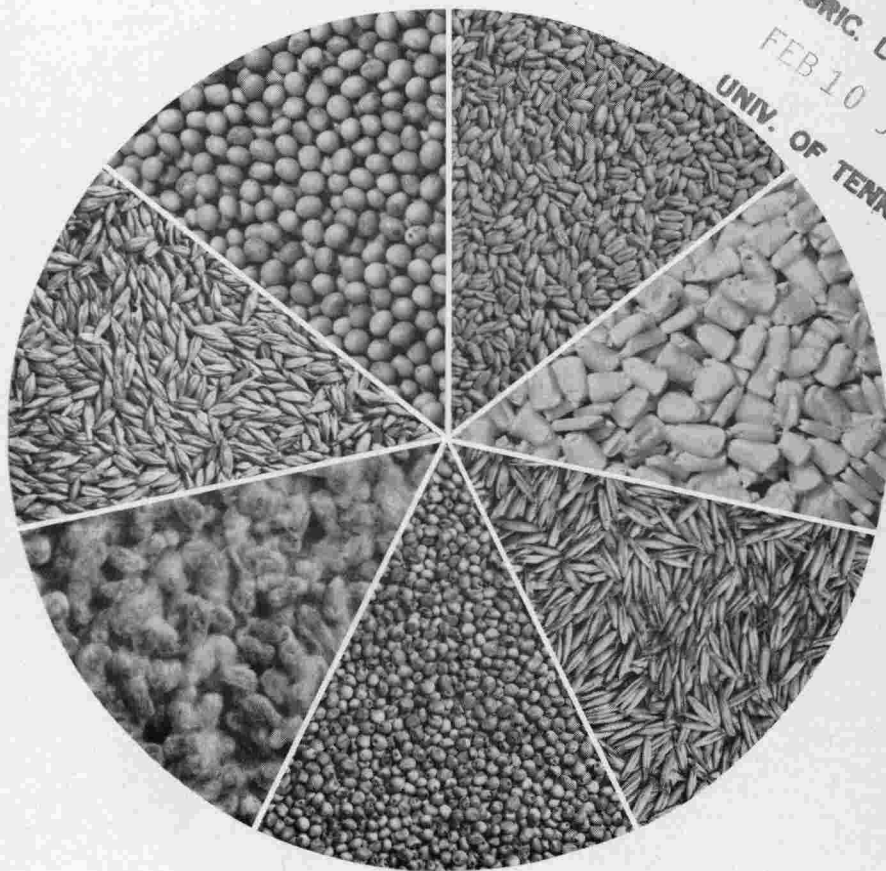


1957

PERFORMANCE TRIALS OF ...

FIELD CROP VARIETIES

Thomas O. Shelby



THE UNIVERSITY OF TENNESSEE
AGRICULTURAL EXPERIMENT STATION
JOHN A. EWING, DIRECTOR
KNOXVILLE

1957 Performance Trials of
FIELD CROP VARIETIES

CORN — COTTON — OATS — WHEAT

BARLEY — SOYBEANS — ALFALFA

GRAIN SORGHUM — TOBACCO

Data for 1957 with Summaries of Results
from Previous Years

Thomas O. Shelby
Assistant in Agronomy

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

RECOMMENDED CROP VARIETIES

(Listed Alphabetically)

Corn Hybrids

White—Dixie 17, Dixie 29, Dixie 33, Funk G-779W, Pfister (P.A.G.) 631, Pfister (P.A.G.) 636, Tenn. 10, Tenn. 501, U.S. 523W.

Yellow—Dixie 22, Funk G-710, Funk G-711, Keystone 222, Pioneer 309A, Tenn. 90.

Cotton

Early—Cobal, Dixie King, Empire W.R.*, Fox, Pope.

Late—Auburn 56*, Coker 100W*, Coker 124, Delfos 9169, Deltapine 15, Plains*, Stoneville 2B, Stoneville 7.

Oats

Fall-Seeded—Arkwin, Forkeddeer, Leconte, Victorgrain 48-93.

Spring-Seeded—Andrew, Mo-O-205.

Wheat—Fulcaster 612, Knox, Seneca, Thorne, Vigo.

Barley—Jackson #1, Kenbar.

Alfalfa—Atlantic, Buffalo, Du Puits, Narragansett, Williamsburg.

Soybeans—Dorman, Lee, Ogden.

Red Clover—Kenland.

Burley Tobacco—Burley 1, Burley 2, Burley 11A, Burley 11B, Burley 21, Kentucky 16, Kentucky 41A.

Dark Fired Tobacco—Broad Leaf Madole.

Characteristics of Recommended Varieties

Corn Hybrids

White—Full Season:

Dixie 17**—A prolific that does not stand as well as Dixie 33. Has a trace of copper-coloring in the grain.

Dixie 29—A high yielding prolific with medium ear height and strong stalk. Has pure white grain on white cobs. Matures earlier than other recommended full season hybrids.

*Recommended where fusarium wilt is prevalent.

**See Tenn. Exp. Station Bulletin No. 246 for performance.

Dixie 33—A high yielding prolific. Grain has a trace of copper-coloring.

Funk G-779W—A white-cobbed semi-prolific that yields well. Husk cover is only fair. Because of its late maturity, best used for silage. If grown for grain, must be planted early to utilize full growing season.

Tenn. 10*—A small-eared prolific with a slender cob allowing the grain to dry rapidly. Does not stand as well as hybrids described in paragraphs above.

White—Medium Season:

Pfister (P.A.G.) 631—A corn with low ear placement. Some stalks produce two ears.

Pfister (P.A.G.) 636—A semi-prolific with ears medium high on the stalk.

Tenn. 501**—A semi-prolific with ears low on the stalk. Good grain quality and husk cover.

U. S. 523W—A corn with low ear height. Some stalks produce two ears.

Yellow—Full Season:

Dixie 22—A semi-prolific hybrid having good grain quality.

Funk G-710—A semi-prolific, late maturing hybrid. Must be planted early to utilize full growing season.

Funk G-711—A semi-prolific hybrid which has a tendency to lodge and has only fair husk cover.

Keystone 222—A semi-prolific hybrid with a tendency to lodge.

Tenn. 90—A large single-ear hybrid with ears high on the stalk. Good grain quality.

Yellow—Medium Season:

Pioneer 309A—A large single-ear hybrid with only fair husk cover. Ears placed low on the stalk. Matures later than other recommended medium season hybrids.

Since no short season hybrids have been found satisfactory in yield and general agronomic characteristics at the present time, no recommendations are being made. If for some reason early maturing hybrids are desired, the following have been the best of

*See Tenn. Exp. Station Bulletin No. 246 for performance.

**Limited supply of seed available in 1958.

those tested: Funk G-512W*, Stull 400W*, Funk G-134*, and Funk G-704*.

Cotton

Early:

Cobal—A determinate type, large bolls, easy to pick.

Dixie King—A large-boll variety receiving Station recommendation for the first time in 1958.

Empire W. R.—A fusarium wilt-resistant variety with large bolls.

Fox—A determinate type with small bolls.

Pope—A prolific variety with small bolls, outstanding in yield with very high lint percent. The staple length is often 1/32nd inch shorter than Empire or Deltapine 15 when grown under similar conditions.

Late:

Included in the later maturing varieties having bolls of medium size are Coker 124, Delfos 9169**, and Stoneville 2B*. Deltapine 15 and Stoneville 7 are similar in maturity to these varieties but have small bolls and a high lint percent. The following are fusarium wilt-resistant varieties having bolls of medium size: Auburn 56, Coker 100W, Plains.

Oats

Fall-Seeded:

Arkwin—A semi-hardy, medium early, tall variety. Under mild winter conditions yields along with Forkeddeer and Leconte.

Forkeddeer—A winter-hardy variety with yellow grain. Has a tendency to lodge under conditions of high fertility.

Leconte—A stiff-strawed, winter-hardy oat. Stands better than Forkeddeer especially on soils of medium to high fertility.

Victorgrain 48-93—A semi-hardy type with high yield potential under mild winter conditions. Should be planted early.

Spring-Seeded:

Andrew**—A variety having yellow grain. Shorter and better standing ability than Mo-O-205.

Mo-O-205**—A stiff-strawed variety of high yielding ability. Grain is brown and has a high test weight.

*See Tenn. Exp. Station Bulletin No. 246 for performance.

**See Tenn. Exp. Station Bulletin No. 256 for performance.

Wheat

Fulcaster 612—A tall, bearded variety which has been grown in the state for many years. Lodges badly on soils of medium to high fertility.

Knox—A very early variety with short straw. May be injured by late spring freezes. Should be grazed to delay maturity. Resistant to leaf rust.

Seneca—A beardless, red-chaffed, fairly stiff-strawed variety of medium height. Has a higher test weight and slight yield advantage over Thorne.

Thorne—A sister selection to Seneca, which cannot be distinguished from Seneca in the field. Both Seneca and Thorne are susceptible to leaf rust.

Vigo—A beardless, white-chaffed variety of late maturity. Resistant to leaf rust.

Barley*

Jackson No. 1—A winter-hardy, smooth-awned variety with long drooping heads.

Kenbar—A winter-hardy variety of medium height. Is early maturing and fairly smooth-awned.

Alfalfa

Atlantic—A variegated variety adapted to areas such as Tennessee where bacterial wilt is not a problem.

Buffalo—A selection of Kansas Common that is resistant to bacterial wilt.

Du Puits—Similar in yield to other recommended varieties. Recovers rapidly after cutting.

Narragansett—A fine-stemmed variety having a high percentage of leaves. It is a longer lived variety than others tested.

Williamsburg—A high yielding variety with good winter-hardiness.

Soybeans

Dorman—A variety having large yellow beans. Matures about two weeks before Ogden and has approximately the same oil content as Ogden.

*Seed of Holston, a recently released variety, will not be available for general distribution until 1959.

Lee—A yellow-seeded variety which matures a few days later than Ogden and shatters somewhat less than Ogden.

Ogden—A high yielding variety of mid-season maturity and has olive-colored beans.

Red Clover

Kenland*—Resistant to Southern Anthracnose and longer lived than most other varieties tested.

Burley Tobacco

Burley 1—A high yielding, high quality, high leaf number, "stand-up" variety that is highly resistant to black root rot and somewhat resistant to brown root rot. It performs best when topped early and kept suckered.

Burley 2—A "stand-up" variety with resistance to black root rot. Produces high yields and quality under a variety of soil conditions.

Burley 11A—Has moderate resistance to black shank and fusarium wilt and high resistance to black root rot. A brittle, drooping leaf variety that may yield less than some varieties because of loss of bottom leaves due to earliness.

Burley 11B—Has more resistance to black shank and fusarium wilt and is of lower quality than 11A. Similar to 11A in all other characteristics.

Burley 21—A very upright leafed, high yielding variety. Highly resistant to wildfire and mosaic and moderately resistant to black root rot and brown root rot. Plants are more vigorous and grow off faster in plant bed than other varieties.

Ky. 16—A widely adapted "semi-stand-up" variety with moderate resistance to black root rot.

Ky. 41A—A drooping leaf variety with moderate resistance to black root rot. Similar to Ky. 16 in yield and quality.

Dark Fire-Cured Tobacco

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

*See Tenn. Exp. Station Bulletin No. 237 for performance.

PERFORMANCE TRIALS
OF
Corn, Cotton, Oat, Wheat, Barley, Alfalfa,
Soybean, Grain Sorghum,
Tobacco Varieties

Data for 1957 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 to test 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 teaching, and extension staffs of the University of Tennessee Agricultural College 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 that are 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 being 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 performances of a variety across the area of adaptation and over a period of years is the best basis for making a recommendation.

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.) at the 5% level for the 1957 test is 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.

CORN

The high yields in the 1957 corn tests reflect the generally good corn season in the location of these tests. Exceptions were at Knoxville and Ft. Pillow where excessive rainfall in the spring made it difficult to get a stand. The Knoxville test was planted late, resulting in greatly reduced yields. The Ft. Pillow test was lost completely by flooding. Yields from all tests were reduced slightly because of a short period of summer drought. Fertilizer applied to all tests was sufficient to support 10,000 plants per acre at 80 to 100 bushel yield levels.

Seed of commercially available hybrids were chosen from those being sold to farmers in Tennessee.

Tenn. 501, a medium season hybrid recently released by the Tennessee Agricultural Experiment Station, and Funk G-710, a late hybrid, have been added to the recommended list.

Because upper East Tennessee has a shorter growing season due to its higher elevation, a test using short and medium season varieties has been conducted in Johnson County for the past three years. Conditions may warrant consideration of these shorter season varieties in other sections of the state.

Data are presented in Tables 1, 2, 3, and 4. Yields are based on shelled corn, corrected to 15.5 percent moisture.

Table 1—*Corn: Yields of 34 Varieties at Each of Six Locations in 1957.*

Average of 6 Replications at Each Location

Color	Variety	State Av. Bu./A.	Knox- ville	Greene- ville	Cross- ville	Spring- field	Spring Hill**	Jack- son
Commercially Available:								
W	Dixie 55	103.1	49.2	110.2	98.6	151.5	81.6	127.4
W	Dixie 33	101.8	66.2	106.0	113.6	142.6	70.6	111.9
Y	Dixie 22	100.7	63.2	98.6	105.3	140.2	75.3	121.6
W	A.E.S. 904W	99.6	60.0	109.5	103.2	136.4	73.5	114.8
W	Dixie 29	97.7	63.8	97.8	104.4	130.5	77.5	112.3
W	Funk G-779W	96.9	66.4	88.8	96.5	134.8	74.4	120.4
Y	Pioneer 309B	96.9	63.1	99.1	108.2	123.2	78.6	109.1
W	Pfister (PAG) 653W	96.1	62.2	88.5	98.8	133.6	74.3	119.4
W	Tenn. 501	95.7	65.2	97.4	106.2	125.3	73.1	106.9
Y	N. C. 288	95.3	53.3	97.7	91.2	131.6	81.2	116.7
Y	De Kalb 1023	95.0	57.8	98.5	97.2	134.8	72.3	109.1
Y	De Kalb 1024	94.0	65.3	98.9	95.3	131.7	64.9	108.0
W	De Kalb 925	93.8	65.4	95.4	98.6	125.8	70.2	107.2
W	U. S. 523W	93.7	63.6	101.3	95.4	118.7	77.3	105.8
Y	Keystone 222	93.3	59.4	97.0	96.7	129.6	63.2	113.8
Y	De Kalb 893	92.5	63.3	98.0	92.6	124.5	67.4	109.2
W	Pfister (PAG) 636	91.4	58.6	98.4	90.3	126.1	66.3	108.8
Y	Pfister (PAG) 488	91.1	56.5	99.6	93.8	121.0	70.6	105.2
Y	Funk G-711	91.0	63.7	87.0	90.7	126.0	70.6	107.7
W	Pfister (PAG) 631	90.4	64.5	97.8	92.0	115.5	70.7	102.0
Y	Tenn. 90	90.3	50.3	99.4	94.4	119.0	75.1	103.7
Y	Pioneer 309A	89.6	61.2	93.5	95.4	113.4	75.7	98.4
Y	Funk G-144	89.2	67.6	96.7	94.6	112.2	69.5	94.6
Y	Funk G-710	89.1	53.0	88.8	97.8	119.5	68.6	107.0
Y	McCurdy 988	86.7	55.6	98.6	88.6	110.6	66.9	100.1
Y	Stull 101Y	83.7	54.3	88.8	90.9	108.6	70.0	89.7
Y	De Kalb 1051	80.6	50.6	86.7	84.1	104.7	65.4	92.4
Experimentals:								
W	T4107	105.2	64.3	105.8	104.0	141.1	84.4	131.8
W	T4103	104.2	73.6	97.9	110.4	139.0	80.8	123.8
Y	T5005	92.8	68.9	103.6	100.3	119.9	72.8	91.3
Y	T4413	92.1	56.3	101.8	93.2	118.2	76.6	106.6
Y	T4114	87.3	68.2	89.8	90.0	109.8	70.7	95.3
Y	T4406B	77.8	60.0	88.4	76.0	92.9	69.4	79.9
Y	T5001	77.6	51.7	85.3	77.4	93.8	74.2	83.0
Average		92.8	60.6	96.5	95.4	123.4	71.8	106.8
L.S.D. (.05)			N.S.*	N.S.	10.3	12.8	N.S.	8.1

*No significant difference between yields.

**Middle Tennessee Experiment Station is located at Spring Hill instead of Columbia as it has been listed in previous publications.

Table 2—*Corn: Average Yield and Other Characteristics of 34 Corn Varieties Tested at Six Locations in 1957.*

Color	Variety	State Av. Bu./A.	% Erect Plts.	Ears/ 100 Plants	Grain Qual- ity	Husk Cover	Ear Ht.	Growing Season
Commercially Available:								
W	Dixie 55	103.1	70	165	Good	Good	High	Late
W	Dixie 33	101.8	72	155	Good	Good	High	Full
Y	Dixie 22	100.7	75	140	Good	Good	High	Full
W	A.E.S. 904W	99.6	75	175	Good	Fair	Low	Full
W	Dixie 29	97.7	82	150	Good	Good	Med.	Med to Full
W	Funk G-779W	96.9	75	150	Good	Fair	High	Late
Y	Pioneer 309B	96.9	88	152	Good	Good	Low	Full
W	Pfister (PAG) 653W	96.1	80	168	Good	Fair	High	Full
W	Tenn. 501	95.7	80	148	Good	Good	Low	Med.
Y	N. C. 288	95.3	85	135	Good	Good	High	Late
Y	De Kalb 1023	95.0	65	130	Good	Fair	Med.	Full
Y	De Kalb 1024	94.0	62	135	Good	Fair	High	Med.
W	De Kalb 925	93.8	72	115	Good	Fair	Low	Med.
W	U. S. 523W	93.7	75	112	Good	Fair	Low	Med.
Y	Keystone 222	93.3	62	142	Good	Fair	Med.	Full
Y	De Kalb 893	92.5	75	125	Good	Fair	Med.	Full
W	Pfister (PAG) 636	91.4	78	145	Good	Fair	Med.	Med.
W	Pfister (PAG) 488	91.1	80	140	Good	Fair	Med.	Full
Y	Funk G-711	91.0	58	130	Good	Fair	Med.	Full
W	Pfister (PAG) 631	90.4	72	115	Good	Fair	Low	Med.
Y	Tenn. 90	90.3	78	110	Good	Good	High	Full
Y	Pioneer 309A	89.6	90	112	Good	Fair	Low	Med to Full
Y	Funk G-144	89.2	85	110	Good	Fair	Low	Med.
Y	Funk G-710	89.1	75	132	Good	Good	Med.	Late
Y	McCurdy 988	86.7	80	108	Fair	Fair	Med.	Med.
Y	Stull 101Y	83.7	88	108	Poor	Poor	Low	Short
Y	De Kalb 1051	80.6	80	115	Good	Fair	High	Med.
Experimentals:								
W	T4107	105.2	62	175	Good	Good	High	Full
W	T4103	104.2	78	165	Good	Good	High	Full
Y	T5005	92.8	80	138	Fair	Fair	Med.	Med.
Y	T4413	92.1	85	110	Good	Good	Med.	Full
W	T4114	87.3	90	118	Good	Good	Med.	Short
Y	T4406B	77.8	90	110	Fair	Fair	Low	Short
Y	T5001	77.6	88	120	Good	Fair	Low	Short

Table 3—*Corn: Average Yield and Other Characteristics of Corn Varieties Tested for Two or Three Years.*

Color	Variety	% Erect				Grain Quality	Husk Cover	Growing Season
		3 Yr. Av. 1955-57 Bu./A.	2 Yr. Av. 1956-57 Bu./A.	Plants at Harvest	Ears/ 100 Plants			
Commercially Available:								
W	Dixie 29	91.2	96.0	87	155	Good	Good	Med to Full
W	Dixie 33	90.8	100.0	79	152	Good	Good	Full
W	Funk G-779W	89.3	93.4	83	145	Good	Fair	Late
Y	Dixie 22	89.0	95.0	80	142	Good	Good	Full
W	Tenn. 501	88.4	94.0	86	154	Good	Good	Med.
Y	Funk G-711	86.9	89.6	70	133	Good	Fair	Full
W	Pfister (PAG) 636	86.5	92.2	81	147	Good	Fair	Med.
Y	Keystone 222	86.0	91.4	67	140	Good	Fair	Full
W	U. S. 523W	85.3	90.6	77	118	Good	Fair	Med.
Y	Tenn. 90	84.7	90.4	83	112	Good	Good	Full
Y	Funk G-710	83.5	86.2	83	139	Good	Good	Late
W	Pfister (PAG) 631	83.1	89.5	82	118	Good	Fair	Med.
Y	Pioneer 309A	82.8	87.6	90	115	Good	Fair	Med to Full
W	Dixie 55	—	100.2	78	167	Good	Good	Late
W	A.E.S. 904W	—	95.4	80	176	Good	Fair	Full
Y	De Kalb 1024	—	93.6	63	138	Good	Fair	Med.
Y	De Kalb 893	—	91.6	66	127	Good	Fair	Full
Y	McCurdy 988	—	86.0	78	111	Fair	Fair	Med.
Experimentals:								
W	T4103	96.3	103.3	85	164	Good	Good	Full
Y	T4413	—	92.1	85	116	Good	Good	Full
W	T4114	—	88.2	90	130	Good	Good	Short
Y	T5001	—	81.2	82	130	Good	Fair	Short

Table 4—*Corn: Average Yield and Other Characteristics of Corn Varieties Tested in Johnson County* for the Years Indicated.*

Color	Variety	3 Yr. Av. 1955-57 Bu./A.	1957 Av. Bu./A.	% Grain Moisture at Harvest	% Erect Plants	Leaf Blight Rat- ing**	Husk Length in In.	Ears Per 100 Plants	Grain Quality
Commercially Available:									
W	Tenn. 501	87.8	87.2	20.9	91	3.5	1.8	144	Good
W	Dixie 29	87.7	85.1	25.5	96	3.9	2.0	161	Good
W	S. S. 903	79.1	79.4	20.1	98	4.6	1.5	107	Good
W	Pfister (PAG) 636	79.1	76.5	22.7	95	4.4	2.0	156	Fair
Y	Funk G-134	78.0	82.7	21.1	90	4.2	1.8	103	Good
W	Local Open-Poll.	77.4	80.7	22.6	78	3.5	1.2	103	Fair
W	Pfister (PAG) 631	76.8	79.1	20.0	83	4.9	2.0	107	Fair
W	U. S. 523W	75.8	71.3	20.4	86	5.0	1.8	109	Fair
W	Funk G-512	73.9	77.1	21.4	77	4.4	1.8	127	Fair
Y	U. S. 13	72.8	85.7	18.9	94	4.9	1.0	98	Good
Y	Local Open-Poll.	65.0	71.3	21.3	88	4.1	1.5	102	Good
Y	Pioneer 309A	—	85.1	25.9	98	3.8	1.5	108	Good
Y	Ky. 105	—	78.7	22.7	94	4.8	0.5	104	Good
Experimentals:									
Y	T4406	76.8	77.0	19.6	98	4.9	1.5	122	Good
Y	T5005	—	94.5	20.2	92	4.4	1.2	152	Good
W	T5104	—	85.6	20.4	98	4.2	1.2	117	Good
W	T6151	—	83.0	19.0	100	4.8	1.8	138	Good
W	T5113	—	79.3	21.2	86	4.6	1.5	158	Fair
W	T6155	—	74.2	20.5	90	4.9	1.2	116	Good
W	T6156	—	73.9	20.7	95	4.9	1.2	116	Fair
W	T6153	—	72.8	20.5	92	4.8	1.2	107	Fair
Y	T5001	—	72.7	20.5	92	4.6	1.2	107	Good
W	T4114	—	71.4	24.3	97	4.2	2.0	115	Good
Y	T4406B	—	69.1	19.9	94	5.0	0.8	107	Good

*R. M. White Farm, Mountain City, Tennessee.

**Susceptibility to leaf blight. Smaller numbers indicate less disease.

COTTON

The 1957 cotton variety tests were conducted in cooperation with the U. S. Department of Agriculture. Tests were conducted at six locations with eight replications at each location. The test at Tiptonville was discontinued after 1956 and replaced in 1957 by one in Henderson County. This test was not harvested in 1957 because of heavy boll weevil damage.

Data are presented in Tables 5, 6, 7, and 8.

Table 5—*Cotton: Yields of Lint Per Acre of Varieties Tested in 1957.*
Eight Replications at Each Location.

Variety	State Av. Lbs.	Fort Pillow Lbs.	Munford Lbs.	Grand Jct. Lbs.	Jack- son Lbs.	Lawrence- burg Lbs.	Knox- ville Lbs.
Commercially Available:							
Stoneville 3202	838	777	935	1139	1011	672	492
Plains	837	770	943	1106	1036	643	524
Pope	827	765	841	1072	1076	673	534
Dixie King	818	688	882	1188	968	673	507
Stardel	788	690	852	1076	956	625	531
Coker 100W	782	623	822	1164	947	616	517
Cobal	780	688	804	1110	897	691	490
Stoneville 7	778	667	822	1146	882	627	523
Auburn 56	766	584	896	1093	887	626	513
Fox	750	726	820	1014	845	594	504
Empire W. R.	747	688	794	1050	869	642	438
Coker 124	733	587	717	1112	887	606	488
Deltapine 15	696	677	733	995	832	514	427
Experimentals:							
T-146	849	795	868	1186	1163	633	451
T-317	839	729	906	1217	960	722	500
Tenn. 1	808	691	839	1175	959	668	514
Tenn. 19	785	679	864	1075	939	665	486
B-251	774	757	752	1128	921	625	458
Average	789	699	838	1114	946	640	494
L.S.D. (.05)		100	94	96	73	46	49

Table 6—*Cotton: Average Yield and Other Characteristics of Varieties Tested for Two or Three Years.*

Variety	Lint Lbs./A.		Percent Lint	Classer's Length (32nd in.)	Bolls per Pound	% Total Yield at 1st Picking
	1955-57	1956-57				
Commercially Available:						
Pope	844	788	39.6	32	72	70
Plains	771	752	37.0	33	65	66
Fox	750	720	36.4	33	75	70
Auburn 56	747	724	35.8	33	70	67
Coker 100W	745	726	36.8	33	69	65
Cobal	734	702	36.4	33	62	76
Empire W. R.	734	705	37.2	33	58	69
Deltapine 15	707	668	38.7	33	74	64
Coker 124	703	680	36.8	33	68	59
Dixie King	—	742	37.8	33	60	72
Stardel	—	738	38.2	34	79	72
Stoneville 7	—	735	39.0	33	75	67
Experimentals:						
Tenn. 19	768	738	37.0	33	64	73
T-317	—	763	37.0	34	64	72
B-251	—	710	37.8	34	68	74

Table 7—*Cotton: Lint Percent of Varieties Tested in 1957.*

Variety	State Av.	Fort Pillow	Munford	Grand Jct.	Jackson	Lawrence-burg	Knox-ville
Commercially Available:							
Stoneville 3202	39.4	39.9	39.3	39.7	37.8	39.9	39.5
Plains	38.0	37.3	37.1	38.2	37.1	38.4	39.7
Pope	40.0	39.0	39.3	41.5	39.0	40.2	41.2
Dixie King	38.4	38.3	37.2	38.9	37.1	39.9	39.2
Stardel	38.1	37.9	37.4	38.8	37.1	38.5	39.0
Coker 100W	37.7	37.2	37.3	37.9	36.2	38.8	39.0
Cobal	37.8	36.7	37.0	38.3	35.6	39.8	39.4
Stoneville 7	39.1	38.1	37.7	39.4	38.0	41.0	40.3
Auburn 56	36.4	35.9	36.1	37.3	34.2	37.3	37.4
Fox	35.8	35.5	35.1	36.8	35.1	36.2	36.4
Empire W. R.	38.2	36.6	37.2	38.6	35.4	40.8	40.4
Coker 124	37.6	37.8	36.5	38.5	35.2	38.4	39.0
Deltapine 15	39.2	38.0	38.4	40.3	38.1	39.8	40.5
Experimentals:							
T-146	42.1	41.6	40.7	42.8	40.7	43.7	42.9
T-317	37.4	37.1	36.5	38.1	34.9	39.0	38.7
Tenn. 1	40.4	40.6	39.7	40.5	37.9	42.4	41.6
Tenn. 19	37.7	36.5	37.2	38.1	36.2	39.4	38.9
B-251	38.3	36.8	37.5	39.2	36.6	40.1	39.6

Table 8—*Cotton: Classer's Staple Length (in 32nd. inches) of 18 Varieties Tested in 1957.*

	State Av.	Fort Pillow	Munford	Grand Jet.	Jack- son	Lawrence- burg	Knox- ville
Commercially Available:							
Stoneville 3202	33	34	32	33	33	33	31
Plains	33	34	34	33	33	33	30
Pope	32	34	33	33	32	32	31
Dixie King	33	34	34	33	33	32	32
Stardel	33	34	34	33	33	32	32
Coker 100W	33	34	34	33	34	33	32
Cobal	33	34	34	34	33	32	31
Stoneville 7	33	34	34	33	33	32	31
Auburn 56	33	34	33	33	33	33	31
Fox	33	34	34	33	33	32	31
Empire W. R.	33	34	34	33	33	32	31
Coker 124	33	34	34	33	34	32	31
Deltapine 15	33	34	33	34	33	32	32
Experimentals:							
T-146	32	33	32	33	33	32	30
T-317	33	34	34	34	33	33	32
Tenn. 1	33	34	33	33	34	32	31
Tenn. 19	33	35	33	34	33	33	32
B-251	33	34	34	34	33	33	32

FALL-SEEDED SMALL GRAINS

Generally good yields of small grain were obtained over the state. Disease greatly reduced the yield of oats at Knoxville, Greeneville, and Crossville. Barley yields were reduced somewhat at all locations because of smut infestation.

Because of the prevalence of disease in small grain, a summary of the kind and amount of injury has been prepared by Dr. H. E. Reed, Plant Pathology Department, Agricultural Experiment Station, Knoxville. These data were collected from five of the experiment stations where small grain tests were conducted in 1957.

Fall-seeded small grain data are presented in Tables 9, 10, 11, and 12.

Table 9—*Fall-Seeded Oats: Yield Summary of Varieties Tested.*

Average of 4 Replications at Each Location.

Variety	State Av. 1955-57 Bu.	State Av. 1957 Bu.	Knox- ville 1957 Bu.	Greene- ville 1957 Bu.	Cross- ville 1957 Bu.	Spring- field 1957 Bu.	Spring Hill 1957 Bu.	Jack- son 1957 Bu.
Commercially Available:								
Victorgrain 48-93	92.7	64.4	35.9	34.4	0	135.7	80.6	99.7
Leconte	87.7	52.2	42.7	43.8	17.4	96.9	72.8	39.8
Forkedeer	82.4	48.0	31.4	46.1	13.0	83.5	69.8	44.0
Arkwin	80.2	47.8	23.3	35.4	0	93.8	79.0	55.2
Dubois	76.3	39.6	23.0	39.5	0	81.9	60.0	33.2
Experimentals:								
Tenn. 53-24	94.2	62.9	51.8	47.2	26.3	114.4	88.0	49.9
Tenn. 17-410-76	92.1	59.0	35.5	44.1	10.0	117.2	78.7	68.6
Tenn. 53-12	90.0	50.2	16.7	30.9	9.6	112.8	67.8	63.2
Tenn. 54-8	—	59.2	45.5	33.0	27.4	110.7	82.0	56.9
Tenn. 55-15	—	53.3	39.8	36.7	20.6	100.7	82.2	39.6
Tenn. 54-14	—	51.6	48.3	34.8	17.8	95.4	79.7	33.6
Tenn. 55-7	—	50.6	48.6	34.8	16.2	87.8	79.1	37.0
Tenn. 55-25	—	49.0	37.0	36.1	12.8	95.6	70.2	42.0
L.S.D. (.05)			9.2	N.S.	4.2	12.5	7.0	11.3

Table 9-A—*Fall-Seeded Oats: Characteristics of Varieties.*

Variety	Winter Hardiness	Standing Ability	Relative Maturity	Plant Height
Commercially Available:				
Victorgrain 48-93	Fair	Good	Med. to Late	Medium
Leconte	Good	Good	Late	Med. to Tall
Forkedeer	Good	Fair	Med. to Early	Med. to Tall
Arkwin	Fair	Good	Med. to Early	Med. to Tall
Dubois	Good	Fair	Med. to Late	Short
Experimentals:				
Tenn. 53-24	Good	Good	Med. to Early	Short
Tenn. 17-410-76	Fair	Fair	Med. to Early	Medium
Tenn. 53-12	Good	Good	Med. to Late	Short
Tenn. 54-8	Fair	Good	Med. to Early	Short
Tenn. 55-15	Good	Fair	Medium	Med. to Tall
Tenn. 54-14	Good	Good	Med. to Late	Medium
Tenn. 55-7	Good	Good	Medium	M. to Short
Tenn. 55-25	Fair	Good	Late	Med. to Tall

Table 10 — *Wheat: Yield Summary of Varieties Tested.*

Average of 4 Replications at Each Location.

Variety	State Av. 1955-57 Bu.	State Av. 1957 Bu.	Knox- ville 1957 Bu.	Greene- ville 1957 Bu.	Cross- ville 1957 Bu.	Spring- field 1957 Bu.	Spring Hill 1957 Bu.	Jackson 1957 Bu.
Commercially Available:								
Seneca	47.1	39.0	43.0	33.9	33.2	48.2	35.6	39.8
Thorne	45.5	36.7	38.9	34.6	33.6	42.5	35.4	35.4
Vigo	41.3	30.8	31.4	30.4	26.7	37.3	25.6	33.4
Coker 47-27	40.8	38.3	44.0	30.6	22.5	53.3	35.4	44.2
Knox	40.2	38.5	40.5	37.1	22.4	54.7	33.2	42.9
Vermillion	—	39.1	42.2	35.4	24.1	52.6	35.4	45.0
Dual	—	38.0	43.8	35.8	28.8	47.2	32.5	39.8
Fulcaster 612	—	34.9	39.7	29.4	27.8	39.6	36.4	36.7
Tayland*	—	—	39.1	36.1	—	44.3	40.8	39.0
L.S.D. (.05)			4.7	N.S.	8.1	6.0	3.6	7.1

*5 locations only.

Table 10-A — *Wheat: Characteristics of Varieties.*

Variety	Winter Hardiness	Standing Ability	Relative Maturity	Plant Height	Awn or Beard Character
Commercially Available:					
Seneca	Good	Good	Medium	Medium	Smooth
Thorne	Good	Good	Medium	Medium	Smooth
Vigo	Good	Fair	Late	Tall	Smooth
Coker 47-27	Poor	Good	Early	Tall	Smooth
Knox	Fair	Fair	V. Early	Short	Smooth
Vermillion	Fair	Fair	Early	Medium	Smooth
Dual	Good	Good	Late	Medium	Smooth
Fulcaster 612	Good	Fair	Early	Tall	Bearded
Tayland	Fair	Fair	Medium	Tall	Smooth

Table 11 — *Barley: Yield Summary of Varieties Tested.*

Average of 4 Replications at Each Location.

Variety	State Av. 1955-57 Bu.	State Av. 1957 Bu.	Knox- ville 1957 Bu.	Greene- ville 1957 Bu.	Cross- ville 1957 Bu.	Spring- field 1957 Bu.	Spring Hill 1957 Bu.	Jack- son 1957 Bu.
Commercially Available:								
Kenbar	58.9	50.4	54.5	33.2	40.2	61.0	50.3	63.0
Holston	55.1	48.7	43.2	23.8	53.4	70.8	44.2	57.0
Watauga	50.9	48.2	47.3	19.1	37.6	73.2	53.9	58.4
Jackson #1	49.2	46.7	54.1	24.3	41.4	63.3	48.6	48.4
Hudson	—	52.9	54.0	26.1	45.1	87.6	43.0	61.6
Dayton	—	52.6	45.4	20.4	50.4	89.9	43.0	66.4
Experimentals:								
Upright 97-10-1	—	41.8	40.5	18.0	43.0	67.8	36.3	45.3
Upright 50-106-11	—	40.9	42.9	15.7	41.4	69.9	36.2	39.4
Hooded 5-112-38	—	37.4	23.6	19.3	35.8	67.2	26.9	51.6
L.S.D. (.05)			5.4	6.6	8.4	8.6	4.2	8.5

Table 11-A — *Barley: Characteristics of Varieties.*

Variety	Winter Hardiness	Standing Ability	Relative Maturity	Plant Height	Awn or Beard Character
Commercially Available:					
Kenbar	Good	Fair	Early	Med. to Tall	Semi-Smooth
Holston	Good	Good	Medium	Medium	Semi-Smooth
Watauga	Fair	Fair	Medium	Medium	Smooth
Jackson #1	Good	Fair	Early	Medium	Smooth
Hudson	Good	Good	Medium	Medium	Rough
Dayton	Good	Good	Early	Med. to Tall	Rough
Experimentals:					
Upright 97-10-1 ..	Good	Good	Medium	Medium	Smooth
Upright 50-106-11	Good	Good	Medium	Med. to Tall	Smooth
Hooded 5-112-38 ..	Good	Good	Med. to Late	Medium	Hooded

Table 12 — *Comparative Susceptibility of Cereals to Diseases^a Under Natural Field Conditions at Five Locations in May, 1957.*

Variety	Jackson	Springfield	Greeneville	Spring Hill	Crossville	Jackson	Springfield	Greeneville	Spring Hill	Crossville
Wheat										
			Leaf Rust				Powdery Mildew			
Vigo	1	0	T-1	1	T	0	3-4	2	0	0
Coker 47-27	3	T	2-3	1	3	0	2	0	0	0
Seneca	4	3-4	3-4	2	3-4	0	3	2	0	0
Knox	2	T	0	0	3	0	T	1	0	0
Fulcaster 612	3	1-3	1	1	4	0	3	3	0	0
Thorne	5	T	3	1	3-4	0	2-3	2	0	0
Dual	1	0	0	T	0	0	2	0	0	0
Vermillion	1	0	0	T	T	0	3-4	3	0	0
Tayland	3	0	3	1	—	0	3	2	0	0
Barley										
			Leaf Rust				Scald			
Hudson	0	2-3	4	4	4	0	1	1	0	T
Kenbar	0	3	4	4	—	3	1	0	0	4
Watauga	0	3	4	5	3	3	3	2	0	5
Jackson #1	0	2	4	5	3	4-5	4	1	0	5
Hooded 5-112-38	0	3	5	5-6	3-4	2	1-2	0	0	2-3
Upright 50-106-11	0	3-4	4-5	5-6	1	4-5	3-4	1	0	5
Holston	0	1	4-5	5	2	2	1-2	0	0	3-4
Upright 97-10-1	0	3	4	5	1	5	2	0	0	5
Dayton	T	3	4-5	5	3	3	T	0	0	5
Oats										
			Leaf Rust				Red Leaf Stunting ^b			
Dubois	3	2	0	1	—	—	0	5	0	5
Victorgrain	2	1	0	1	—	—	2-3	4-5	0	5
Leconte	2	1	0	2	—	—	0	3	0	2-3
Arkwin	4	1	0	1	—	—	0	3	0	5
Forkedeer	-	T	0	1	—	—	4	3	0	4
Tenn. 7-410-76	-	1	0	2	—	—	2	2-3	0	4-5
Tenn. 53-12	-	1	0	2	—	—	0	4-5	0	5
Tenn. 53-24	-	T	0	1	—	—	0	2	0	3
Tenn. 54-8	-	2-3	0	1	—	—	0	2	0	2-3
Tenn. 54-14	-	1-2	0	2	—	—	0	2-3	0	2-3
Tenn. 55-7	-	1-2	0	2	—	—	T	2	0	2-3
Tenn. 55-15	-	1-2	0	3	—	—	0	1-2	0	3
Tenn. 55-25	-	2	0	3	—	—	0	1-2	0	3-4

^aLeaf rust ratings on all cereals 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 5. The letter "T" (Trace) was used in both index rating scales to indicate that a few localized spots of a disease occurred, or that the percentage of the leaf surface affected was less than 1 percent.

^bRed leaf stunting is a name given to a disease of oats caused by a fungus belonging to an unidentified species of *Helminthosporium*. In May this fungus was found to cause a culm and root rot.

ALFALFA

Results summarized here are from tests seeded in 1955 and 1956 with the exception of Knoxville, which was seeded in 1952.

Vernal and Nomad were included in the 1955 and 1956 seedings. Further testing will be necessary for an accurate evaluation of these varieties.

Data are presented in Table 13.

Table 13 — *Alfalfa: Summary of Yields at Six Locations for 1957.*

**Average of 4 Replications at Each Location.
Tons of Air-Dry Hay per Acre.**

Variety	State Av.	Greene- ville	Knox- ville	Cross- ville	Spring- field	Spring Hill	Jack- son
Du Puits	3.80	2.22	3.67	3.24	2.72	6.58	4.37
Atlantic	3.79	2.56	3.79	2.99	2.76	6.70	3.93
Williamsburg	3.69	1.94	3.80	3.23	2.51	6.55	4.10
Narragansett	3.68	2.35	3.78	3.52	2.23	6.15	4.02
Kans. Common	3.67	2.06	3.39	3.09	2.81	6.43	4.25
Buffalo	3.59	1.81	3.20	2.91	2.62	6.47	4.55
Vernal	—	2.38	—	3.36	2.50	6.62	3.97
Nomad	—	1.45	—	2.78	2.31	6.10	3.35
L.S.D. (.05)		.32	N.S.	N.S.	N.S.	N.S.	.39

Table 13-A — *Alfalfa: Summary of Yields for Three Locations for the Years Indicated.*

Variety	3 Loc. 5 Yr. Av. 1953-57	Spring Hill 5 Yr. Av. 1953-57	Jackson 5 Yr. Av. 1953-57	Knoxville 5 Yr. Av. 1953-57
Williamsburg	4.14	4.21	5.25	2.97
Atlantic	4.05	4.22	4.99	2.94
Du Puits	4.00	4.37	4.63	2.99
Narragansett	3.98	4.08	4.71	3.16
Kans. Common	3.97	4.12	5.11	2.69
Buffalo	3.94	4.03	5.28	2.52

SOYBEANS

Test results from two locations in 1955 and three locations in 1956 and 1957 are summarized in Table 14.

Table 14 — *Soybeans: Yield Summary of Varieties Tested at Three Locations for the Years Indicated.*

Four Replications at Each Location.

Variety	Yield Bu./A. 1955-57*	Yield Bu./A. 1956-57	Av. Yield Bu./A. 1957	Knox- ville Bu./A. 1957	Spring Hill Bu./A. 1957	Jack- son Bu./A. 1957	Seed Qual- ity	Range in date of maturity
Ogden	29.1	30.0	35.0	33.2	23.2	48.7	Good	Oct. 15-Oct. 25
Lee	29.1	28.2	36.0	30.2	27.1	50.8	Good	Oct. 20-Oct. 30
Perry	24.2	24.6	29.3	20.8	24.4	42.7	Poor	Aug. 30-Sept. 10
Dorman	23.7	24.4	29.3	24.4	19.4	44.2	Good	Sept. 15-Sept. 25
Wabash	22.0	22.6	25.9	22.3	18.7	36.6	Fair	Aug. 30-Sept. 10
Bobsoy	—	—	35.7	30.0	29.0	48.2	Good	Oct. 20-Oct. 30
L.S.D. (.05)				3.8	6.2	2.8		

*1955 results at Jackson were not averaged since yields were erratic.

GRAIN SORGHUM

Grain sorghum tests were conducted at Spring Hill and Springfield in 1956 and 1957. A corn variety was included in the tests to compare grain yields of the two crops.

Data are presented in Table 15.

Table 15 — *Grain Sorghum: Yields and Characteristics of Varieties Tested in 1957.*

Five Replications at Each Location.

Variety	2 Yr. Av. Bu./A. 1956-57	Av. Bu./A. 1957	Yield Bu./A. Spring- field 1957	Yield Bu./A. Spring Hill* 1957	Plant Ht. in In.	Relative Grain Maturity	Lodg- ing Per- cent**	Head Type
U. S. 523W (Corn)	—	—	70.3	135.0	—			
De Kalb D-50A	67.9	78.2	50.5	106.0	52	Med.	62	Open
Frontier 400	67.8	74.7	49.8	99.5	47	Med. to Early	40	Med.
Early Hegari	63.8	67.6	56.4	78.8	56	Med.	43	Tight
Texas 620	61.0	73.4	52.1	94.7	52	Med.	28	Med.
De Kalb E-56A	60.6	70.2	49.0	91.4	48	Med.	26	Open
Frontier 390	60.0	68.2	54.5	82.1	51	Med.	17	Med.
Combine Bonita	59.6	68.2	63.2	73.2	55	Med.	2	Tight
Frontier 410	59.3	69.4	55.6	83.1	49	Med.	20	Tight
Texas 601	58.8	68.4	46.3	90.5	48	Med.	46	Med.
Martin Milo	55.5	65.2	54.3	76.2	47	Med.	7	Open
Redbine 66	50.7	53.4	49.8	57.0	46	Early	8	Tight
RS 610	—	71.4	51.3	91.4	49	Med.	43	Open
McCurdy Lot 70	—	70.0	55.5	84.6	51	Med.	28	Tight
McCurdy Lot 50	—	68.0	50.7	85.1	54	Med.	36	Tight
McCurdy Lot 80	—	68.0	50.4	85.5	50	Med.	41	Tight
De Kalb C-44A	—	61.2	43.0	79.4	47	Med.	22	Open
AMAK R-10	—	59.7	51.1	68.1	44	Med.	12	Open
AMAK R-12	—	42.1	42.4	41.7	45	Late	2	Tight
Plainsman	—	—	—	58.1	44	Med. to Early	—	Tight
Texas 611	—	—	56.6	—	53	Med.	14	Tight
Average			51.7	80.4				
L.S.D. (.05)			7.7	7.4				

*Spring Hill test received 6 inches of irrigation water in 1957.

**Lodging taken only at Springfield in 1957; no lodging at Spring Hill. Springfield test was harvested later than normal, thereby causing excessive lodging.

All varieties were red-seeded except Early Hegari and Combine Bonita, which were white seeded. Springfield test seeded June 12; Spring Hill June 14.

TOBACCO

Data for Dark Fired Tobacco were furnished by Mr. D. H. Latham, Associate Pathologist. Data for Burley Tobacco were furnished by Mr. H. A. Skoog, Associate Plant Pathologist, (Co-op U.S.D.A.) and Mr. J. Hugh Felts, Superintendent, Tobacco Experiment Station.

Since the 1957 variety test results were not yet available, the data included in the bulletin are for 1956 and previous years. The Burley varieties were tested at four locations and the Dark Fired Tobacco at one location only. Data are presented in Tables 16 and 17.

Table 16 — *Burley Tobacco: Average Crop Index* for Years Indicated.*

Variety	2 Yr. Av. 1955-56	Greeneville	Grainger County	Spring Hill	Springfield
		2 Yr. Av. 1955-56	2 Yr. Av. 1955-56	2 Yr. Av. 1955-56	2 Yr. Av. 1955-56
Burley 21	1226	884	1426	1374	1224
Burley 1	1209	822	1371	1359	1286
Burley 2	1206	852	1349	1358	1266
Va. B29	1193	861	1356	1462	1095
Ky. 16	1179	850	1367	1327	1172
Burley 11B	1095	779	1301	1026	1274
Ky. 41A	1089	819	1224	1194	1118
Ky. 35	1059	740	1322	1091	1083
Burley 11A	1056	782	1208	1076	1160
Ky. 58	1054	792	1199	1125	1101

*Crop Index values approximate acre values. They are obtained by multiplying the acre yield by the grade index. The grade index values approximate price per pound and are compiled on the basis of prices paid for tobacco over a number of years.

Table 16-A — *Burley Tobacco: Average Yield for Years Indicated.*

Yield in Pounds Per Acre.

Variety	2 Yr. Av. 1955-56	Greeneville	Grainger County	Spring Hill	Springfield
		2 Yr. Av. 1955-56	2 Yr. Av. 1955-56	2 Yr. Av. 1955-56	2 Yr. Av. 1955-56
Burley 21	2105	1668	2298	2354	2101
Burley 1	2101	1632	2226	2338	2202
Burley 2	2088	1577	2186	2334	2134
Va. B29	2046	1644	2241	2300	2000
Ky. 16	2056	1669	2228	2291	2036
Burley 11B	1838	1409	2021	1916	2008
Ky. 41A	2008	1626	2178	2160	2070
Ky. 35	1985	1564	2208	2098	2071
Burley 11A	1852	1416	1949	1987	1957
Ky. 58	1980	1660	2163	2100	2000

Table 17 — *Dark Fire-Cured Tobacco: Four-Year Average Yield and Acre Value of Varieties Grown on the Highland Rim Experiment Station, Springfield, Tennessee, 1953-1956.*

Variety	Acre Yield in pounds	Value per* 100 pounds	Acre value* in dollars
Broad Leaf Madole	1755	37.29	661.57
Ozark	1771	36.58	656.79
Narrow Leaf Madole	1748	36.78	637.63
Black Mammoth	1723	35.31	605.96
L.S.D. (.05)	107		67.53

*These values are based on the average value for each of the various grades, on all type 22 markets, during the 7-year period, 1946-1952.

STATION PROJECT NO. 33:**Evaluation of the Performance of Varieties of Field Crops.****Personnel:**

L. N. Skold, Agronomist
Billy M. Piper, Assistant in Agronomy
Thomas O. Shelby, Assistant in Agronomy
Robert H. Gibson, Assistant in Agronomy*

Cooperators:

E. J. Chapman, Superintendent, Middle Tennessee Experiment Station, Spring Hill.
J. Hugh Felts, Superintendent, Tobacco Experiment Station, Greeneville.
B. P. Hazlewood, Superintendent, West Tennessee Experiment Station, Jackson.
J. N. Odom, General Superintendent of Farms, Main Experiment Station, Knoxville.
J. A. Odom, Superintendent, Plateau Experiment Station, Crossville.
L. M. Safley, Superintendent, Highland Rim Experiment Station, Springfield.
E. N. Duncan, Assistant Agronomist, (Coop U.S.D.A.), Cotton Field Station, Knoxville.
N. I. Hancock, Plant Breeder, Knoxville.
L. M. Josephson, Agronomist, (Coop U.S.D.A.), Corn Breeder, Knoxville.
H. C. Kincer, Assistant Agronomist, Knoxville.
D. H. Latham, Associate Plant Pathologist, Springfield.
Joseph R. Overton, Assistant Agronomist, Jackson.
James B. Pate, Agronomist, (Coop U.S.D.A.), Cotton Field Station, Knoxville.
H. E. Reed, Associate Plant Pathologist, Knoxville.
H. A. Skoog, Associate Plant Pathologist, Greeneville.
Joe Barfield, Warden, Fort Pillow State Farm, Fort Pillow.
Dewberry Brothers, Lawrenceburg.
R. H. Ferguson, Lexington.
Roy Godwin, Rutledge.
R. H. Scott, Manager, and James Bryan, Assistant Manager, Ames Plantation, Grand Junction.
Robert Wooten, Munford.
Board of Cotton Examiners, U. S. D. A.
Federal Tobacco Grading Service, U. S. D. A.

*Resigned July 1, 1957.

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