	39.4	37
Hudson	43.6	44.1	40.5	46.0	43.8	41
Decatur	44.3	45.8	40.1	45.7	45.5	39
Besbar	39.8	39.8	38.7	40.8	40.0	42
Rogers	42.2	40.3	42.6	45.7	40.0	40
Kenbar	41.1	41.4	38.0	43.4	41.7	38
Will	40.4	38.7	39.2	44.8	39.0	40
Dayton	37.5	37.8	35.0	39.8	37.4	39
Experimentals:						
Tenn. 61-119	40.1	40.0	39.0	41.0	40.3	42
Tenn. 59-15	39.3	39.2	37.1	40.3	40.5	39
Tenn. 60-34	38.1	37.0	37.2	41.6	36.7	41

[1]Average plant height of five locations.

Table 46. Barley: Yield of varieties tested at four locations for 2 or 3 years

Variety	Average 1964-66	Greeneville 1964-66	Greeneville 1965-66	Crossville 1964-66	Crossville 1965-66	Springfield 1964-66	Springfield 1965-66	Jackson 1964-66	Jackson 1965-66
				Bushels per acre					
Wade	59	64	57	60	46	73	62	38	46
Hudson	55	54	48	58	39	65	56	43	47
Dayton	53	51	39	57	39	61	46	44	42
Rogers	53	47	39	71	51	53	46	41	46
Kenbar	48	49	46	46	48	56	43	41	48
Harrison	—	—	77	—	52	—	64	—	45
Decatur	—	—	59	—	51	—	50	—	48
Colonial 2	—	—	54	—	49	—	55	—	45
Will	—	—	48	—	48	—	51	—	45
Experimentals:									
Tenn. 61-119	60	55	47	64	48	71	62	51	53
Tenn. 59-15	55	46	39	58	49	69	55	46	45

Table 47. Barley: Susceptibility of barley varieties to disease[1] under natural field conditions in 1966

Variety	Greeneville	Knoxville	Springfield	Spring Hill
		Powdery Mildew		
Harrison	0.0	0	T	0
Decatur	5.2	4.5	6	4.5
Wade	4.2	2.3	1.2	1.5
Will	0.0	0.0	0	0
Kenbar	0.8	0.0	4.2	0.8
Hudson	0.0	0.0	T	T
Dayton	0.0	0.0	3.5	T
Rogers	0.0	0.0	T	0.0
Besbar	0.0	0.0	1.0	0.5
Colonial 2	1.1	0.0	1.5	2.2
Experimentals:				
Tenn. 59-15	0.0	0.0	0	0
Tenn. 60-34	0.0	0.0	2	0
Tenn. 61-119	0.0	0.0	0	0

				Springfield BYDV[2]
		Leaf Rust		
Harrison	0.4	2.2	0	0
Decatur	0.0	0.8	0	0.6
Wade	0.0	0.0	0	T
Will	1.5	2.5	T	0.6
Kenbar	2.5	3.2	0.6	1.3
Hudson	2.0	3.8	0.6	0.2
Dayton	4.8	4.8	1.3	2.6
Rogers	1.5	2.5	T	1.5
Besbar	4.0	4.8	0.5	1.5
Colonial 2	1.5	2.8	0.8	0.8
Experimentals:				
Tenn. 59-15	3.5	3.2	T	1.5
Tenn. 60-34	4.8	5.2	2.8	0.0
Tenn. 61-119	5.0	3.8	0.6	0.5

[1]The barley varieties were rated for leaf rust and mildew in the same manner as the oat varieties.

[2](BYDV) Barley yellow dwarf virus disease. Ratings for this disease was made in the same manner for the barley varieties as it was for the oat varieties.

ALFALFA

Alfalfa results reported here are from tests seeded in 1960, 1961, 1962, 1964 and 1965. New seedings were made in the fall of 1966 at Crossville, Greeneville, and Knoxville. The 5-year-old stand at Greeneville and 4-year-old stand at Crossville had poor stands in most varieties at the end of the 1966 production year. The Knoxville alfalfa variety test was severely damaged by hail on May 29, 1966. The second harvest was lost due to hail damage and the yields of the third and fourth cuttings were reduced severely by poor stands, which resulted from hail damage. Many varieties which produced 2 tons per acre at the first harvest produced very little after the hail storm.

New varieties in the test that show promise are Cody, Cherokee, Culver, Vernal, and Delta. Europa performed quite well at Spring Hill as shown in Table 51. Williamsburg performed well at all locations. Narragansett did not perform as well as it has in the past in the test seeded in 1964 at Spring Hill.

Table 48. Alfalfa: Yield of test seeded at Springfield in 1965[1]

Variety	1966	Variety	1966
	Tons of air-dry hay per acre		Tons of air-dry hay per acre
Cardinal	3.56	Pioneer 522	3.24
W. L.[2] 303	3.48	Progress	3.22
W. L. 302	3.47	Cayuga	3.16
Pioneer 582	3.45	Narragansett	3.12
Cherokee	3.40	Buffalo	3.11
Atlantic	3.40	Delta	3.10
Saranac	3.34	Crecy	3.02
Cody	3.34	Culver	2.95
Alfa	3.29	Ky. Creeper	2.64
Williamsburg	3.27	Lahontan	2.51

[1]Dickson silt loam, (2% to 5% slopes).
[2]W. L. denotes Watterman-Loomis.

Table 49. Alfalfa: Yield of varieties seeded in 1964 at Spring Hill[1]

Variety	Avg.	1966	1965	Variety	Avg.	1966	1965
	Tons of air-dry hay per acre				Tons of air-dry hay per acre		
Atlantic	4.34	4.52	4.16	Glacier	3.55	4.21	2.89
Vernal	4.30	4.63	3.98	Pioneer 583	3.52	3.94	3.10
Culver	4.16	4.45	3.88	Cayuga	3.50	3.86	3.14
W. L. 303	4.09	4.51	3.67	Rhizoma	3.40	3.78	3.02
Warrior	3.97	4.54	3.40	W. L. 304	3.38	3.90	2.86
Cardinal	3.94	4.32	3.57	Cody	3.36	4.02	2.69
P.A.G. FD-100	3.94	4.49	3.38	Norseman	3.33	3.02	3.64
Cherokee	3.82	4.26	3.38	Ranger	3.24	3.82	2.66
DuPuits	3.80	4.24	3.35	Stride	3.17	3.35	2.99
Williamsburg	3.80	4.37	3.24	A. S. 49	3.14	3.86	2.42
Alfa	3.78	4.30	3.25	Ky. 21 Syn. Creeper	3.14	3.22	3.06
Buffalo	3.77	4.28	3.26	N. Y. 64-4 Creeper	3.12	2.78	3.46
W. L. 302	3.72	4.14	3.31	Resistador	3.04	3.59	2.50
Pioneer 525	3.68	4.02	3.34	Tuna	3.29	3.97	2.61
Progress	3.68	3.93	3.43	Rambler	2.96	3.14	2.78
Pioneer 522	3.64	4.19	3.10	Narragansett	2.84	3.46	2.21
Haymor	3.58	4.04	3.13	A. S. 13	1.06	1.78	0.34
Saranac	3.58	4.15	3.02	Sonora	0.00	0.00	0.00
L.S.D. (.05)	—	—	—		—	0.65	1.13
C.V. %	—	—	—		—	11.8	26.4

[1]Maury silt loam, (2% to 5% slopes).

Table 50. Alfalfa: Yield of varieties seeded in 1964 at Knoxville[1]

Variety	Avg.[2]	1966	1965
		Tons of air-dry hay per acre	
Cherokee	2.20	2.10	2.30
Williamsburg	2.07	1.92	2.22
N.C. Syn. G(57) 2	2.03	1.73	2.33
Vernal	2.01	2.02	2.00
Atlantic	1.99	1.92	2.06
Narragansett	1.96	1.88	2.04
Delta	1.94	1.78	2.11
Pioneer 522	1.94	1.79	2.09
Cayuga	1.90	1.63	2.17
Buffalo	1.88	1.54	2.22
Culver	1.86	1.92	1.81
Saranac	1.84	1.40	2.28
Progress	1.80	1.53	2.08
N.C. Syn. G(57) 3	1.76	1.47	2.04
DuPuits	1.75	1.32	2.18
W.L. 302	1.73	1.40	2.06
N.C. Syn. F(56) 1	1.67	1.33	2.01
Alfa	1.64	1.29	1.98
Pioneer 583	1.61	1.22	2.00
Cody	1.59	1.36	1.82
Cardinal	1.58	1.19	1.96
P.A.G. FD-100	1.52	1.16	1.88
L.S.D. (.05)	—	0.40	N.S.
C.V. %	—	17.6	12.0

[1]Etowah silt loam, (2% to 5% slopes).
[2]Second cutting lost due to hail damage.

Table 51. Alfalfa: Yield of varieties seeded in 1962 at Spring Hill[1]

Variety	Avg.	1966	1965	1964	1963
		Tons of air-dry hay per acre			
Williamsburg	4.92	4.03	5.02	5.02	5.60
Europa	4.86	3.98	4.70	4.99	5.77
Cody	4.56	3.60	4.58	5.02	5.06
Atlantic	4.53	2.74	4.88	4.99	5.52
Cardinal	4.41	2.44	4.61	4.79	5.79
Buffalo	4.23	2.31	4.54	4.91	5.15
Vernal	4.22	2.92	4.49	4.70	4.77
Culver	4.16	2.28	4.53	4.74	5.11
Narragansett	4.12	2.05	4.43	4.42	5.58
Orchies	4.04	3.10	4.18	3.90	4.98
P.A.G. FD-100	3.92	1.04	4.38	4.58	5.68
DuPuits	3.62	0.98	4.06	4.02	5.42
L.S.D. (.05)	—	1.13	N.S.	0.72	0.59
C.V. %	—	30.0	9.5	10.7	7.6

[1]Maury silt loam (2% to 5% slopes).

Table 52. Alfalfa: Yield of varieties seeded in 1962 at Crossville[1]

Variety	Avg.	1966	1965	1964	1963
		Tons of air-dry hay per acre			
Williamsburg	4.13	4.70	4.26	5.32	2.24
Cody	4.12	4.16	4.22	5.88	2.20
Buffalo	3.78	3.87	3.96	5.22	2.07
Vernal	3.78	3.08	4.30	5.71	2.04
Culver	3.76	3.98	3.91	5.24	1.93
Europa	3.74	3.72	3.81	5.18	2.26
Narragansett	3.64	4.09	3.68	4.68	2.12
Orchies	3.60	3.41	3.61	5.00	2.36
Atlantic	3.50	3.53	3.60	5.02	1.87
DuPuits	3.03	3.10	2.72	4.22	2.08
P.A.G. FD-100	2.45	0.0	3.00	4.64	2.17
Cardinal	2.37	0.0	2.84	4.54	2.11
L.S.D. (.05)	—	0.50	0.55	0.64	N.S.
C.V. %	—	8.9	10.4	8.8	10.6

[1]Hartsells loam, (2% to 5% slopes).

Table 53. Alfalfa: Yield of varieties seeded in 1962 at Jackson[1]

Variety	Avg.	1966	1965	1964	1963
		Tons of air-dry hay per acre			
Williamsburg	4.76	5.40	4.84	4.74	4.06
Buffalo	4.68	5.23	4.74	4.57	4.16
Cherokee	4.58	5.18	4.78	4.59	3.78
Cody	4.53	5.11	4.50	4.65	3.86
Vernal	4.53	4.89	4.72	4.59	3.93
Atlantic	4.34	4.88	4.62	4.22	3.62
Culver	4.32	4.84	4.37	4.44	3.63
Narragansett	4.24	4.55	4.43	4.24	3.73
Orchies	4.00	4.26	4.13	3.83	3.80
DuPuits	3.82	3.55	4.11	3.84	3.78
Cardinal	3.68	3.47	3.87	3.47	3.92
P.A.G. FD-100	3.50	3.00	3.70	3.54	3.75
L.S.D. (.05)	—	0.80	0.50	0.44	N.S.
C.V. %	—	12.4	7.9	7.2	6.5

[1]Loring silt loam, (0% to 2% slopes).

Table 54. Alfalfa: Yield of test seeded in 1961 at Greeneville[1]

Variety	Avg.	1966	1965	1964	1963	1962
		Tons of air-dry hay per acre				
Williamsburg	3.84	1.17	5.03	4.00	5.95	3.05
Culver	3.81	1.06	5.12	4.00	5.88	2.98
Narragansett	3.76	1.14	4.94	3.97	5.95	2.80
Buffalo	3.75	0.94	4.85	3.90	5.97	3.07
Socheville	3.57	0.80	4.52	3.95	5.94	2.62
P.A.G. FD-100	3.53	0.73	4.38	3.88	6.00	2.67
DuPuits	3.49	0.58	4.32	3.95	5.92	2.68
Orchies	3.36	0.72	4.01	3.47	5.82	2.78
Maliani	3.25	0.74	4.24	3.45	5.25	2.57
L.S.D. (.05)	—	0.22	0.44	0.34	0.35	0.17
C.V. %	—	17.7	6.5	6.1	4.1	4.2

[1]Cumberland silt loam, (2% to 5% slopes), eroded.

RED CLOVER

The results reported for Red clover are from tests seeded in 1963, 1964, and 1965. These data indicate that Ky. Syn. A2 (an experimental) performs well under Tennessee conditions. Of the commercial varieties, Kenland has out-performed the other varieties in the tests.

Table 55. Red Clover: Yield of tests seeded in 1963 and 1965 at Jackson

Variety	Avg. 1964-1966	Jackson[1] 1964	Jackson[1] 1965	Jackson[1] 1966	Jackson[2] 1966
		Tons of air-dry hay per acre			
Ky. Syn. A_2	3.29	5.22	2.86	1.79	3.17
Kenland	2.25	4.88	1.88	0.0	3.34
Orbit	2.18	4.69	1.84	0.0	—
Ky. 215	2.11	4.57	1.75	0.0	—
Lakeland	1.98	4.69	1.24	0.0	—
Pennscott	1.84	4.43	1.08	0.0	—
Illinois No. 2	—	—	—	—	3.55
Illinois No. 1	—	—	—	—	3.35
Chesapeake	—	—	—	—	2.91
L.S.D. (.05)	—	N.S.	0.81	—	N.S.
C.V. %	—	9.3	30.3	—	14.2

[1]Seeded Fall 1963

[2]Seeded Fall 1965 and not included in 3-year average.

Table 56. Red Clover: Yield summary of tests seeded in 1964 and 1965

Variety	Avg.	Crossville[1]		Spring Hill[2]		Springfield[3]		Knoxville[4]	
		1965	1966	1965	1966	1965	1966	1965	1966
		Tons of air-dry hay per acre							
Ky. Syn. A_2	3.39	3.53	5.90	2.18	2.54	4.50	3.40	2.86	2.23
Kenland	3.24	3.72	5.40	2.15	2.32	4.30	3.34	2.72	2.00
Orbit	3.11	4.02	5.80	2.08	1.81	4.02	2.92	2.50	1.76
Pennscott	3.10	3.86	5.53	1.87	1.75	4.61	2.90	2.61	1.66
Lakeland	2.89	3.24	5.36	2.12	1.68	4.22	2.81	2.02	1.64
L.S.D. (.05)	—	0.54	N.S.	0.20	0.26	0.38	0.22	0.38	0.34
C.V. %	—	9.4	5.6	6.2	8.5	5.7	4.6	10.0	8.8

[1]Hartsells loam, (2% to 5% slopes).
[2]Maury silt loam, (2% to 5% slopes).
[3]Mountview silt loam, (2% to 5% slopes).
[4]Etowah silt loam, (2% to 5% slopes).

SOYBEANS

Soybean varieties were tested at Martin, Jackson, and Spring Hill from 1964 through 1966. In 1966, two tests were conducted at Martin. One test was conducted under a cyst nematode condition and the second under a cyst nematode-free condition. Results for both tests are reported in Table 57. Pickett, a new cyst nematode-resistant variety, yielded as well in 1965 and 1966 as Lee at Jackson and Spring Hill but not as well as Lee at Martin under a cyst nematode-free condition. In the cyst nematode test of 1966 at Martin, Pickett yielded 33 bushels per acre compared to 22 bushels per acre for Lee. Pickett is recommended for planting where cyst nematodes are a problem and not recommended for planting where cyst nematode-free conditions exist. Pickett matures a few days later than Lee and has a tendency to retain its leaves longer than Lee.

Two other new varieties—Dare and Davis—have been tested in the Regional test at Martin, Jackson, and Milan. They have



Figure 2. Regional Soybean Variety Test, Jackson, 1966. Cyst nematode infected area: 1) D63-7320, 2) Pickett, and 3) Ogden.

yielded slightly less than Lee at these locations. In 1966, however, they performed well at the location where the State variety tests were conducted. The experimental variety D63-7320, a cyst nematode- and root knot-resistant variety, performed well in 1966 at all locations.

Data are presented in Table 57.

Table 57. Soybean: Yield of varieties tested at four locations in 1966

Variety	Avg.[1]	Spring Hill[2]	Jackson[3]	Martin[4]	Martin cyst nematode test[5]
			Bushels per acre		
Hill	45	47	41	48	22
Dare	43	42	37	51	23
Davis	42	42	36	49	22
Lee	41	37	37	48	22
Hinn	40	40	37	44	18
Patterson	39	40	40	38	16
Pickett	37	35	38	40	33
Semmes	35	30	37	40	18
Hood	—	42	—	50	22
Experimentals:					
D63-7320	44	43	42	48	30
Tenn. 61-30	44	40	43	48	—
29-6-4	—	43	—	47	31
L.S.D. (.05)		3.2	4.1	6.7	5.1
C.V. %		5.4	9.1	10.2	15.1

[1]Martin cyst nematode yields not included in average.
[2]Maury silt loam (2% to 5% slopes).
[3]Memphis silt loam (0% to 2% slopes).
[4]Collins silt loam (0% to 2% slopes).
[5]Test conducted in a cyst nematode infested area.

Table 58. Soybeans: Characteristics of varieties

Variety	Seed color	Hilum color	Flower color	Pubescence	Maturity	Resistance to shattering
Hill	Yellow	Light-brown	White	Tawny	Early	Good
Dorman	Yellow	Buff	White	Gray	Early	Med.
Hood	Yellow	Buff	Purple	Gray	Med.	Med.
Ogden	Olive-green	Brownish-black	Purple	Gray	Med.	Fair
Lee	Yellow	Black	Purple	Tawny	Late	Good
Pickett[1]	Yellow	Dark-brown	Purple	Gray	Late	Good

[1] Resistant to cyst nematode.

GRAIN SORGHUM

The grain sorghum tests were conducted at Springfield, Spring Hill, and Ames Plantation. The test at Spring Hill was damaged by birds. These results are reported along with the bird damage ratings, for this location. From these results, it seems that Ga. 615, AKS 614, Co-op 4, and DeKalb Br. 60 have some resistance to bird damage. In 1965 N.K. 222 had very little bird damage at

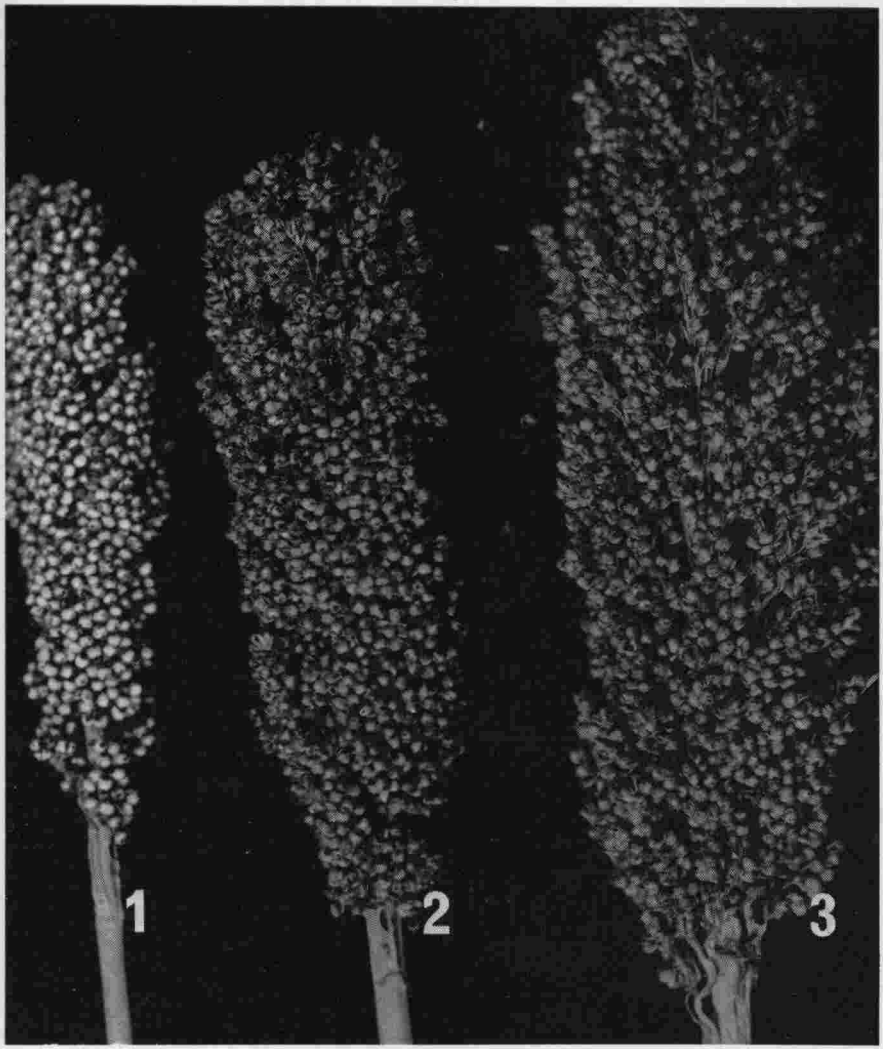


Figure 3. Examples of heads of grain sorghum: 1) tight; 2) medium, and 3) open.

Spring Hill but in 1966 this variety was severely damaged. No yield data were obtained from Pawnee at Spring Hill because of the bird damage. No bird damage was noted at Springfield or Ames Plantation. Three varieties (AKS 614, Ga. 615, and Co-op 4) lodged at Springfield. No lodging was observed at Spring Hill or Ames Plantation.

Table 59. Grain sorghums: Yields and other characteristics of varieties tested in 1966

Variety	Spring-field[1]	Ames Plantation[2]	Spring Hill[3]	Bird damage	Plant height	Head type	Grain moisture prior to harvest
	Bushels per acre			Rating	In.		%
Ga. 615	97	54	86	0.9	47	Open	17.3
AKS 614	103	45	80	1.0	44	Open	15.3
Co-op 4	106	39	92	0.9	49	Open	18.7
Excel 505	96	40	72	4.8	44	Med.-Tight	17.2
R. S. 610	93	42	62	6.8	46	Tight	17.4
Advance 14	102	31	64	5.2	45	Med.-Open	16.1
Frontier 400C	90	43	70	6.2	45	Tight	16.4
Rico	92	36	67	3.2	43	Tight	16.1
N. K. 212	90	36	66	5.0	44	Tight	16.2
Co-op 3	96	30	70	2.8	43	Med.-Tight	16.2
Lindsey 744	89	35	58	5.5	42	Med.	16.2
Co-op 1	86	38	69	6.5	44	Tight	18.6
Excel 707	95	29	84	2.8	41	Med.-Tight	15.4
DeKalb C44B	81	41	52	5.8	44	Med.-Open	15.6
P.A.G. 515	97	24	75	2.8	47	Tight	18.6
Pioneer 820	97	22	80	4.0	48	Med.-Tight	20.8
DeKalb Br.-60	106	13	84	0.6	48	Med.-Open	19.7
N. K. 222	78	38	58	8.3	39	Med.-Open	14.5
P.A.G. 430	83	33	73	6.7	38	Med.	15.3
DeKalb E57	91	21	73	4.2	46	Open	17.8
Co-op 2	77	33	65	4.2	40	Med.-Open	13.9
Pawnee	79	32	—[5]	9.8	47	Med.	15.7
Jumbo L	39	10	44	5.8	52	Med.	32.6
L.S.D. (.05)	10.4	11.4	12.9	—	—	—	—
C.V. %	8.3	25.6	13.1	—	—	—	—

[1]Ennis silt loam, (2% to 5% slopes).
[2]Loring silt loam, (2% to 5% slopes).
[3]Maury silt loam, (2% to 5% slopes).
[4]A rating of 0 to 10 was made for bird damage at Spring Hill, 1 being slight and 10 very heavy damage.
[5]No yield data due to bird damage.

Table 60. Grain sorghums: Yield of varieties tested for 3 years, 1964-66

Variety	3 yr. avg. 1964-66	Plant height	Head type	Grain Moisture prior to harvest	Maturity
	Bu./A.	In.		%	
Ga. 615	91	55	Open	19.9	Late
AKS 614	89	50	Open	16.6	Med.
DeKalb E-57	84	54	Open	19.5	Late
Rico	82	47	Tight	17.6	Med.
P.A.G. 515	82	52	Tight	19.3	Late
R.S. 610	81	53	Tight	17.5	Med.
DeKalb C44B	78	50	Med.-Open	17.0	Med.
Lindsey 744	78	47	Med.	17.0	Early
Co-op 1	78	50	Tight	17.0	Med.
Frontier 400C	78	50	Tight	16.3	Early
P.A.G. 430	77	46	Med.	16.3	Early



Figure 4. Grain Sorghum: Left, bird-susceptible variety McCurdy 62 and right, bird-resistant variety Ga. 615. Plant Science Farm, Knoxville, Tennessee, 1966.

TOBACCO

Data for burley tobacco were furnished by the personnel at the University of Tennessee Tobacco Experiment Station at Greeneville, Tennessee. The burley tobacco work is a cooperative project with the U. S. Department of Agriculture.

Since the 1966 variety results were not available, the data included in this bulletin are for 1965 and previous years. The burley varieties were tested at four locations and the dark fire-cured and dark air-cured tobacco at one location.

Data are presented in Tables 61 through 65.

Table 61. Burley Tobacco: Average yield for years 1964-65

Variety or Hybrid	State Average	Greeneville[1]	Rutledge[2]	Spring Hill[3]	Springfield[4]
			Pounds per acre		
Burley 1	2729	2501	2927	2685	2805
Burley 21	2620	2393	2717	2713	2657
Burley 37	2435	2123	2605	2415	2598
Burley 49	2451	2431	2578	2276	2519
Kentucky 10	2815	2748	2885	2888	2739
Kentucky 12	2780	2764	2932	2646	2780
MS Bu. 21 x Ky. 10	2867	2668	3004	2878	2916
MS Bu. 21 x Ky. 12	2790	2546	2825	2793	2999
MS L8 x Bu. 21	2526	2186	2807	2556	2557
Average	2668	2484	2809	2650	2730
L.S.D. (.05)		212	N.S.	N.S.	N.S.

[1]Waynesboro loam in 1964, Cumberland silt loam in 1965.
[2]Hayter loam.
[3]Maury silt loam.
[4]Huntington silt loam in 1964, Lobelville silt loam in 1965.

Table 62. Burley Tobacco: Acre Value[1] 1964-65

Variety or Hybrid	State Average	Greeneville	Rutledge	Spring Hill	Springfield
			Dollars per acre		
Burley 1	1757	1574	1890	1756	1806
Burley 21	1703	1513	1773	1768	1757
Burley 37	1582	1363	1681	1573	1709
Burley 49	1581	1558	1696	1405	1664
Kentucky 10	1814	1744	1887	1828	1797
Kentucky 12	1789	1756	1858	1713	1831
MS Bu. 21 x Ky. 10	1881	1707	1967	1907	1943
MS Bu. 21 x Ky. 12	1822	1622	1815	1851	1999
MS L8 x Bu. 21	1606	1357	1788	1623	1656
Average	1726	1577	1817	1714	1796
L.S.D. (.05)	—	151	134	N.S.	N.S.

[1]Acre values calculated from average value of federal grades, not from individual sales.

Table 63. Burley Tobacco: Average percentage considered desirable by five cigarette manufacturers, 1964-65

Variety or Hybrid	State Average	Greeneville	Rutledge	Spring Hill	Springfield
Burley 1	44.0	55.7	47.0	38.6	34.9
Burley 21	52.7	55.2	66.9	45.7	42.9
Burley 37	47.1	50.3	58.1	36.1	44.1
Burley 49	40.4	47.0	48.7	31.1	35.0
Kentucky 10	34.1	43.7	40.2	35.4	17.3
Kentucky 12	38.8	49.7	39.2	38.9	27.4
MS Bu. 21 x Ky. 10	39.2	51.0	49.6	37.1	19.3
MS Bu. 21 x Ky. 12	38.2	48.1	39.9	38.3	26.4
MS L8 x Bu. 21	29.6	41.2	34.4	25.2	17.5
Average	40.5	49.1	47.1	36.3	29.4
L.S.D. (.05)	N.S.	—	—	—	—

Table 64. Dark fire-cured tobacco: Average yield and acre value of varieties grown on the Highland Rim Experiment Station, Springfield, Tennessee from 1963 through 1965

Variety	Acre yield				Acre value[1]			
	1963-65	1965[2]	1964[3]	1963[4]	1963-65	1965	1964	1963
	Pounds per acre				Dollars per acre			
Black Mammoth	2271	1899	2558	2356	914	765	1055	923
Broad Leaf Madole	2216	1810	2447	2392	899	749	1039	944
Ky. 157	1980	1646	2152	2141	771	647	862	804
Va. 331	1949	1659	2125	2063	722	642	800	725
DF-516	—	—	2294	2212	—	—	843	929
Ky. 152	—	—	—	2153	—	—	—	782
Ky. 156	—	—	—	1977	—	—	—	736
Ky. 155	—	—	—	1949	—	—	—	756
Experimentals:								
Tennex 902	2249	1999	2517	2232	931	802	1043	949
Tennex 300	2085	1854	2279	2123	844	789	941	803
Tennex 903	—	1856	2202	—	—	768	869	—
Tennex 901	—	—	2242	2017	—	—	876	737
Tennex 900	—	—	—	2160	—	—	—	750
Tennex 500	—	2097	—	—	—	834	—	—
Tennex 905	—	2093	—	—	—	818	—	—
Tennex 904	—	1919	—	—	—	774	—	—
L.S.D. (.05)	—	161.5	86.6	86.1	—	80.5	41.6	63.9
C.V. %	—	7.4	3.2	3.5	—	9.1	3.8	6.8

[1]These values are based on the average value for the various grades on all type 22 markets. during the 5-year period 1954-58.
[2]Dickson silt loam, (2% to 5% slopes).
[3]Dickson silt loam, (2% to 5% slopes).
[4]Dickson silt loam, (2% to 5% slopes).

Table 65. Dark air-cured tobacco: Average yield and acre value of varieties grown on the Highland Rim Experiment Station, Springfield, Tennessee from 1963 through 1965

Variety	Acre yield				Acre value[1]			
	1963-65	1965[2]	1964[3]	1963[4]	1963-65	1965	1964	1963
	Pounds per acre				Dollars per acre			
Johns	2314	2069	2662	2211	873	761	1001	857
Ky. 160	2070	1790	2395	2026	827	701	948	833
Ky. 163	—	—	—	1929	—	—	—	914
Ky. 164	—	—	—	1444	—	—	—	561
Experimentals:								
O. S. 901	2366	2167	2646	2285	868	768	961	875
O. S. 900	2276	1991	2641	2197	794	700	905	776
O. S. 902	—	2257	—	—	—	768	—	—
L.S.D. (.05)	—	76.7	93.6	117.2	—	45.3	42.4	57.9
C.V. %	—	3.1	3.0	4.9	—	5.1	3.6	6.3

[1]These values are based on the average value for the various grades on all type 35 markets. during the 5-year period 1954-58.
[2]Dickson silt loam, (2% to 5% slopes).
[3]Dickson silt loam, (2% to 5% slopes).
[4]Ennis silt loam, (0% to 2% slopes).

PERFORMANCE OF SUMMER ANNUAL GRASSES FOR GRAZING AND GREEN-CHOPPING, 1955-1966

Sudangrasses—Sudangrass-Sorghum Hybrids—Pearlmillets

By
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Summer annual grasses are increasingly important, particularly in farm enterprises where a reliable source of large amounts of quality forage during the hot and dry part of the growing season is required. The development of improved varieties of Sudangrass and pearlmillet and of hybrids between Sudangrass and male-sterile sorghums has resulted in a large number of varieties for which seed is available commercially. All these plants can be grazed, green-chopped, or even used for stored feed; however, they are difficult to cure properly for hay in Tennessee and are generally considered as emergency silage crops.

Variety evaluation tests have been conducted by the University of Tennessee since 1955. The results obtained have been published in Tennessee Agricultural Experiment Station Bulletins 373 (Revised), 384, and 396.

Differentiation among the different varieties and hybrids of Sudangrass is difficult, especially if leaf characteristics alone are used. To some extent, seed shape, glume color, stalk size, maturity, sweetness of juices, presence of rhizomes, and nature of heads and blooms can all be used to differentiate among these varieties and hybrids. Some hybrids of Sudangrass and sorghum resemble true Sudangrasses, whereas others are similar in appearance to sweet sorghum, having characteristically thicker and juicier stalks. Others approach a grain sorghum in appearance, with compact heads and very large stalks.

The average state yields, using all available data and adjusted for location-to-location and year-to-year variation, are presented in Table 1. In addition, the distribution of production during the growing season, disease and uniformity ratings, and prussic acid potential classes have been tabulated. In Table 2 are presented the

yields for 1964, 1965, and 1966 obtained at each of the five locations; at one location in 1966, relative production and regrowth potential ratings were made.

A rating in the table is the average of observations made on 13 occasions during the growing season, using a scale from 1 to 9, comparing the performance of the varieties to that of Piper and Greenleaf Sudangrasses, Gahi-1 and Starr pearlmillets, and DeKalb Sudax SX-11, on each occasion. Average values of 5.0 or larger would be considered an indication of acceptable production and/or regrowth. For more detailed descriptions and information on management, see Bulletin 373 (Revised).

The varieties generally were harvested when growth reached a height not greater than 30 inches and were cut to a stubble of 6 to 8 inches. Occasionally, harvesting was delayed after growth reached 30 inches in height; in such cases, yields were higher and fewer harvests were made during the season. At some locations, all varieties were cut at the same time; at others, each variety was cut individually whenever it reached the desired stage of growth.

Since yield alone is not the only consideration in selecting a variety, a number of other factors were evaluated in deciding on the varieties of summer annual grasses to be recommended by the University of Tennessee for grazing or green-chopping. These considerations included the following: 1) the variety had been tested under at least five different environments extending over at least a 2-year period; 2) the total dry matter adjusted average yield was larger than 3 tons per acre per year for Sudangrasses and pearlmillets, and larger than 3.5 tons per acre per year for Sudangrass-sorghum hybrids; 3) more than 45% of the yearly production occurred after August 1, and more than 22% after September 1; 4) disease incidence was low (less than 2.5 with scale used); 5) uniformity was high (more than 5.0 with scale used); 6) leafiness was high; 7) prussic acid potential was less than 200 parts per million on green weight basis (sampling top-most leaf blade with a formed collar); and 8) seed was expected to be available to growers. The varieties meeting these criteria have been starred in Table 1.

Table 1. Sudangrasses, Sudangrass-Sorghum Hybrids and Millets: Summary of yield of dry matter, cumulative seasonal distribution of production, disease and uniformity ratings, and prussic acid potential at five locations in Tennessee, 1955-1966

	Variety or Strain (listed alphabetically)	Number of experiments	Adjusted *average yield (T/A)	Cumulative distribution of production (percent)					Prussic acid potential[3]	Disease rating[1]	Uniformity rating[2]
				Before June 30	After July 1	After Aug. 1	After Sept. 1	After Oct. 1			
SUDANGRASSES AND HYBRIDS:											
	Arkansas AKS 20								H	2.5	4.0
	AKS 22								M	1.5	4.6
	Leafmaster 43								M	1.0	5.1
	Asgrow Beefbuilder T	9	3.33	22	78	50	28	9	H	2.6	6.3
	Grazer A	8	3.06	20	80	53	26	7	H	1.5	5.1
	H6553	3	3.03	13	90	56	30	11	VH	1.8	5.8
	Sorgusbord	3	3.22	18	82	53	18	2	H	2.5	4.2
**	Caladino Greenlan	9	4.04	20	79	50	25	5	H	2.6	6.0
†	Conlee Mor-Gain	4	3.97	11	89	61	26	7	H	2.5	4.9
†	Cotton Hyb. Res. Southern Cross	4	3.93	12	89	59	27	7	H	1.6	3.8
†	DeKalb Sudax SX-6	4	4.22	13	87	60	27	7	M	2.1	5.2
**	Sudax SX-11	30	4.00	20	80	49	24	5	M	2.5	5.6
**	Sudax SX-12	10	4.08	18	82	54	27	10	H	2.2	5.7
**	Dorman Sure-Graze	8	3.66	15	85	57	24	3	H	2.0	6.2
**	Excel Chow-Maker	8	3.87	22	78	54	26	6	H	1.9	5.2
	Chow-Maker 21	8	3.31	17	83	55	26	6	M	2.3	3.7
†	Exp. 107	2	4.28	24	75	48	26	9	M	1.3	3.7
†	Exp. 108	5	3.96	14	85	62	26	6	L	2.1	4.7
†	Exp. 762	3	3.84	11	89	61	28	6	M	2.0	4.6
†	Exp. 861	4	4.09	13	87	57	26	6	M	2.1	4.3
†	Exp. 1107	4	3.91	13	87	58	25	6	H	2.3	5.0
	Silo Fill 33	8	3.28	20	80	52	25	6	M	1.4	4.0

Table 1. (Continued)

	Variety or Strain (listed alphabetically)	Number of experiments	Adjusted average* yield (T/A)	Cumulative distribution of production (percent)					Prussic acid potential[3]	Disease[1] rating	Uniformity[2] rating
				Before June 30	After July 1	After Aug. 1	After Sept. 1	After Oct. 1			
**	Frontier Hi-Dan 38	16	3.99	21	79	46	24	6	H	1.0	8.2
	Hi-Dan 39	8	3.59	19	81	54	26	5	H	2.4	4.5
**	Green Bros. Green Graze	11	4.24	23	77	49	28	7	H	2.2	8.2
	Greenleaf	46	3.09	17	83	52	24	6	L	2.2	6.3
**	Hunt & Tipps Green-M	12	3.56	18	82	50	24	9	M	2.1	5.3
**	Lindsey 77F	15	3.85	20	80	50	24	8	M	1.8	5.1
**	Northrup-King Sordan	13	3.79	24	76	48	25	6	M	1.3	5.3
**	Trudan II	9	3.28	18	82	58	27	7	L	2.8	4.5
**	Trudan IV	9	3.51	18	82	58	29	11	L	3.3	5.3
	Paymaster Exp. 3801								M	3.7	4.4
	Exp. 3811								L	1.5	3.1
	Exp. 3813								M	—	3.2
	Exp. 3816								M	2.0	1.9
	Exp. 3822								M	2.0	2.8
	Exp. 4814								M	4.0	3.3
	Exp. 4839								M	3.0	3.0
	Exp. 5817								L	3.3	4.2
	Exp. 5859								M	2.0	3.8
	Exp. 5870								M	2.0	3.3
**	Sweet Sioux	20	4.24	24	75	48	24	6	M	2.1	5.3
†	Sweet Sioux A	4	3.86	13	87	58	26	6	M	2.3	5.4
	Thunderbird	9	3.52	21	79	55	27	7	M	2.3	3.3
**	Pfister Su-Chow 34	14	4.62	24	76	50	27	7	M	2.0	8.0
**	Su-Chow 35	16	4.16	21	79	49	27	6	M	2.6	5.6
	Pioneer 931	8	3.11	20	80	50	24	5	VH	2.7	3.7
†	936	4	3.56	14	86	54	25	5	M	2.3	4.3
**	985	8	3.71	18	82	55	28	6	M	1.6	5.8

Table 1. (Continued)

Variety or Strain (listed alphabetically)	Number of experiments	Adjusted average* yield (T/A)	Cumulative distribution of production (percent)					Prussic acid potential[3]	Disease[1] rating	Uniformity[2] rating
			Before June 30	After July 1	After Aug. 1	After Sept. 1	After Oct. 1			
** Piper	47	3.14	21	79	47	20	5	L	3.2	5.3
** Rudy-Patrick Mor-Su	14	4.05	25	75	48	26	7	M	2.3	5.0
** Su-1	10	3.59	18	82	54	29	9	M	1.8	5.0
** Taylor-Evans Grazemaster	8	3.87	20	80	52	22	1	H	2.3	5.8
** Haygrazer	12	4.10	22	77	49	26	6	H	2.5	5.3
** 3083X	8	3.65	20	80	55	28	5	M	2.1	5.1
† Tennessee Farmers Co-op. FFR 66	1	3.44	—	100	65	41	11	M	1.7	4.6
† FFR 74								H	1.7	4.5
GHS 1	9	4.14	23	77	54	28	9	H	3.4	5.6
** GHS 2	9	3.40	18	83	59	29	8	M	2.0	5.3
† GHS 2A	4	3.97	12	87	58	25	6	H	2.1	4.7
† WAC 99	4	4.07	11	83	55	27	6	H	1.4	4.7
R. G. Young Kow-Kandy	9	3.22	20	80	52	26	6	M	3.2	4.4
MILLETS:										
** Gahi-1	47	4.49	16	84	52	26	8	—	1.6	5.7
** Starr	46	3.35	14	86	49	22	5	—	—	7.1

*Adjusted variety average = **Variety total for years and locations grown X All years and locations base average.**
Base total for years and locations variety grown

Base average based on performance of Piper and Greenleaf Sudangrasses and Starr and Gahi-1 pearlmillets.

[1]0 = no disease
5 = most disease

[2]9 = most uniform
1 = least uniform

[3]Parts per million on green weight basis (avg. of 10 determinations)
(by courtesy of Elmer Gray)

L = Low = 0 to 50p.p.m.
M = Moderate = 51 to 125 p.p.m.
H = High = 126 to 200 p.p.m.
VH = Very high = 201 p.p.m. and over

**Recommended varieties.
†Insufficient information for recommendation.

Table 2. Sudangrasses, Sudangrass-Sorghum Hybrids and Millets: Dry matter production (Tons per acre), or relative production or regrowth indices, and number of harvests at five locations in Tennessee, 1964-1966

Variety or Strain (listed alphabetically)	Springfield[1]			Knoxville[2]				Spring Hill[3]			Crossville[4]			Jackson[5]		
						1966[6]										
	1964	1965	1966	1964	1965	Relative Production Index	Relative Regrowth Potential Index	1964	1965	1966	1964	1965	1966	1964	1965	1966
Number of harvests	4	4 to 5	5	5 to 7	5 to 6		5 to 6	4	5	5	4 to 6	4 to 5	4	7	8	8
SUDANGRASSES AND HYBRIDS:																
Arkansas AKS-20	—	—	—	—	—	4.1	1.0	—	—	—	—	—	—	—	—	—
AKS-22	—	—	—	—	—	3.6	3.0	—	—	—	—	—	—	—	—	—
Leafmaster	—	—	—	—	—	3.4	2.5	—	—	—	—	—	—	—	—	—
Asgrow Beefbuilder T	—	2.54	—	3.40	3.80	4.5	5.7	3.31	2.84	—	—	5.21	3.88	—	2.92	2.42
Grazer A	4.58	—	—	3.36	5.63	4.8	6.5	4.21	3.81	4.12	3.60	—	—	2.63	—	—
Sorgusbord	—	—	2.32	—	—	3.0	4.0	—	—	2.94	—	—	—	—	—	2.73
H-6653	—	—	2.00	—	—	3.3	3.7	—	—	3.56	—	—	3.57	—	—	—
Caladino Greenlan	—	3.68	—	3.60	5.43	4.5	6.0	3.71	3.49	—	3.48	—	4.28	2.33	—	3.06
Conlee Mor-Gain	—	—	3.19	—	—	5.7	7.6	—	—	3.87	—	—	3.80	—	—	3.00
Cotton Hyb. Res. Southern Cross	—	—	3.21	—	—	5.0	5.8	—	—	3.86	—	—	3.54	—	—	3.10
DeKalb Sudax SX-6	—	—	3.20	—	—	5.2	6.2	—	—	4.12	—	—	4.05	—	—	3.35
Sudax SX-11	3.75	2.90	2.99	3.14	4.62	5.6	6.3	4.04	3.42	3.77	3.57	2.80	3.09	2.50	3.38	2.67
Sudax SX-12	4.78	3.26	—	3.54	4.83	4.9	5.3	4.22	3.52	—	3.86	—	3.50	2.37	—	3.01
Dorman Sure-Graze	—	3.62	3.23	2.95	5.20	5.0	6.0	—	3.23	3.44	3.18	—	—	2.40	—	—
Excel Chow-maker	—	3.98	3.25	—	4.94	5.4	5.6	—	3.71	3.67	—	—	3.92	—	3.55	2.97
Chow-maker 21	—	—	2.90	—	4.97	4.0	5.2	—	4.18	3.53	—	2.95	3.61	—	3.32	2.92
Experimental 107	—	—	—	—	6.72	5.2	4.8	—	—	—	—	—	—	—	—	3.12
108	—	—	3.35	—	5.68	5.7	6.0	—	—	3.90	—	—	3.25	—	—	3.09
762	—	—	3.15	—	—	4.9	4.4	—	—	3.20	—	—	3.98	—	—	—
861	—	—	3.47	—	—	4.8	4.2	—	—	3.74	—	—	4.17	—	—	2.89
1107	—	—	3.22	—	—	5.7	5.4	—	—	3.67	—	—	3.74	—	—	3.01

Table 2. (Continued)

Variety or Strain (listed alphabetically)	Springfield[1]			Knoxville[2]				Spring Hill[3]			Crossville[4]			Jackson[5]		
						1966[6]										
						Relative Production Index	Relative Regrowth Potential Index									
	1964	1965	1966	1964	1965			1964	1965	1966	1964	1965	1966	1964	1965	1966
Number of harvests	4	4 to 5	5	5 to 7	5 to 6		5 to 6	4	5	5	4 to 6	4 to 5	4	7	8	8
Silo-Fill 33	—	3.48	2.92	—	4.51	4.3	5.0	—	3.05	3.36	—	—	3.83	—	3.03	2.52
Frontier Hi-dan 39	—	3.64	3.13	—	4.77	4.6	6.2	—	3.25	3.67	—	—	4.01	—	3.57	2.91
Greenleaf	2.61	2.33	2.24	2.27	4.18	4.0	5.4	3.00	3.32	3.47	—	3.96	2.65	2.09	3.02	2.88
Hunt & Tipps Green-M	4.12	3.03	2.97	3.07	5.13	5.4	5.5	2.62	3.62	—	3.38	3.88	3.56	2.44	3.53	—
Lindsey 77F	4.79	3.48	—	2.95	4.89	4.7	5.5	—	3.45	3.45	3.54	3.82	—	2.30	3.49	2.70
Northrup-King Sordan	3.80	—	3.13	3.26	5.03	4.9	6.8	3.77	3.27	—	3.40	—	—	2.11	—	2.87
Trudan II	—	2.64	2.09	—	4.79	3.7	4.0	—	3.80	3.25	—	4.07	3.17	—	3.32	2.90
Trudan IV	—	2.60	2.59	—	6.53	4.3	4.3	—	3.56	3.42	—	3.13	3.76	—	3.14	2.98
Paymaster Sweet Sioux	4.69	—	3.33	3.50	5.19	5.3	6.2	3.84	3.55	4.13	3.54	—	—	2.19	—	—
Sweet Sioux A	—	—	3.19	—	—	5.8	6.0	—	—	3.61	—	—	3.64	—	—	3.05
Thunderbird	—	3.10	2.92	—	5.55	4.8	4.8	—	3.56	3.58	—	3.97	3.45	—	3.32	2.81
Experimental 3801	—	—	—	—	—	5.1	4.0	—	—	—	—	—	—	—	—	—
3813	—	—	—	—	—	3.8	1.0	—	—	—	—	—	—	—	—	—
3816	—	—	—	—	—	3.1	2.7	—	—	—	—	—	—	—	—	—
3822	—	—	—	—	—	3.5	2.0	—	—	—	—	—	—	—	—	—
4814	—	—	—	—	—	3.7	1.0	—	—	—	—	—	—	—	—	—
4839	—	—	—	—	—	3.2	1.0	—	—	—	—	—	—	—	—	—
5817	—	—	—	—	—	4.8	4.5	—	—	—	—	—	—	—	—	—
5859	—	—	—	—	—	5.1	4.8	—	—	—	—	—	—	—	—	—
5870	—	—	—	—	—	4.0	3.5	—	—	—	—	—	—	—	—	—
Pfister Su-Chow 35	4.97	—	—	2.99	5.24	5.4	6.0	3.96	3.26	3.47	3.44	—	—	2.44	—	—
Pioneer 931	—	—	3.04	—	3.90	4.7	5.3	—	2.72	3.46	—	3.42	3.73	—	3.06	2.76
936	—	—	2.79	—	—	6.3	6.0	—	—	3.12	—	—	3.99	—	—	2.54
985	—	—	3.24	—	5.08	5.0	5.8	—	4.43	3.83	—	3.95	4.08	—	3.54	2.92

Table 2. (Continued)

Variety or Strain (listed alphabetically)	Springfield[1]			Knoxville[2]				Spring Hill[3]			Crossville[4]			Jackson[5]		
						1966[6]										
	1964	1965	1966	1964	1965	Relative Production Index	Relative Regrowth Potential Index	1964	1965	1966	1964	1965	1966	1964	1965	1966
Number of harvests	4	4 to 5	5	5 to 7	5 to 6	5 to 6		4	5	5	4 to 6	4 to 5	4	7	8	8
Piper	2.78	2.14	2.13	1.94	4.02	4.6	5.0	3.74	3.44	3.32	2.18	2.70	2.84	2.03	3.16	2.77
Rudy-Patrick Mor-Su	4.69	—	3.01	3.08	5.06	4.5	5.6	3.91	4.28	—	3.27	4.51	—	2.50	—	3.03
Su-1	4.08	3.28	—	2.54	4.47	4.4	4.8	3.22	3.51	—	3.39	—	3.27	2.14	—	2.69
Taylor-Evans Grazemaster	—	3.48	—	3.22	5.51	5.2	6.0	3.79	3.78	3.66	—	4.62	—	2.40	—	—
Haygrazer	4.31	—	—	3.11	5.39	5.1	6.0	3.56	3.43	3.85	3.34	—	—	2.68	—	—
3083-X	—	3.67	3.12	—	4.89	5.3	5.3	—	3.24	3.70	—	—	4.12	—	3.53	2.91
Tennessee Farmers Co-op. FFR 66	—	—	—	—	—	5.3	6.0	—	—	—	—	—	3.48	—	—	—
FFR 74	—	—	—	—	—	5.5	6.0	—	—	—	—	—	—	—	—	—
GHS 1	4.42	—	3.14	2.99	4.82	5.5	6.3	3.37	4.09	—	—	2.92	4.72	2.64	—	—
GHS 2	—	3.16	3.23	—	4.69	5.4	6.0	—	3.18	3.53	—	3.57	2.71	—	3.49	3.98
GHS 2A	—	—	2.97	—	—	5.2	5.6	—	—	4.07	—	—	3.77	—	—	3.05
Young Kow-Kandy	—	2.44	2.88	3.03	4.28	4.4	5.6	—	3.06	—	—	3.11	3.60	2.31	3.34	—
WAC 99	—	—	3.02	—	—	4.0	4.8	—	—	4.23	—	—	4.05	—	—	2.91
MILLETS:																
Gahi-1 pearlmillet	4.38	4.22	3.83	3.10	4.96	4.2†	2.0†	3.78	3.46	3.58	4.33	4.90	5.34	2.60	3.66	3.13
Starr pearlmillet	2.64	2.74	2.25	2.20	3.16	3.9†	2.7†	2.92	2.55	2.76	—	3.72	3.42	2.16	2.90	2.55
L.S.D. (.05)	.54	.48	.25	.59	1.11	—	—	.40	.51	1.62	.50	1.18	.69	.38	.76	.21
C.V. %	7.9	12.8	8.5	17.5	20.4	—	—	8.6	10.9	18.9	14.5	20.4	18.9	14.4	6.5	7.4

[1]Dickson silt loam, (2% to 5% slopes)
[2]Huntington and Sequatchie silt loams, (0% to 2% slopes)
†Low values due to nematode damage

[3]Maury silt loam, (0% to 2% slopes)
[4]Hartsells loam, (2% to 5% slopes)
[5]Memphis silt loam (0% to 2% slopes)
Average of 13 observations.
[6]1 = least; 9 = most. Average of 13 observations

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