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Measured crop performance

TOBACCO

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INTRODUCTION

During the last few years the problem of tobacco variety evaluation has become increasingly difficult. This is due to several factors. New sources of germ plasm have been introduced into breeding programs in an effort to combat tobacco diseases. Granville wilt resistance was obtained from a South American tobacco and black shank resistance from a cigar tobacco. Recently Nicotiana species other than tabacum have been used in the development of new breeding lines. The breeder is interested in using these types and species as sources of desirable characteristics, such as disease resistance, high yield, and aroma, that are important in flue-cured varieties. However, the evaluation of this material must be very extensive and intensive to insure the recognition of improved types.

Another important problem is the ever-changing demand of the consumer. Several years ago, heavy-bodied types were in demand. These types are produced by old line varieties. Then a gradual shift occurred toward milder types. Hence there was a change to varieties that produced a high proportion of light cigarette tobacco relatively low in nicotine content. With the increase in production of filter tip cigarettes, however, demand has increased for heavier-bodied types that have full aroma and flavor and a relatively high nicotine content.

The present price structure and control program provide incentives for the grower to produce as high a yield as possible since dollar return is closely correlated with yield. Whenever a cut in the allotment has been made, it has been largely offset by practices that increase yield. Variety performance

plays an important role in such a situation. Thus a broad base of germ plasm must be carried in the breeding program to meet these ever-changing conditions. The more material in a breeding program the more thorough the evaluation must be to provide complete information.

The Tobacco Variety Evaluation Program in North Carolina is an effort to fulfill the need for information on varietal performances under diverse soil and climatic conditions. Experiments are conducted to determine agronomic, pathological, and chemical characteristics as well as acceptability, from both the growers' and manufacturers' viewpoint. Included are disease resistant and non-resistant varieties, as well as advanced breeding lines.

The evaluation program consists of two phases. The first phase consists of testing of varieties by the utilization of small replicated plots located on five research stations. In this program are included experimental lines and varieties developed both by public and private agencies. Measurements are made on yield, value, agronomic characteristics, disease resistance, irrigation effect and chemical characteristics. The second phase of the program involves a more extensive study of fewer varieties and advanced lines under farm conditions with one-half acre plots. Two varieties and three advanced lines were tested in 1956. Thirteen locations were involved, three in each of the Border, Middle and Old Belts and four in the larger Eastern Belt. This evaluation program is a cooperative effort between the Experiment Station, tobacco companies, and growers. Representatives from both domestic and foreign buyers obtain samples of the cured leaf for study in their leaf departments, laboratories and manufacturing plants. The participating companies in 1956 were the American Tobacco Company, Brown &

Williamson Tobacco Corporation, the Imperial Tobacco Company, Liggett & Myers Tobacco Company, Philip Morris, Inc. and R. J. Reynolds Tobacco Company.

This report presents data from the 1956 Tobacco Variety Tests and Cooperative Variety Evaluation Tests. In addition to the 1956 results, a summary of tobacco variety tests during the last eight years with respect to acre yield, acre value and value per hundredweight is presented in Table 1.

Similar reports which record previous years' data have been issued. It should be recognized that a single year's data may not portray the true performance of a variety over a wide range of seasonal conditions, and that testing over a period of years is needed to evaluate the performance of any variety.

EXPERIMENTAL PROCEDURE

What May Be Tested

Both private breeders and those with federal or state agencies may submit entries. One requirement for acceptance is quantitative data from experiments in which the proposed entry is compared with recognized varieties. These data must reveal meritorious performance in order for a variety or line to qualify for the test. The personnel of the testing program may include entries whose performance records indicate that they may contribute to more effective crop production. There may also be included certain entries from seeds of lots offered for sale within the state, or from seed lots furnished by testing agencies of other states.

Early in December of each year rules governing the tests for the ensuing year are distributed to all previous participants and to those who make inquiry.

Agencies Sponsoring Entries

Bell Farm, Windsor, N. C.
Bissette Seed Farm, Elm City, N. C.
Coker's Pedigreed Seed Company, Hartsville, S. C.
McNair's Yield-Tested Seed Company, Laurinburg, N. C.
N. C. Agricultural Experiment Station, Raleigh, N. C.
S. C. Agricultural Experiment Station, Florence, S. C.
Speight Seed Farm, Winterville, N. C.
Virginia Agricultural Experiment Station, Chatham, Virginia

Test Locations

Five locations were used to represent the different soil and climatic conditions of the State. At least one test was included in each of the flue-cured belts. The locations were as follows:

TV-81 Border Belt Tobacco Research Station, Whiteville, N. C. representing the Border Belt.

TV-82 Upper Coastal Plain Research Station, Rocky Mount, N. C. representing the Eastern Belt.

TV-83 Central Crops Research Station, Clayton, N. C. representing the Eastern Belt.

TV-84 Oxford Tobacco Research Station, Oxford, N. C. representing the Middle Belt.

TV-85 Upper Piedmont Tobacco Research Station, Rural Hall, N. C. representing the Old Belt.

The map in Figure 1 shows the location of these tests and also the locations of the cooperative grower tests.

Methods

The tests were conducted on disease-free soil, in so far as possible and the same entries occurred at every location. All entries were coded in the plant bed and in the field. A total of 28 varieties and advanced lines were included.

Four replications of a randomized block design were used at each location, except Clayton and Oxford. The tests at Clayton and Oxford had a split-plot design of two replications in which all entries were studied under both irrigated and non-irrigated conditions. The plants were banded and individually selected for transplanting so as to get uniformity within plots. Each two row plot consisted of 40 guarded plants. The rows were 3.5 feet apart and the plants were spaced 22 inches in the row.

Farm practices of plant bed preparation, liming, fertilization, planting date, cultivation, and insect and disease control were in accordance with those normally accepted as good for the production of tobacco. Fertilizer was applied in accordance with soil test recommendation. One thousand pounds of 4-8-10 per acre was used at all locations except Rural Hall where the rate was 800 pounds per acre. The test at Clayton was top-dressed with 8-0-24 at the rate of 100 pounds per acre.

All varieties were topped and suckered. Individual plots were harvested according to the degree of maturity, tagged and kept separate throughout curing, sorting, and grading. Data on agronomic characters were taken in the field, and chemical determinations were made on the cured leaf. 1/ Disease reaction was noted in separate tests under severe disease conditions. 2/

1/ Chemical analyses were made in the Tobacco Chemistry Laboratory under the supervision of J. A. Weybrew and John L. Hall.

2/ The Plant Pathology Faculty cooperated on the tests for disease reaction.

The methods of taking the data were the same as those used in 1955. For a discussion of the particular methods the reader is referred to Measured Crop Preformance - Tobacco. Agronomy Research Report Number 20, December 1955.

Standard check variaties were included for comparison. These checks or standards, Dixie Bright 101 and 402, are the same that are used by other stations as recommended by the Regional Tobacco Variety Evaluation Committee of the Tobacco Workers' Conference.

The data from all 28 entries were statistically treated. 3/ This report includes only the data on 15 released varieties.

Seasonal Conditions

In general, the 1956 season was favorable for the production of tobacco. Rainfall was adequate in most of the state as revealed by the record in Table 9.

The Whiteville test, TV-81, was transplanted on May 5. Transplanting was delayed about 10 days due to heavy rains. There was more than adequate rainfall throughout the growing season and the tobacco made excellent growth.

The Rocky Mount test, TV-82, was transplanted on May 9 during a good season. Frequent rains after that time plus supplemental irrigation provided good growing conditions.

3/ The Statistical Laboratory and D. D. Mason assisted with the statistical analyses.

The Clayton test, TV-83, was transplanted on May 11 under ideal seasonal conditions. The plants grew off well and very little replanting was required. The last half of May was rather dry and the non-irrigated plots suffered from a lack of adequate moisture. After this dry period the season was good except for the last half of June and the tobacco made good recovery. The plots which were to be irrigated suffered some from a lack of moisture the last of May prior to the time irrigation was started. However, once irrigation was started the tobacco recovered and made good growth throughout the season. Whenever the soil moisture dropped to approximately 25% of field capacity, one inch of irrigation water was applied.

At Oxford, TV-84, the transplanting season was rather hot and dry. The tobacco was transplanted on May 21 and a good stand was obtained. However, Granville wilt and stem rot caused heavy losses in some plots. In late May and again in late June, the weather was dry and the tobacco in the non-irrigated plots suffered. However, once the rains started in July, the tobacco made fair growth.

The Rural Hall test, TV-85, was transplanted on May 28 under dry conditions, however, there were good rains in early June. The last of June it was dry and the tobacco did not make as good growth as normal, but the quality of the tobacco was good.

RESULTS

Table 1 and 2 are summary tables and will be discussed. The other tables give data from individual locations and will be discussed only to emphasize specific points.

Presented in Table 1 is a comparison of certain flue-cured tobacco varieties from 1949 to 1956 with the exception of 1952. All the varieties are compared on a percentage of the average of a standard, 402 and Dixie Bright 101, in the test in which they appeared. The varieties with the higher number of comparisons have been in the tests for a number of years, while the varieties with only five comparisons have appeared in the test only one year. The varieties are compared for acre yield, acre value, and value per 100 pounds.

The varieties included in these investigations may be classed into five categories based on their yield. The groups listed in a descending order of yield are (1) Coker 139, (2) Dixie Bright 244, (3) Speight 42, Coker 140, Virginia Gold, Dixie Bright 28, McNair V. G. 2, Golden Gem 711, Bottom Special, and Virginia 21, (4) a group of ten varieties yielding essentially the same as Dixie Bright 101 and 402, and (5) three low yielding varieties.

Values per acre, a quantity reflecting both yield and quality, were calculated, the data analyzed, and presented. Since variations in value per acre are dependent on variations in yield, and value per hundred-weight, only these components are discussed.

Four varieties, Coker 139, White Gold, Hicks and Coker 140, produced leaf with a higher value per hundred-weight than the standards. The other varieties had the same general relationship to the standards as they did for yield.

In Table 2 the averages of fifteen varieties at five locations in 1956 are compared. The data from TV-81, TV-82, TV-83, TV-84, and TV-85 were combined to study average varietal performances over a wide area.

The data from the non-irrigated plots of TV-83 and TV-84 were used in this comparison. Coker 139 had the highest yield. Speight 42, Coker 140, Dixie Bright 244, Virginia 21, and McNair V.G. 2 were very similar in yield but were somewhat lower than Coker 139. The remainder of the varieties yielded essentially the same as Dixie Bright 101 except for Oxford 1-181 and Virginia 45 which were lower. The values per acre followed the same trend as for yield except that Hicks improved its relative position. Hicks had the highest value per 100 pounds which was a reflection of its desirable grade distribution.

Coker 139, Coker 140 and Bissette's Special were similar in number of leaves produced. Coker 140 like Dixie Bright 101 and Dixie Bright 244 were tall growing varieties. Most of the others were moderate in height, except for 402, Hicks, McNair V. G. 2, Oxford 1-181, and Coker 187 which were low growing varieties. Internode length is a direct reflection of height of plant and number of leaves. Dixie Bright 101 had a long internode and Coker 139 and Bissette's Special had short ones, while the other varieties were intermediate.

The later maturing varieties such as Coker 139 and Dixie Bright 244, tended to produce fewer suckers. The earlier maturing varieties such as Hicks, Speight 42, Buyer's Choice, Golden Gem 711 and Bissette's Special produced the most suckers. The only varieties with many ground suckers were Dixie Bright 101, Speight 42 and Buyer's Choice.

In general a nicotine value of about two percent has been found to be satisfactory to the trade. Most varieties were in this range with the notable exceptions of Oxford 1-181 which had more than 3%, Coker 139 and Coker 140

which were very low and Dixie Bright 244 which was low in nicotine. The higher yielding varieties had the lower nicotine levels.

All varieties were in the desirable range of sugar; however, Virginia 21 and Virginia 45 were lower than the others in sugar percent. Likewise, most of these varieties were quite similar in their nitrogen content except for Coker 139 which was low.

The varieties developed in recent years are very similar in leaf size. However, certain of them project from the stalk at different angles. Coker 139, Dixie Bright 244 and McNair V. G. 2 tend to produce leaves more upright than the other varieties.

In the Black shank tests Coker 187, Coker 139, Dixie Bright 244 and Coker 140 had a high level of resistance, Oxford 1-181 and Dixie Bright 101 were moderately resistant and Golden Gem 711 and Buyer's Choice were low. The other varieties were susceptible.

Dixie Bright 101 was highly resistant to Fusarium wilt and Dixie Bright 244 was moderately resistant.

The Granville wilt tests were conducted both in the field and greenhouse. Dixie Bright 101, Coker 139, Dixie Bright 244, and Coker 187 carried a good level of resistance, while Coker 140 was only moderately resistant.

Although there were some minor interactions, most varieties tended to perform in the same relative manner from location to location. In the study of response to supplemental irrigation, the differential responses of varieties were of no practical significance.

In TV-83 irrigated plants yielded more, had a higher value per acre, were taller with longer internodes, and contained a higher percent of reducing sugar than non-irrigated plants. Otherwise, there were no significant differences in irrigated and non-irrigated plots.

In TV-84 the only practical difference was that irrigated plants contained a lower percent nicotine than non-irrigated plants. The season was such that supplemental water had very little effect at this location.

In Table 8 data on yield and value per acre, and value per 100 pounds from the Cooperative Tobacco Variety Evaluation Tests in 1956 are shown. These tests were conducted under farmer conditions on one-half acre plots. The average belts represent three farms in each belt except the Eastern which had four farms. Dixie Bright 244 had an intermediate acre yield, acre return, and value per 100 pounds between Dixie Bright 101 and Coker 139.

DISCUSSION

Tobacco growers are interested in planting a variety which will give the largest net income and at the same time protect the future market. Quality directly influences price, and consequently net income, except where the support price does not reflect the true quality and demand for a particular grade or type. One of the factors affecting quality is nicotine content.

Some of the new high yielding varieties are low in nicotine content and also tend to possess mild to low aroma. Although there is no known analytical measure for aroma, nicotine can be measured precisely. In Figure 2 the relationship of nicotine percentage, yield and variety is shown for the 15 varieties in the 1956 tests at five locations. In general, the higher

yielding varieties, such as Dixie Bright 244, Coker 139, and Coker 140, are lower in percent nicotine. When this same relationship is studied over a three year average, Figure 3, the linear trend is even more striking. A total of thirteen tests over a three year period is included in this graph. There was a correlation of -0.8 between nicotine and yield, that is, as yield increased in these varieties the percent nicotine decreased. In fact, there was a decrease of .25% nicotine for each increase of 100, pounds in yield between 1500 and 2300 pounds per acre. The decrease in nicotine with an increase in yield is a variety trait. The trend in variety development has been toward milder, lower nicotine varieties that have a high yield.

The breeder has exerted selection pressure toward low nicotine and high yield as part of his objectives. These objectives have been accomplished. In fact some of the new high yielding varieties may be too low in nicotine. This does not preclude the possibility of the development of high yielding varieties with desirable levels of nicotine. Developing a new variety is a slow process requiring several years. Also when selection pressure is for high yield, it is difficult to maintain all other desirable characteristics, such as chemical traits and other quality factors, in proper balance.

It will be noted that from the graphs the varieties with average to low yields and average to high nicotine content are those generally considered as having good flavor and aroma.

Although the nicotine content of tobacco may be influenced by the environment in which the plant develops and by the processing treatments to which the mature leaf is subjected, the inherent ability of the plant to

produce nicotine limits the magnitude of the effects of other factors. Varieties grown under various environmental conditions retain their relative rankings one with the other.

In choosing a variety, then, the grower should consider more than yield alone. Quality and consumer demands should be given major consideration. It is to the growers advantage to work toward insuring a continuing market for flue-cured tobacco.

Location of Tests - 1956

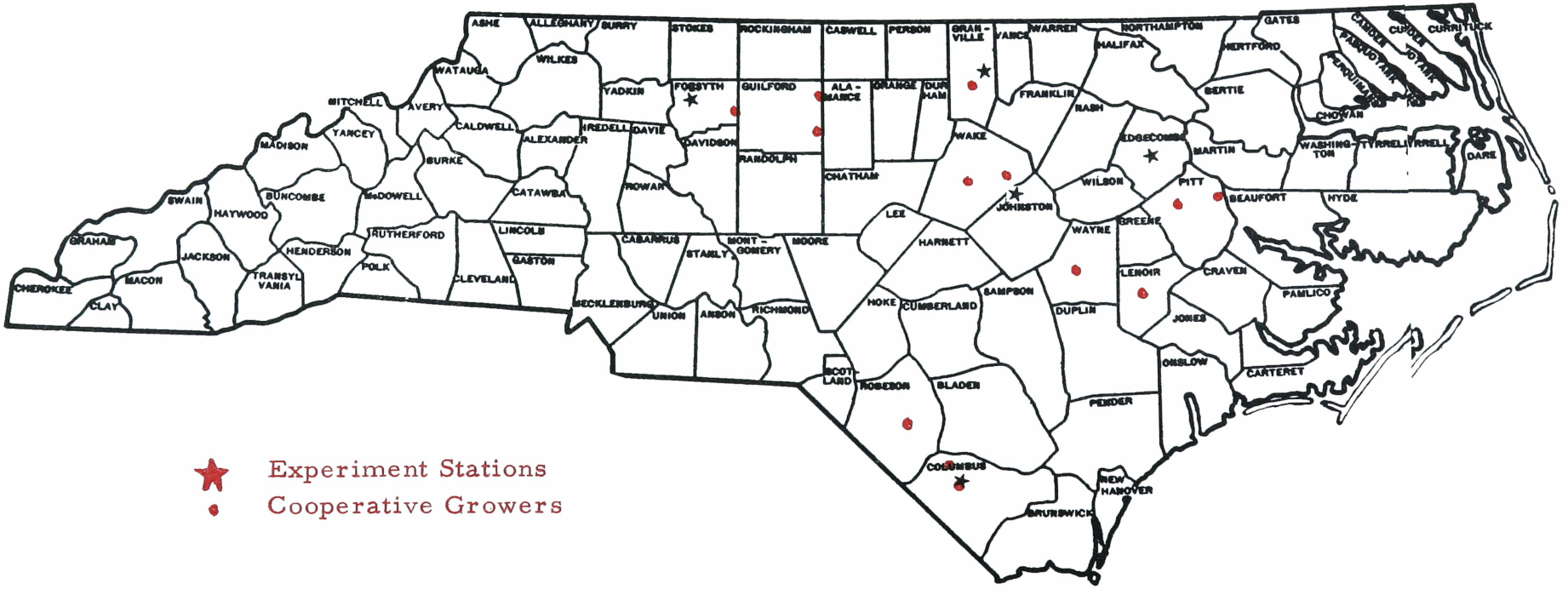
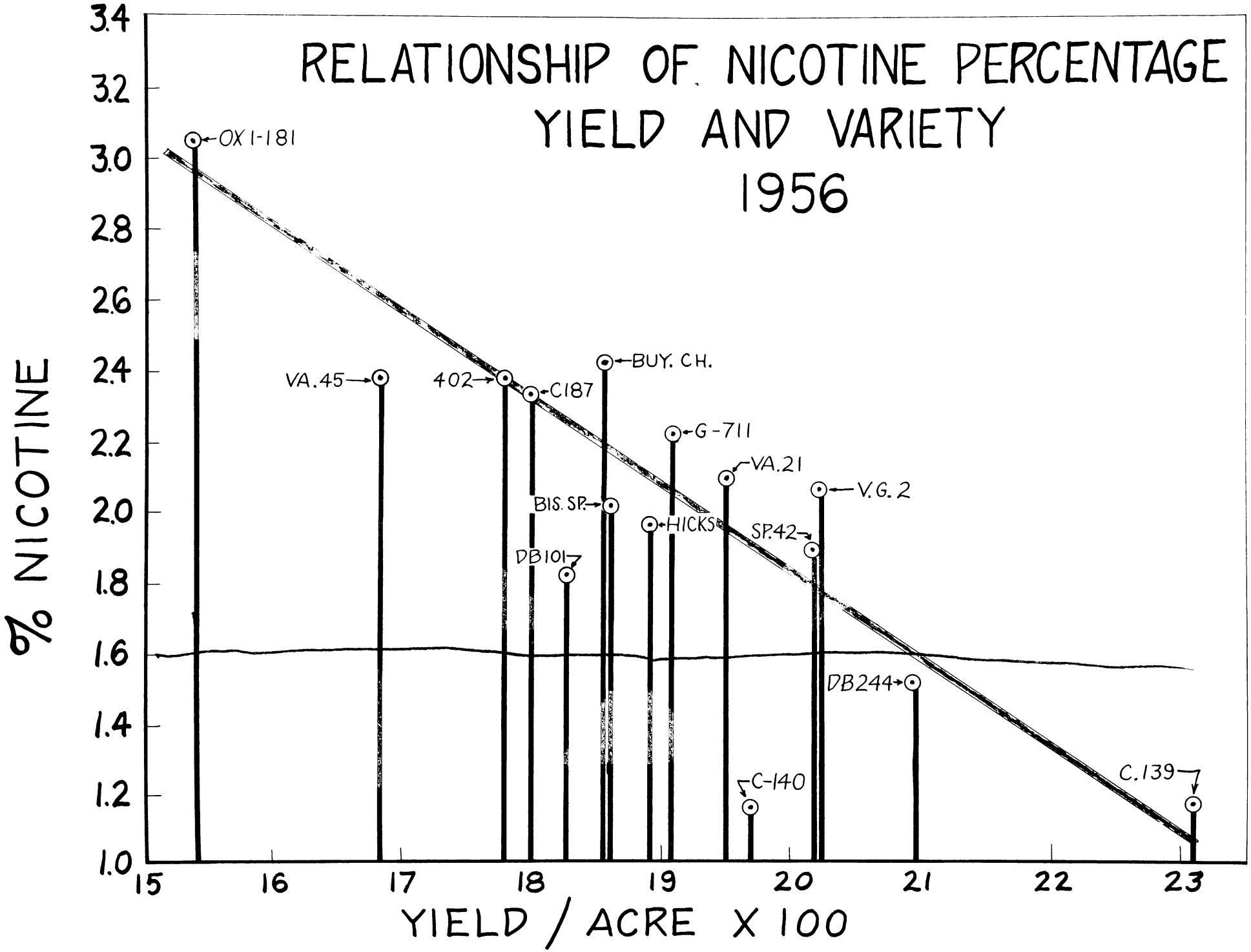


Figure 1.


RELATIONSHIP OF NICOTINE PERCENTAGE
YIELD AND VARIETY
1956
% NICOTINE
YIELD / ACRE X 100
3.4
3.2
3.0
2.8
2.6
2.4
2.2
2.0
1.8
1.6
1.4
1.2
1.0
15
16
17
18
19
20
21
22
23
OX 1-181
VA. 45
402
C187
BUY. CH.
G-711
VA. 21
V.G. 2
BIS. SP.
HICKS
SP. 42
DB101
DB244
C-140
C. 139

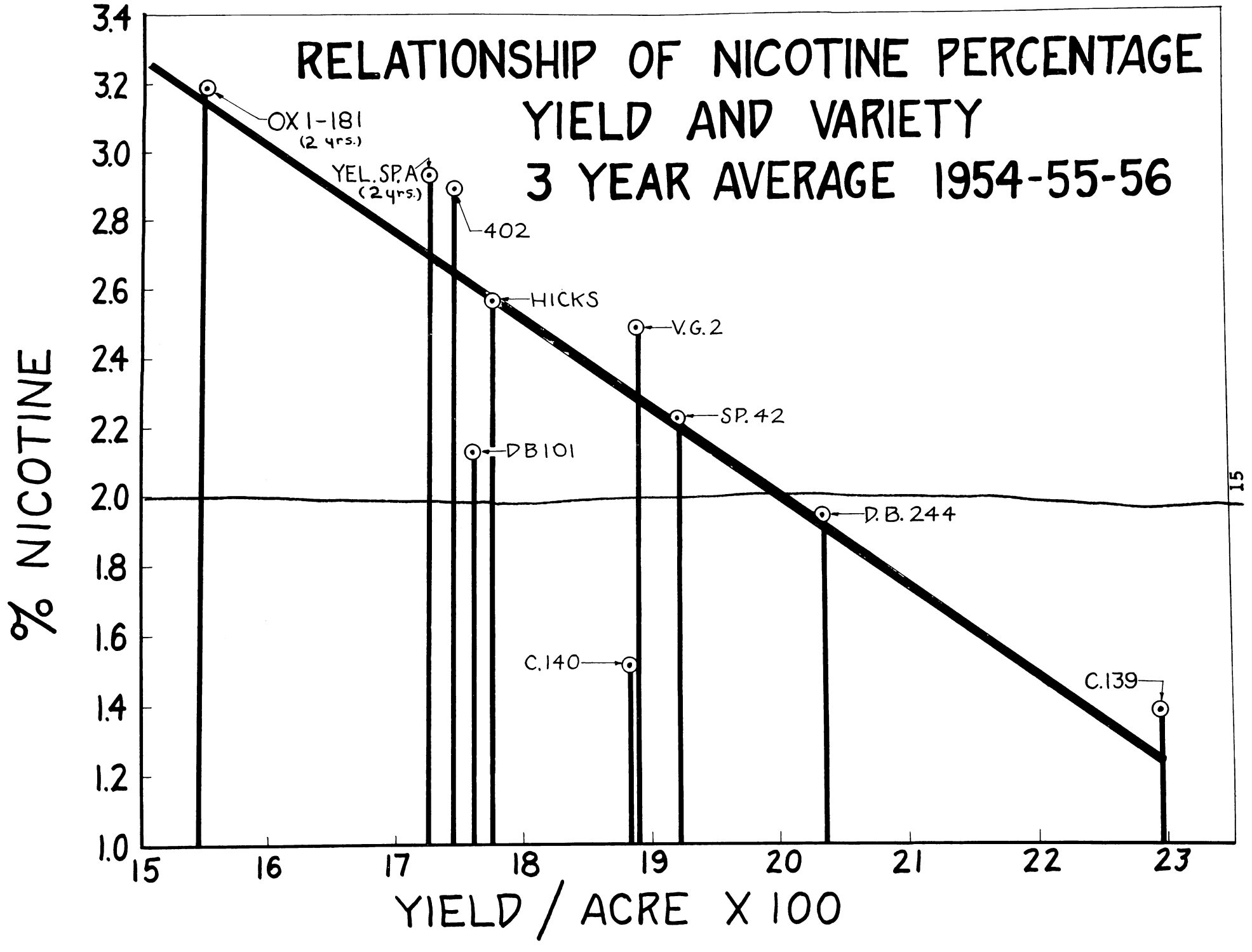

RELATIONSHIP OF NICOTINE PERCENTAGE
YIELD AND VARIETY
3 YEAR AVERAGE 1954-55-56
OX 1-181
(2 yrs.)
YEL. SP. A
(2 yrs.)
402
HICKS
V.G. 2
SP. 42
DB 101
D.B. 244
C.140
C.139
15
% NICOTINE
3.4
3.2
3.0
2.8
2.6
2.4
2.2
2.0
1.8
1.6
1.4
1.2
1.0
15
16
17
18
19
20
21
22
23
YIELD / ACRE X 100

Table 1. Percentage comparison with the mean of 402 and D. B. 101 of certain flue-cured tobacco varieties. Official Tobacco Variety Test 1949-1956. 1/

Variety	Number of comparisons	Acre Yield	Acre Value 2/	Value per 100 lbs.
Standard $\frac{402 \text{ D. B. } 101}{2}$	29	1692	$890 3/	$52.60
		Percent	Percent	Percent
D. B. 101	29	101	99	99
402	29	99	101	101
Hicks	27	98	104	105
Yel. Sp. A	18	97	97	100
D. B. 102	13	87	77	89
Speight 42	13	110	109	98
Coker 139	13	132	142	106
Coker 140	13	109	115	104
D. B. 244	13	117	116	98
V. G. 2	13	108	112	102
Bot. Sp.	12	106	102	96
White Gold	12	98	102	106
Va. Gold	11	109	106	98
Oxford 1-181	11	87	85	97
Oxford 1	10	86	77	90
D. B. 28	10	109	102	94
Va. 21	10	105	108	102
Buyer's Choice	10	102	101	98
Golden Gem 711	10	107	107	100
Va. 45	10	94	92	97
Golden Harvest	6	98	97	98
Golden Cure	6	99	98	99
Bissette's Special	5	103	105	100
Coker 187	5	100	97	95

1/ 1952 test not included.

2/ 1939 to 1941 ave. auction price on gov't grade basis used for 1949-51.
1952 ave. auction price on gov't grade basis used for 1953-54.
1952 to 1954 ave. price on gov't grade basis used for 1955-56 except for new grades where 1956 ave. prices to October 10, 1956 were used.

3/ Adjusted to 1955 and 1956 ave.

Table 2. Comparison of varieties in 1956 for certain characteristics.
Combined analyses of all locations.

TV-81 - Whiteville; TV-82 - Rocky Mount; TV-83 - Clayton; TV-84 - Oxford; TV-85 - Rural Hall

Variety	Yield	Value Index 1/		Leaf Grade Dist.			No. of	Height	Ave. Length
	lbs/A	Dol/A	Dol/Cwt.	High	Med.	Low	leaves per plant	of plant (in.)	of omtermode (in.)
D. B. 101	1825	924	50.32	3	62	35	21.0	58.1	2.8
402	1783	972	54.13	14	59	27	18.3	46.6	2.6
Hicks	1890	1106	58.16	38	47	15	17.6	44.0	2.5
Speight "42"	2020	1051	51.18	11	57	32	20.6	54.3	2.7
Coker 139	2311	1287	55.46	23	52	25	23.2	50.7	2.2
Coker 140	1971	1109	55.87	19	54	27	23.3	57.0	2.5
D.B. 244	2098	1078	50.92	7	56	37	21.7	56.1	2.6
Va. 21	1952	1056	53.50	23	50	27	19.6	49.7	2.6
V,G. 2	2021	1127	55.08	27	48	25	19.3	45.2	2.3
Buyer's Choice	1858	976	52.24	14	59	27	18.3	48.0	2.6
Golden Gem 711	1908	1007	52.48	16	57	27	19.0	49.7	2.6
Bissette's Special	1861	999	53.43	21	55	24	22.7	49.3	2.2
Oxford 1-181	1530	789	50.82	6	59	35	19.2	45.3	2.4
Va. 45	1689	872	51.37	13	56	31	19.7	51.5	2.6
Coker 187	1800	921	50.76	8	57	35	20.0	47.5	2.4
L.S.D. (.05)	136	93	2.75	-	-	-	2.2	6.1	.2
(.01)	179	123	3.64	-	-	-	2.9	8.1	.3
C. V. (%)	5	8	5	-	-	-	7	6	5

1/ Based on 3 year average 1952, 1953, and 1954 auction price on a government grade basis except new grades for 1956 auction averages for all belts through October 10, 1956.

Table 2. Con't. Combined Analyses of All Locations - 1956

Variety	Days to flower	Suckers per plant		Analyses of Cured Leaf					
		Ground	Leaf Axil	Nic. %	Nornic. %	Tot. Alk. %	Ratio Nic. x100 / Tot. Alk.	Red. Sug. %	Tot. N. %
D. B. 101	59	5.1	12.7	1.85	.08	1.93	95.31	20.05	1.79
402	54	3.0	13.9	2.39	.10	2.51	95.72	18.69	1.91
Hicks	52	2.1	15.7	1.97	.07	2.05	96.00	19.45	1.80
Speight "42"	57	5.0	13.1	1.90	.07	1.97	96.56	19.03	1.73
Coker 139	64	2.2	10.5	1.19	.06	1.25	94.99	19.48	1.53
Coker 140	59	2.3	11.7	1.16	.06	1.24	93.90	19.46	1.73
D. B. 244	62	1.1	8.9	1.53	.08	1.62	94.86	19.86	1.79
Va. 21	54	3.0	13.4	2.11	.11	2.23	94.92	17.63	1.71
V.G. 2	54	1.9	12.7	2.06	.08	2.14	95.74	18.96	1.76
Buyer's Choice	54	4.2	16.1	2.43	.09	2.53	95.56	18.31	1.90
Golden Gem 711	55	3.6	15.6	2.23	.08	2.32	96.02	18.66	1.83
Bissette's Special	56	3.2	15.7	2.02	.11	2.13	94.51	18.41	1.77
Oxford 1-181	55	1.4	13.5	3.05	.11	3.15	96.28	19.44	1.95
Va. 45	53	2.5	14.8	2.38	.08	2.41	96.33	17.61	1.93
Coker 187	58	1.2	13.2	2.35	.09	2.45	95.92	17.95	1.84
L.S.D. (.05)	3.0	.9	2.5	.30	.02	.30	N.S.	1.40	.28
(.01)	4.0	1.2	3.3	.40	.03	.40	N.S.	1.86	.38
C. V. (%)	4	37	15	16	73	16	4	8	13

Table 2. Con't. Combined Analyses of All Locations. 1956.

Variety	Angle of leaf proj. from stalk		Width of leaves in inches		Length of leaves in inches	
	5th[2/]	10th[2/]	5th[2/]	10th[2/]	5th[2/]	10th[2/]
D. B. 101	51.8	48.7	7.8	9.6	15.7	18.5
402	38.2	40.3	8.4	10.7	18.3	20.8
Hicks	40.1	43.3	8.1	9.8	20.4	22.3
Speight "42"	42.0	40.7	8.3	10.3	16.4	19.7
Coker 139	38.8	36.0	8.0	9.4	16.3	19.2
Coker 140	45.8	43.8	7.9	9.4	17.1	19.9
D. B. 244	38.9	34.6	8.2	10.7	14.5	18.4
Va. 21	44.8	43.2	8.7	10.7	18.5	21.3
V. G. 2	36.0	37.9	8.3	10.3	19.6	22.4
Buyer's Choice	49.2	46.4	8.3	10.5	17.8	21.1
Golden Gem 711	54.7	46.9	7.6	10.0	16.8	20.1
Bissette's Special	42.0	42.7	7.0	8.6	18.5	21.1
Oxford 1-181	39.1	44.2	6.3	8.5	16.7	19.2
Va. 45	44.2	42.7	7.9	10.0	17.1	20.3
Coker 187	38.3	40.0	7.9	10.0	16.7	20.3
L. S. D. (.05)	4.9	5.1	.8	.9	1.8	1.6
(.01)	6.5	6.8	1.1	1.2	2.4	2.1
C. V. (%)	12	13	9	7	8	6

2/ No. of leaves from top of plant.

Table 2. Con't. Combined Analyses of All Locations. 1956.

Variety or Line	Black Shank 1/	Fusarium Wilt 2/	Bacterial Wilt Index	
			Field % 3/	Greenhouse ave. wilt index 4/
D. B. 101	79.7	0	--	24
402	--	90	--	99
Hicks	--	40	68.9	--
Speight "42"	--	80	--	--
Coker 139	52.9	90	16.7	25
Coker 140	58.9	50	40.6	59
D. B. 244	54.3	30	14.0	32
Va. 21	--	70	--	--
V. G. 2	--	60	--	--
Buyer's Choice	89.2	70	78.2	84
Golden Gem 711	88.4	40	60.3	76
Bissette's Special	--	50	--	--
Oxford 1-181	72.5	80	52.0	60
Va. 45	--	60	--	--
Coker 187	36.5	70	5.6	20

1/ 4 replications of 25 plants at each location. Disease expressed as per cent killed or showing infection above ground on August 15, 1956.

2/ 2 replications of 5 plants each in greenhouse. Disease expressed as per cent plants killed or diseased with Fusarium wilt on June 22.

3/ Per cent plants with bacterial wilt.

4/ Three replications of 5 plants each; each plant rated for wilt development into one of 6 classes with index values of 0, 20, 40, 60, 80, and 100, respectively.

Table 3. Comparison of varieties in 1956 for certain characteristics.
TV-81 Whiteville

Variety	Yield lbs/A	Value Index 1/ Dol/A	Value Index 1/ Dol/Cwt.	Leaf Grade Dist. High %	Leaf Grade Dist. Med. %	Leaf Grade Dist. Low %	No. of leaves per plant	Height of plant (in.)	Ave. length of internode (in.)
D. B. 101	1978	1021	51.63	3	68	29	18.4	64.1	3.5
402	1986	1189	59.83	28	53	19	17.9	58.0	3.2
Hicks	1936	1200	61.95	47	47	6	16.3	55.0	3.3
Speight "42"	2302	1320	57.22	18	58	24	20.3	64.0	3.1
Coker 139	2620	1439	54.96	19	51	30	20.6	53.2	2.6
Coker 140	2159	1280	59.26	28	53	19	20.3	65.2	3.2
D. B. 244	2404	1342	55.84	23	44	33	20.9	66.4	3.1
Va. 21	2061	1199	58.16	36	47	17	18.4	58.5	3.1
V. G. 2	2297	1356	59.10	27	53	20	19.3	56.6	2.9
Buyer's Choice	2042	1144	56.01	9	72	19	17.6	59.0	3.3
Golden Gem 711	2149	1246	57.99	35	48	17	18.5	63.7	3.4
Bissette's Special	2099	1180	56.15	26	49	25	20.5	57.9	2.8
Oxford 1-181	1665	939	56.45	0	85	15	17.7	53.7	3.0
Va. 45	1803	988	54.82	21	56	23	19.9	67.2	3.3
Coker 187	1961	1078	54.92	10	63	27	18.6	55.4	3.0
L.S.D. (.05)	159	117	3.11	--	--	--	2.6	5.6	.3
(.01)	212	156	4.13	--	--	--	3.5	7.6	.4
C. V. (%)	5	7	4	--	--	--	6	4	5

1/ Based on 3 year average (1952. 1953 and 1954) auction price on a government grade basis except new grades for 1956 auction average for all belts through October 10, 1956 used.

Table 3. Con't. TV-81 Whiteville. 1956.

Variety	Days to flower	Suckers per Plant		Analyses of Cured Leaf					
		Ground	Leaf	Nic. %	Nornic. %	Tot. Alk. %	Ratio Nic. x100 / Tot. alk.	Red. Sug. %	Tot. N %
D. B. 101	56	5.2	8.2	1.33	.06	1.40	95.01	20.68	1.40
402	48	3.7	11.4	1.73	.08	1.82	95.67	20.30	1.43
Hicks	47	1.8	10.0	1.48	.06	1.55	95.32	20.18	1.46
Speight "42"	54	5.3	10.9	1.34	.05	1.40	96.60	19.39	1.32
Coker 139	56	2.2	10.1	.90	.03	.93	95.99	20.28	1.20
Coker 140	53	2.7	8.6	.72	.06	.79	90.10	19.68	1.46
D. B. 244	57	.9	6.9	1.08	.06	1.14	94.49	19.62	1.48
Va. 21	49	3.8	10.4	1.54	.06	1.60	96.41	18.71	1.29
V. G. 2	48	2.5	10.2	1.30	.04	1.36	96.12	19.29	1.37
Buyer's Choice	50	4.7	12.6	1.48	.10	1.59	92.99	19.53	1.37
Golden Gem 711	50	3.4	12.4	1.68	.07	1.76	95.42	19.36	1.40
Bissette's Special	52	2.3	10.9	1.56	.07	1.63	95.29	19.50	1.43
Oxford 1-181	49	1.4	10.6	2.21	.12	2.34	94.25	19.78	1.60
Va. 45	50	2.7	11.3	1.86	.09	1.96	94.80	18.86	1.57
Coker 187	54	1.0	9.8	1.74	.08	1.82	95.44	18.98	1.51
L. S. D. (.05)	2	1.5	2.1	2.18	N.S.	.22	N.S.	N.S.	--
(.01)	3	2.0	2.8	2.90	N.S.	.30	N.S.	N.S.	--
C. V. (%)	3	43	15	11	60	11	4	7	--

Table 3. Con't. TV-81 Whiteville

Variety	Angle of leaf proj. from stalk		Width of leaves in inches		Length of leaves in inches	
	5th 2/	10th 2/	5th 2/	10th 2/	5th 2/	10th 2/
D. B. 101	64.0	51.0	8.3	9.8	17.7	19.7
402	41.0	44.0	9.8	11.8	21.9	23.2
Hicks	44.5	45.0	8.3	10.2	20.9	23.2
Speight "42"	42.5	41.5	9.1	10.6	17.9	21.1
Coker 139	46.0	38.0	8.5	9.6	17.3	20.1
Coker 140	52.5	45.5	8.1	9.6	18.5	21.9
D. B. 244	44.0	35.5	9.1	11.4	15.4	19.7
Va. 21	47.5	42.5	8.3	10.0	18.9	21.7
V. G. 2	41.5	39.5	8.3	10.4	19.9	23.2
Buyer's Choice	61.0	49.5	8.3	10.6	18.1	21.3
Golden Gem 711	69.5	52.5	8.3	10.8	18.1	23.0
Bissette's Special	42.5	42.5	7.7	8.7	20.9	23.2
Oxford 1-181	40.5	49.0	6.7	8.7	19.3	20.9
Va. 45	52.0	46.5	8.7	9.8	17.7	20.9
Coker 187	40.5	42.0	9.1	10.4	18.9	21.3
L. S. D. (.05)	13.2	10.1	1.0	1.2	2.5	1.9
(.01)	17.9	N.S.	1.3	1.6	3.3	2.6
C. V. (%)	13	11	6	6	7	4

2/ No. of leaves from top of plant.

Table 4. Comparison of varieties in 1956 for certain characteristics - TV-82 Rocky Mount

Varieties	Yield lbs/A	Value Index[1/] Dol/A	Value Index[1/] Dol/Cwt.	Leaf Grade Dist. High %	Leaf Grade Dist. Med. %	Leaf Grade Dist. Low %	No. of leaves per plant	Height of plant (in.)	Ave. length of internode (in.)
D. B. 101	2122	1107	52.14	4	65	31	18.3	59.3	3.2
402	1934	1066	55.15	2	73	25	15.3	42.3	2.7
Hicks	2199	1302	59.17	31	59	10	16.6	40.7	2.4
Speight "42"	2281	1196	52.43	5	65	30	19.1	53.0	2.8
Coker 139	2611	1516	58.07	29	49	22	20.1	47.8	2.4
Coker 140	2118	1226	57.82	11	71	18	18.9	51.3	2.7
D. B. 244	2264	1191	52.61	0	70	30	20.4	55.7	2.7
Va. 21	2393	1337	55.87	22	60	18	17.8	48.6	2.7
V. G. 2	2314	1318	56.97	29	52	19	16.4	42.4	2.6
Buyer's Choice	2159	1122	51.95	10	60	30	16.9	47.9	2.8
Golden Gem 711	2195	1130	51.51	13	64	23	17.3	46.6	2.7
Bissette's Special	2051	1116	54.41	14	70	16	20.4	45.7	2.2
Oxford 1-181	1727	860	49.70	0	63	37	17.6	43.6	2.5
Va. 45	1905	999	52.46	4	67	29	18.3	50.4	2.7
Coker 187	2001	1007	50.39	0	62	38	18.0	48.1	2.7
L. S. D. (.05)	112	99	3.04	-	-	-	2.0	5.8	.2
(.01)	148	131	4.04	-	-	-	2.7	7.8	.3
C. V. (%)	4	6	4	-	-	-	5	6	4

1/ Based on 3 year average, 1952, 1953 and 1954, auction price on a government grade basis except new grades for 1956 auction average for all belts through October 10, 1956 used.

Table 4. Con't. TV-82 Rocky Mount. 1956

Variety	Days to flower	Suckers per plant		Analyses of Cured Leaf					
		Ground	Leaf Axil	Nic. %	Nornic %	Tot. Alk %	Ratio Nic x 100 / Tot. alk.	Red. Sug. %	Total N. %
D. B. 101	53	5.8	17.5	1.59	.07	1.66	95.33	20.28	1.60
402	49	2.4	17.0	2.12	.08	2.20	96.06	22.21	1.90
Hicks	47	1.9	21.8	1.77	.06	1.84	96.43	20.68	1.54
Speight "42"	52	5.3	17.7	1.45	.04	1.49	97.25	20.62	1.40
Coker 139	55	1.7	14.6	.93	.04	.97	95.40	20.81	1.23
Coker 140	52	2.0	14.5	.89	.03	.93	95.66	20.81	1.68
D. B. 244	54	1.2	11.0	1.12	.04	1.20	95.82	20.59	1.40
Va. 21	49	2.9	17.9	1.65	.13	1.79	92.69	20.15	1.48
V. G. 2	48	1.7	16.3	1.67	.11	1.79	93.03	21.18	1.62
Buyer's Choice	51	3.8	20.4	1.99	.05	2.05	97.18	20.54	1.76
Golden Gem 711	51	3.9	20.1	1.75	.06	1.82	96.08	20.50	1.46
Bissette's Special	50	3.4	20.4	1.67	.10	1.78	93.42	20.69	1.40
Oxford 1-181	49	1.2	15.7	2.42	.10	2.53	95.60	20.94	1.48
Va. 45	49	1.8	18.2	1.66	.05	1.71	97.10	21.09	1.65
Coker 187	53	.5	14.7	1.77	.07	1.85	95.72	20.17	1.40
L. S. D. (.05)	1.7	1.2	2.9	.25	N.S.	.34	N.S.	N.S.	--
(.01)	2.3	1.6	3.8	.34	N.S.	.45	N.S.	N.S.	--
C. V. (%)	2	35	13	12	119	15	5	4	--

Table 4. Con't. TV-82 Rocky Mount - 1956.

Variety	Angle of leaf proj. from stalk		Width of leaves in inches		Length of leaves in inches	
	5th 2/	10th 2/	5th 2/	10th 2/	5th 2/	10th 2/
D. B. 101	66.5	55.5	9.6	11.6	18.1	21.7
402	51.5	53.5	11.0	13.2	23.2	23.4
Hicks	47.0	49.0	9.8	10.6	22.4	22.6
Speight "42"	56.0	46.5	9.6	12.4	18.1	21.5
Coker 139	47.0	42.5	10.2	11.6	19.1	21.9
Coker 140	57.5	55.0	9.6	11.4	19.9	21.5
D. B. 244	50.0	39.0	9.8	12.4	15.9	20.3
Va. 21	57.5	54.5	10.4	13.4	21.3	23.8
V. G. 2	45.5	49.5	10.6	12.6	24.4	24.8
Buyer's Choice	59.5	50.5	10.8	13.4	21.1	24.8
Golden Gem 711	62.5	55.0	8.9	12.2	20.1	21.5
Bissette's Special	54.5	52.5	7.5	10.2	20.7	23.0
Oxford 1-181	53.0	54.5	7.5	9.6	19.5	20.9
Va. 45	51.5	46.5	9.1	11.4	19.1	21.3
Coker 187	48.5	51.0	9.1	11.6	18.5	22.0
L. S. D. (.05)	14.4	12.1	1.6	1.4	2.4	2.1
(.01)	19.4	N.S.	2.2	1.9	3.2	2.9
C. V. (%)	13	12	8	6	6	5

2/ No. of leaves from top of plant.

Table 5. Comparison of varieties in 1956 for certain characteristics - split plot with irrigation variable. TV-83 - Clayton.

Variety	Yield pounds per acre			Value Indexes 1/					
				Dollars per acre			Dollars per Cwt.		
	N1 2/	1 2/	Var. Ave.	N1	1	Var. Ave.	N1	1	Var. Ave.
D. B. 101	1736	2133	1934	869	1226	1048	49.97	57.51	53.74
402	1793	2092	1942	900	1100	1000	50.26	52.64	51.45
Hicks	2067	2163	2115	1139	1293	1216	55.11	59.79	57.46
Speight "42"	2011	2298	2154	1010	1180	1095	50.38	51.26	50.82
Coker 139	2501	2700	2600	1393	1462	1428	55.46	53.94	54.70
Coker 140	2066	2317	2191	1119	1304	1211	54.18	56.26	55.22
D. B. 244	2117	2478	2297	1077	1417	1247	50.58	57.18	53.85
Va. 21	2021	2357	2189	1060	1369	1215	52.47	58.10	55.28
V. G. 2	1978	2404	2191	1068	1409	1239	53.40	58.62	56.01
Buyer's Choice	1824	2199	2011	880	1157	1019	48.27	52.65	50.46
Golden Gem 711	1820	2161	1990	892	1096	994	49.05	50.76	49.91
Bissette's Special	1968	2275	2121	964	1185	1075	49.00	52.33	50.66
Oxford 1-181	1543	1820	1681	780	958	869	50.20	52.73	51.47
Va. 45	1785	1931	1858	800	996	898	44.82	51.60	48.22
Coker 187	2013	2057	2035	1018	1015	1016	50.55	49.36	49.96
L. S. D. (.05)	263		187	241		169	N.S.		4.40
(.01)	363		250	344		226	N.S.		5.87
C. V. (%)	6		6	11		11	6		6

1/ Based on 3 year average (1952, 1953, and 1954) auction price on a government grade basis except for new grades where 1956 prices to October 10, 1956 were used.

2/ N1 = Nonirrigated; 1 = irrigated.

Table 5. Con't. TV-83, Clayton. Split Plot With Irrigation Variable.

Variety	Leaf Grade Distribution								
	High %			Medium %			Low %		
	NI	I	Var. Ave.	NI	I	Var. Ave.	NI	I	Var. Ave.
D. B. 101	0	22	11	61	64	62	39	14	26
402	12	27	19	59	47	53	29	26	27
Hicks	39	49	44	39	41	40	22	10	16
Speight "42"	4	27	15	55	44	49	41	29	35
Coker 139	23	17	20	49	47	48	28	36	32
Coker 140	28	34	31	45	47	46	27	19	23
D. B. 244	5	36	20	60	51	55	35	13	24
Va. 21	27	52	39	44	38	41	29	10	19
V. G. 2	17	61	39	56	24	40	27	15	21
Buyer's Choice	13	21	17	53	52	52	34	27	30
Golden Gem 711	12	25	18	56	35	45	32	40	36
Bissette's Special	23	22	22	43	56	49	34	22	28
Oxford 1-181	15	20	17	48	51	49	37	29	33
Va. 45	0	22	11	65	43	54	35	35	35
Coker 187	11	10	10	58	58	58	31	32	31

Table 5. Con't. TV-83, Clayton. Split Plot with Irrigation Variable.

Variety	No. of leaves per plant			Height of plant (in.)			Ave. Length internode (in.)		
	NI	I	Var. Ave.	NI	I	Var. Ave.	NI	I	Var. Ave.
D. B. 101	22.3	21.8	22.0	47.9	56.9	52.4	2.1	2.6	2.4
402	17.3	18.9	18.1	35.2	46.1	40.6	2.0	2.4	2.2
Hicks	17.0	18.5	17.7	34.8	40.0	37.4	2.0	2.1	2.1
Speight "42"	21.1	20.9	21.0	46.0	51.8	48.9	2.2	2.4	2.3
Coker 139	28.5	24.7	26.6	52.8	49.6	51.2	1.8	2.0	1.9
Coker 140	23.8	23.3	23.5	49.9	58.4	54.1	2.1	2.5	2.3
D. B. 244	23.2	21.9	22.5	48.0	55.6	51.8	2.1	2.5	2.3
Va. 21	20.9	19.7	20.3	43.6	48.6	46.1	2.0	2.4	2.2
V. G. 2	20.5	20.8	20.6	37.0	44.7	40.8	1.8	2.1	2.0
Buyer's Choice	18.8	20.0	19.4	37.1	48.2	42.6	1.9	2.4	2.2
Golden Gem 711	18.7	18.5	18.6	39.0	46.6	42.8	2.0	2.5	2.3
Bissette's Special	21.5	20.6	21.0	40.8	45.9	43.3	1.9	2.2	2.1
Oxford 1-181	19.2	19.3	19.2	38.6	42.3	40.4	2.0	2.2	2.1
Va. 45	19.3	20.6	19.9	42.7	46.9	44.8	2.2	2.2	2.2
Coker 187	20.1	20.2	20.1	38.6	46.5	42.5	1.9	2.3	2.1
L. S. D. (.05)	N.S.		1.7	5.4		3.4	.3		.15
(.01)	N.S.		2.3	10.0		4.5	.5		.20
C. V. (%)	6		6	5		5	5		5

Table 5. Con't TV-83, Clayton. Split Plot with Irrigation Variable.

Variety	Days to Flower			Ground suckers/plant			Leaf axil suckers/plant		
	NI	I	Var. Ave.	NI	I	Var. Ave.	NI	I	Var. Ave.
D. B. 101	53.0	53.5	53.2	5.0	6.2	5.6	21.1	20.0	20.6
402	50.0	51.5	50.7	3.2	3.5	3.3	23.3	22.4	22.8
Hicks	47.5	47.5	47.5	2.8	4.1	3.4	24.7	24.9	24.8
Speight "42"	52.5	53.5	53.0	4.1	4.5	4.3	19.4	19.9	19.7
Coker 139	66.0	59.5	62.7	3.3	3.5	3.4	12.4	15.8	14.1
Coker 140	52.0	54.0	53.0	3.0	3.7	3.3	21.3	18.9	20.1
D. B. 244	57.0	53.5	55.2	1.8	1.2	1.5	14.1	15.3	14.7
Va. 21	50.0	48.0	49.0	2.1	4.6	3.3	21.7	23.5	22.6
V. G. 2	53.5	48.0	50.7	2.1	2.3	2.2	17.4	24.0	20.7
Buyer's Choice	51.0	50.5	50.7	5.6	4.4	5.0	24.7	25.1	24.9
Golden Gem 711	50.0	50.0	50.0	4.5	4.6	4.5	22.6	26.1	24.4
Bissette's Special	50.0	51.0	50.5	4.9	4.3	4.6	27.0	26.0	26.5
Oxford 1-181	49.5	49.0	49.2	1.4	1.7	1.5	23.0	21.8	22.4
Va. 45	48.5	47.5	48.0	3.7	2.9	3.3	23.1	24.5	23.8
Coker 187	52.0	52.5	52.2	2.7	2.8	2.8	23.3	21.1	22.2
L. S. D. (.05)	N.S.		3.6	N.S.		.9	N.S.		3.8
(.01)	N.S.		4.9	N.S.		1.2	N.S.		5.0
C. V. (%)	5		5	22		22	14		14

Table 5. Con't. TV-83 Clayton - Split plot with irrigation variable.

Variety	Analyses of Cured Leaf								
	Nicotine %			Normicotine %			Total Alkaloids %		
	NI	I	Var. Ave.	NI	I	Var. Ave.	NI	I	Var. Ave.
D. B. 101	2.61	2.83	2.72	.13	.11	.12	2.75	2.96	2.86
402	3.40	2.95	3.18	.26	.09	.18	3.73	3.06	3.39
Hicks	2.97	2.38	2.67	.12	.07	.10	3.11	2.46	2.79
Speight "42"	2.65	2.31	2.48	.18	.10	.14	2.85	2.42	2.64
Coker 139	1.49	1.40	1.45	.12	.10	.11	1.63	1.51	1.57
Coker 140	1.58	1.27	1.42	.08	.04	.06	1.70	1.32	1.51
D. B. 244	2.27	1.88	2.08	.14	.03	.08	2.42	1.94	2.18
Va. 21	2.94	2.41	2.67	.18	.08	.13	3.12	2.50	2.81
V. G. 2	2.92	3.24	3.08	.06	.08	.07	2.99	3.34	3.17
Buyer's Choice	4.04	3.34	3.69	.10	.12	.11	4.14	3.48	3.81
Golden Gem 711	3.52	2.73	3.12	.14	.06	.10	3.67	2.80	3.24
Bissette's Special	3.16	2.44	2.80	.26	.11	.18	3.44	2.57	3.00
Oxford 1-181	4.49	4.10	4.29	.18	.10	.14	4.57	4.20	4.39
Va. 45	3.68	3.19	3.43	.17	.23	.20	3.37	3.45	3.41
Coker 187	3.74	3.16	3.45	.20	.12	.16	3.96	3.28	3.62
L. S. D. (.05)	N.S.		.47	N.S.		N.S.	N.S.		.49
(.01)	N.S.		.63	N.S.		N.S.	N.S.		.66
C. V. (%)	12		12	66		66	12		12

Table 5. Con't. TV-83, Clayton. Split plot with irrigation variable.

Variety	Analyses of Cured Leaf								
	Ratio Nic. x 100 / Tot. Alkaloids			Reducing Sugars %			Total Nitrogen %		
	NI	I	Var. Ave.	Ni	I	Var. Ave.	Ni	I	Var. Ave.
D. B. 101	94.85	95.58	95.22	19.81	20.11	19.96	2.24	2.21	2.22
402	92.00	96.64	94.32	15.01	17.91	16.46	2.52	2.32	2.42
Hicks	95.58	96.39	95.98	18.28	19.71	18.99	2.24	1.74	1.99
Speight "42"	92.58	95.54	94.06	18.48	18.71	18.60	2.27	2.35	2.31
Coker 139	91.30	93.04	92.17	20.58	18.41	19.49	1.88	1.82	1.85
Coker 140	95.62	96.14	95.88	19.58	18.91	19.24	2.04	1.93	1.98
D. B. 244	93.63	99.30	96.46	20.08	19.22	19.65	2.27	--	1.13
Va 21	93.88	96.68	95.28	15.91	19.38	17.64	2.27	2.04	2.15
V. G. 2	97.80	97.28	97.54	18.58	19.18	18.88	2.21	2.04	2.12
Buyer's Choice	97.35	96.06	96.70	14.60	19.28	16.94	2.49	2.18	2.33
Golden Gem 711	95.94	97.32	96.63	17.11	20.11	18.61	2.52	2.18	2.35
Bissette's Special	91.16	94.96	93.06	15.74	18.48	17.11	2.35	2.10	2.22
Oxford 1-181	98.22	97.52	97.88	19.38	17.08	18.22	2.69	2.35	2.52
Va. 45	95.08	93.05	94.07	12.70	14.91	13.81	2.30	2.74	2.52
Coker 187	94.25	96.38	95.32	16.98	17.58	17.28	2.46	1.82	2.14
L. S. D. (.05)	N.S.		N.S.	2.83		2.03	---		---
(.01)	N.S.		N.S.	3.77		2.71	---		---
C. V. (%)	2		2	8		8	---		---

Table 5. Con't. TV83, Clayton. Split Plot
With Irrigation Variable

Variety	Angle of leaf projection from stalk					
	5th 2/			10th 2/		
	NI	I	Var. Ave.	NI	I	Var. Ave.
D.B. 101	54	71	62	59	64	61
402	39	44	41	41	41	41
Hicks	38	44	41	42	47	44
Speight 42	40	50	45	46	44	45
Coker 139	52	47	49	42	42	42
Coker 140	45	47	46	49	40	44
D.B. 244	41	45	43	34	35	34
Va. 21	44	43	43	40	40	40
V. G. 2	32	35	33	31	41	36
Buyer's Choice	43	60	51	48	64	56
Golden Gem 711	58	53	55	54	53	53
Bissette's Special	41	51	46	42	52	47
Ox. 1-181	41	46	43	41	56	48
Va. 45	38	43	40	35	49	42
Coker 187	41	48	44	41	47	44
L.S.D. (.05)	N.S.		10	N.S.		9
(.01)	N.S.		14	N.S.		13
C.V. (%)	12		12	11		11

2/ No. of leaves from top of plant.

Table 5. Con't. TV-83, Clayton. Split Plot with Irrigation Variable.

Variety	Width of leaves in inches 5th 2/			10th 2/		
	NI	I	Var. Ave.	NI	I	Var. Ave.
D. B. 101	7.1	9.1	8.1	9.1	11.0	10.0
402	7.1	8.3	7.7	11.4	10.6	11.0
Hicks	7.9	8.3	8.1	11.4	10.2	10.8
Speight "42"	6.3	8.3	7.3	8.7	10.2	9.4
Coker 139	6.7	7.9	7.3	7.9	9.1	8.5
Coker 140	7.5	6.7	7.1	8.7	8.7	8.7
D. B. 244	6.3	8.7	7.5	9.1	11.0	10.0
Va. 21	10.2	9.8	10.0	11.4	11.8	11.6
V. G. 2	6.3	9.8	8.1	8.7	11.4	10.0
Buyer's Choice	7.9	9.4	8.7	11.4	11.0	11.2
Golden Gem 711	7.9	9.1	8.5	11.0	10.2	10.6
Bissette's Special	8.3	8.3	8.3	9.1	10.2	9.6
Oxford 1-181	5.5	6.7	6.1	8.3	9.4	8.9
Va. 45	9.1	8.7	8.9	11.8	11.0	11.4
Coker 187	7.9	9.4	8.7	9.8	11.0	10.4
L. S. D. (.05)		N.S.	N.S.		N.S.	1.8
(.01)		N.S.	N.S.		N.S.	2.4
C. V. (%)		11	11		9	9

2/ No. of leaves from top of plant.

Table 5. Con't, TV83, Clayton. Split Plot
With Irrigation Variable

Variety	Length of leaves in inches					
	5th 2/			10th 2/		
	NI	I	Var. Ave.	NI	I	Var. Ave.
D.B. 101	13.0	16.5	14.8	16.5	19.7	18.1
402	16.1	16.1	16.1	19.3	20.1	19.7
Hicks	20.5	19.7	20.1	22.4	21.3	21.9
Speight 42	12.2	15.4	13.8	15.4	18.5	16.9
Coker 139	13.8	13.8	13.8	15.4	16.9	16.1
Coker 140	16.1	15.4	15.7	18.9	17.7	18.3
D.B. 244	10.6	14.6	12.6	14.6	18.5	16.5
Va. 21	18.5	19.7	19.1	21.3	22.0	21.7
V. G. 2	13.8	21.7	17.7	17.7	24.0	20.9
Buyer's Choice	18.1	20.1	19.1	21.7	22.8	22.2
Golden Gem 711	17.7	18.1	17.9	20.5	21.7	21.1
Bissette's Special	20.9	17.7	19.3	22.4	21.3	21.9
Ox. 1-181	13.2	17.7	15.6	18.1	20.5	19.3
Va. 45	19.7	18.1	18.9	22.8	22.0	22.4
Coker 187	16.5	19.7	18.1	19.7	20.9	20.3
L.S.D. (.05)	N.S.		4.0	N.S.		2.9
(.01)	N.S.		N.S.	N.S.		3.9
C.V. (%)	12		12	7		7

2/ No. of leaves from top of plant.

Table 6. Comparison of varieties in 1956 for certain characteristics - split plot with irrigation variable - TV-84 Oxford.

Variety	Yield pounds per acre			Value Indexes 1/					
				Dollars per acre			Dollars per Cwt.		
	NI	I	Var. Ave.	NI	I	Var. Ave.	NI	I	Var. Ave.
D. B. 101	1850	1870	1860	918	906	912	49.66	48.47	49.06
402	1713	1898	1806	907	987	947	52.97	52.01	52.49
Hicks	1816	1784	1800	1116	1010	1063	61.42	56.64	59.04
Speight "42"	1858	2054	1956	1003	1145	1074	54.09	55.73	54.91
Coker 139	2071	2314	2193	1174	1227	1201	56.58	53.10	54.84
Coker 140	1962	2001	1981	1107	1132	1120	56.37	56.87	56.62
D. B. 244	1791	2025	1908	885	1040	963	49.27	51.70	50.49
Va. 21	1769	2045	1907	975	1145	1060	55.22	55.91	55.57
V. G. 2	1987	2047	2017	1143	1074	1109	57.49	52.75	55.12
Buyer's Choice	1789	1814	1802	991	943	967	55.41	51.92	53.67
Golden Gem 711	1809	1805	1807	962	916	939	53.13	50.57	51.85
Bissette's Special	1688	1868	1778	965	1049	1007	57.11	56.20	56.66
Oxford 1-181	1428	1746	1587	830	917	874	55.29	53.37	54.33
Va. 45	1707	1825	1766	945	970	958	55.25	53.13	54.19
Coker 187	1740	1825	1782	929	1010	970	53.31	55.27	54.44
L.S.D. (.05)	N.S.		187	N.S.		147	N.S.		4.03
(.01)	N.S.		250	N.S.		196	N.S.		5.38
C.V. (%)	7		7	10		10	5		5

1/ Based on 3 year average (1952, 1953 and 1954 auction price on a government grade basis except for new grades where 1956 prices to October 10, 1956 were used.

Table 6. Con't. TV-84 Oxford - Split plot with irrigation variable.

Variety	Leaf Grade Distribution								
	High %			Medium %			Low %		
	NI	I	Var. Ave.	NI	I	Var. Ave.	NI	I	Var. Ave.
D. B. 101	0	0	0	64	56	60	36	44	40
402	18	39	28	52	37	44	30	24	27
Hicks	41	29	35	50	61	55	9	10	9
Speight "42"	22	16	19	62	67	64	16	17	16
Coker 139	24	27	25	58	43	50	18	30	24
Coker 140	14	20	17	54	54	54	32	26	29
D. B. 244	0	9	4	55	61	58	45	30	37
Va. 21	19	30	24	45	54	49	36	16	26
V. G. 2	49	40	44	32	34	33	19	26	22
Buyer's Choice	31	4	17	53	67	60	16	29	22
Golden Gem 711	8	9	8	60	55	57	32	36	34
Bissette's Special	35	31	33	53	54	53	12	15	13
Oxford 1-181	13	32	22	44	43	43	43	25	34
Va. 45	35	0	17	39	76	57	26	24	25
Coker 187	13	25	19	57	57	57	30	18	24

Table 6. Con't. TV-84 Oxford - Split plot with irrigation variable.

Variety	No. leaves per plant			Height of plant (in.)			Avg. Length Internode (in.)		
	NI	I	Var. Ave.	NI	I	Var. Ave.	NI	I	Var. Ave.
D. B. 101	23.8	22.1	22.9	63.0	65.9	64.4	2.6	3.0	2.8
402	19.3	16.4	17.8	44.3	42.3	43.3	2.3	2.6	2.5
Hicks	16.0	16.4	16.2	39.7	38.2	38.9	2.5	2.3	2.4
Speight "42"	19.7	20.7	20.2	51.0	56.3	53.6	2.6	2.7	2.7
Coker 139	23.4	25.0	24.2	55.6	51.6	53.6	2.4	2.0	2.2
Coker 140	27.2	25.5	26.3	64.1	58.1	61.1	2.3	2.3	2.3
D. B. 244	21.9	25.1	23.5	56.6	62.5	59.5	2.6	2.5	2.6
Va. 21	18.0	19.9	18.9	44.7	52.6	48.6	2.5	2.6	2.6
V. G. 2	17.9	19.2	18.5	38.6	47.5	43.0	2.1	2.5	2.3
Buyer's Choice	16.8	19.7	18.2	42.9	53.2	48.0	2.5	2.7	2.6
Golden Gem 711	18.8	18.1	18.4	46.0	47.7	46.8	2.4	2.6	2.5
Bissette's Special	22.4	21.7	22.0	52.7	53.6	53.1	2.3	2.4	2.4
Oxford 1-181	19.5	19.2	19.3	42.6	48.9	45.7	2.2	2.5	2.4
Va. 45	19.0	20.0	19.5	44.8	48.1	46.4	2.3	2.4	2.4
Coker 187	20.6	20.5	20.5	49.8	48.6	49.2	2.4	2.3	2.4
L.S.D. (.05)	N.S.		3.1	N.S.		6.4	N.S.		.2
(.01)	N.S.		4.1	N.S.		8.6	N.S.		.3
C.V. (%)	10		10	8		8	7		7

Table 6. Con't. TV-84 Oxford. Split plot with irrigation variable.

Variety	Days to flower			Suckers per plant					
				Ground			Leaf Axil		
	NI	I	Var. Ave.	NI	I	Var. Ave.	NI	I	Var. Ave.
D. B. 101	65	58	62	4.0	5.1	4.5	7.5	9.6	8.6
402	57	48	53	2.2	2.9	2.6	9.5	10.0	9.8
Hicks	46	46	46	2.3	1.7	2.0	14.0	19.4	16.7
Speight "42"	54	54	54	4.6	3.7	4.2	8.0	9.1	8.6
Coker 139	63	58	60	2.4	2.9	2.7	5.5	7.1	6.3
Coker 140	62	59	61	1.4	1.5	1.4	7.4	9.0	8.2
D. B. 244	67	63	65	.6	.8	.7	5.3	5.6	5.5
Va. 21	49	50	50	2.6	2.0	2.3	8.8	10.8	9.8
V. G. 2	49	49	49	1.2	1.8	1.5	11.4	8.7	10.1
Buyer's Choice	50	52	51	3.1	3.5	3.3	15.7	10.3	13.0
Golden Gem 711	53	48	51	2.7	3.7	3.2	14.6	15.1	14.9
Bissette's Special	51	55	53	3.1	3.1	3.1	13.9	13.6	13.8
Oxford 1-181	55	48	52	1.8	1.6	1.7	9.3	12.2	10.8
Va. 45	50	50	50	2.0	2.3	2.1	14.0	15.9	15.0
Coker 187	53	54	54	1.6	.9	1.3	11.8	10.0	10.9
L.S.D. (.05)	N.S.		6	N.S.		1.0	N.S.		3.1
(.01)	N.S.		8	N.S.		1.3	N.S.		4.2
C.V. (%)	8		8	35		35	23		23

Table 6. Con't. TV-84 Oxford - Split plot with irrigation variable.

Variety	Analyses of Cured Leaf								
	Nicotine %			Nornicotine %			Total Alkaloids %		
	NI	I	Var. Ave.	NI	I	Var. Ave.	NI	I	Var. Ave.
D. B. 101	1.86	1.48	1.67	.08	.07	.07	1.94	1.56	1.75
402	2.86	2.10	2.48	.08	.08	.08	2.94	2.18	2.56
Hicks	2.35	2.24	2.29	.08	.08	.08	2.44	2.32	2.38
Speight "42"	2.12	1.45	1.79	.07	.06	.07	2.20	1.52	1.86
Coker 139	1.09	1.18	1.13	.05	.03	.04	1.14	1.21	1.18
Coker 140	1.79	.96	1.38	.05	.03	.04	1.84	1.00	1.42
D. B. 244	1.67	1.48	1.57	.06	.06	.06	1.74	1.58	1.66
Va. 21	2.33	1.87	2.10	.08	.05	.07	2.42	1.92	2.17
V. G. 2	2.47	1.46	1.97	.15	.08	.11	2.63	1.82	2.22
Buyer's Choice	2.55	2.11	2.33	.08	.10	.09	2.63	2.22	2.42
Golden Gem 711	2.35	2.25	2.30	.08	.10	.09	2.43	2.36	2.40
Bissette's Special	2.28	1.92	2.10	.10	.10	.10	2.39	2.06	2.22
Oxford 1-181	3.70	2.26	2.98	.09	.08	.08	3.80	2.34	3.07
Va. 45	2.86	2.28	2.57	.08	.12	.10	2.94	2.42	2.68
Coker 187	2.38	1.85	2.12	.06	.06	.06	2.44	1.92	2.18
L.S.D. (.05)	.72		.64	N.S.		N.S.	.69		.61
(.01)	.97		.87	N.S.		N.S.	.93		.85
C.V. (%)	17		17	66		64	15		16

Table 6. Con't. TV-84 Oxford - Split plot with irrigation variable.

Variety	Analyses of Cured Leaf								
	Ratio, Nic. / Tot. Alk. x 100			Reducing Sugars %			Total Nitrogen %		
	NI	I	Var. Ave.	NI	I	Var. Ave.	NI	I	Var. Ave.
D. B. 101	95.62	95.19	95.40	20.41	21.34	20.88	1.62	1.40	1.51
402	97.25	96.02	96.64	18.61	19.48	19.04	1.79	1.48	1.63
Hicks	96.11	96.08	96.10	18.74	20.04	19.40	1.65	1.37	1.51
Speight "42"	96.75	95.01	95.88	18.78	18.97	18.88	1.54	1.48	1.51
Coker 139	95.54	96.88	96.21	18.68	19.71	19.19	1.48	1.32	1.40
Coker 140	96.54	96.35	96.44	20.14	20.71	20.43	1.54	1.37	1.45
D. B. 244	96.24	96.20	96.22	18.34	20.81	19.58	1.79	1.51	1.65
Va. 21	96.07	97.42	96.74	19.44	18.37	18.91	1.54	1.48	1.51
V. G. 2	94.12	95.48	94.80	20.51	21.14	20.83	1.71	1.46	1.58
Buyer's Choice	96.97	94.26	95.62	18.64	21.47	20.06	1.82	1.60	1.71
Golden Gem 711	96.62	95.10	95.86	19.61	20.24	19.92	1.54	1.29	1.41
Bissette's Special	95.20	93.70	94.45	20.18	19.68	19.93	1.68	1.51	1.59
Oxford 1-181	97.51	96.73	97.12	19.64	18.87	19.26	1.85	1.54	1.69
Va. 45	97.28	94.84	96.06	18.74	21.07	19.91	1.90	1.54	1.72
Coker 187	97.74	96.10	96.92	19.11	19.94	19.52	1.74	1.34	1.54
L.S.D. (.05)	N.S.		N.S.	N.S.		N.S.	- -		- -
(.01)	N.S.		N.S.	N.S.		N.S.	- -		- -
C.V. (%)	4		4	7		6	- -		- -

Table 6. Con't. TV-84 Oxford - Split plot with irrigation variable.

Variety	Angle of leaf projection from stalk					
	5th 2/			10th 2/		
	NI	I	Var. Ave.	NI	I	Var. Ave.
D. B. 101	40.0	47.0	43.5	43.5	42.0	42.7
402	31.5	38.0	34.7	36.0	43.0	39.5
Hicks	36.5	41.5	39.0	44.5	47.5	46.0
Speight "42"	40.0	45.0	42.5	39.5	46.0	42.7
Coker 139	35.0	41.5	38.2	34.5	41.0	37.7
Coker 140	40.5	45.0	42.7	40.5	45.5	43.0
D. B. 244	35.0	37.5	36.2	33.0	37.0	35.0
Va. 21	42.0	44.5	43.2	45.0	48.5	46.7
V. G. 2	35.0	42.5	38.7	40.5	41.5	41.0
Buyer's Choice	42.0	48.0	45.0	49.0	45.5	47.2
Golden Gem 711	50.0	53.0	51.5	41.5	57.0	49.2
Bissette's Special	38.5	43.0	40.7	44.5	41.5	43.0
Oxford 1-181	30.5	42.5	36.5	41.5	41.5	41.5
Va. 45	45.0	48.5	46.7	48.5	46.0	47.2
Coker 187	37.5	40.5	39.0	40.0	37.0	38.5
L.S.D. (.05)	9.8		7.6	N.S.		8.8
(.01)	13.2		10.1	N.S.		11.8
C.V. (%)	13		13	17		15

2/ No. of leaves from top of plant.

Table 6. Con't. TV 84. Oxford Split Plot With Irrigation Variable

Variety	Width of leaves in inches					
	5th 2/			10th 2/		
	NI	I	Var. Ave.	NI	I	Var. Ave.
D.B. 101	7.5	8.1	7.8	9.1	9.6	9.4
402	7.9	9.4	8.7	9.6	10.8	10.2
Hicks	8.9	8.7	8.8	10.2	10.4	10.3
Speight 42	9.3	7.1	8.2	11.0	10.2	10.6
Coker 139	8.7	7.7	8.2	9.8	9.6	9.7
Coker 140	7.7	6.7	7.2	8.3	7.7	8.0
D.B. 244	7.7	8.3	8.0	9.8	10.4	10.1
Va. 21	9.3	8.5	8.9	10.8	10.2	10.5
V.G. 2	9.4	8.7	9.1	11.0	10.6	10.8
Buyer's Choice	8.9	7.1	8.0	9.8	9.4	9.6
Golden Gem 711	7.9	7.9	7.9	9.3	9.3	9.3
Bissette's Special	8.1	8.3	8.2	8.5	9.6	9.1
Ox. 1-181	6.7	7.5	7.1	8.5	9.6	9.1
Va. 45	7.7	9.3	8.5	10.0	10.0	10.0
Coker 187	8.5	7.5	8.0	9.8	9.1	9.4
L.S.D. (.05)	N.S.		3.2	1.8		1.3
(.01)	N.S.		N.S.	2.4		1.7
C.V. (%)	11		11	8		9

2/ No. of leaves from top of plant.

Table 6. Con't. TV-84 - Oxford - Split plot with irrigation variable.

Variety	Length of leaves in inches					
	5th 2/			10th 2/		
	NI	I	Var. Ave.	NI	I	Var. Ave.
D. B. 101	15.0	14.4	14.7	16.7	18.3	17.5
402	16.1	18.9	17.5	19.1	20.7	19.9
Hicks	21.5	20.1	20.8	23.8	22.2	23.0
Speight "42"	18.7	13.6	16.1	21.7	19.1	20.4
Coker 139	17.3	15.2	16.2	19.3	18.3	18.8
Coker 140	15.0	14.2	14.6	17.1	16.3	16.7
D. B. 244	14.2	14.6	14.4	17.1	17.9	17.5
Va. 21	19.7	16.1	17.9	21.7	19.7	20.7
V. G. 2	21.5	19.3	20.4	24.2	22.2	23.2
Buyer's Choice	18.7	14.0	16.3	20.7	19.7	20.2
Golden Gem 711	16.5	16.1	16.3	19.5	18.5	19.0
Bissette's Special	17.9	18.5	18.2	19.7	21.1	20.4
Oxford 1-181	16.3	18.3	17.3	19.1	21.9	20.5
Va. 45	16.7	16.5	16.7	20.1	19.7	19.9
Coker 187	16.5	15.2	15.8	19.3	18.1	18.7
L.S.D. (.05)	N.S.		2.3	N.S.		2.2
(.01)	N.S.		3.1	N.S.		3.0
C.V. (%)	10		10	8		8

2/ No. leaves from top of plant.

Table 7. Comparison of varieties in 1956 for certain characteristics.
TV-85 Rural Hall

Variety	Yield lbs/A	Value Index[1/] Dol/A	Value Index[1/] Dol/Cwt.	Leaf Grade Dist. High %	Leaf Grade Dist. Med. %	Leaf Grade Dist. Low %	No. of leaves per plant	Height of plant (in.)	Ave. length of internode (in.)
D. B. 101	1409	673	47.70	6	53	41	22.2	56.0	2.5
402	1459	728	49.93	8	58	34	21.5	53.4	2.4
Hicks	1484	796	53.22	30	41	29	22.3	49.6	2.2
Speight "42"	1562	680	42.84	5	47	48	22.7	57.3	2.5
Coker 139	1724	909	52.77	18	56	26	23.2	43.9	1.9
Coker 140	1594	815	51.13	13	48	39	26.1	54.3	2.1
D. B. 244	1771	795	45.29	6	52	42	22.2	53.9	2.4
Va. 21	1458	672	46.09	8	56	36	23.1	52.9	2.3
V. G. 2	1489	729	48.80	14	46	40	22.6	51.3	2.2
Buyer's Choice	1426	702	49.17	7	56	37	21.2	53.3	2.5
Golden Gem 711	1473	726	49.31	13	55	32	21.6	53.2	2.5
Bissette's Special	1467	734	50.09	9	60	31	28.7	49.4	1.7
Oxford 1-181	1242	551	44.40	2	56	42	22.1	47.8	2.1
Va. 45	1300	627	48.17	2	55	43	21.9	52.5	2.4
Coker 187	1362	624	45.82	6	44	50	22.8	45.7	2.0
L. S. D. (.05)	156	95	4.07	-	-	-	3.0	8.2	.4
(.01)	207	126	5.40	-	-	-	4.1	N.S.	.5
C. V. (%)	7	10	6	-	-	-	6	8	8

1/ Based on 3 year average (1952, 1953 and 1954) auction price on a government grade basis except new grades for 1956 auction average for all belts through October 10, 1956 used.

Table 7. Con't. TV-85 Rural Hall - 1956.

Variety	Days to flower	Leaf axil suckers per plant	Analyses of Cured Leaf					
			Nic. %	Nornic. %	Tot. Alk. %	Ratio $\frac{\text{Nic.}}{\text{Tot. alk}} \times 100$	Red. Sug. %	Tot. N %
D. B. 101	68	10.7	2.23	.09	2.34	95.66	19.14	2.10
402	66	10.7	2.59	.08	2.68	96.52	15.44	1.90
Hicks	66	11.6	1.98	.07	2.05	96.40	18.44	2.10
Speight "42"	70	9.9	2.42	.06	2.48	97.71	17.48	2.13
Coker 139	78	8.2	1.64	.07	1.71	95.14	17.22	1.85
Coker 140	73	9.3	1.37	.08	1.46	93.76	17.49	1.93
D. B. 244	74	7.9	1.96	.11	2.08	94.21	19.99	2.02
Va. 21	67	9.9	2.62	.11	2.74	95.61	13.99	1.96
V. G. 2	69	9.8	2.56	.05	2.62	97.85	15.84	1.88
Buyer's Choice	66	11.2	2.96	.12	3.09	94.91	16.55	2.07
Golden Gem 711	67	11.2	2.54	.09	2.64	96.30	16.44	2.21
Bissette's Special	69	10.9	2.12	.08	2.20	96.18	15.49	1.99
Oxford 1-181	67	11.4	3.45	.08	3.54	97.39	17.53	2.13
Va. 45	65	10.9	2.75	.08	2.83	97.22	14.76	2.21
Coker 187	72	10.8	2.82	.09	2.92	96.54	14.61	2.07
L.S.D. (.05)	3	1.6	.66	.04	.68	2.00	2.87	- -
(.01)	4	2.2	.88	.05	.90	2.65	3.80	- -
C. V. (%)	3	12	20	36	20	1	12	- -

Table 7. Con't. TV-85 Rural Hall - 1956.

Variety	Angle of leaf proj. from stalk		Width of leaves in inches		Length of leaves in inches	
	5th[2/]	10th[2/]	5th[2/]	10th[2/]	5th[2/]	10th[2/]
D. B. 101	35.5	39.5	6.3	8.3	13.6	16.7
402	28.5	27.5	5.3	7.7	13.2	18.1
Hicks	33.5	35.5	5.7	7.3	16.7	19.5
Speight "42"	30.5	32.5	6.1	7.9	13.2	16.7
Coker 139	20.5	26.0	5.3	7.5	12.8	17.3
Coker 140	33.0	31.5	6.3	8.5	15.4	19.5
D. B. 244	25.5	31.0	7.3	9.8	14.0	18.5
Va. 21	32.5	32.5	5.9	8.3	14.0	18.1
V. G. 2	24.0	25.5	5.7	7.9	15.4	20.1
Buyer's Choice	37.5	36.0	5.5	7.9	13.4	17.5
Golden Gem 711	35.0	35.0	5.1	7.5	12.0	16.3
Bissette's Special	33.0	31.5	4.3	6.7	13.2	17.7
Oxford 1-181	31.5	33.5	4.5	7.3	13.4	16.7
Va. 45	31.5	33.0	5.7	8.1	13.6	17.5
Coker 187	25.5	26.5	4.9	8.3	13.2	18.9
L. S. D. (.05)	5.3	7.0	1.3	1.2	N.S.	N.S.
(.01)	7.2	9.5	1.8	1.6	N.S.	N.S.
C. V. (%)	9	11	11	7	9	7

2/ No. of leaves from top of plant.

Table 8. Results of Cooperative Tobacco Evaluation Test 1956.

Belt	DB 101			DE 244			Coker 139		
	Yield	Value Index		Yield	Value Index		Yield	Value Index	
	Lbs/A	$/A	$/Cwt.	Lbs/A	$/A	$/Cwt.	Lbs/A	$/A	$/Cwt.
Border	1565	$774	48.55	1803	$ 894	49.17	2025	$1048	51.77
Eastern	1563	736	47.55	2007	959	48.16	2188	1132	51.64
Middle	1626	874	53.87	2004	1085	54.05	2119	1168	55.19
Old	1651	835	49.88	1869	945	49.34	2052	1087	52.39
Average 1/	1598	800	49.78	1927	970	50.02	2103	1111	52.66

1/ Weighted due to 3 farms in Border, Middle and Old Belts and 4 farms in Eastern Belt.

	Varieties		
	Yield	Value/A	Value/Cwt.
L. S. D. (.05)	104	68	2.07
(.01)	140	91	2.77
C. V. (%)	7	9	5

Table 9. Rainfall record in inches by location 1956.

Days	March	April	May	June	July	August	Sept.	Total
			Border Belt Tobacco Research Station, Whiteville, N.C.					
1-8	.37	.22	3.73	2.44	0	1.54	2.77	
9-16	2.76	2.31	0	0	.21	.79	0	
17-24	.05	0	.95	1.03	.43	1.60	.22	
25-31	.39	.28	0	4.93	.18	.05	2.18	
Total	3.57	2.81	4.68	8.40	.82	3.98	5.17	29.43
			Upper Coastal Plain Research Station, Rocky Mount, N.C.					
1-8	.11	1.70	2.97	1.64	1.78	1.48	1.21	
9-16	3.16	2.48	0 (.50)	0 (1.0)	2.42	1.49	0	
17-24	.31	.02	.28	.60	1.52	.97	1.45	
25-31	.17	0	0	.01(1.0)	1.76	0	3.02	
Total	3.75	4.20	3.25(.50)	2.25(2.0)	7.48	3.94	5.68	30.55(2.50)
			Central Crops Research Station, Clayton, N.C.					
1-8	.19	1.28	3.08	2.29	2.20(1.0)	.31	3.01	
9-16	3.52	2.47	0	0	1.33	1.21	0	
17-24	.26	0	.65	.59	2.33	.83	.35	
25-31	.13	0	0	.17(1.0)	1.62	0	2.13	
Total	4.10	3.75	3.73	3.05(1.0)	7.48(1.0)	2.35	5.49	29.95(2.00)

* Figure in parenthesis is amount of water in inches applied as irrigation.

Table 9. Con't. Rainfall record in inches by location - 1956.

Days	March	April	May	June	July	August	Sept.	Total
			Oxford Tobacco Research Station, Oxford, N. C.					
1-8	.65	.88	3.68	2.89	2.65	.46	1.07	
9-16	2.39	2.43	0	0	1.17	.67	0	
17-24	.11	0	.10	.99	1.19 (.50)	.82	.12	
25-31	.05	0	0	.35(1.00)	1.63	0	1.93	
Total	3.20	3.31	3.78	4.23(1.00)	5.64(.50)	1.95	3.12	25.23(1.50)
			Upper Piedmont Tobacco Research Station, Rural Hall, N.C.					
1-8	1.09	1.48	2.07	2.02	1.96	.49	.13	
9-16	1.93	3.02	.15	0	1.71	.37	0	
17-24	.05	0	.01	.03	.33	2.55	.03	
25-31	.04	.04	.29	0	2.55	.01	6.52	
Total	3.11	4.54	2.52	2.05	6.55	3.42	6.68	28.87

* Figure in parenthesis is amount of water applied as irrigation.