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Performance Trials of Field Crop Varieties

Charles R. Graves

University of Tennessee Agricultural Experiment Station

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PERFORMANCE TRIALS OF FIELD CROP VARIETIES

BY CHARLES R. GRAVES

University of Tennessee Agricultural Experiment Station

A. Ewing, Director

Knoxville
1964

PERFORMANCE TRIALS OF
FIELD CROP VARIETIES

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

Data for 1964 with Summaries of Results
from Previous Years
by
Charles R. Graves
Assistant Professor of Agronomy

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

Personnel:
Charles R. Graves, Assistant Professor of Agronomy.

Cooperators:
Joe W. High, Jr., Superintendent, Middle Tennessee Experiment Station, Spring Hill.
J. Hugh Felts, Superintendent, Tobacco Experiment Station, Greeneville.
B. P. Hazlewood, Superintendent, West Tennessee Experiment Station, Jackson.
O. G. Hall, Professor and Head, Department of Agriculture, U. T. Martin Branch, Martin.
J. A. Odom, Superintendent, Plateau Experiment Station, Crossville.
J. N. Odom, Superintendent of Farms, Main Experiment Station, Knoxville.
L. M. Safley, Superintendent, Highland Rim Experiment Station, Springfield.
E. W. Counce, Assistant Professor of Agronomy, U. T. Martin Branch, Martin.
E. N. Duncan, Assistant Professor of Agronomy, (Co-op. USDA), Cotton Field Station, Knoxville.
P. E. Hoskinson, Assistant Professor of Agronomy, Cotton Field Station, Knoxville.
L. J. Hoffbeck, Assistant Professor of Agronomy, (Co-op. USDA), Tobacco Experiment Station, Greeneville.
L. M. Josephson, Professor of Agronomy, (Co-op. USDA), Corn Breeder, Knoxville.
N. E. Justus, Associate Professor of Agronomy, (Co-op. USDA), Cotton Field Station, Knoxville.
H. C. Kincer, Assistant Professor of Agronomy, Knoxville.
D. H. Latham, Associate Professor of Plant Pathology, Springfield.
Joseph R. Overton, Assistant Professor of Agronomy, Jackson.
Smith Worley, Associate Professor of Agronomy, (Co-op. USDA), Knoxville.
Fort Pillow State Farm, Fort Pillow.
Roy Godwin, Rutledge.
Ames Plantation, Grand Junction.
Board of Cotton Examiners, USDA.

RECOMMENDED CROP VARIETIES
(Listed Alphabetically)

Corn Hybrids


Cotton

Early—Auburn M, Cobal¹, DeKalb 108, Dixie King II, Empire W. R. 61¹, Rex Smoothleaf, Stardel.

Late—Auburn 56, Carolina Queen, Deltapine Smooth Leaf¹, Stoneville 213, Stoneville 7A¹.

Oats—Fall-Seeded—Blount, Forkedeer.

Wheat—Knox, Knox 62, Monon, Seneca.

Barley—Dayton, Hudson, Kenbar.

Alfalfa—Atlantic, Buffalo, DuPuits¹, Narragansett, Williamsburg.

Soybeans—Dorman, Hill, Hood, Ogden, Lee.


¹Present plans indicate that these varieties will not be recommended after this year.
Burley Tobacco—Burley 1, Burley 11A, Burley 21, Burley 37, Kentucky 16.

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


Pearmillets — Gahi-1, Starr.

CHARACTERISTICS OF RECOMMENDED VARIETIES
(VARIETIES LISTED ALPHABETICALLY)

CORN HYBRIDS
White—Full Season

<table>
<thead>
<tr>
<th>Variety</th>
<th>Erect plants</th>
<th>Ears/100 plants</th>
<th>Grain Quality</th>
<th>Husk cover</th>
<th>Ear ht.</th>
<th>Grain moisture at harvest</th>
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<tbody>
<tr>
<td>Dixie 29</td>
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<td>126</td>
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Yellow—Full Season

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<th>Husk cover</th>
<th>Ear ht.</th>
<th>Grain moisture at harvest</th>
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White—Medium Season

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Yellow—Medium Season

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</table>

*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: Fair (UHM) length with average strength and fineness. Resistant to fusarium wilt.

Auburn 56—A late, medium-boll variety with a lint percentage of about 36 to 38. Fiber properties: Average (UHM) length with good strength and fineness. 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 are good. Resistant to fusarium wilt. Tall growth habit.

Cobal—A very early large-boll variety that is easy to hand pick. Lint percentage is about 35 to 37. Cobal has good fiber properties.

DeKalb 108—A strain-cross, medium-early variety that has medium to large bolls. Lint percentage 35 to 37. Good (UHM) length, fineness, and average strength. Resistant to fusarium wilt.

Deltapine Smooth Leaf—A late small-boll variety with a lint percentage of 37 to 39. Good fiber properties. It has been observed to have less seedling vigor than some of the other recommended varieties.

Dixie King II—A medium-early variety that has large bolls. Lint percentage 35 to 37. Good (UHM) length, fineness, and medium strength. Tolerant to fusarium wilt.

Empire W.R. 61—An early, large-boll variety with a lint percentage of about 35 to 37. The strength and length (UHM) have been average and the lint somewhat fine under Tennessee conditions. Resistant to fusarium wilt.

Rex Smoothleaf—An early, large-boll variety with a lint percentage of about 35 to 37. Fiber properties: Medium (UHM) length, and fair strength and fineness. 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: Medium (UHM) length, and good strength and fineness.

*Present plans indicate that these varieties will not be recommended after this year.*
Stoneville 213—A medium-late, small-boll variety with a lint percentage of 36 to 39. Fiber properties: Fair (UHM) length, and good strength and fineness.

Stoneville 7A—A late, small-boll variety with a lint percentage of 37 to 39. Fiber properties: Good (UHM) length, and fineness and fair strength.

Oats

Fall-Seeded:

Blount—A short, stiff-strawed variety slightly less winter-hardy than Forkedeer. Less lodging than LeConte and about equal in winter hardiness. Similar to LeConte in vegetative growth and appearance except that the panicle is slightly longer and more spreading. Has out-yielded most other varieties over a 5-year period. Maturity date falls between LeConte and Forkedeer. Due to its lodging resistance, Blount is suited to relatively-high levels of fertility.

Forkedeer—A very winter-hardy variety with yellow grain. Has a tendency to lodge under conditions of high fertility. Medium tall; matures a few days later than Victorgrain 48-93. Susceptible to crown rust.

Wheat

Knox—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 moderate 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 Hessian fly and 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.

Seneca—A red-chaffed variety of medium height and fair

1Present plans indicate that these varieties will not be recommended after this year.
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; one of the highest yielders in the state variety test. Susceptible to mildew and scald.

**Hudson**—A winter-hardy, rough-awned variety with fair standing ability. It is 2 to 3 days earlier than Holston. Good resistance to mildew and scald.

**Kenbar**—A winter-hardy variety of medium height. About the same maturity as Dayton. Yields slightly less than Dayton. Good resistance to mildew and fair resistance to scald.

**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.

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

**DuPuits**—A variety that has great eye appeal because of the tall growth and fast recovery after clipping. It matures faster and should be cut earlier than other recommended varieties. DuPuits is stemmier and not as long-lived as other recommended varieties.

**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. This variety has been the top yielder at the Plateau Experiment Station, Crossville. Seed is in short supply in Tennessee.

**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.

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

**Dorman**—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.

**Lee**—Matures approximately 1 week later than Ogden and resembles Ogden in general growth characteristics. 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, frogeye, and purple seed stain. Also it is supposed to be moderately resistant to target spot. The seed are yellow with a black hilum. Lee has a tendency to lodge under some conditions.

**Hill**—Hill matures about 2 days earlier than Dorman. This variety has more resistance to the major foliage diseases, lodging, and shattering than Dorman, 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, frogeye, and target leaf spot diseases. The seed are yellow with a buff hilum.

**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.

**Burley Tobacco**

**Burley 1**—An upright-leaf type variety which produces good yields of excellent quality tobacco. It has good resistance to black root rot, but does not have any resistance to other major tobacco diseases. This variety performs best when topped early and kept suckered.

**Burley 11-A**—A brittle, drooping leaf variety which has good
resistance to black shank, black root rot, and fusarium wilt. This variety will not yield as well as Burley 37, but has a little more resistance to black root rot and fusarium wilt. Burley 11-A is early-maturing and is often ready to harvest 1 week earlier than other varieties.

**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 black shank, excellent resistance to wildfire, and fair resistance to black root rot and fusarium wilt. This variety is recommended on farms where black shank is present. In the absence of black shank, Burley 37 will not yield as well as Burley 21, but is comparable in quality.

**Kentucky 16**—A semi-upright-leaf type variety which has fair resistance to black root rot, but does not have any resistance to other major tobacco diseases. In the absence of diseases it produced good yields of quality tobacco.

**Grain Sorghum Hybrids**

**DeKalb E-56A**—A few days later than Martin Milo. The hybrid has deep red seed on large open heads. Good standing ability.

**DeKalb F-63**—A variety of medium plant height, maturity, and head compactness.

**Frontier 400C**—A variety of medium maturity with heads tight in compactness.

**Lindsey 744**—A variety of early maturity with a medium to tight head in compactness.

**McCurdy 70**—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.

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1Present plans indicate that these varieties will not be recommended after this year.
P.A.G. 430—A variety of early maturity with heads of medium compactness.

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

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.

Sudangrass and Sudangrass-Sorghum Hybrids—Pearlmillets

For a description of some of the recommended varieties see The University of Tennessee, Agricultural Experiment Station, Bulletin 373.

PERFORMANCE TRIALS

OF

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

Data for 1964 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 1964 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 bottom of each table. At each location where tests were conducted in 1964, the soil types are reported at the end of the table.

CORN

The 1964 full-season corn variety tests were conducted at 4 locations and the early-maturing tests were conducted at 7 locations. There were 28 entries in the full-season test and 40 in the early-maturing test. The experimental design used was a randomized complete block with 6 replications.

Symptoms of a virus disease resembling those of corn stunt occurred at Knoxville, Fort Pillow, and in a non-replicated planting in Hardin Co. The percentage of diseased plants in these locations is shown in tables 9 and 10. It should be pointed out that these
are 1-year data only, and there is no assurance that hybrids having none or low percentage of diseased plants are resistant.

Dixie 29 and Pioneer 309A were 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 to yield 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.

Figure 1. Corn variety test, Knoxville, October 15, 1964. An example of poor quality corn. Note the damaged tips which were probably caused by poor husk cover.

The “State average yields” and characteristics of the hybrids tested in the early maturing group are presented in Table 2. “Erectness of plants” is a measure of a variety’s resistance or susceptibility to lodging. The higher the number, the better the standing ability of the hybrid. In 1964 very little lodging was noted at most locations due to early harvest dates and dry fall. “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 will have a rating of 120 to 150.

“Grain quality” and “Husk cover” are ratings taken at the time of harvest. Usually corn that has a good husk cover will have good grain quality. “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 variety and a low moisture indicates an earlier-maturing hybrid.

Data are presented in tables 1 through 10.
Table 1. Corn: Yields of 40 early-maturing hybrids tested at seven locations in 1964

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<th>Crossville</th>
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#### Experiments:

| W     | T1112               | 101        | 99          | 108       | 101        | 92      | 124         | 104         | 77     |
| W     | T1105               | 100        | 96          | 103       | 101        | 87      | 127         | 105         | 83     |
| W     | T1118               | 100        | 91          | 107       | 120        | 93      | 113         | 94          | 78     |
| Y     | T0044B              | 99         | 86          | 96        | 103        | 90      | 112         | 107         | 98     |

| L.S.D. (.05) | 11.2 | 11.1 | 13.0 | 11.7 | 12.5 | 12.3 | 12.1 |
| C.V. %    | 12.2 | 10.4 | 12.0 | 12.9 | 10.8 | 11.9 | 13.0 |

1Cumberland silt loam, (2% to 5% slopes),
2Huntsville silt loam, (2% to 5% slopes),
3Knoxville silt loam, (2% to 5% slopes),
4Cumberland silt loam, (0% to 2% slopes),
5Hermitage silt loam, (2% to 5% slopes),
6Knoxville silt loam, (2% to 5% slopes),
7Waynesboro loam, (2% to 5% slopes),
8Loring silt loam, (2% to 5% slopes),
9Sequatchie silt loam, (0% to 2% slopes),
10Collins silt loam, (0% to 2% slopes),
11Also included in test of full-season hybrids.
12SX—Denotes a single cross or special cross hybrid.
## Table 2. Corn: Characteristics of 40 early-maturing hybrids tested at seven locations in 1964

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<th>Color</th>
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<th>State avg. yield</th>
<th>Erect plants</th>
<th>Ears/100 plants</th>
<th>Grain quality</th>
<th>Husk cover</th>
<th>Ear ht.</th>
<th>Grain moisture at harvest</th>
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**Table 2.** (Continued)

Experimentals:

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* Also included in test of full-season hybrids.
SX—Denotes a single cross or a special cross hybrid.
### Table 3. Corn: Yield and other characteristics of early-maturing hybrids tested for 2 or 3 years

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<th>Erect plants</th>
<th>Ears/100 plants</th>
<th>Grain quality</th>
<th>Husk cover</th>
<th>Ear ht.</th>
<th>Grain moisture at harvest</th>
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*Also included in test of full-season hybrids.

SX—Denotes a single cross or a special cross hybrid.
Table 4. Corn: Yields of 14 early-maturing hybrids tested at each of seven locations for 2 or 3 years

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* Also included in test of full-season hybrids.

SX—Denotes a single cross or a special cross hybrid.
Table 5. Corn: Yields of 28 full-season hybrids tested at four locations in 1964

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C.V. — 9.4 13.7 11.8 10.3

²Sequatchie silt loam, (0% to 2% slopes).
²Collins silt loam, (2% to 5% slopes).
²Loring silt loam, (2% to 5% slopes).
²Maury silt loam, (2% to 5% slopes).
²Also included in test of early-maturing hybrids.
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*Also included in test of early-maturing hybrids.
Table 7. Corn: Yield and other characteristics of full-season hybrids tested for 2 or 3 years

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<th>Color</th>
<th>Hybrid</th>
<th>3 Yr. avg. 1962-1964 Bu./A.</th>
<th>2 Yr. avg. 1963-1964 Bu./A.</th>
<th>Erect plants %</th>
<th>Ears/100 plants No.</th>
<th>Grain quality</th>
<th>Husk cover</th>
<th>Ear ht. In.</th>
<th>Grain moisture at harvest %</th>
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<td>Good</td>
<td>57</td>
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<td>86</td>
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<td>89</td>
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<td>McCurdy M-97</td>
<td>—</td>
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</table>

**Experimental:**

| W     | T2108               | —                            | 101                         | 89             | 148                 | Med.-Good     | Med.-Good  | 60          | 23.5                        |

*Also included in test of early-maturing hybrids.*
Table 8. Corn: Yields of 12 full-season hybrids tested at four locations for 2 or 3 years

<table>
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<tr>
<th>Color</th>
<th>Hybrid</th>
<th>Knoxville 1962 &amp; '64</th>
<th>Fort Pillow 1962-64</th>
<th>Jackson 1962-64</th>
<th>Spring Hill 1962-64</th>
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<td>89</td>
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</tr>
<tr>
<td>W</td>
<td>Funk G-580W</td>
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<td>70</td>
<td>84</td>
<td>109</td>
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<tr>
<td>W</td>
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<td>75</td>
<td>80</td>
<td>110</td>
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<td>84</td>
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<td>80</td>
<td>101</td>
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*Also included in test of early-maturing hybrids.
Table 9. Corn: Percentages of plants showing virus disease symptoms similar to those described for corn stunt at 3 locations in 1964

Full-season hybrids

<table>
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<tr>
<th>Color</th>
<th>Variety</th>
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<th>Fort Pillow</th>
<th>Hardin Co.</th>
</tr>
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<tbody>
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Experimentals:

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<th>Hardin Co.</th>
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1Percentage included plants showing some degree of stunting without coloration in the leaves.
2Data furnished by L. M. Josephson, Professor of Agronomy (cooperative with USDA)
Table 10. Corn: Percentage of plants showing virus disease symptoms similar to those described for corn stunt at one location, Hardin Co., in 1964. Early maturing hybrids

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<th>Color</th>
<th>Variety</th>
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<td>Funk's G-4703</td>
<td>52.4</td>
<td>Y</td>
<td>Princeton 8-X</td>
<td>78.0</td>
<td>Y</td>
<td>Asgrow 100</td>
<td>77.8</td>
</tr>
<tr>
<td>Y</td>
<td>DeKalb 805</td>
<td>72.2</td>
<td>Y</td>
<td>Princeton SX-800</td>
<td>89.7</td>
<td>Y</td>
<td>Watson 401A</td>
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<td>Y</td>
<td>DeKalb 822</td>
<td>43.9</td>
<td>Y</td>
<td>Horn's HS 650</td>
<td>88.2</td>
<td>Y</td>
<td>V.P.I. 646</td>
<td>41.2</td>
</tr>
<tr>
<td>W</td>
<td>DeKalb 925</td>
<td>52.4</td>
<td>Y</td>
<td>Horn's HS 654</td>
<td>67.6</td>
<td>Y</td>
<td>V.P.I. 648</td>
<td>51.2</td>
</tr>
<tr>
<td>W</td>
<td>P.A.G. 633</td>
<td>2.8</td>
<td>Y</td>
<td>Horn's HS 118A</td>
<td>70.0</td>
<td>Y</td>
<td>V.P.I. 648</td>
<td>51.2</td>
</tr>
</tbody>
</table>

1Data furnished by L. M. Josephson, Professor of Agronomy (Cooperative with USDA).
COTTON

The 1964 cotton variety tests were conducted in cooperation with the U. S. Department of Agriculture at Knoxville, Jackson, Ames Plantation, and Fort Pillow. Each test consisted of 21 entries in a randomized complete block design with 8 replications. Plots were 2 rows 35 feet long.

Two 160 boll samples (20 bolls at random from each replication) were taken from each variety before first picking. These samples were used to obtain Gin, Seed, and Fiber data. Yield and other characteristics of the varieties are presented in tables 11 through 20. 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. The upper half mean length, micronaire fineness reading, and fiber strength ($T_1$) are presented in tables 15 through 20. Upper half mean

Figure 2. A photo of two early-maturing cotton varieties: left, Auburn M; right, T-56-210. Ames Plantation, October 7, 1964.
length is measured on the Fibrograph and is closely correlated with staple length.

The micronaire reading is a relative measure of the fineness of the fiber. Higher readings indicate course fiber and low readings indicate fine fiber.

The fiber strength (T₁) is measured on the stelometer. Higher 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 11. Cotton: Yield of lint per acre of varieties tested in 1964

<table>
<thead>
<tr>
<th>Variety</th>
<th>State¹ avg.</th>
<th>Jackson²</th>
<th>Fort Pillow²</th>
<th>Plantation</th>
<th>Knoxville²</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Lint pounds per acre</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Auburn M</td>
<td>1056</td>
<td>1279</td>
<td>874</td>
<td>1015</td>
<td>1060</td>
</tr>
<tr>
<td>Stordel</td>
<td>1037</td>
<td>1273</td>
<td>876</td>
<td>962</td>
<td>1069</td>
</tr>
<tr>
<td>Dixie King II</td>
<td>1022</td>
<td>1291</td>
<td>932</td>
<td>844</td>
<td>1085</td>
</tr>
<tr>
<td>Auburn 56</td>
<td>997</td>
<td>1273</td>
<td>836</td>
<td>882</td>
<td>1004</td>
</tr>
<tr>
<td>Cobal</td>
<td>987</td>
<td>1120</td>
<td>964</td>
<td>878</td>
<td>1057</td>
</tr>
<tr>
<td>Deltapine 45</td>
<td>977</td>
<td>1218</td>
<td>894</td>
<td>819</td>
<td>1022</td>
</tr>
<tr>
<td>Stoneville 213</td>
<td>974</td>
<td>1268</td>
<td>827</td>
<td>828</td>
<td>1028</td>
</tr>
<tr>
<td>Rex Smoothleaf</td>
<td>973</td>
<td>1267</td>
<td>815</td>
<td>837</td>
<td>1064</td>
</tr>
<tr>
<td>Stoneville 7A</td>
<td>951</td>
<td>1284</td>
<td>720</td>
<td>850</td>
<td>982</td>
</tr>
<tr>
<td>DeKalb 220</td>
<td>943</td>
<td>1215</td>
<td>781</td>
<td>832</td>
<td>1004</td>
</tr>
<tr>
<td>DeKalb 108</td>
<td>915</td>
<td>1173</td>
<td>778</td>
<td>793</td>
<td>1096</td>
</tr>
<tr>
<td>Empire W.R. 61</td>
<td>890</td>
<td>1082</td>
<td>830</td>
<td>757</td>
<td>1073</td>
</tr>
<tr>
<td>Coker 100A (WR)</td>
<td>856</td>
<td>1206</td>
<td>667</td>
<td>694</td>
<td>979</td>
</tr>
<tr>
<td>Carolina Queen</td>
<td>845</td>
<td>1100</td>
<td>680</td>
<td>754</td>
<td>1083</td>
</tr>
<tr>
<td>Deltapine Smooth Leaf</td>
<td>843</td>
<td>1059</td>
<td>676</td>
<td>795</td>
<td>965</td>
</tr>
</tbody>
</table>

Experiments:

<table>
<thead>
<tr>
<th>Variety</th>
<th>L. S. D (0.05)</th>
<th>C. V. %</th>
</tr>
</thead>
<tbody>
<tr>
<td>T-59-134</td>
<td>1136</td>
<td>1316</td>
</tr>
<tr>
<td>T-56-210</td>
<td>1048</td>
<td>1306</td>
</tr>
<tr>
<td>T-58-169</td>
<td>1020</td>
<td>1259</td>
</tr>
<tr>
<td>B-57-478</td>
<td>1003</td>
<td>1191</td>
</tr>
<tr>
<td>Emp. Der. K8</td>
<td>999</td>
<td>1234</td>
</tr>
<tr>
<td>AHA Der. K 7</td>
<td>845</td>
<td>1048</td>
</tr>
</tbody>
</table>

¹Knoxville data not included in state average.
²Memphis and Grenada silt loam, (0% to 2% slopes).
³Morganfield and Adler silt loam, (0% to 2% slopes).
⁴Loring silt loam, (2% to 5% slopes).
⁵Cumberland clay loam, eroded, (5% to 8% slopes).
Table 12. Cotton: Characteristics of 21 cotton varieties tested at three locations in 1964

<table>
<thead>
<tr>
<th>Variety</th>
<th>State avg. yield</th>
<th>Percent lint</th>
<th>Bolls per lb.</th>
<th>Percent total yield at 1st picking</th>
<th>Earliness index</th>
</tr>
</thead>
<tbody>
<tr>
<td>Auburn M</td>
<td>1056</td>
<td>35.3%</td>
<td>63%</td>
<td>72%</td>
<td>100%</td>
</tr>
<tr>
<td>Stardel</td>
<td>1037</td>
<td>37.0%</td>
<td>75%</td>
<td>70%</td>
<td>95%</td>
</tr>
<tr>
<td>Dixie King II</td>
<td>1022</td>
<td>36.4%</td>
<td>57%</td>
<td>67%</td>
<td>90%</td>
</tr>
<tr>
<td>Auburn 56</td>
<td>997</td>
<td>34.8%</td>
<td>66%</td>
<td>67%</td>
<td>87%</td>
</tr>
<tr>
<td>Cobal</td>
<td>987</td>
<td>34.6%</td>
<td>60%</td>
<td>78%</td>
<td>102%</td>
</tr>
<tr>
<td>Deltapine 45</td>
<td>977</td>
<td>36.3%</td>
<td>74%</td>
<td>69%</td>
<td>88%</td>
</tr>
<tr>
<td>Stoneville 213</td>
<td>974</td>
<td>35.7%</td>
<td>72%</td>
<td>62%</td>
<td>79%</td>
</tr>
<tr>
<td>Rex Smoothleaf</td>
<td>973</td>
<td>34.4%</td>
<td>62%</td>
<td>72%</td>
<td>91%</td>
</tr>
<tr>
<td>Stoneville 7A</td>
<td>951</td>
<td>36.2%</td>
<td>71%</td>
<td>64%</td>
<td>78%</td>
</tr>
<tr>
<td>DeKalb 220</td>
<td>943</td>
<td>34.9%</td>
<td>64%</td>
<td>64%</td>
<td>78%</td>
</tr>
<tr>
<td>DeKalb 108</td>
<td>915</td>
<td>34.7%</td>
<td>64%</td>
<td>63%</td>
<td>75%</td>
</tr>
<tr>
<td>Empire W.R. 61</td>
<td>890</td>
<td>34.0%</td>
<td>56%</td>
<td>68%</td>
<td>81%</td>
</tr>
<tr>
<td>Coker 100A (WR)</td>
<td>856</td>
<td>35.0%</td>
<td>69%</td>
<td>59%</td>
<td>65%</td>
</tr>
<tr>
<td>Carolina Queen</td>
<td>845</td>
<td>35.6%</td>
<td>67%</td>
<td>59%</td>
<td>64%</td>
</tr>
<tr>
<td>Deltapine Smooth Leaf</td>
<td>843</td>
<td>36.4%</td>
<td>76%</td>
<td>64%</td>
<td>70%</td>
</tr>
</tbody>
</table>

**Experimentals:**
- T-59-134: 1136 37.6% 62 74 111
- T-56-210: 1048 35.3% 62 75 102
- T-58-169: 1020 34.9% 62 71 94
- B-57-478: 1003 34.5% 64 76 99
- Emp. Der. K8: 999 34.4% 60 74 96
- AHA Der. K7: 845 32.7% 64 65 72

1Knoxville data not included in this table.
2Earliness index is the lint yield at first picking of each variety expressed as a percentage of the lint yield of Auburn M at first picking.
Table 13. Cotton: Yield and other characteristics of varieties tested for 3 years 1962-64

<table>
<thead>
<tr>
<th>Variety</th>
<th>Average</th>
<th>Percent lint</th>
<th>Bolls per lb.</th>
<th>Percent total yield at 1st picking</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Lint lb./A.</td>
<td>%</td>
<td>No.</td>
<td>%</td>
</tr>
<tr>
<td>Auburn M</td>
<td>1027</td>
<td>36.8</td>
<td>67</td>
<td>79</td>
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<tr>
<td>Stardel</td>
<td>984</td>
<td>38.3</td>
<td>79</td>
<td>78</td>
</tr>
<tr>
<td>Dixie King II</td>
<td>963</td>
<td>36.9</td>
<td>58</td>
<td>72</td>
</tr>
<tr>
<td>Stoneville 213</td>
<td>956</td>
<td>38.4</td>
<td>76</td>
<td>72</td>
</tr>
<tr>
<td>Auburn 56</td>
<td>948</td>
<td>35.9</td>
<td>70</td>
<td>73</td>
</tr>
<tr>
<td>Stoneville 7A</td>
<td>923</td>
<td>38.3</td>
<td>75</td>
<td>69</td>
</tr>
<tr>
<td>Carolina Queen</td>
<td>921</td>
<td>38.0</td>
<td>70</td>
<td>69</td>
</tr>
<tr>
<td>DeKalb 108</td>
<td>917</td>
<td>36.2</td>
<td>66</td>
<td>71</td>
</tr>
<tr>
<td>DeKalb 220</td>
<td>916</td>
<td>37.1</td>
<td>68</td>
<td>74</td>
</tr>
<tr>
<td>Coker 100A (WR)</td>
<td>916</td>
<td>37.1</td>
<td>72</td>
<td>68</td>
</tr>
<tr>
<td>Rex Smoothleaf</td>
<td>910</td>
<td>36.4</td>
<td>65</td>
<td>80</td>
</tr>
<tr>
<td>Cobal</td>
<td>902</td>
<td>36.0</td>
<td>63</td>
<td>84</td>
</tr>
<tr>
<td>Empire W.R. 61</td>
<td>874</td>
<td>35.8</td>
<td>58</td>
<td>75</td>
</tr>
<tr>
<td>Deltapine Smooth Leaf</td>
<td>867</td>
<td>38.4</td>
<td>78</td>
<td>70</td>
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</table>

Experimentals:

<table>
<thead>
<tr>
<th>Variety</th>
<th>Average</th>
<th>Percent lint</th>
<th>Bolls per lb.</th>
<th>Percent total yield at 1st picking</th>
</tr>
</thead>
<tbody>
<tr>
<td>T-56-210</td>
<td>988</td>
<td>37.2</td>
<td>66</td>
<td>82</td>
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</tbody>
</table>

Knoxville data not included in this table. Tested in 1962 and 1963 as Dixie King.

Table 14. Cotton: Average yield for varieties tested for 3 years 1962-64

<table>
<thead>
<tr>
<th>Variety</th>
<th>3 Yr. avg. 1962-64</th>
<th>Jackson</th>
<th>Fort Pillow</th>
<th>Ames Plantation</th>
<th>Knoxville</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Lint pounds per acre</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Auburn M</td>
<td>1027</td>
<td>1023</td>
<td>1065</td>
<td>977</td>
<td>880</td>
</tr>
<tr>
<td>Stardel</td>
<td>984</td>
<td>976</td>
<td>1033</td>
<td>922</td>
<td>869</td>
</tr>
<tr>
<td>Dixie King II</td>
<td>963</td>
<td>989</td>
<td>1046</td>
<td>799</td>
<td>812</td>
</tr>
<tr>
<td>Stoneville 213</td>
<td>956</td>
<td>982</td>
<td>1016</td>
<td>828</td>
<td>839</td>
</tr>
<tr>
<td>Auburn 56</td>
<td>948</td>
<td>937</td>
<td>1005</td>
<td>880</td>
<td>814</td>
</tr>
<tr>
<td>Stoneville 7A</td>
<td>923</td>
<td>978</td>
<td>935</td>
<td>823</td>
<td>814</td>
</tr>
<tr>
<td>Carolina Queen</td>
<td>921</td>
<td>931</td>
<td>1007</td>
<td>778</td>
<td>853</td>
</tr>
<tr>
<td>DeKalb 108</td>
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<td>899</td>
<td>983</td>
<td>844</td>
<td>853</td>
</tr>
<tr>
<td>DeKalb 220</td>
<td>916</td>
<td>926</td>
<td>965</td>
<td>828</td>
<td>813</td>
</tr>
<tr>
<td>Coker 100A (WR)</td>
<td>916</td>
<td>921</td>
<td>994</td>
<td>793</td>
<td>815</td>
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<td>774</td>
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</tr>
<tr>
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<td>902</td>
<td>866</td>
<td>990</td>
<td>826</td>
<td>779</td>
</tr>
<tr>
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<td>940</td>
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Experimentals:

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<th>Variety</th>
<th>Average</th>
<th>Percent lint</th>
<th>Bolls per lb.</th>
<th>Percent total yield at 1st picking</th>
</tr>
</thead>
<tbody>
<tr>
<td>T-56-210</td>
<td>988</td>
<td>967</td>
<td>1039</td>
<td>943</td>
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</table>

Knoxville data not included in average. Two years data only. Tested in 1962 and 1963 as Dixie King.
Table 15. Cotton: Upper Half Mean (UHM) Fiber Length (in Inches) of varieties tested in 1963

<table>
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</tr>
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<td>1.14</td>
<td>1.12</td>
<td>1.18</td>
</tr>
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<td>1.10</td>
<td>1.04</td>
<td>1.14</td>
<td>1.12</td>
<td>1.18</td>
</tr>
<tr>
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<td>1.05</td>
<td>1.14</td>
<td>1.11</td>
<td>1.18</td>
</tr>
<tr>
<td>DeKalb 220</td>
<td>1.08</td>
<td>1.01</td>
<td>1.14</td>
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<td>1.14</td>
</tr>
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<td>Cobal</td>
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<td>1.02</td>
<td>1.12</td>
<td>1.11</td>
<td>1.18</td>
</tr>
<tr>
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<td>1.02</td>
<td>1.14</td>
<td>1.06</td>
<td>1.16</td>
</tr>
<tr>
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<td>1.02</td>
<td>1.11</td>
<td>1.08</td>
<td>1.16</td>
</tr>
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<td>Deltapine Smooth Leaf</td>
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<td>1.04</td>
<td>1.12</td>
<td>1.04</td>
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<td>1.06</td>
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</tr>
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<td>1.00</td>
<td>1.15</td>
<td>1.08</td>
<td>1.16</td>
</tr>
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<td>1.03</td>
<td>1.08</td>
<td>1.05</td>
<td>1.14</td>
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<td>1.11</td>
<td>1.06</td>
<td>1.14</td>
</tr>
<tr>
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<td>1.00</td>
<td>1.10</td>
<td>1.09</td>
<td>1.16</td>
</tr>
<tr>
<td>Dixie King</td>
<td>1.06</td>
<td>1.00</td>
<td>1.12</td>
<td>1.07</td>
<td>1.14</td>
</tr>
<tr>
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<td>1.10</td>
<td>1.05</td>
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</tbody>
</table>

Experimentals:

<table>
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<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Emp. Der. K8</td>
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<td>1.00</td>
<td>1.12</td>
<td>1.10</td>
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1Knoxville data not included in Average.

Table 16. Cotton: Upper Half Mean (UHM) Fiber Length (in Inches) of varieties tested from 1961-63

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<td>1.19</td>
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1Does not include the Knoxville data, but is an average of the fiber strength of individual years at the 3 locations in West Tennessee.
2Tested in 1961 as Empire W. R.
3Tested in 1961 as Stoneville 7.
4Tested in 1961 and 1962 as Hex.
### Table 17. Cotton: Fiber fineness of varieties tested in 1963  
(Micronaire Reading)

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<th>Variety</th>
<th>Average&lt;sup&gt;1&lt;/sup&gt;</th>
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<th>Fort Pillow 1963</th>
<th>Ames Plantation 1963</th>
<th>Knoxville 1963</th>
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<td>4.43</td>
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<td>4.95</td>
<td>4.76</td>
<td>5.00</td>
<td>4.40</td>
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<td>4.96</td>
<td>4.52</td>
<td>4.80</td>
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<td>4.92</td>
<td>4.52</td>
<td>4.79</td>
<td>4.22</td>
</tr>
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<td>4.79</td>
<td>4.62</td>
<td>4.82</td>
<td>4.29</td>
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<td>4.58</td>
<td>4.39</td>
<td>4.79</td>
<td>4.20</td>
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<td>4.69</td>
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<td>4.34</td>
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<td>4.33</td>
<td>4.44</td>
<td>4.06</td>
</tr>
<tr>
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<td>4.48</td>
<td>4.28</td>
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<td>4.10</td>
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<td>4.26</td>
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**Experiments:**

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<sup>1</sup>Knoxville data not included in average.

### Table 18. Cotton: Fiber fineness of varieties tested from 1961-63  
(Micronaire Reading)

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<td>3.76</td>
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<td>4.02</td>
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**Experiments:**

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<sup>1</sup>Does not include the Knoxville data, but is an average of the fiber fineness of individual years at the 3 locations in West Tennessee.

<sup>2</sup>Tested in 1961 as Stoneville 7.

<sup>3</sup>Tested in 1961 as Empire W. R.
Table 19. Cotton: Fiber Strength, T1, as Measured on the Stelometer of Varieties Tested in 1963.

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**Experimentals:**

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1Knoxville data not included in average.

Table 20. Cotton: Fiber strength, T1, as measured on the Stelometer of varieties tested from 1961-63.

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<td>1.66</td>
<td>1.72</td>
<td>1.81</td>
<td>1.74</td>
</tr>
</tbody>
</table>

**Experimentals:**

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>T-56-210</td>
<td>1.85</td>
<td>1.84</td>
<td>1.84</td>
<td>1.92</td>
<td>1.90</td>
</tr>
<tr>
<td>T-56-312</td>
<td>1.78</td>
<td>1.72</td>
<td>1.78</td>
<td>1.94</td>
<td>1.85</td>
</tr>
</tbody>
</table>

1Does not include the Knoxville data, but is an average of the fiber strength of individual years at the 3 locations in West Tennessee.

2Tested in 1961 as Empire W. R.
3Tested in 1960 as Stoneville 7.
4Tested in 1961 and 1962 as Rex.
FALL-SEEDED SMALL GRAIN

Generally good yields of small-grains were obtained over the state in 1964. Carolee oat suffered severe winter kill at Crossville, and this can be seen in Figure 3. The Carolee stand at Knoxville was reduced some by winter injury.

No 1964 oat yield data are reported from Greeneville, because of inadequate stands obtained due to dry weather at the time of seeding.

Very little winter injury was noted on the barley and wheat. A summary of the disease injury to small grain is presented in tables 30 through 32.

Figure 3. Oat variety test, Crossville, April 6, 1964. Note winterkill of Carolee as compared with Forkedeer.
Table 21. Fall-seeded oats: Yield summary of varieties tested in 1964

<table>
<thead>
<tr>
<th>Variety</th>
<th>State avg. 1962-64</th>
<th>Knox-ville²</th>
<th>Crossville²</th>
<th>Spring Hill²</th>
<th>Jackson²</th>
<th>Springfield²</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blount</td>
<td>75</td>
<td>89</td>
<td>139</td>
<td>98</td>
<td>68</td>
<td>114</td>
</tr>
<tr>
<td>LeConte</td>
<td>67</td>
<td>88</td>
<td>125</td>
<td>80</td>
<td>50</td>
<td>105</td>
</tr>
<tr>
<td>Forkedeer</td>
<td>66</td>
<td>80</td>
<td>47</td>
<td>91</td>
<td>53</td>
<td>103</td>
</tr>
<tr>
<td>Corolee</td>
<td>89</td>
<td>70</td>
<td>70</td>
<td>89</td>
<td>92</td>
<td>126</td>
</tr>
<tr>
<td></td>
<td>Experimentals:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tenn. 60-32</td>
<td>79</td>
<td>101</td>
<td>129</td>
<td>98</td>
<td>91</td>
<td>113</td>
</tr>
<tr>
<td>Tenn. 59-19</td>
<td>66</td>
<td>91</td>
<td>114</td>
<td>77</td>
<td>83</td>
<td>117</td>
</tr>
<tr>
<td>Tenn. 61-231</td>
<td>105</td>
<td>79</td>
<td>132</td>
<td>107</td>
<td>93</td>
<td>114</td>
</tr>
<tr>
<td>Tenn. 61-229</td>
<td>104</td>
<td>87</td>
<td>129</td>
<td>104</td>
<td>88</td>
<td>115</td>
</tr>
<tr>
<td>Tenn. 61-224</td>
<td>96</td>
<td>74</td>
<td>127</td>
<td>83</td>
<td>76</td>
<td>121</td>
</tr>
<tr>
<td>Tenn. 61-221</td>
<td>90</td>
<td>72</td>
<td>114</td>
<td>95</td>
<td>66</td>
<td>101</td>
</tr>
<tr>
<td>L.S.D. (.05)</td>
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<td></td>
<td>6.5</td>
<td>21.2</td>
<td>10.7</td>
<td>15.6</td>
</tr>
<tr>
<td>C.V. %</td>
<td></td>
<td></td>
<td>5.1</td>
<td>12.3</td>
<td>8.0</td>
<td>14.2</td>
</tr>
</tbody>
</table>

¹Does not include Greeneville data.  
²Cumberland loam, eroded (2% to 5% slopes).  
³Hartwell loam, eroded (2% to 5% slopes).  
⁴Maury silt loam, eroded (2% to 5% slopes).
Table 22. Fall-seeded oats: Yield summary of varieties tested at 5 locations for 3 years, 1962-64

<table>
<thead>
<tr>
<th>Variety</th>
<th>Average</th>
<th>Knoxville</th>
<th>Crossville</th>
<th>Springfield</th>
<th>Spring</th>
<th>Hill</th>
<th>Jackson</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Bushels per acre</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Blount</td>
<td>75</td>
<td>58</td>
<td>96</td>
<td>94</td>
<td>82</td>
<td>46</td>
<td></td>
</tr>
<tr>
<td>LeConte</td>
<td>67</td>
<td>51</td>
<td>92</td>
<td>82</td>
<td>69</td>
<td>40</td>
<td></td>
</tr>
<tr>
<td>Forkedeer</td>
<td>66</td>
<td>39</td>
<td>84</td>
<td>86</td>
<td>77</td>
<td>44</td>
<td></td>
</tr>
</tbody>
</table>

**Experimentals:***

<table>
<thead>
<tr>
<th>Variety</th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Tenn. 59-19</td>
<td>66</td>
<td>43</td>
<td>80</td>
<td>90</td>
<td>67</td>
<td>52</td>
<td></td>
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<tr>
<td>Tenn. 60-32</td>
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<td>51</td>
<td>102</td>
<td>98</td>
<td>88</td>
<td>59</td>
<td></td>
</tr>
</tbody>
</table>

Table 23. Fall-seeded oats: Characteristics of varieties

<table>
<thead>
<tr>
<th>Variety</th>
<th>Standing ability</th>
<th>Relative maturity</th>
<th>Plant height in inches, 1964</th>
<th>Test weight 1964</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blount</td>
<td>Good</td>
<td>Med.-Late</td>
<td>45</td>
<td>34</td>
</tr>
<tr>
<td>LeConte</td>
<td>Good</td>
<td>Late</td>
<td>46</td>
<td>35</td>
</tr>
<tr>
<td>Forkedeer</td>
<td>Poor</td>
<td>Med.</td>
<td>48</td>
<td>34</td>
</tr>
<tr>
<td>Corolee</td>
<td>Fair</td>
<td>Early</td>
<td>45</td>
<td>32</td>
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</table>

**Experimentals:***

<table>
<thead>
<tr>
<th>Variety</th>
<th>Standing ability</th>
<th>Relative maturity</th>
<th>Plant height in inches, 1964</th>
<th>Test weight 1964</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tenn. 59-19</td>
<td>Fair</td>
<td>Early</td>
<td>44</td>
<td>35</td>
</tr>
<tr>
<td>Tenn. 60-32</td>
<td>Fair</td>
<td>Med.-Late</td>
<td>43</td>
<td>34</td>
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<tr>
<td>Tenn. 61-229</td>
<td>Good</td>
<td>Late</td>
<td>46</td>
<td>36</td>
</tr>
<tr>
<td>Tenn. 61-231</td>
<td>Fair</td>
<td>Med.</td>
<td>44</td>
<td>35</td>
</tr>
<tr>
<td>Tenn. 61-224</td>
<td>Good</td>
<td>Early</td>
<td>47</td>
<td>36</td>
</tr>
<tr>
<td>Tenn. 61-221</td>
<td>Fair</td>
<td>Early</td>
<td>46</td>
<td>34</td>
</tr>
</tbody>
</table>
Table 24. Wheat: Yield summary of varieties tested in 1964

<table>
<thead>
<tr>
<th>Variety</th>
<th>State avg. 1962-64</th>
<th>Greeneville</th>
<th>Knoxville</th>
<th>Crossville</th>
<th>Spring Hill</th>
<th>Jackson</th>
<th>Springfield</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monon</td>
<td>45</td>
<td>47</td>
<td>56</td>
<td>36</td>
<td>68</td>
<td>34</td>
<td>39</td>
</tr>
<tr>
<td>Seneca</td>
<td>43</td>
<td>40</td>
<td>35</td>
<td>31</td>
<td>63</td>
<td>30</td>
<td>33</td>
</tr>
<tr>
<td>Knox</td>
<td>42</td>
<td>42</td>
<td>57</td>
<td>33</td>
<td>36</td>
<td>36</td>
<td>36</td>
</tr>
<tr>
<td>Duel</td>
<td>40</td>
<td>40</td>
<td>39</td>
<td>37</td>
<td>50</td>
<td>35</td>
<td>36</td>
</tr>
<tr>
<td>Knox 62</td>
<td>40</td>
<td>40</td>
<td>39</td>
<td>30</td>
<td>51</td>
<td>34</td>
<td>34</td>
</tr>
<tr>
<td>Reed</td>
<td>45</td>
<td>45</td>
<td>53</td>
<td>40</td>
<td>61</td>
<td>34</td>
<td>40</td>
</tr>
<tr>
<td>Triumph²</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
</tbody>
</table>

Experimentals:
- Tenn. 60-23 _ 46  | 48         | 45         | 36        | 71         | 38          | 40      | 36          | 55          |
- Tenn. 60-18 _ 41  | 42         | 50         | 30        | 64         | 36          | 36      | 36          | 46          |
- Tenn. 61-330    | 41         | 40         | 34        | 60         | 32          | 35      | 35          | 46          |
- Tenn. 61-35    | 37         | 38         | 32        | 40         | 33          | 41      | 40          | 38          |

L.S.D. (0.05)    | —          | 8.5        | 5.1       | 19.2       | N.S.        | N.S.    | 3.6         |
C.V %           | —          | 13.0       | 8.7       | 23.5       | 11.0        | 10.9    | 5.5         |

¹Cumberland silt loam, eroded (5% to 12% slopes) and Hermitage silt loam, eroded (2% to 5% slopes).
²Cumberland loam, eroded (2% to 5% slopes).
³Hartsells loam, eroded (2% to 5% slopes).
⁴Maury silt loam, eroded (2% to 5% slopes).
⁵Memphis silt loam, (0% to 2% slopes).
⁶Dickson silt loam, eroded (2% to 5% slopes).
⁷Hard red winter wheat included for comparison.

Table 25. Wheat: Yield summary of varieties tested at 5 locations for 3 years, 1962-64

<table>
<thead>
<tr>
<th>Variety</th>
<th>Average</th>
<th>Knoxville</th>
<th>Crossville</th>
<th>Springfield</th>
<th>Spring Hill</th>
<th>Jackson</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monon</td>
<td>44</td>
<td>36</td>
<td>51</td>
<td>44</td>
<td>43</td>
<td>45</td>
</tr>
<tr>
<td>Seneca</td>
<td>44</td>
<td>34</td>
<td>57</td>
<td>47</td>
<td>42</td>
<td>37</td>
</tr>
<tr>
<td>Knox</td>
<td>40</td>
<td>36</td>
<td>41</td>
<td>42</td>
<td>42</td>
<td>42</td>
</tr>
<tr>
<td>Dual</td>
<td>39</td>
<td>36</td>
<td>46</td>
<td>40</td>
<td>41</td>
<td>34</td>
</tr>
<tr>
<td>Triumph²</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>34</td>
<td>—</td>
<td>—</td>
</tr>
</tbody>
</table>

Experimentals:
- Tenn. 60-23 _ 45  | 45         | 35        | 59         | 49          | 45          | 38      |
- Tenn. 60-18 _ 40  | 40         | 32        | 54         | 37          | 39          | 36      |

¹Hard red winter wheat included for comparison.
### Table 26. Wheat: Characteristics of varieties

<table>
<thead>
<tr>
<th>Variety</th>
<th>Standing ability</th>
<th>Relative maturity</th>
<th>Plant height in inches, 1964</th>
<th>Test weight 1964</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monon</td>
<td>Fair</td>
<td>V. Early</td>
<td>45</td>
<td>56</td>
</tr>
<tr>
<td>Seneca</td>
<td>Good</td>
<td>Med.-Late</td>
<td>52</td>
<td>55</td>
</tr>
<tr>
<td>Knox</td>
<td>Poor</td>
<td>V. Early</td>
<td>46</td>
<td>55</td>
</tr>
<tr>
<td>Dual</td>
<td>Good</td>
<td>Late</td>
<td>50</td>
<td>54</td>
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<tr>
<td>Knox 62</td>
<td>Poor</td>
<td>V. Early</td>
<td>45</td>
<td>56</td>
</tr>
<tr>
<td>Reed</td>
<td>V. Good</td>
<td>Late</td>
<td>49</td>
<td>56</td>
</tr>
<tr>
<td>Triumph1</td>
<td>Fair</td>
<td>Early</td>
<td>45</td>
<td>—</td>
</tr>
</tbody>
</table>

**Experimentals:**
- Tenn. 60-23: Good, Late, 52, 57
- Tenn. 60-18: Fair, Med.-Late, 50, 55
- Tenn. 61-35: Fair, Med.-Late, 52, 54
- Tenn. 61-330: Good, Med.-Late, 52, 55

1Hard red winter wheat tested at one location, Springfield.

### Table 27: Barley: Yield summary of varieties tested in 1964

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Dayton</td>
<td>62</td>
<td>70</td>
<td>75</td>
<td>53</td>
<td>93</td>
<td>59</td>
<td>50</td>
<td>91</td>
</tr>
<tr>
<td>Hudson</td>
<td>62</td>
<td>63</td>
<td>67</td>
<td>48</td>
<td>95</td>
<td>50</td>
<td>35</td>
<td>85</td>
</tr>
<tr>
<td>Kenbar</td>
<td>54</td>
<td>—</td>
<td>57</td>
<td>45</td>
<td>43</td>
<td>52</td>
<td>28</td>
<td>80</td>
</tr>
<tr>
<td>Wade</td>
<td>67</td>
<td>78</td>
<td>57</td>
<td>57</td>
<td>90</td>
<td>62</td>
<td>23</td>
<td>94</td>
</tr>
<tr>
<td>Pennrad</td>
<td>61</td>
<td>77</td>
<td>50</td>
<td>74</td>
<td>48</td>
<td>48</td>
<td>28</td>
<td>87</td>
</tr>
<tr>
<td>Rogers</td>
<td>61</td>
<td>64</td>
<td>46</td>
<td>112</td>
<td>48</td>
<td>32</td>
<td>65</td>
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</tr>
</tbody>
</table>

**Experimentals:**
- Tenn. 59-15: 62, 69, 60, 57, 94, 60, 50, 93
- Tenn. 60-19: 57, 66, 71, 51, 94, 54, 47, 77
- Tenn. 61-119: 70, 70, 54, 95, 64, 46, 90
- Tenn. 61-116: 68, 60, 57, 99, 64, 42, 85
- Tenn. 61-113: 67, 54, 56, 104, 62, 44, 83

| L.S.D. (.05) | — | — | 8.5 | 7.6 | 10.6 | 8.2 | 8.6 | 6.5 |
| C. V. % | — | — | 8.8 | 10.1 | 8.2 | 10.1 | 15.4 | 5.3 |

1Cumberland silt loam, eroded (5% to 12% slopes).
2Cumberland loam, eroded (2% to 5% slopes).
3Hartsells loam, eroded (2% to 5% slopes).
4Huntington silt loam, (0% to 2% slopes).
5Loring silt loam, (0% to 2% slopes).
6Grenada silt loam (0% to 2% slopes), and Dexter loam (2% to 5% slopes).
7Dickson silt loam, eroded (2% to 5% slopes).
Table 28. Barley: Yield summary of varieties tested at 6 locations for 3 years, 1962-64

<table>
<thead>
<tr>
<th>Variety</th>
<th>Average Bushels per acre</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Greenville</td>
</tr>
<tr>
<td>Dayton</td>
<td>62</td>
</tr>
<tr>
<td>Hudson</td>
<td>62</td>
</tr>
<tr>
<td>Kenbar</td>
<td>54</td>
</tr>
<tr>
<td><strong>Experimentals:</strong></td>
<td></td>
</tr>
<tr>
<td>Tenn. 59-15</td>
<td>62</td>
</tr>
<tr>
<td>Tenn. 60-19</td>
<td>57</td>
</tr>
</tbody>
</table>

Table 29. Barley: Characteristics of varieties

<table>
<thead>
<tr>
<th>Variety</th>
<th>Standing ability</th>
<th>Relative Maturity</th>
<th>Plant height in inches 1964</th>
<th>Test weight 1964</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dayton</td>
<td>Good</td>
<td>Early</td>
<td>39</td>
<td>46</td>
</tr>
<tr>
<td>Hudson</td>
<td>Fair</td>
<td>Late</td>
<td>43</td>
<td>51</td>
</tr>
<tr>
<td>Kenbar</td>
<td>Fair</td>
<td>Early</td>
<td>37</td>
<td>48</td>
</tr>
<tr>
<td>Wade</td>
<td>Fair</td>
<td>Early</td>
<td>38</td>
<td>48</td>
</tr>
<tr>
<td>Pennrod</td>
<td>Fair</td>
<td>Late</td>
<td>43</td>
<td>47</td>
</tr>
<tr>
<td>Rogers</td>
<td>Poor</td>
<td>Late</td>
<td>41</td>
<td>50</td>
</tr>
<tr>
<td><strong>Experimentals:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tenn. 59-15</td>
<td>Good</td>
<td>Early</td>
<td>42</td>
<td>45</td>
</tr>
<tr>
<td>Tenn. 60-19</td>
<td>Good</td>
<td>Early</td>
<td>44</td>
<td>50</td>
</tr>
<tr>
<td>Tenn. 61-116</td>
<td>Fair</td>
<td>Early</td>
<td>42</td>
<td>45</td>
</tr>
<tr>
<td>Tenn. 61-119</td>
<td>Good</td>
<td>Med.</td>
<td>44</td>
<td>47</td>
</tr>
<tr>
<td>Tenn. 61-113</td>
<td>Fair</td>
<td>Med.</td>
<td>44</td>
<td>46</td>
</tr>
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</table>
Table 30. Susceptibility of wheat varieties to diseases\(^1\) under natural field conditions at 7 locations, 1964

<table>
<thead>
<tr>
<th>Variety</th>
<th>Knox-ville</th>
<th>Greene-ville</th>
<th>Cross-ville</th>
<th>Springfield</th>
<th>Spring Hill</th>
<th>Jackson(^2)</th>
<th>Martin</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wheat</td>
<td>Knox</td>
<td>Seneca</td>
<td>Monon</td>
<td>Knox 62</td>
<td>Reed</td>
<td>Tenn. 61-330</td>
<td>Tenn. 60-23</td>
</tr>
<tr>
<td></td>
<td>Knox 0</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Knox 0</td>
<td>T</td>
<td>0</td>
<td>T</td>
<td>0</td>
<td>T</td>
<td>T</td>
</tr>
<tr>
<td></td>
<td>Knox 2</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td></td>
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<tr>
<td></td>
<td>Triumph(^3)</td>
<td>—</td>
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**Powdery Mildew**

<table>
<thead>
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<th>Variety</th>
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<th>Seneca</th>
<th>Monon</th>
<th>Knox 62</th>
<th>Reed</th>
<th>Tenn. 61-330</th>
<th>Tenn. 60-23</th>
<th>Tenn. 60-18</th>
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<td>2</td>
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<td>T</td>
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<td>Triumph(^3)</td>
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<td>—</td>
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<td>T</td>
<td>—</td>
<td>—</td>
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</tr>
</tbody>
</table>

\(^1\)Leaf rust ratings on wheat were based on Cobb's modified scale ranging from 0, in which no disease symptoms were apparent, to 6 in which the leaf surface was entirely covered with rust. All other diseases were rated on a scale of 0 to 6. 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%.

\(^2\)Included at Springfield as a check.

\(^3\)Stem rust instead of leaf rust.
Table 31. Susceptibility of barley varieties to diseases$^1$ under natural field conditions at 5 locations, 1964

<table>
<thead>
<tr>
<th>Variety</th>
<th>Knoxville</th>
<th>Greeneville</th>
<th>Crossville</th>
<th>Springfield</th>
<th>Spring Hill</th>
<th>Jackson</th>
</tr>
</thead>
<tbody>
<tr>
<td>Barley</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Dayton</td>
<td>T</td>
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<td>T</td>
<td>0</td>
<td>0</td>
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</tr>
<tr>
<td>Kenbar</td>
<td>1</td>
<td>1</td>
<td>T</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Wade</td>
<td>0</td>
<td>T</td>
<td>0</td>
<td>0</td>
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<td></td>
</tr>
<tr>
<td>Hudson</td>
<td>T</td>
<td>T</td>
<td>T</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Pennrad</td>
<td>T</td>
<td>2</td>
<td>T</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Rogers</td>
<td>T</td>
<td>T</td>
<td>T</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Tenn. 59-15</td>
<td>T</td>
<td>2</td>
<td>T</td>
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<td>0</td>
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</tr>
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<td>Tenn. 60-19</td>
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<td>T</td>
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</table>

Table 32. Susceptibility of oat varieties to diseases$^1$ under natural field conditions at 6 locations, 1964

<table>
<thead>
<tr>
<th>Variety</th>
<th>Knoxville</th>
<th>Greeneville</th>
<th>Crossville</th>
<th>Springfield</th>
<th>Spring Hill</th>
<th>Jackson</th>
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<tr>
<td>Oats</td>
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<td>0</td>
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<td>Forkedeer</td>
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<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
</tr>
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<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Tenn. 59-19</td>
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</table>

$^1$The barley varieties were rated for diseases in the same manner as the wheat varieties.

$^2$A blank space (—) indicates that the barley was too mature and no disease rating was made.

$^3$The oat varieties were rated for disease in the same manner as the wheat varieties.
Results reported here are from tests seeded in 1960, 1961 and 1962. Two tests are being conducted at Knoxville. One was seeded in 1960 and the other in 1961. Results for both tests are reported. The 1962 tests were seeded at Spring Hill, Jackson, and Crossville.

Differential heaving of varieties was observed at Jackson and Greeneville in the winter of 1963-64. P.A.G. FD-100 and DuPuits were two of the worst varieties to heave. Such varieties as Buffalo and Williamsburg heaved very little. This heaving resulted in reduction of stand for varieties such as DuPuits and P.A.G. FD-100. No serious disease was noted on any of the tests during the 1964 growing season. However, in 1963 both tests at Knoxville were infected with Southern anthracnose and leaf spot diseases (both large and small). It appeared that a reduction in stand of several varieties at Knoxville was due to the Southern anthracnose. The infestation of the plants by leaf spot diseases was not heavy enough to cause much damage.

Dry weather during the summer months in 1964 reduced the yield at all locations. The test at Springfield suffered most from the lack of moisture.

Figure 5. Alfalfa variety test, Jackson, March 9, 1964. Test seeded in the fall of 1962. Note the thin stand of DuPuits as compared with Cody.
Table 33. Alfalfa: Yield summary of tests seeded in 1962

<table>
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<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Tons of air-dry hay per acre</td>
<td></td>
<td></td>
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<td></td>
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</tr>
<tr>
<td>Williamsburg</td>
<td>4.50</td>
<td>4.06</td>
<td>4.74</td>
<td>5.60</td>
<td>5.02</td>
<td>2.24</td>
<td>5.32</td>
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<td>Cody</td>
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<td>3.86</td>
<td>4.65</td>
<td>5.06</td>
<td>5.02</td>
<td>2.20</td>
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<td>4.34</td>
<td>4.16</td>
<td>4.57</td>
<td>5.15</td>
<td>4.91</td>
<td>2.07</td>
<td>5.22</td>
</tr>
<tr>
<td>Vernal</td>
<td>4.29</td>
<td>3.93</td>
<td>4.59</td>
<td>4.77</td>
<td>4.70</td>
<td>2.04</td>
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<td>3.62</td>
<td>4.22</td>
<td>5.52</td>
<td>4.99</td>
<td>1.87</td>
<td>5.02</td>
</tr>
<tr>
<td>Culver</td>
<td>4.18</td>
<td>3.63</td>
<td>4.44</td>
<td>5.11</td>
<td>4.74</td>
<td>1.93</td>
<td>5.24</td>
</tr>
<tr>
<td>Narragansett</td>
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<td>3.73</td>
<td>4.24</td>
<td>5.58</td>
<td>4.42</td>
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<td>5.79</td>
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<td>3.75</td>
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<td>5.68</td>
<td>4.58</td>
<td>2.17</td>
<td>4.64</td>
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<td>3.78</td>
<td>3.84</td>
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<td>2.08</td>
<td>4.22</td>
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<td>7.6</td>
<td>10.7</td>
<td>10.6</td>
<td>8.8</td>
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</table>

1Loring silt loam, (0% to 2% slopes).
2Maury silt loam, (2% to 5% slopes).
3Hartsells loam, (2% to 5% slopes).

Table 34. Alfalfa: Yield summary of tests seeded in 1961

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<tbody>
<tr>
<td>Tons of air-dry hay per acre</td>
<td></td>
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<td></td>
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</tr>
<tr>
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<td>3.67</td>
<td>3.36</td>
<td>2.77</td>
<td>3.05</td>
<td>5.95</td>
<td>4.00</td>
</tr>
<tr>
<td>P.A.G. FD-100</td>
<td>3.60</td>
<td>3.42</td>
<td>3.02</td>
<td>2.62</td>
<td>2.67</td>
<td>6.00</td>
<td>3.88</td>
</tr>
<tr>
<td>Culver</td>
<td>3.50</td>
<td>2.60</td>
<td>3.16</td>
<td>2.39</td>
<td>2.98</td>
<td>5.88</td>
<td>4.00</td>
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<td>3.43</td>
<td>3.47</td>
<td>2.73</td>
<td>1.87</td>
<td>2.62</td>
<td>5.94</td>
<td>3.95</td>
</tr>
<tr>
<td>Narragansett</td>
<td>3.42</td>
<td>2.62</td>
<td>2.91</td>
<td>2.24</td>
<td>2.80</td>
<td>5.95</td>
<td>3.97</td>
</tr>
<tr>
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<td>3.34</td>
<td>3.10</td>
<td>2.72</td>
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<td>5.82</td>
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<td>2.94</td>
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<tr>
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<td>3.18</td>
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<td>3.46</td>
<td>2.28</td>
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<td>2.94</td>
<td>2.97</td>
<td>2.50</td>
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<td>——</td>
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<td>2.13</td>
<td></td>
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<td>Vernal</td>
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<td>2.74</td>
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<td>1.80</td>
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<td>22.5</td>
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<td>4.1</td>
<td>6.1</td>
</tr>
</tbody>
</table>

1Alcoa silt loam (2% to 5% slopes).
2Cumberland silt loam, (2% to 5% slopes), eroded.
Table 35. Alfalfa: Yield summary of tests seeded in 1960

<table>
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<tr>
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<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Williamsburg</td>
<td>3.77</td>
<td>2.48</td>
<td>3.61</td>
<td>5.76</td>
<td>3.50</td>
<td>2.88</td>
<td>4.60</td>
<td>5.13</td>
<td>2.22</td>
</tr>
<tr>
<td>DuPuits</td>
<td>3.73</td>
<td>2.48</td>
<td>3.60</td>
<td>5.97</td>
<td>3.34</td>
<td>2.90</td>
<td>4.80</td>
<td>4.76</td>
<td>1.98</td>
</tr>
<tr>
<td>Sachsville</td>
<td>3.69</td>
<td>2.50</td>
<td>3.60</td>
<td>5.70</td>
<td>3.12</td>
<td>3.10</td>
<td>5.02</td>
<td>4.57</td>
<td>1.89</td>
</tr>
<tr>
<td>Buffalo</td>
<td>3.56</td>
<td>2.05</td>
<td>3.02</td>
<td>5.29</td>
<td>3.16</td>
<td>3.10</td>
<td>4.39</td>
<td>5.12</td>
<td>2.38</td>
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<tr>
<td>Narragansett</td>
<td>3.54</td>
<td>2.11</td>
<td>3.25</td>
<td>5.48</td>
<td>3.33</td>
<td>3.22</td>
<td>4.21</td>
<td>4.84</td>
<td>1.84</td>
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<tr>
<td>P.A.G. FD-100</td>
<td>3.52</td>
<td>2.52</td>
<td>3.51</td>
<td>5.64</td>
<td>2.83</td>
<td>3.24</td>
<td>4.32</td>
<td>4.44</td>
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<td>Maliani</td>
<td>3.37</td>
<td>2.15</td>
<td>3.25</td>
<td>5.26</td>
<td>3.35</td>
<td>2.71</td>
<td>3.62</td>
<td>4.39</td>
<td>2.20</td>
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<tr>
<td>Lohontan</td>
<td>3.37</td>
<td>1.99</td>
<td>3.10</td>
<td>5.25</td>
<td>3.54</td>
<td>2.52</td>
<td>3.27</td>
<td>4.74</td>
<td>2.52</td>
</tr>
<tr>
<td>Zia</td>
<td>3.28</td>
<td>1.91</td>
<td>2.77</td>
<td>5.17</td>
<td>3.36</td>
<td>1.97</td>
<td>4.27</td>
<td>4.54</td>
<td>2.28</td>
</tr>
<tr>
<td>Vernal</td>
<td>3.27</td>
<td>1.94</td>
<td>3.01</td>
<td>5.18</td>
<td>3.06</td>
<td>2.40</td>
<td>3.86</td>
<td>4.82</td>
<td>1.87</td>
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<tr>
<td>Orchies</td>
<td>—</td>
<td>2.30</td>
<td>3.32</td>
<td>5.64</td>
<td>3.35</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>N.C. Syn. G(57)3</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>3.46</td>
<td>5.11</td>
<td>4.76</td>
<td>1.92</td>
</tr>
<tr>
<td>N.C. Syn. F(56)1</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>2.82</td>
<td>5.14</td>
<td>4.96</td>
<td>2.22</td>
</tr>
<tr>
<td>N.C. Syn. G(57)2</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>2.96</td>
<td>4.66</td>
<td>5.03</td>
<td>2.15</td>
</tr>
<tr>
<td>N.C. Syn. E(58)</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>2.87</td>
<td>4.46</td>
<td>5.17</td>
<td>2.16</td>
</tr>
<tr>
<td>Ranger</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>2.44</td>
<td>3.95</td>
<td>5.10</td>
<td>1.97</td>
</tr>
<tr>
<td>Rhizoma</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>3.14</td>
<td>3.68</td>
<td>4.38</td>
<td>1.73</td>
</tr>
<tr>
<td>L.S.D. (.05)</td>
<td>—</td>
<td>0.30</td>
<td>0.43</td>
<td>0.46</td>
<td>N.S.</td>
<td>0.67</td>
<td>0.57</td>
<td>0.40</td>
<td>0.28</td>
</tr>
<tr>
<td>C.V. %</td>
<td>—</td>
<td>9.2</td>
<td>9.1</td>
<td>5.8</td>
<td>10.1</td>
<td>16.4</td>
<td>9.4</td>
<td>5.8</td>
<td>10.5</td>
</tr>
</tbody>
</table>

1Bewleyville silt clay loam, (2% to 5% slopes), severely eroded.

*Cumberland loam, (2% to 5% slopes).*
SOYBEANS

Soybean varieties were tested at Martin, Jackson, and Spring Hill in 1964. No data for Martin are reported because threshing of the 1964 test has not been completed.

The 1963 irrigated soybean data at Jackson were furnished by W. L. Parks, Professor of Agronomy, U. T. Agricultural Experiment Station, Knoxville. No 1964 irrigated data are presented because the test has not been completed.

Data is presented in Tables 36 and 37.

Table 36. Soybeans: Yield summary of varieties tested in 1963 and 1964

<table>
<thead>
<tr>
<th>Variety</th>
<th>Spring Hill</th>
<th>Jackson</th>
<th>Approximate date of maturity</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1963*</td>
<td>1964*</td>
<td>1963*</td>
</tr>
<tr>
<td></td>
<td>Bushels per acre</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>37</td>
<td>27</td>
<td>20</td>
</tr>
<tr>
<td>Hill</td>
<td>30</td>
<td>20</td>
<td>18</td>
</tr>
<tr>
<td>Lee</td>
<td>39</td>
<td>26</td>
<td>23</td>
</tr>
<tr>
<td>Kent</td>
<td>34</td>
<td>24</td>
<td>—</td>
</tr>
<tr>
<td>Ogden</td>
<td>34</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Dorman</td>
<td>28</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Hood</td>
<td>20</td>
<td>18</td>
<td>14</td>
</tr>
<tr>
<td>Hampton 266a</td>
<td>35</td>
<td>—</td>
<td>15</td>
</tr>
<tr>
<td>Hale 3</td>
<td>21</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Rebel</td>
<td>14</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Rebel 22</td>
<td>21</td>
<td>—</td>
<td>12</td>
</tr>
<tr>
<td>Arthur Hopkins</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
</tbody>
</table>

Experimentals:

<table>
<thead>
<tr>
<th>Variety</th>
<th>Spring Hill</th>
<th>Jackson</th>
<th>Approximate date of maturity</th>
</tr>
</thead>
<tbody>
<tr>
<td>T-61-48</td>
<td>22</td>
<td>—</td>
<td>35</td>
</tr>
<tr>
<td>T-61-50</td>
<td>21</td>
<td>—</td>
<td>42</td>
</tr>
<tr>
<td>L.S.D. (.05)</td>
<td>4.2</td>
<td>2.2</td>
<td>5.0</td>
</tr>
<tr>
<td>C.V. %</td>
<td>11.8</td>
<td>6.4</td>
<td>19.4</td>
</tr>
</tbody>
</table>

*Maury silt loam, (2% to 5% slopes).
*Memphis silt loam, (0% to 2% slopes).
*Grenada silt loam, (0% to 2% slopes).
*No yield obtained due to poor germination.
*Tested in 1963 as Hampton.

Table 37. Soybeans: Characteristics of varieties

<table>
<thead>
<tr>
<th>Variety</th>
<th>Seed color</th>
<th>Hilum color</th>
<th>Flower color</th>
<th>Pubescence</th>
<th>Seed quality</th>
<th>Resistance to shattering</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hill</td>
<td>Yellow</td>
<td>Light-brown</td>
<td>White</td>
<td>Tawny</td>
<td>Good</td>
<td>Good</td>
</tr>
<tr>
<td>Dorman</td>
<td>Yellow</td>
<td>Buff</td>
<td>White</td>
<td>Gray</td>
<td>Good</td>
<td>Med.</td>
</tr>
<tr>
<td>Hood</td>
<td>Yellow</td>
<td>Buff</td>
<td>Purple</td>
<td>Gray</td>
<td>Good</td>
<td>Med.</td>
</tr>
<tr>
<td>Ogden</td>
<td>Olive-green</td>
<td>Brownish-block</td>
<td>Purple</td>
<td>Gray</td>
<td>Good</td>
<td>Fair</td>
</tr>
<tr>
<td>Lee</td>
<td>Yellow</td>
<td>Black</td>
<td>Purple</td>
<td>Tawny</td>
<td>Good</td>
<td>Good</td>
</tr>
</tbody>
</table>
GRAIN SORGHUM

The grain sorghum tests reported were conducted at Springfield and Spring Hill. The test at Jackson was destroyed by birds. Dry weather reduced the yield at Springfield. Spring Hill had fair moisture during the growing season.

A good grain sorghum variety is one that has a high yield potential, open or loose head, early or medium maturity, good standing ability, good bird damage resistance, and the proper height for ease of combining.

Data are presented in tables 38 and 39.

Table 38. Grain sorghum: Yields and other characteristics of varieties tested in 1964

<table>
<thead>
<tr>
<th>Variety</th>
<th>Avg.</th>
<th>Spring Hill</th>
<th>Spring- field</th>
<th>Plant height</th>
<th>Head type</th>
<th>Grain moisture prior to harvest</th>
<th>Maturity</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Bushels per acre</td>
<td>in.</td>
<td>%</td>
<td></td>
</tr>
<tr>
<td>Ga. 615</td>
<td>109</td>
<td>85</td>
<td>132</td>
<td>54</td>
<td>Open</td>
<td>21.5</td>
<td>Late</td>
</tr>
<tr>
<td>DeKalb E-57</td>
<td>104</td>
<td>88</td>
<td>119</td>
<td>52</td>
<td>Open</td>
<td>17.8</td>
<td>Late</td>
</tr>
<tr>
<td>Ranger A</td>
<td>100</td>
<td>84</td>
<td>116</td>
<td>48</td>
<td>Tight</td>
<td>16.8</td>
<td>Med.</td>
</tr>
<tr>
<td>P.A.G. 515</td>
<td>98</td>
<td>88</td>
<td>109</td>
<td>49</td>
<td>Tight</td>
<td>18.6</td>
<td>Late</td>
</tr>
<tr>
<td>Rico</td>
<td>96</td>
<td>81</td>
<td>111</td>
<td>46</td>
<td>Tight</td>
<td>17.6</td>
<td>Med.</td>
</tr>
<tr>
<td>Aks. 614</td>
<td>95</td>
<td>81</td>
<td>109</td>
<td>47</td>
<td>Open</td>
<td>15.1</td>
<td>Med.</td>
</tr>
<tr>
<td>R.S. 610</td>
<td>89</td>
<td>84</td>
<td>94</td>
<td>50</td>
<td>Tight</td>
<td>15.2</td>
<td>Med.</td>
</tr>
<tr>
<td>DeKalb F-63</td>
<td>89</td>
<td>70</td>
<td>107</td>
<td>51</td>
<td>Med.</td>
<td>17.6</td>
<td>Med.-Late</td>
</tr>
<tr>
<td>DeKalb C-44b</td>
<td>88</td>
<td>72</td>
<td>104</td>
<td>48</td>
<td>Med.-Open</td>
<td>15.2</td>
<td>Early</td>
</tr>
<tr>
<td>Co-op Exp. No.1</td>
<td>88</td>
<td>78</td>
<td>98</td>
<td>47</td>
<td>Tight</td>
<td>15.2</td>
<td>Med.</td>
</tr>
<tr>
<td>Frontier 400C</td>
<td>87</td>
<td>79</td>
<td>95</td>
<td>48</td>
<td>Med.-Tight</td>
<td>15.0</td>
<td>Med.</td>
</tr>
<tr>
<td>McCurdy 70</td>
<td>87</td>
<td>74</td>
<td>100</td>
<td>47</td>
<td>Tight</td>
<td>15.2</td>
<td>Med.</td>
</tr>
<tr>
<td>Lindsey 744</td>
<td>87</td>
<td>70</td>
<td>103</td>
<td>45</td>
<td>Med.Tight</td>
<td>14.4</td>
<td>Early</td>
</tr>
<tr>
<td>DeKalb E-56A</td>
<td>86</td>
<td>71</td>
<td>101</td>
<td>46</td>
<td>Open</td>
<td>15.0</td>
<td>Early</td>
</tr>
<tr>
<td>Lindsey 551</td>
<td>85</td>
<td>75</td>
<td>94</td>
<td>43</td>
<td>Tight</td>
<td>17.4</td>
<td>Med.-Late</td>
</tr>
<tr>
<td>P.A.G. 430</td>
<td>84</td>
<td>75</td>
<td>93</td>
<td>46</td>
<td>Med.</td>
<td>13.9</td>
<td>Early</td>
</tr>
<tr>
<td>Lindsey 755</td>
<td>81</td>
<td>75</td>
<td>86</td>
<td>45</td>
<td>Med.-Tight</td>
<td>16.2</td>
<td>Med.</td>
</tr>
<tr>
<td>McCurdy 62</td>
<td>79</td>
<td>70</td>
<td>89</td>
<td>39</td>
<td>Med.</td>
<td>16.1</td>
<td>Med.</td>
</tr>
<tr>
<td>Frontier 413</td>
<td>72</td>
<td>68</td>
<td>75</td>
<td>48</td>
<td>Tight</td>
<td>22.5</td>
<td>Late</td>
</tr>
<tr>
<td>Martin</td>
<td>68</td>
<td>65</td>
<td>70</td>
<td>41</td>
<td>Tight</td>
<td>14.4</td>
<td>Med.</td>
</tr>
</tbody>
</table>

1Maury silt loam, (2% to 5% slopes).
2Ennis silt loam, (0% to 5% slopes).
Table 39.  Grain sorghums: Yield summary of varieties tested for 3 years, 1962-64

<table>
<thead>
<tr>
<th>Variety</th>
<th>3 Yr. avg. 1962-'64 Bu./A.</th>
<th>Plant height In.</th>
<th>Head type</th>
<th>Maturity</th>
</tr>
</thead>
<tbody>
<tr>
<td>P.A.G. 515</td>
<td>99</td>
<td>52</td>
<td>Tight</td>
<td>Late</td>
</tr>
<tr>
<td>Frontier 400C</td>
<td>92</td>
<td>51</td>
<td>Tight</td>
<td>Med.</td>
</tr>
<tr>
<td>McCurdy 70</td>
<td>90</td>
<td>52</td>
<td>Tight</td>
<td>Med.</td>
</tr>
<tr>
<td>R.S. 610</td>
<td>89</td>
<td>51</td>
<td>Tight</td>
<td>Med.</td>
</tr>
<tr>
<td>Lindsey 744</td>
<td>88</td>
<td>46</td>
<td>Med.-Tight</td>
<td>Early</td>
</tr>
<tr>
<td>DeKalb F-63</td>
<td>88</td>
<td>51</td>
<td>Med.</td>
<td>Med.-Late</td>
</tr>
<tr>
<td>P.A.G. 430</td>
<td>87</td>
<td>46</td>
<td>Med.</td>
<td>Early</td>
</tr>
<tr>
<td>Lindsey 755</td>
<td>84</td>
<td>52</td>
<td>Med.-Tight</td>
<td>Med.</td>
</tr>
<tr>
<td>DeKalb E-56A</td>
<td>80</td>
<td>48</td>
<td>Open</td>
<td>Early</td>
</tr>
<tr>
<td>Martin</td>
<td>68</td>
<td>46</td>
<td>Tight</td>
<td>Med.</td>
</tr>
</tbody>
</table>
Tobacco

Data for burley tobacco were furnished by L. J. Hoffbeck, Assistant Professor of Agronomy (cooperative with the USDA) and J. Hugh Felts, Superintendent, Tobacco Experiment Station.

Since the 1964 variety results were not yet available, the data included in the bulletin are for 1963 and previous years. Data were adjusted for lines tested less than 9 years in an attempt to make all values comparable. In Figure 6, note the upright-leaf growth of the new variety Burley 37. The burley varieties were tested at four locations and the dark-fired and dark air-cured tobacco at one location.

Data are presented in Tables 40 through 43.

Figure 6. The new blackshank-resistant Burley 37 variety. Note the upright-leaf growth habit.
Table 40. Burley tobacco: Average yield for 1963

<table>
<thead>
<tr>
<th>Variety</th>
<th>State avg.</th>
<th>Greene-ville</th>
<th>Rutledge</th>
<th>Spring Hill</th>
<th>Spring-field</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ky. 10</td>
<td>2709</td>
<td>2670</td>
<td>2521</td>
<td>2562</td>
<td>3082</td>
</tr>
<tr>
<td>Burley 1</td>
<td>2630</td>
<td>2184</td>
<td>2563</td>
<td>2641</td>
<td>3130</td>
</tr>
<tr>
<td>Ky. 12</td>
<td>2532</td>
<td>2205</td>
<td>2605</td>
<td>2276</td>
<td>3042</td>
</tr>
<tr>
<td>Ky. 9</td>
<td>2409</td>
<td>2382</td>
<td>2360</td>
<td>1990</td>
<td>2905</td>
</tr>
<tr>
<td>Burley 21</td>
<td>2387</td>
<td>2253</td>
<td>2313</td>
<td>2307</td>
<td>2675</td>
</tr>
<tr>
<td>Burley 37</td>
<td>2203</td>
<td>1972</td>
<td>2164</td>
<td>2208</td>
<td>2468</td>
</tr>
<tr>
<td>Ky. 16</td>
<td>2194</td>
<td>1999</td>
<td>2256</td>
<td>1902</td>
<td>2620</td>
</tr>
<tr>
<td>Average</td>
<td>2438</td>
<td>2238</td>
<td>2397</td>
<td>2269</td>
<td>2846</td>
</tr>
<tr>
<td>L.S.D. (0.05)</td>
<td>139</td>
<td>267</td>
<td>N.S.</td>
<td>291</td>
<td>201</td>
</tr>
</tbody>
</table>

1Lindside silt loam.

Table 41. Burley tobacco: Average yield for years 1955-63

<table>
<thead>
<tr>
<th>Variety</th>
<th>Years tested</th>
<th>State avg.</th>
<th>Greene-ville</th>
<th>Rutledge</th>
<th>Spring Hill</th>
<th>Spring-field</th>
</tr>
</thead>
<tbody>
<tr>
<td>Burley 1</td>
<td>1955-63</td>
<td>2262</td>
<td>2021</td>
<td>2470</td>
<td>2168</td>
<td>2389</td>
</tr>
<tr>
<td>Burley 21</td>
<td>1955-63</td>
<td>2159</td>
<td>1996</td>
<td>2297</td>
<td>2085</td>
<td>2259</td>
</tr>
<tr>
<td>Ky. 16</td>
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<td>2089</td>
<td>1902</td>
<td>2278</td>
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<tr>
<td>Ky. 35</td>
<td>1955-611</td>
<td>2049</td>
<td>1909</td>
<td>2212</td>
<td>1870</td>
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<tr>
<td>Burley 11A</td>
<td>1955-61</td>
<td>1871</td>
<td>1686</td>
<td>1990</td>
<td>1781</td>
<td>2027</td>
</tr>
<tr>
<td>Burley 2</td>
<td>1955-60</td>
<td>2134</td>
<td>1897</td>
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<td>Ky. 41A</td>
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<td>2015</td>
<td>1816</td>
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<td>Burley 11B</td>
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<td>1860</td>
<td>1697</td>
<td>2042</td>
<td>1682</td>
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<td>Burley 37</td>
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<td>1964</td>
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<td>2610</td>
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<td>1958</td>
<td>2286</td>
<td>1994</td>
<td>2241</td>
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1Data were adjusted for lines tested less than 9 years in an attempt to make all values comparable.

2Ky. 9 was not included in the 1961 test.
Table 42. Dark fire-cured tobacco: Average yield and acre value of varieties grown on the Highland Rim Experiment Station, Springfield, Tennessee from 1961 through 1963

<table>
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<tr>
<td></td>
<td>Pounds per acre</td>
<td>Dollars per acre</td>
<td></td>
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<td>Broad Leaf Madole</td>
<td>2183</td>
<td>2392</td>
<td>2413</td>
<td>1745</td>
<td>897</td>
<td>944</td>
<td>1042</td>
<td>704</td>
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<tr>
<td>Black Mammoth</td>
<td>2114</td>
<td>2356</td>
<td>2298</td>
<td>1687</td>
<td>865</td>
<td>923</td>
<td>1006</td>
<td>667</td>
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<td>DF-516</td>
<td>2094</td>
<td>2153</td>
<td>2188</td>
<td>1881</td>
<td>814</td>
<td>843</td>
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<td>669</td>
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<td>1983</td>
<td>2153</td>
<td>2126</td>
<td>1671</td>
<td>795</td>
<td>782</td>
<td>938</td>
<td>664</td>
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<td>2141</td>
<td>2032</td>
<td>1693</td>
<td>791</td>
<td>804</td>
<td>883</td>
<td>686</td>
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<td>1977</td>
<td>1890</td>
<td>1585</td>
<td>720</td>
<td>736</td>
<td>819</td>
<td>606</td>
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<td>Ky. 155</td>
<td>1711</td>
<td>1949</td>
<td>1775</td>
<td>1408</td>
<td>679</td>
<td>756</td>
<td>744</td>
<td>536</td>
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<td>2250</td>
<td>1838</td>
<td></td>
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<td>1919</td>
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<td>983</td>
<td>744</td>
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<td>Little Stalk Black Mammoth</td>
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<td>1838</td>
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<td>—</td>
<td>984</td>
<td>723</td>
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<td>2223</td>
<td>1566</td>
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<td>750</td>
<td>933</td>
<td>594</td>
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<td>2200</td>
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<td>805</td>
<td>803</td>
<td>979</td>
<td>634</td>
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<td>—</td>
<td>737</td>
<td>917</td>
<td>—</td>
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<td>Tennex 902</td>
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<td>1838</td>
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<td>983</td>
<td>744</td>
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<td>L.S.D. (.05)</td>
<td>86</td>
<td>143</td>
<td>209</td>
<td></td>
<td>64</td>
<td>78</td>
<td>97</td>
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<td>C.V.  %</td>
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<td>5.7</td>
<td>10.8</td>
<td></td>
<td>6.8</td>
<td>7.3</td>
<td>12.8</td>
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</tr>
</tbody>
</table>

1These values are based on the average value for the various grades on all type 22 markets, during the 5-year period, 1954-58).
2Dickson silt loam, (2% to 5% slopes).
3Mountview silt loam (2% to 5% slopes), and Dickson silt loam (2% to 5% slopes).
4Sango silt loam, (2% to 5% slopes).
Table 43. Dark air-cured tobacco: Average yield and acre value of varieties grown on the Highland Rim Experiment Station, Springfield, Tennessee from 1961 through 1963

<table>
<thead>
<tr>
<th>Variety</th>
<th>Acre yield</th>
<th>Acre value(^1)</th>
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<tbody>
<tr>
<td>Johns</td>
<td>2071</td>
<td>2211</td>
</tr>
<tr>
<td>Ky. 160</td>
<td>1901</td>
<td>2026</td>
</tr>
<tr>
<td>Ky. 163</td>
<td>1834</td>
<td>1929</td>
</tr>
<tr>
<td>Ky. 164</td>
<td>1546</td>
<td>1444</td>
</tr>
<tr>
<td>Va. Imp. Str. 2</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Narrow Leaf One Sucker</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Va. Imp. Str. 3</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Va. Sleek Stalk Str. 1</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td><strong>Experimentals:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>O.S. 901</td>
<td>—</td>
<td>2285</td>
</tr>
<tr>
<td>O.S. 900</td>
<td>—</td>
<td>2197</td>
</tr>
<tr>
<td>L.S.D. (.05)</td>
<td>—</td>
<td>117</td>
</tr>
<tr>
<td>C.V. %</td>
<td>—</td>
<td>4.9</td>
</tr>
</tbody>
</table>

\(^1\)These values are based on the average value for the various grades on all type 3b markets, during the 5-year period, 1954-58.
\(^2\)Ennis silt loam, (0% to 2% slopes).
\(^3\)Bewleyville silt loam (5% to 12% slopes), and Dickson silt loam (2% to 5% slopes).
\(^4\)Sango silt loam, (2% to 5% slopes).
SUMMER ANNUAL GRASSES FOR GRAZING AND GREEN-CHOPPING

Sudangrass — Sudangrass-sorghum hybrids — Pearl millet

By Henry A. Fribourg
Associate Professor of Agronomy, University of Tennessee

Summer annual grasses have become increasingly important in recent years, 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 pearl millet and, more recently, 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, and the results obtained through 1962 have been published in Bulletin 373 of the Tennessee Agricultural Experiment Station.

Differentiation of 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 utilized to differentiate between 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 that production during the growing season, and disease and uniformity ratings, have been tabulated. In Table 2 are presented the yields for 1963 and 1964 obtained at each of the five locations. For more detailed descriptions and information on management, see Bulletin 373.

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The varieties generally were harvested when growth reached a height not greater than 30 inches, down to a stubble of 6 to 8 inches. Occasionally, harvesting was delayed after growth reached 30 inches in height; in such cases, yields are higher and fewer harvests were made during the season. At some locations, all varieties were cut at the same time; at a few 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 selecting 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 yield was larger than 3.25 tons per acre per year; 3) more than 22 percent of the yearly production occurred after September 1 and more than 45 percent occurred after August 1; 4) disease incidence was low (less than 2.5 with scale used); 5) uniformity was high (more than 3.5 with scale used); 6) leafiness was high; and 7) seed was expected to be available to growers. The varieties meeting the majority of these criteria have been starred in Table 1.
Table 1. SUDANGRASSES, SUDANGRASS-SORGHUM HYBRIDS AND MILLETS: Summary of yield, cumulative seasonal distribution of production, and disease and uniformity ratings, of varieties and hybrids at five locations in Tennessee, 1955-1964.

<table>
<thead>
<tr>
<th>Variety or Strain (listed alphabetically)</th>
<th>Number of experiments</th>
<th>Adjusted average yield (T/ha)</th>
<th>Cumulative distribution of production (percent)</th>
<th>Disease rating</th>
<th>Uniformity rating</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>SUDANGRASSES AND HYBRIDS:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>+ Advance 1038GE</td>
<td>3</td>
<td>3.71</td>
<td>14</td>
<td>86</td>
<td>45</td>
</tr>
<tr>
<td>+ 1071F</td>
<td>2</td>
<td>3.78</td>
<td>24</td>
<td>76</td>
<td>43</td>
</tr>
<tr>
<td>+ 6309E</td>
<td>2</td>
<td>3.67</td>
<td>26</td>
<td>74</td>
<td>37</td>
</tr>
<tr>
<td>+ Asgrow Beefbuilder T</td>
<td>2</td>
<td>4.17</td>
<td>28</td>
<td>72</td>
<td>35</td>
</tr>
<tr>
<td>+ Duet</td>
<td>3</td>
<td>3.78</td>
<td>13</td>
<td>87</td>
<td>42</td>
</tr>
<tr>
<td>** Grazer A</td>
<td>8</td>
<td>4.51</td>
<td>25</td>
<td>75</td>
<td>47</td>
</tr>
<tr>
<td>+ Titan R</td>
<td>3</td>
<td>3.79</td>
<td>12</td>
<td>88</td>
<td>41</td>
</tr>
<tr>
<td>+ Caladino Greenlan</td>
<td>4</td>
<td>4.26</td>
<td>20</td>
<td>80</td>
<td>46</td>
</tr>
<tr>
<td>Common sudangrass</td>
<td>10</td>
<td>3.37</td>
<td>22</td>
<td>78</td>
<td>42</td>
</tr>
<tr>
<td>+ Crown Su-Sorg</td>
<td>3</td>
<td>4.27</td>
<td>18</td>
<td>82</td>
<td>49</td>
</tr>
<tr>
<td>** DeKalb Sudax SX-11</td>
<td>21</td>
<td>4.34</td>
<td>20</td>
<td>80</td>
<td>47</td>
</tr>
<tr>
<td>+ Sudax SX-12</td>
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<td>4.75</td>
<td>21</td>
<td>79</td>
<td>50</td>
</tr>
<tr>
<td>+ Dorman Sure-Graze</td>
<td>3</td>
<td>3.99</td>
<td>15</td>
<td>85</td>
<td>50</td>
</tr>
<tr>
<td>+ Excel Grazer</td>
<td>2</td>
<td>4.37</td>
<td>25</td>
<td>75</td>
<td>47</td>
</tr>
<tr>
<td>Frontier Hi-dan 37</td>
<td>13</td>
<td>4.07</td>
<td>23</td>
<td>77</td>
<td>46</td>
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<tr>
<td>** Hi-dan 38</td>
<td>11</td>
<td>4.15</td>
<td>21</td>
<td>79</td>
<td>45</td>
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<tr>
<td>S-212</td>
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<td>3.50</td>
<td>17</td>
<td>83</td>
<td>39</td>
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<td>16</td>
<td>84</td>
<td>54</td>
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<tr>
<td>** Green Bros. Green Graze</td>
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<td>76</td>
<td>49</td>
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<td>83</td>
<td>51</td>
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<td>47</td>
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<td>78</td>
<td>46</td>
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<td>Variety or Strain (Listed alphabetically)</td>
<td>Number of experiments</td>
<td>Adjusted average yield (T/A)</td>
<td>Cumulative distribution of production (percent)</td>
<td>Disease rating</td>
<td>Uniformity rating</td>
</tr>
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<td>+</td>
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<td>24, 76, 38, 20, 7</td>
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<td>+</td>
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<td>1.0, 4.0</td>
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<td>+ Nebraska Su-1</td>
<td>4</td>
<td>3.95</td>
<td>26, 74, 46, 26, 7</td>
<td>1.1, 3.2</td>
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<tr>
<td>** Northrup-King Sordan</td>
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<td>+ Paymaster Aztec</td>
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<td>3.68</td>
<td>20, 80, 39, 15, 4</td>
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<td>** Sweet Sioux</td>
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<td>+ 3 Little Indians</td>
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<td>+</td>
<td></td>
<td>3.20</td>
<td>30, 70, 43, 19, 2</td>
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<tr>
<td>** Su-Chow 34</td>
<td>12</td>
<td>4.93</td>
<td>24, 76, 49, 27, 7</td>
<td>2.0, 4.0</td>
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<tr>
<td>** Su-Chow 35</td>
<td>13</td>
<td>4.40</td>
<td>21, 79, 49, 28, 6</td>
<td>2.5, 4.2</td>
<td></td>
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<tr>
<td>** Piper</td>
<td>38</td>
<td>3.18</td>
<td>22, 78, 45, 19, 5</td>
<td>2.9, 4.6</td>
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</tr>
<tr>
<td>** Piper x S. propinquum</td>
<td>18</td>
<td>3.89</td>
<td>30, 70, 40, 21, 6</td>
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<td>Rhodesian x Stoneville synthetic</td>
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<td>+</td>
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<td>3.84</td>
<td>19, 81, 48, 21, 4</td>
<td>3.5, 2.5</td>
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<td>+</td>
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<td>4.28</td>
<td>15, 85, 44, 19, 3</td>
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<td>+</td>
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<td>4.10</td>
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<td>Number of experiments</td>
<td>Adjusted average yield (T/A)</td>
<td>Before June 30</td>
<td>After July 1</td>
<td>After Aug. 1</td>
</tr>
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<td>** Suhi-1</td>
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<tr>
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<td>+ R. G. Young Kow Kandy</td>
<td>2</td>
<td>4.14</td>
<td>20</td>
<td>80</td>
<td>48</td>
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** MILLETS:**

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<th>Variety or Strain</th>
<th>Number of experiments</th>
<th>Adjusted average yield (T/A)</th>
<th>Before June 30</th>
<th>After July 1</th>
<th>After Aug. 1</th>
<th>After Sept. 1</th>
<th>After Oct. 1</th>
<th>Disease rating¹</th>
<th>Uniformity rating²</th>
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<td>** Gahi-1 pearlmillet</td>
<td>38</td>
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<td>84</td>
<td>51</td>
<td>26</td>
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<td>** Starr pearlmillet</td>
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* Adjusted variety average = Variety total for years grown X All years base average.

** Recommended varieties.

¹ Base total for same years

² Recommended varieties.

+ Insufficient information for recommendation.

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

1 = no disease
5 = most disease

3 = most uniform
1 = least uniform
Table 2. SUDANGRASSES, SUDANGRASS-SORGHUM HYBRIDS AND MILLETS: Dry matter production (Tons per acre) and number of harvests at five locations in Tennessee, 1963-1964.

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<tr>
<th>Variety or Strain (listed alphabetically)</th>
<th>Spring field&lt;sup&gt;1&lt;/sup&gt;</th>
<th>Knoxvill&lt;sup&gt;2&lt;/sup&gt;</th>
<th>Spring Hill&lt;sup&gt;3&lt;/sup&gt;</th>
<th>Crossville&lt;sup&gt;4&lt;/sup&gt;</th>
<th>Jackson&lt;sup&gt;5&lt;/sup&gt;</th>
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<tr>
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<td>Asgrow Beefbuilder T</td>
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<td>Duet</td>
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<td>Piper</td>
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<td>Spring Hill (^3)</td>
<td>Crossville (^4)</td>
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</tr>
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</table>

N.S. = not significantly different at .05 level probability.

\(^1\)Dickson silt loam, (2% to 5% slopes)

\(^2\)Huntington and Sequatchie silt loams, (0% to 2% slopes).

\(^3\)Maury silt loam, (0% to 2% slopes).

\(^4\)Hartsells loam, (2% to 5% slopes).

\(^5\)Memphis silt loam, (0% to 2% slopes).
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KNOXVILLE, TENNESSEE

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Friendship Forestry Field Station, Chattanooga
Highland Rim Forestry Field Station, Tullahoma, P. J. Huffman, Manager
Milan Field Station, Milan, T. C. McCutchen, Manager

(15M/1-65)